

**FINDING OF NO SIGNIFICANT IMPACT  
DR. GOODE SPRING  
BRYCE CANYON NATIONAL PARK**

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**Introduction**

The Town of Tropic holds a domestic water right for Dr. Goode Spring located inside Bryce Canyon National Park. The spring is located in the northeast portion of the Park along Utah Highway 12. The water collection apparatus authorized by the State of Utah is a buried perforated pipe to collect water in a cement box which sends the water down a buried pipe approximately three and one quarter miles to the Town of Tropic. Some time during the past few years the system quit delivering water. The system is connected (in series) to at least one other spring collection device. The loss of water in the pipe was initially thought to be related to drought conditions. Further inspection of the system determined the Dr. Goode Spring collection apparatus had failed and needed extensive repair work. The Town is seeking authorization to repair existing problems, implement some erosion prevention measures, and develop a long-term maintenance agreement.

The purpose of this planning effort is to preserve and protect natural and cultural resources and meet the Park's responsibilities for providing the Town of Tropic with access to operate their water development at Dr. Goode Spring. The project as proposed is to repair the existing facility, shore up the stream-bank to protect against further erosion, and replace about 325 feet of buried pipe.

The park has a legal responsibility to provide an access route to the Town for implementing routine maintenance. Once the re-construction of the water collection system is completed the Park and the Town of Tropic need to develop an agreement whereby the Town would be provided access on a periodic basis to conduct routine maintenance of the structure.

**Preferred Alternative**

The Town of Tropic proposes to repair a water collection box at the Dr. Goode Spring located in Tropic Canyon. The repair work entails disconnecting the collection line upstream of the collection box, cleaning out the gravel that has collected in the line, shortening the collection line by four to six feet and re-leveling/re-connecting the box to the collection line. A small amount of bank material may need to be excavated to clean the existing line and re-connect the box as close to the existing bank as possible. The construction drawings indicate the excavation to be one to two feet. The re-construction work necessary to make this system work again would include trenching from the collection box downstream for approximately 325 feet and laying a 6 inch diameter pipe with fine grain bedding material in the bottom of the ditch. The supply line will connect to an existing line from another spring collection box downstream. This trench would be a maximum of five feet deep throughout its entire length. No apparatus to measure the rate of flow in the supply line is proposed in the draft construction plans. A second shallow trench would be placed adjacent to the supply line ditch to install an overflow drain line. The length of this ditch would be approximately 35 feet or what ever it takes to reach daylight. The

conservation measures necessary to protect the repaired system from flooding would be to install a wall of gabion baskets that extends approximately 45 feet in length and stands six feet tall.

The equipment necessary to complete this work includes a large backhoe or small track-hoe capable of lifting the existing spring box and moving it closer to the stream bank. This equipment would access the work site by traveling up the wash from an access road located outside the National Park. The access is clear with the exception of one large dead fallen tree. The tree could be moved to the side allowing access to the work site and returned to its original fallen point after the repair and re-construction project is completed. Other equipment necessary to complete the work would include a large dump bed truck to haul materials to the site. This vehicle would access the work site on a daily basis and possibly make multiple trips to and from the work site in a given day. Other personnel could access the work site from an informal parking area located adjacent to Highway 12. An informal trail is already existing that would provide foot traffic access for employees working on the site. The duration of the repair and re-construction work is estimated at four to seven days. The work would be performed during a dry time of the year to mitigate adverse effects to water quality and stream organisms.

The proposed action includes development of a maintenance agreement that would provide the Town of Tropic access to the Spring box on a periodic basis to ensure it is functioning properly and that water flows from the spring do not exceed their appropriated water right.

The following best management practices are included in the preferred alternative:

Work will be performed during a dry time of the year to mitigate adverse effects to water quality and stream organisms.

All equipment will access the work site by traveling up the wash bottom from an access road located outside the National Park. The dead tree across the wash bottom will be moved to allow access and then replaced after the work is finished.

