AMENDED
FINDING OF NO SIGNIFICANT IMPACT

Project to Replace the Failing Wastewater Treatment Facility

Wind Cave National Park
South Dakota

December 2005

Introduction

This Amended Finding of No Significant Impact (FONSI) documents the decision of the National Park Service to adopt an alternative, other than the environmentally preferred alternative, for the Project to Replace the Failing Wastewater Treatment System at Wind Cave National Park. The alternative selected for implementation has been described and analyzed in an environmental assessment, prepared in 2003, and referred to in that analysis as Alternative D, Relocate Lagoons to New Site. The effects of this option on the human and natural environment have been determined and fully described in the environmental assessment. No previously undisclosed significant impacts on the human environment are associated with relocating the park's wastewater treatment lagoons.

Background

Wind Cave National Park is located in western South Dakota, on the southern edge of the Black Hills. The park was established in 1903 to protect Wind Cave which is recognized worldwide as a significant site. The Visitor Center receives about 110,000 visitors annually. The park facilities served by the wastewater treatment plant include the Visitor Center/park headquarters, park housing, maintenance facilities, and the Elk Mountain Campground. Visitation to the park is highest in the summer months, when up to 25,000 gallons per day of effluent are generated. Wastewater inputs to the ponds total about 2.5 million gallons per year, with precipitation adding another 1.6 million gallons. Thus, to function properly, the ponds need to evaporate at least 4.1 million gallons per year.

Between 1989 and 2000, the ponds filled to capacity three times. Effluent was discharged onto "spray fields" within the park. This process requires an emergency discharge permit from the South Dakota Department of Environment and Natural Resources. The state has notified the park that such permits will likely not be issued, and that a permanent resolution for the park's wastewater problem must be found. The park has taken measures to reduce wastewater generation throughout the park. Despite these efforts, the lagoons will likely reach capacity in the foreseeable future depending upon actual precipitation and park use.

Although no cave passages have been found directly below the current lagoons, there is a chance that cave resources exist at this location and wastewater leakage may impact these resources. During the 1990s, water quality testing within the cave revealed presence of contaminants found in untreated wastewater. The park took actions to protect the cave, including the installation of double-walled sewer pipes. Once these actions were complete, cave waters no longer carried elevated quantities of wastewater pollutants.

The park analyzed three options for replacing the failing wastewater treatment facility in addition to the no action alternative. The options analyzed included:

- Construct a new pipeline to transmit untreated sewage to Hot Springs for treatment (the original preferred alternative);
- Construct a wastewater treatment plant that discharges treated water under a National Point Discharge Elimination System (NPDES) permit; or
- Construct new, larger evaporation ponds in a location that does not restrict size and allows for greater evaporation rates to fully remove inputs of wastewater and precipitation (the new selected action).

Unlike the No Action Alternative, the action alternatives ensure adequate treatment of current and projected future flows of wastewater from the park facilities. Implementation of any of the action alternatives would result in beneficial impacts to natural resources and the human environment at the park.

In 2003, the NPS issued an environmental assessment and finding of no significant impact, proposing to construct a wastewater transmission line to convey the park's sewage to Hot Springs, SD for treatment. The main would have been routed along and within the Highway 385 right-of-way to connect with the city's sewage collection system, at the north end of town. The total distance of the installation would have been approximately 9.8 miles.

The NPS entered into consultation with Hot Springs and received approval from the City Council to pursue construction of the wastewater transmission line and connect to the municipal wastewater treatment system. In April 2004, the City of Hot Springs held a referendum on a measure to move forward with the wastewater agreement with the park. The measure was defeated by voters and further planning for the transmission line came to a halt. This resulted in the park choosing a different alternative analyzed in the environmental assessment to address their long-term wastewater management needs.

