



Wind Cave National Park
South Dakota

Rehabilitate Elk Mountain Campground Failing Water System

Finding of No Significant Impact

November 21, 2006

BACKGROUND

Wind Cave National Park is located in western South Dakota, on the southern edge of the Black Hills. In 1903, the 10,532 acre park was established as the eighth national park and the first created to protect a cave. The park has grown to 28,295 acres since its establishment. The purpose of Wind Cave National Park has evolved from cave preservation to protection of both subsurface and surface resources. The Elk Mountain Campground is the only campground in Wind Cave National Park. It is located one mile from the visitor center and has 75 campsites.

The existing campground water system was constructed in 1964 and consists of a 4,800-foot transmission line from an existing water reservoir connecting to over one mile of distribution line in the campground and picnic areas. After 41 years in the ground, the deterioration of the metal piping has resulted in many leaks and non-functional valves.

The existing water system needs to be replaced because few of the drain and control valves are operating at this time. Frequent leaks are a public health hazard because with each leak, there is an opportunity for contaminants to enter the park's public drinking water supply. Because most of the valves are inoperable it is extremely difficult to isolate a leaking line from the rest of the system, and the entire system must be depressurized and drained before a repair is conducted. Depressurizing a public water system always poses the threat of contaminants entering the system. In addition, the existing system is not buried deep enough for frost protection and it must be drained each fall and recharged each spring. This requires significant maintenance efforts and the system is susceptible to contamination when the water lines are empty.

The National Park Service intends to remove the existing water line and replace it with a new waterline to the campground. A new storage tank, new distribution line within the campground, and a new line to the picnic area will also be installed. The park will continue to use the existing pumps and pump house.

PREFERRED ALTERNATIVE

Under the Preferred Alternative, Alternative B, a new water system will be installed that will consist of a new waterline to the campground, new storage tanks, new distribution line within the campground, and a new line to the picnic area. This alternative will continue to use the existing pumps and pump house.

The new waterline to the campground will originate at the existing pump house. The lines will follow the same route as the existing line. This area was previously disturbed for the installation of the

existing water line. Staging areas will be confined to areas of previous disturbance or areas that have been surveyed and have no historic properties present. The new line will be 4-inch diameter high density polyethylene (HDPE) pipe buried five and one half feet below the surface. A total of 10,500 linear feet of new line will be installed. The new system will include shut off valves, which will allow leaks to be isolated. This will improve the detection and repair of leaks. The existing line is estimated to be at least two feet below the surface, so additional excavation will be required to place the new line at the desired depth.

Approximately 7.2 acres of land within the park will be disturbed with implementation of the Preferred Alternative. Excavation will be required through rough and rocky terrain. All surface disturbances will be re-graded to original contour and re-vegetated with native species. Construction will be phased to occur during the spring and fall with no construction during the peak visitation in the summer between Memorial Day and Labor Day. The water to the campground will continue uninterrupted throughout construction.

The existing pumps and pump house will continue to be used. The pumps use electrical energy to pump the water up to the storage tank. From the storage tank to the comfort stations and yard hydrants in the campground, the system will function as a gravity-fed system, and therefore could operate without power. The storage tank will be able to provide water to the campground for approximately one week, without being refilled by the pumps.

A new underground storage tank will be installed at the same location as the existing aboveground tank. The underground tank, water mains buried below frost depth and the use of frost proof hydrants, will allow limited water use in the campground and picnic area throughout the year. The water will be shut off and drained from the campground comfort stations since the buildings are not heated.

Other features to be incorporated into the system will include a blow-off structure and frost-proof yard hydrants with provisions for filling irrigation and fire equipment at the campground and picnic area. Updates to the existing pump house will also include revisions to the reservoir tank vent screens, a new valve manhole cover, and new security measures (including fencing).

The existing waterline to the picnic area adjacent to the visitor center will also be replaced. The line will tie into an existing line that serves the visitor center and the park headquarters. The line will originate near the intersection of the service drive and the visitor center road. The new line will follow the road to the picnic area for a distance of approximately 400 feet. Two yard hydrants will be installed at the picnic area.

Alternative B, the Preferred Alternative, is the Selected Action.

MITIGATION MEASURES OF THE PREFERRED ALTERNATIVE

Mitigation measures or conditions are presented as part of the Preferred Alternative and have been developed to lessen the adverse effects. The following mitigation measures will be implemented for the Preferred Alternative.

Practices to Minimize Effects on Cave Resources

The park's Physical Science staff will monitor construction activities in areas where the cave is thought to be closest to the surface. If a breach into the cave or a void is encountered during trenching in construction, it will be evaluated by the park's Physical Science staff. After the void has been investigated and documented, possible actions might include sealing with concrete, building an airlock enterable gate, backfilling with excavated sediment, rerouting the line, or continuing the excavation through the void.

