

reductions in PWC emission of unburned fuel and mitigation to limit spills from refueling operations will serve to alleviate any continuing concern regarding the possibility of surface oil sheen in areas of concentrated boating activity.

NPS Response: As stated in the Final EIS in the Environmental Consequences section, under Impacts of Alternatives A, B, C, and D, Water Resources, Impacts, the National Park Service provides best management practices for the handling of fueling areas and boat maintenance for concessioners and the boating public. The purpose of these practices is to reduce the pollutants entering the lakes due to fueling and boat maintenance activities. With the management requirements and public education reducing the levels of these impacts, the impacts would be expected to be minor. NPS has agreed to evaluate the operations of all fueling facilities on Lakes Mead and Mohave.

21. One commenter was concerned that the USGS sampling data showed the presence of the gasoline additive MTBE. The federal government, Nevada or Arizona have not established standards or maximum contaminant levels for MTBE. EPA has adopted an advisory level of 20–40 µg/l for drinking water. The highest sample measured by USGS was 4.16 µg/l, well below this EPA advisory level. The reduction in PWC engine emissions (as well as emissions from other marine engines) at Lake Mead since the sample was measured in 1999 is not likely to be repeated.

NPS Response: The water intake that delivers drinking water to the Las Vegas Valley is located at an elevation of 1,050 feet above mean sea level in Lake Mead, while the elevation of the lake surface is usually above 1,180 feet. This puts the intake at a depth of 130 feet or more. Gasoline compounds have not been detected in water samples regularly taken near the water intake by staff of the Southern Nevada Water System. In addition, the testing at water intake facilities has shown that levels of these compounds do not exceed advisory standards.

In the analysis presented in the Final EIS in Table 50, Toxicity Benchmarks, the ecological benchmark for MTBE,

which is considered preliminary chronic water quality criteria, of 51,000 µg/l was used. The table found in response to Comment Number 17 shows a negligible impact from MTBE under the modified preferred alternative (alternative C) and the baseline (alternative D). We are aware California has mandated removal of MTBE from gasoline by next year, and the EPA is considering doing the same within the near future.

22. One commenter is concerned that recent studies show that PAH emissions might increase as carbureted two-stroke PWC engines are replaced by direct injection two-stroke models and that increased PAH emissions will have adverse impacts on aquatic organisms in the Lake Mead NRA. The Kado study measured only PAH air emissions from the test chamber while the outboard engine ran in a water tank. The study says nothing about what levels of PAHs were deposited in water. It therefore can provide no basis whatsoever for suggesting that the use of current and future direct injection two-stroke PWC engines present a risk to aquatic organisms or will impair water resources in the Lake Mead NRA.

NPS Response: PAHs were addressed in the draft and final EIS in the issues and impact topics and water quality section of Environmental Consequences. Text in the draft EIS impact analysis (alternatives B, C and D) was changed in the final EIS to read, “* * * changing from carbureted two-stroke engines to two-stroke fuel-injected engines may result in increases of airborne particulate-associated PAH. Further research, outside the scope of this planning effort, is needed to identify what impact this would have on PAH concentrations in water.” However, the preferred alternative, which bans two-stroke carbureted engines after 2012, would greatly reduce the impact of petroleum emissions on water quality. PWC would contribute 19% of total hydrocarbon pollution in Lake Mead in 2012. Given the volume of available water in Lake Mead for mixing these compounds, NPS concludes the impact to water quality and aquatic organisms is minor and would not result in impairment to park resources.

In addition, according to industry reports, it appears that the trend for conversion is toward the four-stroke model engines instead of direct injection two-stroke models. According to the PWIA, the two top selling PWC models for 2002 incorporated the four-stroke technology, which have shown to produce fewer PAH emissions. Also, in discussions with PWC retailers in the vicinity of Lake Mead, NPS has been informed that the majority of new PWC purchases have been four-stroke engines. If this trend in sales is realized and it continues, PAH emissions would be less than indicated in the analysis.

Comments Related to Air Quality

23. One commenter stated the National Park Service analysis does not reflect the dramatic decrease in PWC hydrocarbon plus nitrogen oxides (HC+NO_x) emissions projected to occur over the next ten years that strongly suggests that the National Park Service's proposed ban on the use of carbureted two-stroke models after 2012 is unnecessary.

NPS Response: As part of the Final Environmental Impact Statement (EIS) for the Lake Management Plan, the National Park Service prepared a quantitative analysis of air quality impacts for each of the proposed alternatives. The Final EIS analysis addressed emissions of all watercraft, including PWC, on Lakes Mead and Mohave. Four alternatives were analyzed. Alternative A would continue the prohibition of PWC in the Lake Mead NRA. Alternative B would prohibit all carbureted two-stroke engines beginning in 2004. Alternative C assumes a ban on two-stroke carbureted engines for all vessels, including PWC, after 2012. Alternative D assumes that no ban would take place and that two-stroke engines would be converted in accordance with the Environmental Protection Agency's assumptions (40 CFR parts 89–91, “Air Pollution Control; Gasoline Spark-Ignition and Spark-Ignition Engines, Exemptions;” rule, 1996). The Final EIS emission projections for HC and NO_x for alternatives C and D are shown in the table below. Emission forecasts for other pollutants and for alternatives A and B are included in the Final EIS.