SELECTED ALTERNATIVE, RELOCATE LAGOONS TO NEW SITE

In order to utilize non-discharging lagoon treatment methods for managing wastewater at Wind Cave National Park, three larger lagoons will be constructed at an appropriate site. Because there is no room to expand at the current location, and because evaporation rates there are reduced by the lack of wind and sun, a new site was chosen. The new ponds will be constructed at a location just north and east of the existing lagoons, approximately 80 feet higher in elevation. This site is on a ridge bench where winds are stronger and there is increased exposure to sunlight. The new ponds will allow, on average, evaporation to keep up with inflows. However, during the wetter years, the increased capacity of the lagoons would allow full retention without out any discharges (see Figure 1).

A new lift station will be installed at the park's maintenance facility west of the current lagoon site (at the base of the gravity collection system). This pump unit will move wastewater from the collection system, through a new approximately 2,400-foot long transmission main, to the new ponds. In addition, a one-lane gravel service road approximately 1,100 feet long will be constructed to the site from the road that provides access to the existing lagoons and firing range.

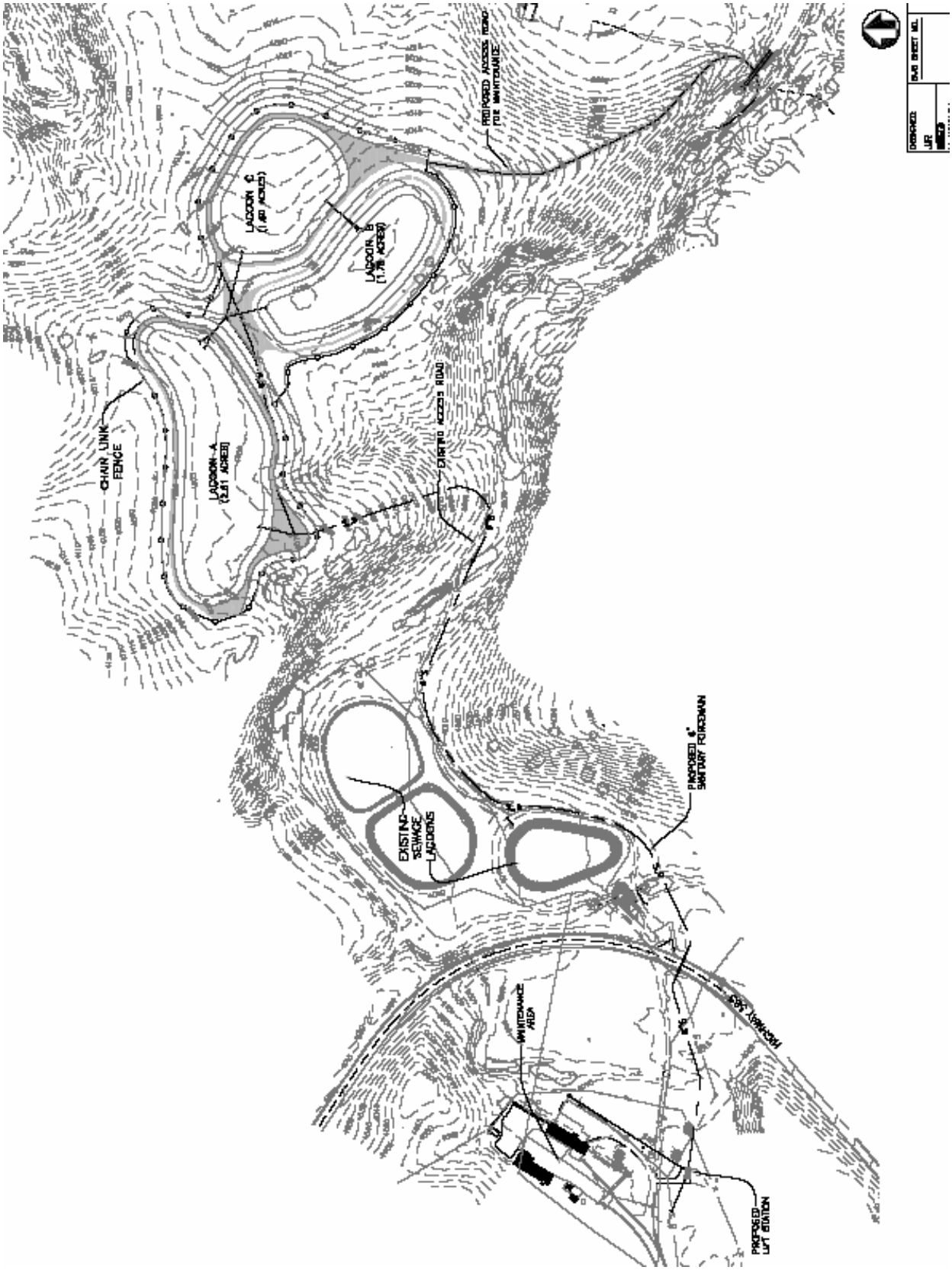

Figure 1. Location of New Wastewater Lagoons under the Selected Alternative

Under the selected alternative, construction would generate approximately 32 acres of disturbance, with 23 of those acres reclaimed after the lagoons are complete. The existing lagoons will be removed and the site rehabilitated. This reclamation effort would return 5 acres to native vegetation. The area will be regraded to approximate the natural contours and planted with a mixture of native grasses.

Wastewater lagoons are also known to draw wildlife, and special protective measures would need to be taken to prevent access by bison and elk at this site. In addition, the proposed location is visible from popular hiking areas, and this could continue to affect visitor experience.

The effects of the selected action on the human and natural environment were fully described in the 2003 environmental assessment. Notable effects of relocating the lagoons include moderate, long-term benefits to local water quality and a reduced potential to introduce contaminants into Wind Cave – a negligible to minor benefit. Adverse effects on other natural resources (soils, vegetation, wildlife, etc.) were negligible to minor. The human environment would be improved by reduced potential for release of wastewater contaminants and park maintenance operations would benefit by eliminating the need for periodic emergency spray fields. No previously undisclosed significant impacts on the environment are associated with the selected action.

