

April 16, 2001

The Honorable Gale A. Norton  
Secretary of the Interior  
U.S. Department of the Interior  
1849 C Street, N.W.  
Washington, D.C. 20240

**Re: The National Park Service's final rule phasing out snowmobile use in Yellowstone National Park, the John D. Rockefeller, Jr. Parkway, and with some exceptions, in Grand Teton National Park, 66 Fed. Reg. 7259**

Dear Secretary Norton:

The Office of Advocacy of the U.S. Small Business Administration is submitting comments on the above captioned rule. We are concerned that the U.S. Department of Interior's National Park Service (NPS) has not fully complied with its obligations under the controlling executive orders, regulations, and statutes, including the Regulatory Flexibility Act (RFA).<sup>1</sup> We also question whether the NPS has given adequate consideration to the alternatives, such as phasing out the noisiest and dirtiest snowmobiles which may enable the NPS to fulfill its statutory obligations while minimizing burdens on small businesses. We recommend that NPS re-open the rulemaking based on the following concerns.

### **Background**

On January 22, 2001, the NPS published a final rule in the *Federal Register* phasing out snowmobile use in Yellowstone National Park, the John D. Rockefeller, Jr. Parkway, and with some exceptions, in Grand Teton National Park. 66 Fed. Reg. 7259. Only snow coaches (minivans on tracks) would be allowed. Pursuant to the Andrew Card Memorandum dated January 20, 2001, the NPS extended the effective date of the rule, which is now April 22, 2001. (Please refer to Advocacy's request for action, page 9, for a more general discussion as to the effective date of the rule).

Advocacy previously filed a comment letter concerning the draft proposed snowmobile rule on December 7, 2000. At that time, Advocacy reserved the right to supplement its comments if necessary following a review of the supporting economic impact analyses.

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<sup>1</sup> Regulatory Flexibility Act, 5 U.S.C. § 601, as amended by the Small Business Regulatory Flexibility Act, Pub. L. No. 104-121, 110 Stat. 866 (1996).

Advocacy has now had an opportunity to review the requisite documents and files this letter in supplementation to its December 2000 comments.

## **Discussion**

Advocacy supports NPS's policy goal to limit air and sound pollution from snowmobiles, and to minimize conflicts associated with them. It is the implementation of the goal that is problematic in Advocacy's opinion. NPS's economic analysis suggests that banning snowmobiles will have a significant economic impact on a substantial number of small entities. There are nearly 70 small businesses that depend on snowmobile rental revenue. One owner testified at a congressional hearing that his firm's annual revenue could decline by a third if snowmobiles are banned.<sup>2</sup> On the other hand, it is not clear what is lost in terms of environmental benefits if the NPS bans just the dirtiest and noisiest snowmobiles. Moreover, the NPS would avoid the potential problems caused by snow coaches (see section 3 below for detail) if only certain types of snowmobiles are banned.

Further, the rule will shift 100 percent of the burden for addressing problems caused by snowmobiles to small entities when the NPS is in large part, responsible for the problems. NPS admits that for thirty years, it failed to comply with its legal obligation to monitor and control snowmobile use in the nation's parks.<sup>3</sup> As a result, the snowmobile industry has been allowed to grow and flourish around parks where snowmobile use has become an integral part of visitor's winter access to the parks. Now the NPS claims that it must immediately enforce the very laws that it overlooked for so many years and proposes to ban snowmobiles because it is easier to prevent riders from harassing wildlife, etc., than it is to monitor and police them. However, administrative convenience is not sufficient to justify diminishing visitors' right to enjoy the parks or the impact on small entities. It is simply not fair for the burden to fall solely on the shoulders of small business.

The industry has already taken reasonable steps toward addressing problems caused by snowmobiles. Virtually all of the local small businesses use cleaner gas and oil in their snowmobiles to reduce air pollution. There are 50 of the cleaner, quieter snowmobiles already in use in Yellowstone today, and two of the four major snowmobile producers announced their intentions to market more next season.

