



FINDING OF NO SIGNIFICANT IMPACT
OIL AND GAS WELL PLUGGING AND RECLAMATION
BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA,
TENNESSEE AND KENTUCKY

The National Park Service (NPS) plans to plug and reclaim orphaned oil and natural gas (gas) wells at Big South Fork National River and Recreation Area (Big South Fork NRRA or the park unit), including 45 known wells. Nearly all of these wells were recorded by global positioning system (GPS), and current site and access conditions were documented by park staff during spring and summer 2009. The NPS owns two of these wells, which will be plugged when they are no longer producing gas. This project is needed to ensure protection of natural and cultural resources from the effects of these past oil and gas operations in Big South Fork NRRA, to minimize human health and safety risks, and because there is no responsible non-federal party to plug and reclaim these wells. The action is possible at this time because funding has been made available through the 2009 enactment of the American Recovery and Reinvestment Act (ARRA) to plug and reclaim the majority of these wells.

The NPS completed an environmental assessment (EA) that provides an analysis of the environmental consequences of the alternatives considered for oil and gas well plugging and reclamation. The EA was prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), its implementing regulations by the Council on Environmental Quality (40 CFR Parts 1500-1508), and Director's Order #12 and accompanying Handbook, *Conservation Planning, Environmental Impact Analysis, and Decision-making* (DO-12).

SELECTED ALTERNATIVE

The NPS has selected alternative B for implementation, identified as the preferred alternative in the EA. The NPS will take advantage of the substantial funding received under ARRA to help the park fulfill its mandates and mission by plugging and reclaiming orphaned oil and gas wells, giving due consideration to environmental, health and safety, economic, technical, and other factors. The majority of these wells will be plugged and reclaimed using this funding, completing the project within one year of obligating funding and eliminating threats to the environment and health and safety.

All plugging and reclamation will comply with or exceed NPS plugging standards, which are based on the *Department of the Interior's On-Shore Oil and Gas Order Number 2, Section III.G., Drilling Abandonment*, and all other applicable state requirements (either Tennessee or Kentucky).

Upon completion of well plugging, the well sites will be reclaimed, including the removal of aboveground structures and non-significant non-historic or historic human-made debris that resulted from operations. Access roads no longer needed for future private mineral access will be stabilized and allowed to reestablish into native vegetative communities or reclaimed with native vegetation. Access roads that exist or proposed roads or trails identified in the Big South Fork NRRRA 2005 general management plan (GMP) will be reclaimed to park road or trail standards. Ditches or shoulders will be reclaimed with native vegetation.

Appendix C of the EA, included as Appendix A to this document, includes a summary of the specific access, plugging, and reclamation requirements for the 45 known orphaned wells.

OTHER ALTERNATIVES CONSIDERED

The EA prepared for this project also analyzed the no-action alternative (alternative A). Under alternative A, the NPS would plug the 45 orphaned oil and gas wells and reclaim associated sites and access roads in Big South Fork NRRRA only when NPS or state funding becomes available. Project activities would be done on a well by well basis or by small groupings of wells as funding becomes available over a period of years. As a result, work would occur over an extended period of time. All other well plugging and reclamation activities would occur as described for the preferred alternative.

RATIONALE FOR SELECTED ALTERNATIVE

The selected alternative meets the project purpose and need for plugging and reclaiming at least 45 known orphaned wells to ensure protection of natural and cultural resources from the effects of these past oil and gas operations in Big South Fork NRRRA, and to minimize human health and safety risks. As summarized in the following sections, the selected alternative (preferred alternative) also best meets the criteria in Section 101 of NEPA for the environmentally preferable alternative; and, after consideration of effects described in the EA, there are no significant impacts on the human environment as defined by criteria in 40 CFR 1508.27.

Environmentally Preferable Alternative

The Council on Environmental Quality defines the environmentally preferable alternative as the alternative that best meets the following criteria or objectives, as set out in Section 101 of NEPA:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assure for all generations safe, healthful, productive, and aesthetically 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 maintaining, 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.

Simply put, this means that the environmentally preferable alternative is the alternative that causes the least damage to the biological and physical environment; it also means it is the alternative that best protects, preserves, and enhances historic, cultural and natural resources (CEQ Q6a). After completing the environmental analysis, the NPS identified alternative B as the environmentally preferable alternative because it best protects and enhances natural resources by addressing concerns associated with deteriorating pressure-control equipment failures and by subsequent reclamation activities; and because it will open up previously closed areas of the park to visitors. While both alternatives would ultimately have similar benefits, they are more likely to be realized, and sooner, under alternative B because funding is available now from ARRA to plug and reclaim the majority of these wells, whereas funding under alternative A is less certain.