OTHER ALTERNATIVES CONSIDERED

The No Action Alternative. The current wastewater treatment system at Wind Cave National Park consists of three lined lagoons totaling 3.2 acres having an average net annual inflow of 600,000 gallons. The lagoons have reached capacity three times during the period 1989 to 2000 with wastewater discharged under a special state permit by spray application onto plots of native prairie.

The Preferred Alternative, Construct a Transmission Main to Convey Wastewater to Hot Springs. A 9.8-mile wastewater transmission line would have been installed from the park to Hot Springs, SD following the Highway 385 right-of-way and connecting with the city's sewage collection system subsequently allowing treatment at the city's treatment plant along with the city's sewage, in compliance with South Dakota Department of Environment and Natural Resources regulations.

New Wastewater Treatment Facility with Surface Discharge. This option would have treated the park's wastewater with a "package plant" with subsequent effluent discharge into the Wind Cave Canyon drainage under a National Discharge Elimination System (NPDES) permit. However, discharge of effluent, containing residual disinfectant components, could potentially affect cave resources and be an unnatural water source adversely affecting surface ecology in this semi-arid environment.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

As stated in Section 2.7.D of *Director's Order #12 and Handbook*, the environmentally preferred alternative is the alternative that would promote the national environmental policy expressed in the National Environmental Policy Act (NEPA) (Sec. 101 (b)). This includes alternatives that:

- 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 that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The preferred alternative, Construct a New Transmission Main to Convey Wastewater to Hot Springs, fully addressed these six criteria and met the park's need to implement a long-term solution to their wastewater treatment needs. This alternative would have provided the best protection of cave resources by removing wastewater from the park and minimizing the potential for nutrient-rich water to enter delicate cave systems. This option also would have enhanced protection of public health and safety by removing untreated wastewater from the park. The visual impact of the existing lagoon facility would have been removed. In addition, this alternative would not have created artificial environments or produced long-term disturbance within Wind Cave National Park. Therefore, Construct a New Transmission Main to Convey Wastewater to Hot Springs, was the environmentally preferred alternative.