Finally, based on its review of the laws, regulations, and economic analyses relied on by the NPS, Advocacy has concluded that NPS has not fully complied with laws governing such action. NPS appears to have exceeded its authority. We do not believe that NPS has statutory authority to ban snowmobiles whenever and wherever it wishes, but even if it did, NPS has in this instance failed to meet the burden placed on it by the applicable statutes in order to justify taking such an action. Further, no credible factual basis exists

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<sup>2</sup>Seely, Clyde G. "Testimony for the Subcommittee on Tax, Finance, and Exports," presented before the Subcommittee on Tax, Finance, and Exports of the Committee on Small Business, US House of Representatives, July 13, 2000. He testified that winter revenue constitutes 50% of annual revenue and that winter revenue would decline by 60-70%, which could represent 33% of annual revenue ( $0.5 \times 0.66 = 0.33$ ).

<sup>3</sup> 66 Fed. Reg. 7260 (January 22, 2001).

for the NPS's certification that the rule will not have a significant economic impact on a substantial number of small entities, as required by section 605 of the RFA. The NPS may have also violated the Administrative Procedure Act, National Environmental Protection Act, and the Rehabilitation Act. These issues are addressed in greater detail below.

### **1. No credible factual basis exists for the NPS's RFA certification.**

The NPS certified under the RFA that the proposed and final rules will not have a significant economic impact on a substantial number of small entities. The agency head may certify in lieu of preparing regulatory flexibility analysis, but there must be a factual basis for the certification (see RFA § 605).

We question the factual basis for the certification in the final rule. In the preamble, NPS certifies the final rule but, in NPS's economic analysis, concludes "the rule will potentially have a significant economic impact on numerous small entities."<sup>4</sup> Either the NPS must provide a factual basis for certification (which it has not done as evidenced by its own contradictory statements) or else the agency must prepare a final regulatory flexibility analysis. NPS cannot have it both ways.

NPS's economic analysis does not provide a factual basis for certification. On the contrary, it suggests that the small entities will incur a disproportionate impact under the final rule. While small businesses produce 60 percent of the revenue generated by local rental firms they incur 90 percent of the cost.<sup>5</sup> The rule could also adversely affect competition. The profit margin of the smallest business will decline by 78 percent, versus 2 percent for the largest business.<sup>6</sup> To stay in business, a firm must earn a normal rate of return in the long run – a difficult task with a 78-percent loss. Also, larger firms tend to be in a better position to self-finance capital costs or provide collateral to obtain

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<sup>4</sup>In the publication entitled, Proposed Restrictions on Snowmobile Riding in the Greater Yellowstone Area, economic impact and benefit-cost analysis, p. 5-4, the NPS states: "This screening analysis suggest that the rule will potentially have a significant economic impact on numerous small entities involved in the snowmobile rental business, in addition to possible impacts on other local small businesses."

<sup>5</sup> Id. NPS estimates that there are 69 rental firms in communities surrounding affected national parks which meet SBA's definition of small business (<\$5 million in annual receipts) and 5 which don't. Seventy of these rent snowmobiles and total lost revenue is estimated to be \$3.9 million. Thus, the cost per firm is \$56,000 (\$3.9 million/70). Thus, small businesses incur approximately 90 percent of compliance costs (69 x 56,000/74 x 56,000). NPS also provides the firm distribution by revenue: 31 have less than \$500,000, 17 with \$0.5-1 million, 14 with \$1-2.5 million, 7 with \$2.5-5 million, 4 with \$5-10 million, and 1 with \$10-20 million. Assuming each firm produces the maximum per category (e.g., 31 produce \$500,000, 17 with \$1 million, etc.), we find that small businesses produce 60% of revenue generated by the local rental firms:  $([31 \times \$500,000 + \dots + 7 \times \$5\text{million}] / [31 \times \$500,000 + \dots + 1 \times \$20\text{million}])$ .