A large dump truck (to bring in fill material) will access the work site on a daily basis and will possibly need to make multiple trips to and from the work site in a given day. All other heavy equipment will go in once, stay on site to complete the job and then go out.

All personnel will access the work site by foot via an informal trail from a pullout on Highway 12 located directly across from the spring site.

The bench upstream from the existing collection box will not be excavated more than one to two feet.

The wall of the wash located north of and adjacent to the collection box will not be excavated.

All equipment will be pressure washed to remove dirt and vegetation from the treads/wheels before working at the site.

The following mitigation practices are included in the preferred alternative:

Bryce Canyon National Park staff will assess any necessary damage to native vegetation at the site and develop an appropriate revegetation plan.

The Town of Tropic will re-grade any changes in the fluvial surfaces at the site that occur during construction. This grading will be based on the pre-construction topographic maps and photo points.

### **Alternatives Considered**

The only other alternative considered is the no-action alternative. This alternative describes the action of continuing the present management operation and condition; it does not imply or direct discontinuing the present action or removing existing uses and structures. The no-action alternative provides basis for comparing the management direction and environmental consequences of the proposed action and must always be considered in an environmental assessment. Should the no-action alternative be selected, the National Park Service would respond to future needs and conditions associated with the Dr. Goode Spring Box Repair by not recommending major actions or changes to the existing facility.

The no-action alternative is the environmentally preferred alternative. The environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed by §101 of the National Environmental Policy Act. This includes alternatives that:

- (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- (2) assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
- (3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- (4) 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
- (5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Based on the above criteria, the no-action alternative would provide maximum protection of park resources and values, human health and safety, and visitor use and enjoyment of Bryce Canyon National Park.

The preferred alternative was chosen over the environmentally preferred alternative (no-action) for one overriding reason. The Town of Tropic holds a valid domestic water right from the Dr. Goode Spring. Their water right is perfected with the State of Utah. The water rights numbers are 89-1135 (0.224 CFS, Irrigation use, 1880 priority) and 89-1469 (0.444 CFS, Municipal use, 1880 priority). This water right predates the creation of the park by more than 40 years. Bryce

Canyon National Park recognizes this water right and is required to manage Dr. Goode Spring in the context of the pre-existing perfected water rights. As such, Bryce Canyon National Park is required to select the preferred alternative over the environmentally preferred alternative in this case. The preferred alternative will be implemented in such a way as to minimize and mitigate all detrimental effects on the environment. This will be accomplished by strictly administering all mitigation and best management practices during and after implementation of the preferred alternative.

### **Why the Preferred Alternative will not have a Significant Effect on the Natural, Cultural, and Human Environment**

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

#### *Impacts that may be both beneficial and adverse*

The continued diversion of water from Dr. Goode Spring (preferred alternative) has both beneficial and adverse impacts. This spring meets one of the commonly accepted definitions of a wetland. This definition is 'wetlands without soil and without hydrophytes, such as gravel beaches or rocky shores without vegetation'. The diversion causes a moderate negative impact on the wetland created by the flow from Dr. Goode Spring. The diversion (which is a perfected water right with the State of Utah) also provides great beneficial use for the Town of Tropic. The water from Dr. Goode Spring is an important and scarce commodity for irrigation and domestic use in this arid environment.

#### *Degree of effect on public health and safety*

There is no difference between the preferred alternative and the no-action alternative in regards to public safety. Both alternatives will have negligible effect on public health and safety.

#### *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.*

Implementation of the proposed action will have no effect on unique characteristics of the geographic area such as historic or cultural resources, parklands, prime farmlands, or wild and scenic rivers. However, as detailed in 'Impacts that may be both beneficial and adverse' section above, the preferred alternative (continuation of the diversion) will result in a moderate negative impact on the wetland created by the flow from Dr. Goode Spring. This small and potentially bigger wetland could be considered an ecologically critical area in this arid landscape.