Due to the failure of the April 2004 referendum on the proposal to construct a wastewater transmission main to Hot Springs, the environmentally preferred alternative cannot be implemented. Therefore, the park has selected the alternative of constructing new, larger evaporative ponds for wastewater treatment. The "selected alternative," referred to as Alternative D, Relocate Lagoons to New Site, in the environmental assessment, provides increased protection of cave resources, public health and safety, and water quality. However, because all wastewater will not be removed from the park the degree of protection is not as high as under the preferred alternative.

THE SELECTED 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.

Whether taken individually or as a whole, impacts of the project do not reach the level of significance which would require analysis in an environmental impact statement.

Implementation of the selected alternative will produce long-term beneficial effects on both the human and natural environment, as well as short-term adverse effects. Beneficial effects include: reducing the potential for nutrients to affect cave resources (resulting in long-term, minor benefits and ensuring enjoyment by future generations); compliance with South Dakota wastewater permitting requirements; long-term benefits to water quality, public health and safety, and park operations; and removal of the existing ponds from a high visibility area (resulting in long-term, minor benefits to the visitor experience).

Installation of the new lagoons and access road will produce 9 acres of long-term vegetation and soil disturbance. However, the existing lagoon site will be rehabilitated and planted with native vegetation, resulting in restoration of approximately 5 acres.

2. The degree to which the proposed action affects public health or safety

Public health and safety was an important issue addressed during development of the project alternatives. The park's drinking water well is located about one mile downstream from the current lagoons. Relocating the lagoon treatment facility to a location outside Wind Cave Canyon and 80-feet higher in elevation reduces the risk of contaminating the park's drinking water well with nutrients or microbes found in wastewater. This will result in long-term minor benefits to public health and safety.

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 historic or cultural resources, 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 warrant high levels of protection. Impacts to these resources are long-term. Increased nutrients from wastewater can threaten sensitive biota and delicate formations within the caves.

4. The degree to which the effects on the quality of the human environment is likely to be highly controversial

There were no controversial impacts identified during the analysis done for the environmental assessment. Some local controversy was generated during the public comment period through editorial opinion. Substantive comments received are addressed in the "Errata Sheets" attached to this document.

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

The risks to the quality of the human environment associated with the selected alternative would be negligible. There were no highly uncertain, unique, or unknown risks associated with implementation of the preferred alternative.

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 selected alternative neither establishes a National Park Service precedent for future actions with significant effects nor would it represent a decision in principle about a future consideration.

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

Implementation of the selected alternative will contribute long-term, minor to moderate beneficial effects for cave systems, public health and safety, and local surface water quality.

The selected alternative will not significantly impact the surface resources of Wind Cave National Park. Any adverse effects, in conjunction with the adverse impacts of any other past, present, or reasonably foreseeable future actions, will result in negligible to minor cumulative impacts to soils, vegetation, wildlife, and cultural and ethnographic resources.

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

Implementation of the selected alternative will have no effect on known prehistoric or historic archeological resources. An archeological survey was conducted on September 1, 2004, at the area affected by the selected alternative. A single, stone artifact was encountered. This artifact lacks provenience due to the heavily disturbed nature of the current and proposed lagoon sites (lagoon and access road construction and operation areas and bison wallows). The park forwarded the findings to the South Dakota Historic Preservation Officer (SHPO). In a response dated October 20, 2005, the SHPO concurred with the park's determination that no historic properties would be affected under the selected alternative

Mitigating measures described in the environmental assessment, including monitoring, would help ensure protection of archeological resources in the unlikely event any are uncovered by construction.

The historic Civilian Conservation Corps (CCC) park facilities are outside the project area and would not be affected by the proposed action. With identified mitigation measures, the project would have no adverse effects to archeological, historic, ethnographic, or cultural landscape resources at Wind Cave National Park.