<sup>6</sup> Id., § 5, NPS reports that, in greater Yellowstone, of the snowmobile, ski, and snowmobile rental firms, it found 31 that have less than \$500,000 in annual revenue and 1 that has \$10-\$20 million. The NPS also reports that the upper quartile profit-to-revenue ratio for the recreation industry (SIC 7999) is 14.2%. If we assume, conservatively, that the 31 small firms rent snowmobiles and each produces \$500,000 in annual sales, the per-firm profits would be \$71,000 (0.142 x \$500,000). Using the same logic, the profit of the large firm would be \$2.8 million (0.142\*\$20 million). The NPS estimates that the cost per firm would be \$56,000 annually. Then, respectively, cost per profit-dollar would be 78% (56,000/71,000) and 2% (56,000/2.8 million).

loans. It is not clear how an agency could be aware of this evidence and still claim to have a credible factual basis for certification.

## 2. NPS appears to have exceeded its legal authority

The NPS primarily relies on the NPS Organic Act, the Clean Air Act, Executive Orders 11644 and 11989 and 36 CFR 1 § 2.18 for its authority to ban snowmobiles. Advocacy believes that the NPS has exceeded the scope of the aforementioned legal authority. While the laws and regulations clearly require that the NPS protect park resources, they also direct the agency to *balance* these concerns with the enjoyment of the parks by visitors.<sup>7</sup> The NPS states in the Final Environmental Impact Statement (FEIS) that it must eliminate snowmobiles from the parks so that future generations can enjoy *undiminished* park resources. This statement is inconsistent with the NPS's duty to balance park resources with the public's right to enjoy the parks. It is wholly unrealistic to expect that park resources can remain undiminished for future generations while allowing present visitors freedom to enjoy the parks.

Statistics show that the use of snowmobiles is one of the most popular activities in the parks during the winter months.<sup>8</sup> It is not clear how the NPS could on the one hand deny park visitors from participating in such a popular activity, and on the other claim to have balanced competing interests. It is apparent that the ban favors the interests of other types of visitors to the park over people who use snowmobiles.

### A. NPS cannot ban snowmobiles everywhere

Under a plain reading, Executive Order (E.O.) 11644 contemplates an ongoing presence of snowmobiles in the parks in designated areas, not a prohibition of snowmobiles on an indefinite basis.<sup>9</sup> Section 3 was promulgated to provide designated areas for the use of off-road vehicles in an effort to "minimize" (not "eliminate") damage to the environment, wildlife and conflicts with other recreational uses of the public lands.

E.O. 11989, which clarifies NPS's authority under E.O. 11644, does not amend section 3.<sup>10</sup> Indeed, section 2(b) indicates that "each agency head is authorized to adopt the policy that portions of the public lands within his jurisdiction shall be closed to use by

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<sup>7</sup> NPS Organic Act, 16 U.S.C. 1, §1.

<sup>8</sup> 65 Fed. Reg. 79024 (December 18, 2000).

<sup>9</sup> See E.O. 11644 section 1: "to establish policies and provide for procedures that will ensure that the use of off-road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands."

<sup>10</sup> See E.O. 11644, section 2a: "*Notwithstanding the provisions of Section 3 of this Order*, the respective agency head shall, whenever he determines that the use of off-road vehicles will cause or is causing *considerable* adverse effects on the soil, vegetation, wildlife, wildlife habitat or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to the type of off-road vehicle causing such effects, *until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence.*" [emphasis added]

off-road vehicles *except* those areas or trails which are suitable and specifically designated as open to such use pursuant to Section 3 of this Order." [emphasis added].

Case law appears to support this view.<sup>11</sup> The executive orders that govern snowmobile use on public lands restricts the NPS's discretion to act. The NPS's actions must be consistent with the values and provisions of the executive orders and the underlying statutes with respect to the snowmobile rule, they are not.<sup>12</sup> Certainly the executive orders referred to herein do not provide for an indefinite ban of snowmobiles.