#### *Degree to which effects on the quality of the human environment are likely to be highly controversial*

As demonstrated by the response to the public scoping letter and the environmental assessment, the effects of the proposed action on the quality of the human environment have not been and are not likely to be highly controversial (see Public Involvement section).

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

Based on past development and operation of the water right at Dr. Goode Spring the possible effects of the proposed action on the quality of the human environment are not highly uncertain and will not involve unique or unknown risks

*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*

Authorization of the preferred alternative will in no way establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

Whatever future maintenance agreement is worked out will not be influenced by authorization of the preferred alternative.

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

The preferred alternative of re-establishing the spring collection system and box will disturb a site that has been impacted before and will contribute minor cumulative effects. Because of the existing water right, this site has seen excavation and disturbance for the last 120 years. The proposed action will continue this minor disturbance in restoring and capturing the water right.

*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*

Authorization and execution of the preferred alternative will have negligible effect on districts, sites, highways, structures, or objects listed on National Register of Historic Places and will not cause the loss or destruction of significant scientific, cultural, or historical resources.

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

Bryce Canyon National Park had occurrence of three federally listed wildlife species. They are the Southwest willow flycatcher (*Epidonox trailii extimus*) which is endangered, the bald eagle (*Haliaeetus leucocephalus*) which is threatened, and the Utah prairie dog (*Cynomys parvidens*) which is also threatened. The project area was surveyed for critical habitat and these species and neither was found. As such, the preferred alternative will have negligible effect on any endangered or threatened species or its critical habitat. Bryce Canyon National Park does not have any federally listed species of plants. The Park does contain four species of plants listed with the State of Utah as G1 rank (critically imperiled globally, typically five or fewer occurrences). These are Least Spring Parsely (*Cymopterus minimus*), Abajo Daisy (*Erigeron abajoensis*), Podunk Groundsel (*Senecio malmstenii*), and Yellowish Cryptanth (*Cryptantha ochroleuca*). The project area was surveyed for populations and habitat of these species and neither was found. No suitable habitat for any of these sensitive species (animal or plant) was identified at the project site. As such, the preferred alternative will have negligible effect on any endangered or threatened species or its critical habitat.

*Whether the action threatens a violation of Federal, State, or Local environmental protection law.*

Implementation of the proposed action will not violate any federal, state, or local environmental protection laws.

### *Impairment*

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the proposal will not constitute an impairment to Bryce Canyon National Park's resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the Dr. Goode Spring Environmental Assessment the public comments received, relevant scientific studies, and the professional judgement of the decision-maker guided by the direction in *NPS Management Policies* (December 27, 2000). Although the project has some negative impacts, in all cases these adverse impacts are the result of actions taken to preserve and restore other park resources and values. Overall, the plan results in benefits to park resources and values, opportunities for their enjoyment, and it does not result in their impairment.

### **Public Involvement**

A scoping letter for Dr. Goode Spring was sent out requesting comments for a 30-day period beginning January 8<sup>th</sup>, 2002. One comment was received from the Association of Five County Governments in favor of the project. An environmental assessment was then prepared and made available for public review and comment during a 30-day period ending May 14<sup>th</sup>, 2002. Only one response was received. This comment was from the Division of Water Rights in the Department of Natural Resources of the State of Utah and is outlined and addressed in the attached errata sheet. A mailing list for the scoping letter and environmental assessment is included in the errata section.

### **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 environmental impacts that could occur are minor or moderate in intensity. There are no significant impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly 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: \_\_\_\_\_

Superintendent

Date

Approved: \_\_\_\_\_

Intermountain Regional Director

Date

## **Errata Sheets**

### **Dr. Goode Reconstruction Environmental Assessment Bryce Canyon National Park**

One comment was received from the Association of Five County Governments in favor of the project. Feedback on style and format was received from the NPS Regional Office on Planning and Compliance. The only comment requiring specific public response on the Dr. Goode Reconstruction Environmental Assessment was received from the Division of Water Rights in the Department of Natural Resources of the State of Utah. This comment resulted in no changes to the alternatives or the associated impacts.