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

There will be no affect to threatened or endangered species as a result of implementation of the selected alternative because no federally listed species occur in the project area. The U.S. Fish and Wildlife Service was contacted, and agreed with the finding of "no effect" during a telephone conversation with park staff in November 2002.

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

The selected alternative would 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 selected alternative would not constitute an impairment to Wind Cave National Park resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the project's environmental assessment, relevant scientific studies, and the professional judgment of the decision-maker guided by the direction in National Park Service Management Policies. Although implementation of the project would cause short-term, localized adverse effects, in all cases these result from actions taken to preserve vital park resources. Overall, implementation of the selected alternative would result in benefits to cave resources, public health and safety, and local water quality. Implementation of the Project to Replace the Failing Wastewater Treatment Facility at Wind Cave National Park would not result in impairment of any park resources or values.

PUBLIC INVOLVEMENT AND CONSULTATION

National Park Service internal discussions led to identification of the main issues to be addressed in this environmental assessment. Protection of park resources and compliance with state and federal wastewater regulations are the primary objectives of the Project to Replace the Failing Wastewater Treatment Facility. To obtain public input on the proposed project, an open house was held at the park on April 24, 2003. Seven interested parties listed their attendance on the sign-in sheet.

Several Native American Tribes have demonstrated interest in the areas within Wind Cave National Park. The following tribes and tribal representatives received copies of the environmental assessment for review and comment. No responses were received.

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

On October 20, 2005, the South Dakota SHPO concurred with the park's determination that no historic properties would be affected under the selected alternative.

During a telephone conversation in November 2002, the U.S. Fish and Wildlife Service agreed with the park's finding of no effect on threatened and endangered species

The environmental assessment was posted on the Wind Cave National Park website on March 31, 2003. The public review period was closed on May 15, 2003. The document was also mailed to a recipient list of state and local agencies and interested parties. The responses to public comment are summarized in the attached Errata Sheets.

The City of Hot Springs held a referendum on the proposal to implement the NPS preferred alternative in April 2004. The proposal was defeated.

CONCLUSION

The selected alternative would not constitute an action that normally requires preparation of an environmental impact statement (EIS). The selected alternative would not have a significant effect on the human environment. Negative environmental impacts that could occur are short-term and of negligible to minor in intensity. There would be 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 risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action would not violate any federal, state or local environmental protection law nor would it result in the impairment of park resources or values.

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 12/20/2005

Superintendent Date

Approved: /s/ Ernest Quintana 01/09/2006

Midwest Regional Director Date

ERRATA SHEETS
Project to Replace the Failing Wastewater Treatment Facility
Environmental Assessment
Wind Cave National Park

The environmental assessment for the Project to Replace the Failing Wastewater Treatment Facility at Wind Cave National Park was on public review for 30 days, ending May 15, 2003. A total of seven letters and two signed petitions were received during the review period. Comments were analyzed consistent with the guidance provided in the National Park Service's *Director's Order 12*, the NPS guideline for environmental compliance. Comments are considered substantive when they: a) question, with reasonable basis, the accuracy of information in the draft environmental assessment, b) question, with reasonable basis, the adequacy of the environmental analysis, c) present reasonable alternatives other than those presented in the draft environmental assessment, or d) cause changes or revisions in the proposal. Comments that state a preference for one alternative (or component of an alternative), state opinions, or are outside the scope of the project, are not considered substantive.

The park received six letters from the public that opposed replacing the failing wastewater facility, and two letters in support of the preferred alternative.

Two letters with multiple substantive comments were submitted during the public review period. The issues raised in these letters are addressed below in "Response to Comments." Three identical petitions with a total of 47 signatures were received which opposed implementation of the project.

Further engineering design for the selected alternative resulted in two changes to the environmental assessment. These are listed in "Changes in the Environmental Assessment Text," below. The combination of the environmental assessment and these errata sheets form the complete and final record on which the Finding of No Significant Impact is based.