B. NPS cannot ban snowmobiles indefinitely

Even if NPS can ban snowmobiles everywhere in national parks, Executive Order 11989, section 2, allows the agency head to close areas of the park to snowmobiles when there is evidence of adverse effects to the environment only "until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence." This provision clearly does not provide for a snowmobile ban into perpetuity. Indeed, it places an affirmative duty on the NPS to study the effects of snowmobiles in the future.

A report from the U.S. General Accounting Office (GAO) concluded that the four U.S. land management agencies have failed to compile information on the effects, if any, that snowmobiles are having on the parks' resources and environment.<sup>13</sup> It is not clear how NPS can determine when any adverse effects have been eliminated if it does not monitor environmental impacts of snowmobiles in the future. Currently, a monitoring system does not appear to be in place and the NPS does not expressly provide for one in this rule. The rule does not address whether the NPS plans to monitor the effects of snowmobiles in the future.

C. NPS has not met its burden to ban snowmobiles

Even if the NPS could ban snowmobiles wherever and whenever for any period of time, it is not clear whether the NPS has met its burden to do so under the applicable executive orders. Executive Order 11989, section 2, requires that NPS demonstrate "considerable" harm to park resources. But, as the GAO correctly points out in its report, NPS could not have shown this unless it has monitored the effects of snowmobiles on the environment, which it has not.

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<sup>11</sup>Conservation Law Foundation of New England, Inc. v. Secretary of the Interior, 864 F.2d 954, 959 (1<sup>st</sup> Cir. 1989).

<sup>12</sup>Advocacy already addressed whether NPS complied with the applicable executive orders (see above). As for the statutes, the National Environmental Policy Act 42 U.S.C. §§ 4321 et seq. (1989) is the basis for the executive orders. It, too, requires a balancing of interests. 42 U.S.C. § 4321(1989).

<sup>13</sup> United States General Accounting Office, Report to Congressional Requesters, Federal Lands: Agencies Need to Assess the Impact of Personal Watercraft and Snowmobile Use, (GAO/RCEC-00-243), Sept. 2000.

The FEIS states “the need to develop a plan through an EIS is indicated by the difference between overall desired condition and conditions that presently exist.”<sup>14</sup> The FEIS does not discuss what mechanisms are in place to monitor the parks’ environmental status in an effort to determine whether any adverse effects caused by snowmobiles have been eliminated and that measures have been implemented to prevent future recurrence as is contemplated by E.O. 11989. As such, the agency head cannot comply with E. O. 11989 because he or she will not be in a position to determine when any adverse conditions have ceased to exist.

Advocacy is concerned that the National Park Service has promulgated a rule that in effect prohibits the use of snowmobiles in the affected parks without having sufficiently investigated what, if any, adverse effects the snowmobiles are having on the parks and surrounding communities. In essence the NPS relies on the FEIS and the Winter 1998-1999 Visitor Survey Yellowstone N.P., Grand Teton, N.P., and the Greater Yellowstone Area, as its justification for this rule. While the FEIS includes information from other studies, it concludes that: “Because a plan of this type is general in nature, an analysis of environmental impacts need only be conducted at a general level. The type and amount of data relating to possible impacts is presented at the general level and is not exhaustively detailed and ‘site-specific.’”<sup>15</sup> Advocacy questions the wisdom of implementing a draconian rule without specific information of what the environmental impacts will be. This concern is buttressed by the GAO report identified above. It also appears to be in violation of the National Environmental Policy Act (NEPA)<sup>16</sup> which requires, *inter alia*, that the agency have detailed information on environmental impacts before making a such a decision. Everyone has a right to enjoy the national park system. The NPS should not be allowed to circumvent its rules and other laws and regulations without adequately assessing what affect snowmobiles (including those in use now and the newer, cleaner and quieter models scheduled to be on the market within the next year) are having on the environment.