*Comment:* Construction of the gabion basket wall seems an excessive measure to take to protect the spring collection apparatus. Could a smaller structure achieve the same result?

*Response:* In order to avoid (or forestall) the same flood caused destruction of the previous spring collection device, a gabion wall should be constructed along the south edge of the collection area. The scale of the wall was determined by an engineering firm (Sunrise Engineering Inc., Washington, Utah) after surveying the area to produce topographic site maps. They used this survey and mapping to design the repair for the spring site. The project was designed to have the least amount of impact and yet salvage the spring and protect it from future damage.

*Comment:* Why was relocation of the spring box outside of the flood plain alternative dismissed from further consideration?

*Response:* This alternative was dismissed from further consideration because it would require a new development that would drill to reach the water in the spring. It would also require installation of a pump and bringing power to the site. It would also involve construction of a collection box or relocation of the existing collection box to a new location on the stream bank, and trenching to install a supply line that would extend up to one mile in length before it exits the floodplain. This alternative would disrupt a large area of native vegetation and require changes to the appropriated water right.

*Comment:* Appropriate mitigation for this project should include a revegetation plan and re-grading plan to repair any damage that may occur during construction.

*Response:* Mitigation measures will be incorporated into the project to include a revegetation plan and re-grading plan to repair any damage that may occur during construction.

**Mailing List for the Scoping Letter and Environmental Assessment:**

Jim Dykmann, Utah SHPO, Division of State History  
Garfield County Commission  
Panguitch Public Library  
Jean Seiler, Mayor, Tropic Town  
Shawn Zinszer, Department of Natural Resources, Utah Water Rights Division  
Marv Wilson, Sunrise Engineering  
National Park Service, IMR Planning and Environmental Quality  
The Honorable Robert F. Bennett  
The Honorable Chris Cannon  
Daily Spectrum  
Southern Utah News  
Garfield County News  
Kenneth Sizemore, Five County Association of Governments  
Sierra Club, Salt Lake City, UT  
Carl P. Guillette, Dixie National Forest

**Impact Threshold Definitions**  
**Dr. Goode Spring Project, Bryce Canyon National Park**

| <b>Impact Threshold Definition</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                         |
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| <b>Impact Topic</b>                                    | <b>Negligible</b>                                                                                                                                                                                                                                                                                                                                                                                   | <b>Minor</b>                                                                                                                                                                                                                                                                                                                          | <b>Moderate</b>                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Major</b>                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Duration</b>                                                                                                         |
| Endangered or threatened species and critical habitats | No federally listed species would be affected or the alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms. | The alternative would affect an individual(s) of a listed species or its critical habitat, but the change would be small. Minor effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species. | An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect could have some long-term consequence to the individual, population, or habitat. Moderate effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species. | An individual or population of a listed species, or its critical habitat, would be noticeably affected with a long-term, vital consequence to the individual, population, or habitat. Major effect would equate with a "may effect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species or critical habitat. | <u>Plants and Animals</u><br>Short-term - Recovers in less than 1 year<br>Long-term - Takes more than 1 year to recover |