One individual questioned the adequacy of leak detection for the preferred alternative. As the preferred alternative is no longer a viable option no further modifications were warranted.

Comments were also received requesting clarification of information presented in the environmental assessment. These questions did not result in editorial changes to the environmental assessment. Responses to public and agency inquiries are addressed in the "Response to Public Comment" section, below.

CHANGES IN THE ENVIRONMENTAL ASSESSMENT TEXT

The engineering design process led to changes in the number and sizes of the lagoons. These changes are reflected in the description of Alternative D, the selected alternative, provided below.

> "In order to utilize non-discharging lagoon treatment methods for managing wastewater at Wind Cave National Park, three larger lagoons, totaling six acres in size, would be constructed at an appropriate site. Because there is no room to expand at the current location, and because evaporation rates here are low, a new site would be chosen. The proposed action identifies a location just north and east of the existing lagoons, approximately 80 feet higher in elevation. This site is on a ridge bench where winds are stronger and there is increased exposure to sunlight. The new ponds will allow, on average, evaporation to keep up with inflows.

However, during the wetter years, the increased capacity of the lagoons would allow full retention without out any discharges.

A new lift station would be installed at the maintenance area located west of the current lagoon site (at the base of the gravity collection system). This pump unit will move wastewater from the collection system, through a new approximately 2,400-foot long transmission main, to the new ponds. In addition, a one-lane gravel service road approximately 1,100 feet long will be constructed to the site from the road that provides access to the existing lagoons and firing range.

Under the selected alternative, construction would generate approximately 32 acres of disturbance, with 23 of those acres reclaimed after the lagoons are complete. The existing lagoons will be removed and the site rehabilitated. This reclamation effort would return 5 acres to native vegetation. The area will be regraded to approximate the natural contours and planted with a mixture of native grasses."

The lagoons developed for the selected action are smaller in size than those proposed in the 2003 environmental assessment. The surface area of the new lagoons is approximately 6 acres, in contrast to the 14-acre lagoons described in the in the EA. As described above, the anticipated area of disturbance for construction of the selected action is 32 acres, with 23 acres to be reclaimed. The acreages of disturbance have been adjusted throughout the Final EA. However, adjustment of the disturbance areas did not result in changes to either the intensity or duration of effects on park resources.

RESPONSE TO PUBLIC COMMENTS

One comment was received questioning the range of alternatives addressed in the environmental assessment. The commenter noted that reducing the number of park staff living in the park would lessen the quantity of wastewater generated. This commenter also made reference to the reduction or elimination of housing at Carlsbad Caverns and at Jewel Cave to reduce aboveground impacts to the cave system.

The park agrees that reducing the number of park residents would decrease the demands made on the wastewater treatment facility. The housing needs for Wind Cave staff was determined by development of a Housing Management Plan (HMP). The need for in-park housing units has been described in the park's current HMP, based on availability of housing in the vicinity (for both year-round and seasonal workers), housing demands placed on park infrastructure, and the need for resource protection within the park. Such resource protection positions include cave, wildlife and vegetation technicians, and seasonal law enforcement rangers.

The park houses year around a total of five permanent park employees and four dependents. These employees include two required law enforcement ranger occupants, one resource protection technician, and one interpretive ranger. Thirty-two bedrooms are available in the park for seasonal (summer) staff, and these are filled each year. There is no short-term (6 months or less) housing available in Hot Springs or Custer. These workers cannot live in motels for an extended period due to cost and lack of kitchen facilities. Therefore, housing must be provided for these employees.

The park made inquires within the NPS regarding the status of housing at Carlsbad Caverns and Jewel Cave. In 2002, Carlsbad housed three permanent staff and 18 seasonal and volunteer

personnel within the park. Jewel Cave does not house permanent staff in the park, but did have eight seasonal employees living in the park in 2002.