D. NPS’s action may violate the NEPA and CEQ regulations.

NEPA is the “basic national charter for protection of the environment.”<sup>17</sup> NEPA requires that all Federal agencies prepare a detailed statement regarding all major Federal actions significantly affecting the quality of the human environment...<sup>18</sup> The Council on Environmental Quality (CEQ), an agency within the Executive Office of the President, has promulgated regulations implementing and explaining the requirements of NEPA. CEQ regulations require that “the EIS include a discussion of alternatives, including the proposed action...thus sharply defining the issues and providing a clear basis for choice among the options by the decision-maker and the public.”<sup>19</sup> CEQ regulations also require Federal agencies to make diligent efforts to involve the public in preparing and

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<sup>14</sup> FEIS, page v.

<sup>15</sup> FEIS, p. IV.

<sup>16</sup> 42 U.S.C. §4321, *et seq.* (1989).

<sup>17</sup> 40 C.F.R. § 1500.1(c).

<sup>18</sup> 42 U.S.C. § 4332 (2)(C).

<sup>19</sup> 40 C.F.R. §§ 1502.10(e), 1502.14.

implementing their NEPA procedures. The agency shall “[p]rovide public notice of...the availability of environmental documents so as to inform those persons and agencies who may be interested or affected.”<sup>20</sup> A review of the chronology surrounding the public dissemination of the DEIS and the FEIS raises questions about whether the NPS complied with the provisions of NEPA and CEQ regulations.

On or about July 30, 1999, the NPS released to the public the DEIS for the affected parks which contained seven alternatives. The Preferred Alternative (Alternative B) emphasized that air quality and oversnow motor vehicle sound would be addressed and that an advisory committee that would make recommendations on the phasing and implementation of sound and emission standards over the next ten years. By the winter of 2008-2009 strict emission and sound requirements would be required by all oversnow vehicles entering the parks. None of the alternatives sought an outright ban on snowmobiles. However, during the first few months of 2000, the NPS abruptly supplemented the DEIS by revising Alternative G and identifying it as the preferred alternative.<sup>21</sup> The revised Alternative G included an outright ban on recreational snowmobile use in the parks as well as other restrictive provisions. It appears that there was no prior public notice of the change, nor was there a new opportunity for public comment. CEQ regulations require that NEPA procedures must insure that environmental information is available before decisions are made and before actions are taken.<sup>22</sup>

To add insult to injury, on October 31, 2000, the NPS published in the *Federal Register* the availability of the FEIS and gave the public until October 31, 2001 (**the same day that the notice was published**) to file comments. As in the case of the DEIS, the FEIS identified Alternative G as the preferred alternative. However, Alternative G was even more restrictive than it was in the DEIS. For example, it eliminated the possibility of continued snowmobile use with technological improvements expected to occur in the future.

The aforementioned facts appear to violate NEPA provisions and CEQ regulations. Further, NPS’s actions are illustrative of the fact that the NPS has lost sight of its responsibility to balance the environmental protection of the parks with the public’s right to enjoy the parks in this instance.

E. NPS’s action may violate the Rehabilitation Act.

Based on a review of the rule, NPS does not specifically address how the snow coaches are to be adapted to facilitate use by persons with handicaps. Advocacy is concerned therefore that the rule may violate the Rehabilitation Act.<sup>23</sup> It is clear that many handicapped individuals do, based upon their handicap, use snowmobiles to enjoy winter

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<sup>20</sup> Id. § 1506.6(b).

<sup>21</sup> Alternative G in the original DEIS sought to emphasize clean quiet oversnow access to the parks using technologies available today.

<sup>22</sup> 40 C.F.R. § 1505.1.

<sup>23</sup> 42 U.S.C. § 1983.

access to the parks. Advocacy believes that the NPS should compromise by allowing continued use of snowmobiles in the parks under certain circumstances. However, if the NPS chooses to require the use of snow coaches in lieu of snowmobiles, the agency should be required to provide for modification to the snow coaches to accommodate persons with special needs. To the extent that the NPS has failed to consider this potential problem, it will also have a corresponding affect on the overall cost of the rule.