**Impact Threshold Definitions**  
**Dr. Goode Spring Project, Bryce Canyon National Park**

| <b>Impact Threshold Definition</b> |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                     |
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| <b>Impact Topic</b>                | <b>Negligible</b>                                                                                                                                                                                                                                                                             | <b>Minor</b>                                                                                                                                                                                                                                                                                       | <b>Moderate</b>                                                                                                                                                                                                                                                                                                                    | <b>Major</b>                                                                                                                                                                                                                                                                                                                                 | <b>Duration</b>                                                                                                                                     |
| <b>Floodplains</b>                 | Floodplains would not be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight, local, and would likely be short-term.                                                                                                       | Changes in floodplains would be measurable, although the changes would be small, would likely be short-term, and the effects would be localized. No mitigation measure associated with water quality or hydrology would be necessary.                                                              | Changes in floodplains would be measurable and long-term but would be relatively local. Mitigation measures associated with water quality or hydrology would be necessary and the measures would likely succeed.                                                                                                                   | Changes in floodplains would be readily measurable, would have substantial consequences, and would be noticed on a regional scale. Mitigation measures would be necessary and their success would not be guaranteed.                                                                                                                         | Short-term - Following treatment, recovery will take less than one year<br>Long-term - Following treatment, recovery will take longer than one year |
| <b>Soils</b>                       | Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soil productivity or fertility would be slight and no long-term effects to soils would occur.                                                                          | The effects to soils would be detectable. Effects to soil productivity or fertility would be small, as would the area affected. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.                                    | The effect on soil productivity or fertility would be readily apparent, likely long-term, and result in a change to the soil character over a relatively wide area. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.                                                      | The effect on soil productivity or fertility would be readily apparent, long-term, and substantially change the character of the soils over a large area in and out of the monument. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.                                    | Short-term - Recovers in less than 3 years<br>Long-term - Takes more than 3 years to recover                                                        |
| <b>Vegetation</b>                  | No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be short-term, on a small scale, and no species of special concern would be affected. | The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective. | The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population in the long-term and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected. | The alternative would have a considerable long-term effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the monument. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed. | Short-term - Recovers in less than 3 years<br>Long-term - Takes more than 3 years to recover                                                        |

**Impact Threshold Definitions**  
**Dr. Goode Spring Project, Bryce Canyon National Park**

| <b>Impact Threshold Definition</b> |                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                     |                                                                                                                                                         |
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| <b>Impact Topic</b>                | <b>Negligible</b>                                                                                                                                                                           | <b>Minor</b>                                                                                                                                                                                                                                         | <b>Moderate</b>                                                                                                                                                                                                                 | <b>Major</b>                                                                                                                                                                                                                        | <b>Duration</b>                                                                                                                                         |
| Water quality and hydrology        | Neither water quality nor hydrology would be affected, or changes would be either non-detectable or if detected, would have effects that would be considered slight, local, and short-term. | Changes in water quality or hydrology would be measurable, although the changes would be small, would likely be short-term, and the effects would be localized. No mitigation measure associated with water quality or hydrology would be necessary. | Changes in water quality or hydrology would be measurable and long-term but would be relatively local. Mitigation measures associated with water quality or hydrology would be necessary and the measures would likely succeed. | Changes in water quality or hydrology would be readily measurable, would have substantial consequences, and would be noticed on a regional scale. Mitigation measures would be necessary and their success would not be guaranteed. | Short-term - Following treatment, recovery will take less than one year<br><br>Long-term - Following treatment, recovery will take longer than one year |