In addition, several of the Wind Cave housing units are historic Civilian Conservation Corps buildings, constructed in the 1930s and 1940s. These structures are included in the parks' Administrative and Utility Historic District, which is listed on the National Register of Historic Places. The maintenance and protection of these structures is best served by retention as residences.

Comments were also received regarding leak detection and spill prevention for the project. One individual expressed concern for protection of cave resources, suggesting use of dual-walled piping and enhanced leak detection. The South Dakota Department of Environment and Natural Resources expressed the need to protect groundwater from the effects of potential leaks.

The option of using dual-walled pipe in construction of the sewer main was considered and rejected during project design as it was found that the single-wall pipe was adequate for the project. However, due to the rejection the sewer main construction by the City of Hot Springs, this alternative is no longer under consideration and the comment is no longer applicable.

Several questions relating specifically to issues addressed in the environmental assessment are addressed below for clarification.

What is the history of wastewater flows?

Wastewater flow into the lagoons has never been metered. The ponds have depth gauges and readings are periodically manually recorded. Stored and discharged volumes (in gallons) from 1989 to the present are as follows:

Date	Stored	Discharged
1989	1,566,671	
1990	2,455,101	
1991	3,286,459	
1992	3,732,012	
1993	3,069,198	1,600,000
1994	3,036,007	
1995	3,823,365	
1996	3,971,094	600,000
1997	4,070,635	
1998	4,320,092	
1999	3,665,238	2,575,800
2000	2,008,501	1,656,220
2001	1,757,274	
2002	2,396,795	
2003	3,036,316	

How much improvement was made by the installation of low-flow toilets, shower heads, etc.?

Water savings from use of low-flow fixtures is difficult to quantify because park buildings do not have individual water meters. The park meters water pumped from the well, but not all of this water ends up in the sewer system. A substantial amount is used to irrigate lawns, to control prescribed and wildland fire suppression, etc.

Low-flow fixtures were installed between 1992 and 1994. The five-year average of water pumped from the well from 1987 to 1990 was 6,047,020 gallons per year. The average consumption for the five years following the conversion, 1995 to 1999, was 4,047,900 gallons for a difference of about 2 million gallons per year. We do not know how much of this can be attributed to the low-flow fixtures. After replacing the headquarters water distribution system, the park's annual water use dropped to 3,373,000 gallons in 2002.

How much extra flow are you getting from the campground? Are other water sources connected to the sewer?

The park supplied 253,700 gallons of water to the campground during the 2002 season. Not all of this returned in the sewer system, because many campground uses do not generate wastewater flows. Prior to the 2002 season, the campground restrooms used a septic system and were not connected to the lagoons.

Why has the park not applied for a permanent irrigation disposal permit?

1. The existing lagoons were intended to be non-discharging. However, experience has shown that regular intermittent discharges are needed. Effluent from the park evaporation ponds would not meet water quality standards generally permitted for surface water discharge.

2. Even if permitted, continued, repetitive discharges of wastewater would be an unnatural water and nutrient source that could result in undesirable changes in the ecology of the area of discharge. If this water were to reach cave passages, it would have adverse impacts. This water could also infiltrate into the water table of the area and affect resources outside the park.

3. The park shares the concerns of the South Dakota Department of Environmental and Natural Resources that continued discharge of wastewater could have a detrimental affect on ground water quality.

Over how many acres was spray irrigation discharged?

Seven acres were irrigated in 1993, 1999, and 2000.

What is the legal description of the land that was used for irrigation discharge? What is the suitability of this land for use in future application?

SE 1/4, Section 1, T6S, R5E. This land is native, unbroken prairie and is fully contained within Wind Cave National Park. The land supports a healthy mixed-grass prairie and is a favored spot for bison and elk grazing.

One individual submitted a lengthy set of questions that included requests for additional information on the history and management of the existing wastewater treatment facility. The park has answered the majority of the commenter's questions on its website.