### **3. NPS has not adequately considered the alternatives**

E.O. 12866, § 1 requires the agency to select the alternative that maximizes net benefits unless the applicable statute requires otherwise. We are not aware of any such statutory prohibition under laws relied on by the NPS in promulgating this rule.

There is a reasonable alternative that Advocacy could support. The NPS could ban the dirtiest and noisiest snowmobiles rather than substituting snow coaches for snowmobiles. Under this alternative, NPS would achieve two thirds of the air pollution reduction at just a third of the cost (see appendix tables 1-5 for calculations), and the alternative would be cost effective for HC+NO<sub>x</sub> when compared with recent EPA mobile source programs (see tables 6 and 7). NPS could also achieve 67 percent more noise pollution reduction (table 8). A snow coach is not quiet; one is equivalent to eight quiet snowmobiles.<sup>24</sup>

In addition, NPS would avoid all of the other problems caused by snow coaches. Under our alternative, there could be:

- Less congestion. To meet the average daily demand with snow coaches, NPS would have to admit one every 5 minutes, creating a caravan. What happens when one must stop 5 or more minutes, which we are told occurs frequently?
- Fewer stranded visitors. For example, NPS projects that 80 snow coaches would be needed to meet the average daily demand for trips from Yellowstone's West Entrance to Old Faithful (NPS, 2000, [FEIS], Table 143), but it would be difficult given the logistical constraints, to accommodate more than 36 coaches per day.<sup>25</sup> If the assumptions are correct, demand would exceed supply by 44 snow coaches *on the typical day*, which could prevent as many as 660 visitors (44 x 15/coach) from visiting the most popular destination in Yellowstone, unless of course they decide to ski across country or walk instead. What about children? The disabled?

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<sup>24</sup>Each existing snow coach is assumed to emit 69 dBA and each quiet snowmobile, 60 dBA. Each time the number of identical noise sources doubles, sound pressure level rises by 3 dBA. If instead, we use NPS's assumptions for its sound-level analyses – each coach emits 75 dBA and each quiet snowmobile, 60 dBA (see NPS, 2000, FEIS, Table 65), 1 coach would be equivalent to 32 snowmobiles in terms of sound.

<sup>25</sup>Advocacy assumes that NPS will not allow snow coaches in the park after dark. If that is the case, the earliest the park could open is 7 a.m. and the latest, 5:30 p.m. According to Clyde Seely, a typical trip by coach from West Entrance to Old Faithful lasts 7½ hours roundtrip (including 1½ hours for lunch). Thus, the last coach would have to leave for Old Faithful by 10 a.m. (to be back by 5:30 p.m.). If a coach leaves West Entrance every 5 minutes starting at 7 a.m., no more than 36 coaches could enter the park and return by 5:30 p.m. (there are 180 minutes between 7 and 10 a.m. and 180 minutes/5 minutes/coach=36).



- Fewer displaced visitors. Fifty percent of snowmobile riders would visit greater Yellowstone less frequently if snowmobiles were banned,<sup>26</sup> whereas 20 percent would if cleaner, quieter snowmobiles and snow coaches were allowed.<sup>27</sup> Snow coaches cannot reach all of the same locations that snowmobiles can. There is less freedom when riding with others.

The NPS may still have enforceability concerns. The NPS would probably have to hire additional park rangers to monitor and police irresponsible users. Fortunately, statistics show there are few persons that abuse the system. Less than 1/2 percent of snowmobile visits result in citations, accidents or incidents (see table 9), and many of these are honest mistakes. Second, NPS could use the revenue it expects to lose under a snowmobile ban to increase enforcement. If a typical full-time-equivalent earns \$50,000 per season, NPS could hire 7 FTEs,<sup>28</sup> and it would still cost less than a ban. Advocacy is not suggesting to NPS how to allocate its budget. Advocacy is simply highlighting enforceability concerns the NPS may have and intimating that reasonable alternatives exist to an outright ban of snowmobiles.