Practices to Minimize Effects on Natural Resources

During construction, topsoil and its seed bank will be stockpiled and redistributed on all disturbed areas. This will enable the local seed bank to be the principal source in vegetation re-establishment. Prior to construction, the route will be surveyed for exotic species. Locations where exotic species exist will be identified and transporting topsoil from these areas will be limited. This survey will also determine what areas will need post-construction monitoring. Soil erosion and sedimentation control methods employing seed free excelsior erosion blanket without netting or staples will be used to stabilize soils while preventing wildlife conflicts and incidental weed introduction. The area will then be seeded with native grasses, shrubs and trees as specified by park personnel experienced in habitat restoration.

Practices to Minimize Effects on Visitor Experience

Construction will be phased to occur during the spring and fall with no construction during the peak visitation in the summer between Memorial Day and Labor Day. The water to the campground will continue uninterrupted throughout construction.

ALTERNATIVES CONSIDERED

Along with the Preferred Alternative (Alternative B), three other alternatives were considered, including the No Action Alternative, Alternative A, and two other build alternatives. These build alternatives were to replace the existing line following the power line route (Alternative C) and replace the existing line following a combination of the existing route and the power line route (Alternative D). Under the No Action Alternative, the park staff would continue with the current management of the waterline as it exists today. Routine maintenance would occur as needed; however, no significant improvements to the water system would be implemented.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

As stated in National Park Service's Section 2.7D of *Director's Order #12 and Handbook* (Conservation Planning, Environmental Impact Analysis and Decision-Making; January 2001), the environmentally Preferred Alternative is the alternative that will promote the national environmental policy expressed in the National Environmental Policy Act.

Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the environmentally Preferred Alternative. The act directs that federal plans should:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and,
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Continuing the current conditions under Alternative A, the NPS would not be ensuring the safest environment possible for visitors and park employees. Without upgrading the current water supply system, a risk still exists for contamination of the water supply. Preservation of the cave is also at risk if a break were to occur, introducing an unnatural water source into a dry cave system.

Alternative B fully addresses these six criteria and meets the park's need to replace the water system, provide suitable facilities, provide winter water use, and protect the cave resources. This alternative will improve the efficiency of park operations and will minimize the risk of impacting the cave system during construction. The actions of this alternative will be located over rugged terrain, will likely require greater construction effort to dig through rock, and will be the most difficult to access in the event of a break or leak. However, based on the known location of cave passages, there is less chance of impacting the cave during construction for this Alternative.

Alternative B is the only alternative that will follow the existing water supply line for the entire length, an area that was previously and is currently disturbed to a depth of two to three feet. Based on the known location and depth of the cave, Alternative B is least likely to breach the ceiling of cave passages, minimizing the risk of impacting the cave system during construction.

Alternative C would replace the water system, provide for suitable facilities including winter use, and improve the long term protection of the cave resources. A portion of this route crosses drainages; however, the majority of this route is over flatter terrain than Alternative B. Because this route would encounter less bedrock, it would likely require less construction effort. This alternative would be easier to access in the event of a water line leak or break. However, during construction, there is an increased risk of breaching the ceiling of the cave. This is based on the known location of cave resources. By crossing drainages, it is likely that cave passages exist below this route in close proximity to the ground surface. This would increase the risk of breaching the cave ceiling during excavation, along with water entering the cave system in the event of a waterline break.

Alternative D follows the existing waterline route and then crosses over to follow the powerline route. This alternative would also provide for suitable facilities, winter water use, and improve the long term protection of the cave resources. Compared to Alternatives B and C, construction effort along with access to the system would be moderate. However, due to the known location of cave resources, it is likely that cave passages exist below this route. This would increase the risk of breaching the cave ceiling during excavation, along with water entering the cave system in the event of a waterline break.

Alternatives B, C, and D would all replace the water system and provide for suitable facilities, and improve the long term protection of the cave resources. However, it is more likely that cave passages are close to the ground surface along Alternatives C and D than Alternative B. Consequently, there is an increased risk of impact to the cave through a potential breach of the cave ceiling during construction with Alternatives C and D.

Therefore, Alternative B, the Preferred Alternative, is the environmentally Preferred Alternative.

THE PREFERRED ALTERNATIVE AND SIGNIFICANCE CRITERIA

As defined in 40 CFR § 1508.27, significance is determined by examining the following criteria:

1. Impacts that may have both beneficial and adverse aspects and which on balance may be beneficial, but that may still have significant adverse impacts which require analysis in an EIS.

No long-term major adverse or beneficial impacts were identified that require analysis in an environmental impact statement.