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| <b>Impact Threshold Definition</b>                    |                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                           |                                                                                                           |
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| <b>Impact Topic</b>                                   | <b>Negligible</b>                                                                                                                                                                                                                                           | <b>Minor</b>                                                                                                                                                                                                                                         | <b>Moderate</b>                                                                                                                                                                                                                                                                                                                           | <b>Major</b>                                                                                                                                                                                                                                                                                                                              | <b>Duration</b>                                                                                           |
| <b>Wildlife</b>                                       | Wildlife would not be affected or the effects would be at or below the level of detection, would be short-term, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population. | Effects to wildlife would be detectable, although the effects would be localized, and would be small and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful. | Effects to wildlife would be readily detectable, long-term and localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.                                                                                                                  | Effects to wildlife would be obvious, long-term, and would have substantial consequences to wildlife populations in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.                                                                                    | Short-term - Recovers in less than 1 year<br>Long-term - Takes more than 1 year to recover                |
| <b>Economic effects</b>                               | No effects would occur or the effects to socioeconomic conditions would be below or at the level of detection. The effect would be slight and no long-term effects to socioeconomic conditions would occur.                                                 | The effects to socioeconomic conditions would be detectable, although short-term. Any effects would be small and if mitigation were needed to offset potential adverse effects, it would be simple and successful.                                   | The effects to socioeconomic conditions would be readily apparent and likely long-term. Any effects would result in changes to socioeconomic conditions on a local scale. If mitigation is needed to offset potential adverse effects, it could be extensive, but would likely be successful.                                             | The effects to socioeconomic conditions would be readily apparent, long-term, and would cause substantial changes to socioeconomic conditions in the region. Mitigation measures to offset potential adverse effects would be extensive and their success could not be guaranteed.                                                        | Short-term – Effects last one year or less<br><br>Long-term – Effects last longer than one year           |
| <b>Energy requirements and conservation potential</b> | No effects would occur or the effects to energy requirements and conservation potential would be below or at the level of detection. The effect would be slight and no long-term effects to energy requirements and conservation potential would occur.     | The effects to energy requirements and conservation potential would be detectable, likely short-term. Any effects would be small and if mitigation were needed to offset potential adverse effects, it would be simple and successful.               | The effects to energy requirements and conservation potential would be readily apparent and likely long-term. Any effects would result in changes to energy requirements and conservation potential on a local scale. If mitigation is needed to offset potential adverse effects, it could be extensive, but would likely be successful. | The effects to energy requirements and conservation potential would be readily apparent, long-term, and would cause substantial changes to energy requirements and conservation potential conditions in the region. Mitigation measures to offset potential adverse effects would be extensive and their success could not be guaranteed. | Short-term - occurs only during the treatment action<br><br>Long-term - occurs after the treatment action |

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| <b>Impact Threshold Definition</b> |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                       |
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| <b>Impact Topic</b>                | <b>Negligible</b>                                                                                                                                                                                                                              | <b>Minor</b>                                                                                                                                                                                                                                      | <b>Moderate</b>                                                                                                                                                                                                                                                      | <b>Major</b>                                                                                                                                                                                                                                                                                                                            | <b>Duration</b>                                                                                                                                       |
| Park operations                    | Park operations would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on park operations.                                                                                         | The effect would be detectable and likely short-term, but would be of a magnitude that would not have an appreciable effect on monument operations. If mitigation was needed to offset adverse effects, it would be simple and likely successful. | The effects would be readily apparent, likely long-term, and would result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measure would be necessary to offset adverse effects and would likely be successful. | The effects would be readily apparent, long-term, would result in a substantial change in park operation in a manner noticeable to staff and the public and be markedly different from existing operations. Mitigation measure to offset adverse effects would be needed, would be extensive and their success could not be guaranteed. | Short-term - Effects lasting for the duration of the treatment action<br>Long-term - Effects lasting longer than the duration of the treatment action |
| Public health and safety           | Public health and safety would not be affected, or the effects would be at low levels of detection and would not have an appreciable effect on the public health or safety.                                                                    | The effect would be detectable and would likely be short-term, but would not have an appreciable effect on public health and safety. If mitigation were needed, it would be relatively simple and would likely be successful.                     | The effects would be readily apparent and long-term, and would result in substantial, noticeable effects to public health and safety on a local scale. Mitigation measures would probably be necessary and would likely be successful.                               | The effects would be readily apparent and long-term, and would result in substantial, noticeable effects to public health and safety on a regional scale. Extensive mitigation measures would be needed, and their success would not be guaranteed.                                                                                     | Short-term - Effects last one year or less<br><br>Long-term - Effects last longer than one year                                                       |
| Visitor use and experience         | Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative. | Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.             | Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.                                 | Changes in visitor use and/or experience would be readily apparent and have important long-term consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.                                                                                    | Short-term - occurs only during the treatment action<br><br>Long-term - occurs after the treatment action                                             |