The NPS does have a legal obligation to balance conflicting interests, and quieter, cleaner snowmobiles have several advantages that snow coaches do not. In light of the foregoing, it is difficult to believe that NPS gave the alternative of banning only the noisiest, dirtiest, snowmobiles adequate consideration. It appears to be the superior alternative.

### **Requested Action**

Based on the foregoing comments and analysis, Advocacy recommends that the NPS re-open the rulemaking. If after review, NPS decides to change the rule, good rulemaking policy dictates that the NPS issue an interim final rule with a 30-day comment. However, the NPS may wish to re-propose the rule in order to maximize public input and to ensure its obligations under the APA have been satisfied.

Per the Andrew Card memorandum, the effective date of the rule is April 22, 2001. The NPS should extend the rule's effective date if it is going to review the rule. Without a delay in the effective date, affected small entities may start investing (to comply with the rule) or decide to leave the market. If that happens, and NPS later decides to change the rule, those investments may be stranded, a situation we would like to avoid. In any case, NPS should review the rule and allow sufficient time to consider public comments, to preserve its options until final decisions have been made.

If you have any questions, please contact my staff, either Linwood Rayford at (202) 401-6880 or Austin Perez at (202) 205-6936.

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<sup>26</sup>NPS, 2000, FEIS, Table 133.

<sup>27</sup>Duffield and Neher, 2000, Table 4.35.

<sup>28</sup>Duffield and Neher (2000) find that 33 percent of park visitors would no longer visit either Yellowstone or the surrounding areas if snowmobiles were banned. On average, nearly 80,000 snowmobile passengers enter Yellowstone each season (NPS, 2000, FEIS, Table 42) and the entrance fee is \$15/snowmobile. Thus seasonal revenue could decline by \$360,000 (24,000x\$15/snowmobile), and 360,000/50,000/FTE~7FTEs.

Sincerely,

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Acting Chief Counsel for Advocacy

Linwood L. Rayford, III  
Assistant Chief Counsel for Advocacy

Austin Perez  
Assistant Advocate

Cc: Mr. David Smith  
Mr. David Bernhardt

## Appendix and Table of Calculations

13-Mar-01

Table 1:  
Judgements

Horsepower-hours/Snowmobile-Day (hp-h/d) <sup>1</sup>	64
Price/Snowcoach-Day <sup>2</sup>	\$90
Price/Snowmobile-Day for a 2-Stroke <sup>2</sup>	\$119
Price/Snowmobile-Day for a 4-Stroke <sup>3</sup>	\$129
Rate of Substitution (r)	7
( $\Delta$ Snowmobiles/ $\Delta$ Snowcoaches) <sup>4</sup>	
Miles/Snowcoach-Day (mi/d) <sup>5</sup>	100
Short Tons/Gram (tons/g)	1E-06
Grams/Pound (g/lb.)	454
Pounds/Short Ton (lbs./ton)	2000

<sup>1</sup>Source: DOI Nat'l Park Service (NPS), "Air Quality Concerns", February 2000, p. B-1.

<sup>2</sup>Proposed Restrictions on Snowmobile Riding in the Greater Yellowstone Area, economic impact and benefit-cost analysis, p. 3-15 for coaches and p. 3-17 for snowmobiles.

<sup>3</sup>Communication with Clyde Seely, West Yellowstone Businessman, 2/2001.

<sup>4</sup>NPS, 2000, FEIS Vol. 1, Tables 75 and 143. " $\Delta$ Snowmobiles" represents the difference between NPS's estimates of the total number of snowmobiles under alternative A (Table 75) vs. alternative G (Table 143). " $\Delta$ Snowcoaches" represents that difference between snowcoaches. This ratio estimate is conservative since it doesn't account for the expected net increase in ridership among existing snowcoach passengers (see Duffield and Neher, "Winter 1998-99 Visitor Survey", 5/2000.)