Minor beneficial effects to cave resources will result by minimizing the potential for uncontrolled water to enter the cave. However, there is a risk that construction of the new water line may affect cave resources due to deepening of trenches into previously undisturbed material. These risks will be minimized by construction observation when excavation will occur in locations where the cave is believed to be closest to the surface.

Minor long-term beneficial effects to water quality will result by minimizing the source of pollution from leaks into surface water. During construction, however, short-term negligible adverse effects could be expected to the dry stream drainage in the campground.

Construction equipment will generate air quality emissions; however, impacts will be localized, minor short-term effects. There will be no long-term effects to air quality in the park.

Construction activities will result in localized short-term negligible effect. Excavation will occur in an area that has been previously disturbed, yet has since stabilized, by both installation of the existing waterline and continued maintenance and operation activities. Long-term benefits will be realized as soil microbes and nutrient levels stabilize through a reduction of operation and maintenance.

Minor short-term adverse effects to vegetation will result from construction activities. Approximately 7.2 acres will be impacted in an area that was previously disturbed; however, vegetation has since re-established along the existing waterline. Long-term benefits will be realized as exotic plants are replaced with native species with management of exotic vegetation by the park's habitat restoration specialists.

Impacts to archeological resources will be negligible as construction will occur along the existing water supply line, which was previously disturbed. There will be no impacts to ethnographic resources.

Minor long-term beneficial effects on public health and safety will result as the risk of a contaminated water supply from leaks and breaks will be greatly reduced.

Minor to moderate long-term beneficial effects to park operations will result through reduced time invested by staff in maintenance and emergency repairs. The most notable difference is that the new system will not have to be winterized.

Visitor use and experience will be positively impacted through an improved water system that will provide year round water and that can operate for extended periods during a power failure. This will result in minor long-term beneficial effects.

2. Degree of effect on public health or safety.

A new water system will greatly reduce potential public health and safety issues associated with contamination of the public water supply, while addressing compliance issues and protection of cave resources. Installation of a new water system will provide new piping and valves, decreasing the risk of a break or contamination. If a leak were to occur, the new valves will make it easier to isolate and repair leaks, eliminating the need to depressurize the entire system to make repairs. The system could also be operational year round, eliminating the need to drain the system in the fall. There is an increased risk of contamination when the system is depressurized or drained.

Public health and safety will benefit from localized long-term minor beneficial effects as a result of the new system.

3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

There are no prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas within the project area. However, as described in the environmental assessment, the biotic systems of caves are highly specialized, and impacts to these resources are considered long term. Although the park's cave resources have not been designated as ecologically critical areas, the unique nature of their ecosystem warrants a high level of protection.

Wind Cave has also long been valued by American Indian tribe associated with the park. Many traditional stories about holes in the Black Hills that blow wind and that are associated with tribal origins. The Black Hills occupy a very special place in the history, creation stories, and religious beliefs of these groups.

The Preferred Alternative will result in minor to moderate long-term beneficial effects by minimizing the potential for uncontrolled water to enter the cave system, protecting this unique ecosystem and valued resource. A known archeological site will not be impacted by installation of the new supply piping or tanks. The South Dakota Office of the State Historic Preservation Officer (SHPO) concurred with the recommendations in the environmental assessment and stated that the Preferred Alternative avoids a known archeological site if the proposed work is confined to the same route as the existing line. The Rosebud Sioux Tribe stated in their letter dated July 6, 2006 that there are no sites listed in their database based on the maps shown in the environmental assessment.

4. Degree to which effects on the quality of the human environment are likely to be highly controversial.

There were no highly controversial effects identified during either preparation of the environmental assessment or during the public review period which began June 22nd and ended August 4, 2006.

5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.

There were no highly uncertain, unique, or unknown risks identified during either preparation of the environmental assessment or during the public comment period.

6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Preferred Alternative neither establishes a National Park Service precedent for future actions with significant effects nor represents a decision in principle about a future consideration.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

Other management activities within the park include: develop a comprehensive vegetation management plan and accompanying compliance documentation (underway), relocate wastewater treatment facility (underway), construct a new visitor center parking lot and associated stormwater management system (completed), rehabilitate utilities to protect cave resources (completed), and replace deteriorated cave lighting system (planned).

Short-term adverse effects will occur to surface water quality, air quality, soils, and vegetation during construction of the Preferred Alternative. These effects will result during construction as a result of disturbing the ground and the use of the necessary equipment. No other past, present, and reasonably foreseeable future actions are expected to contribute adverse effects. The long-term beneficial effects of the Preferred Alternative range from negligible to moderate for these resource categories: cave resources, surface water quality, air quality, soils, vegetation, archeological resources, public health and safety, park operations, and visitor use and experience. The Preferred Alternative will not affect ethnographic resources

These long-term effects in conjunction with the beneficial effects of the other management activities within the park will result in long-term beneficial effects ranging from minor to moderate.

8. Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

The National Park Service determined that there will be no adverse effect to historic properties because ground disturbance associated with the rehabilitation of the Elk Mountain water system will not disturb archeological resources to the extent that there will be any loss of integrity and ethnographic resources will be unaffected. The South Dakota Office of the State Historic Preservation Officer (SHPO) concurred on October 17, 2006 with the National Park Service's determination. The SHPO stated that the known archeological site is considered eligible for listing on the National Register of Historic Places, but that the Preferred Alternative will avoid the site based on the location described in the environmental assessment.

9. Degree to which the action may adversely affect an endangered or threatened species or its critical habitat.

The Preferred Alternative will not affect threatened or endangered species that may occur in the park, American burying beetle, bald eagle, or black-footed ferret, because these do not occur within the project area. A letter of concurrence was received from the U.S. Fish and Wildlife Service (May 5, 2005) supporting the position that the described project will not adversely affect listed species.

10. Whether the action threatens a violation of federal, state, or local environmental protection law.

The Preferred Alternative will not violate any federal, state, or local environmental protection laws.

IMPAIRMENT OF PARK RESOURCES OR VALUES

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the Preferred Alternative will not constitute an impairment to Wind Cave National Park's resources and values. This conclusion is based on a thorough analysis of the impacts described in the environmental assessment, the agency and public comments received, and the professional judgment of the decision-maker in accordance with the National Park Service's *Management Policies, 2006* (The Guide to Managing the National Park System; August 2006). As described in the environmental assessment, implementation of the Preferred Alternative will not result in major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Wind Cave National Park; (2) key to the natural or cultural integrity of the monument; or (3) identified as a goal in the park's general management plan or other relevant National Park Service planning documents.

PUBLIC INVOLVEMENT

Internal and external scoping occurred prior to preparation of this environmental assessment. Internal scoping led to identification of the main issues and impact topics addressed in the environmental assessment. The primary goals of the project are to improve public health and safety, reduce threats of contaminants entering the water system, reduce incidents of system failure, minimize threats to the cave system, decrease maintenance efforts, and improve visitor experience.

External scoping included coordination with interested federal and state agencies along with Indian tribes. The following tribes and tribal representatives received scoping letters and copies of the environmental assessment for review and comment.

Crow Creek Sioux Tribal Council
Rosebud Sioux Tribal Council
Arapaho Business Committee
Standing Rock Sioux Tribal Council
Cheyenne-Arapaho Tribes of Oklahoma
Oglala Sioux Tribal Council
Sisseton-Wahpeton Sioux Tribal Council
Ponca Tribe of Oklahoma
Cheyenne River Sioux Tribe
Lower Brule Sioux Tribal Council
Ponca Tribe of Nebraska
Santee Sioux Tribal Council
Fort Belknap Community Council
Flandreau Santee Sioux Executive Committee
Apache Tribe of Oklahoma
Three Affiliated Tribes Business Council
Fort Peck Tribal Executive Board
Northern Cheyenne Tribal Council
Yankton Sioux Tribal Business and Claims

Scoping letters were also sent to U.S. Fish and Wildlife Service and the South Dakota State Historic Preservation Officer (SHPO). The U.S. Fish and Wildlife Service concurred with the park's finding of no effect on endangered and threatened species. The Apache Tribe of Oklahoma provided a comment letter and requested that if any cultural or archeological materials were encountered that their office be notified.

Information about the proposed project to rehabilitate the Elk Mountain Campground waterline was posted on the National Park Service Planning, Environment, and Public Comment (PEPC) website April 6. The public was also invited to comment on the project in a press release that was distributed during the same time period.

The environmental assessment was made available for public review and comment from June 22 through August 4, 2006. During that time, an informal open house was held at the Wind Cave VIP Center to allow the public to discuss the plan with park staff and to comment on the alternatives. Three comment letters were received from the United States Department of the Interior Fish and Wildlife Service, South Dakota State Historic Preservation Office, and the Rosebud Sioux Tribe. No comments were received from the general public.

CONCLUSION

The Preferred Alternative does not constitute an action that normally requires preparation of an environmental impact statement (EIS). The Preferred Alternative will not have a significant effect on the human environment. Negative environment impacts that could occur are minor or moderate in intensity. There are no significant impacts on public health, public safety, threatened or endangered species, or other unique characteristics of the region. There are no unmitigated adverse impacts on sites or districts listed in or eligible for listing in the National Register of Historic Places. No uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended:	/s/ Linda L. Stoll	12/15/06
	_____ Linda L. Stoll Superintendent, Wind Cave National Park	_____ Date
Approved:	/s/ Ernest Quintana	12/21/06
	_____ Ernest Quintana Midwest Regional Director	_____ Date