<sup>5</sup>Source: NPS, "Air Quality Concerns", February 2000, tables 5-7 of appendix A.

Table 2: Emission Factors

Pollutant	2-stroke engines (g/hp-h)	4-stroke engines (g/hp-h)	snowcoaches (g/mi)
HC+NOx	132	5	21
CO	350	195	166
Total	482	200	188

Source: NPS, "Air Quality Concerns," February 2000. Factors for 2-strokes represent the arithmetic mean of observations 6, 7, and 10 from Table 1 (those fueled with gasohol); for 4-strokes, 14 and 15. See Tables 5-7 of Appendix A of the report for snowcoach factors.

Table 3: Emissions/Vehicle-Day

A	B	C	D
Pollutant	2-stroke engines (t/d)	4-stroke engines (t/d)	snowcoaches (t/d)
HC+NOx	9E-03	4E-04	3E-04
CO	2E-02	1E-02	3E-03
Total	3E-02	1E-02	3E-03

Source: Derived from Table 2 using judgements presented in Table 1.

Table 4: Emissions Reduction/Substitution (to 4-stroke or snowcoach)

A	B	C	D
Pollutant	4-stroke engines (t/d)	Snowcoaches (t/d)	% of total (B/Cx100%)
HC+NOx	9E-03	9E-03	99%
CO	1E-02	2E-02	50%
Total	2E-02	3E-02	64%

Source: Derived from Table 3, by subtracting each column (B and C) from A.

Table 5: Cost/Vehicle Day\*

A	B	C	D
Pollutant	4-stroke engines	snowcoaches	% of total (B/Cx100%)
HC+NOx	\$7	\$19	34%
CO	\$3	\$10	34%
Total	\$10	\$29	34%

\*Apportioned 1/3 of total costs to NOx, 1/3 to HC, and 1/3 to CO.

Table 6: Per-Vehicle Average Cost

A	B	C	D
Pollutant	4-stroke engines (\$/ton)	snowcoaches (\$/ton)	Difference (C/B)
HC+NOx	\$748	\$2,157	2.9
CO	\$302	\$434	1.4
Total	\$503	\$933	1.9

Table 7: Cost Effectiveness of Recent EPA Mobile Source Programs  
(in \$1999)\*

EPA Program	Pollutants	Average Cost (\$/ton)
Marine CI Engines	HC+NOx	\$100
2004 Highway Heavy-Duty Diesel	NMHC+NOx	\$313
Nonroad Diesel Tier 2/3	NMHC+NOx	\$550
Marine SI Engines	HC+NOx	\$1,509
2007 Highway Heavy-Duty Diesel	NMHC+NOx	\$1,663
Tier 2 vehicle/gasoline sulfur	NMHC+NOx	\$1,800
National Low Emission Vehicles	NMHC+NOx	\$1,930
<b>Average</b>		<b>\$1,123</b>

\*Includes post-1996 final rules from EPA, 2000, Diesel Rule RIA, Tables VI.F-3 and F-5. "NMHC"=nonmethane hydrocarbons.

Table 8: Reduction in Average Sound Level (in dB) (Relative to Baseline)

A	B	C	D
Range of Reductions	Alternative		%Difference (B/Cx100%)
	Ban Noisest	Ban All	
Upper-bound		8.0	163%
Lower-bound	13.0	7.0	171%
Average	12.5	7.5	167%

NPS, 2000, FEIS Vol 1, pp. 349 and 426.

Table 9: Frequency of Citations and Case Incidents

A	B	C	D	E
Type	# for 5 seasons*	#/Season (B/5)	Snowmobiles Visits/Season**	% of total (C/Dx100%)
Citations	1,156	231	79,733	0.3%
Incidents	319	64	79,733	0.1%
Accidents	201	40	79,733	0.1%
<b>Total</b>	<b>1,676</b>	<b>335</b>	<b>79,733</b>	<b>0.4%</b>

\**ibid.*, pp. 130-134.

\*\**ibid.*, Table 42.