MITIGATION MEASURES

The NPS places a strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the mitigation measures identified in Table 1 will be implemented as part of the selected alternative.

Table 1. Mitigation Measures to be Implemented.

Resource Protected	Mitigation Measure
General	- Projects will follow all requirements of the Specifications for Well Plugging in the Big South Fork NRR (Appendix B of the EA).

Resource Protected	Mitigation Measure
Geology and Soils	<ul style="list-style-type: none"> - Silt fences and straw bales will be placed around drainage paths and the perimeter of the well site, in areas prone to erosion, and along temporary access routes during well plugging and surface reclamation. - Tanks will be placed at each well to capture any well fluids produced during plugging.
Water Resources	<ul style="list-style-type: none"> - A liner will be placed around the wellhead and under all service vehicles to prevent soil, surface, and groundwater contamination from wellhead fluids, such as brine, and other fluids that may leak from equipment during plugging. - All stream crossings (wet or dry) on routes identified in the GMP as part of the trail system will have a subbase of rock and a filter fabric layer installed or the crossings will be hardened with concrete planks. - If plugs are used, after each plug is poured the NPS will require on a case-by-case basis the contractor to "touch" each plug before additional concrete is poured. The NPS will monitor each wellhead annually for two (2) years after plugging. - Geology and soils mitigation measures will also protect water quality.
Wetlands	<ul style="list-style-type: none"> - If wetland areas have been directly or indirectly affected by project activities, the soil, hydrology, and native vegetation communities will be restored as soon as practicable after completion of the plugging operation. - Projects will implement wetland best management practices of NPS Procedures Manual 77-1, Appendix 2.
Vegetation	<ul style="list-style-type: none"> - Clearing of vegetation, performed with chainsaws and tractors with brush hogs to open well pads and oil and gas well access roads, will be kept to a minimum. - Weed-free native seed mixtures and straw bales will be used to revegetate well sites and access roads. - Where possible, forest duff will be blown into areas to augment revegetation of disturbed areas. - Upon completion of restoring each access route, the park will evaluate each site to determine if additional vegetation could be added to enhance the site restoration and to possibly create a woody screen at the route entrance. If planted, a woody tree entrance will allow the access road entrance to blend into the adjoining natural woodlands and reduce the chance that a visitor using approved trails travels down the old road.
Wildlife	<ul style="list-style-type: none"> - Proper spill response and mitigation will occur following any spill in accordance with the spill response and clean-up provisions in the contract. Monitoring will continue as warranted. - Additional erosion control measures under Geology and Soils and Water Quality will protect aquatic populations, streams, and habitat.
Special Status Species	<ul style="list-style-type: none"> - Oil field brine, and all other waste and contaminating substances, will be kept in the smallest practicable area to prevent escape as a result of percolation, rain, high water, or other causes. Wastes will be stored and disposed of or removed from the area as quickly as practicable to prevent contamination, pollution, damage, or injury to the lands, water (surface and subsurface), facilities, cultural resources, wildlife, and vegetation or visitors of the unit. - Tanks will be placed at each well to capture any well fluids produced during plugging.

Resource Protected	Mitigation Measure
	<ul style="list-style-type: none"> - A plastic liner will be placed around the wellhead and under all service vehicles to prevent soil, surface, and groundwater contamination from wellhead fluids, such as brine, and other fluids that may leak from equipment during plugging. - All oil and gas well plugging contractors will be required to develop a Spill Prevention and Emergency Preparedness Plan, and emergency and spill equipment will be readily available on site. Additional spill response efforts will be planned and enforced for the Oil Well Branch site and for sites adjacent to bluffs and/or with limited space to contain spills above Clear Fork and North White Oak Creek. - Silt fences and straw bales will be placed around drainage paths and the perimeter of the well site, in areas prone to erosion, and along temporary access routes during well plugging and surface reclamation. - No streams with a known occurrence of federally listed species will be crossed. All stream crossings (wet or dry) on routes identified in the GMP as part of the trail system will have a subbase of rock. As necessary, filter fabric will be installed or the crossings will be hardened with concrete planks to protect the integrity of the stream banks. The type of ford used will be based on the best protection for the aquatic organisms present. - At Oil Well Branch and at sites adjacent to bluffs and/or with limited space to contain spills above Clear Fork and North White Oak, well plugging will be limited to periods outside the breeding season (mussel breeding season is November through March) and work will be done during periods of low flow. Low flow conditions are described as less than 400 cubic feet per second at the Leatherwood Ford gauge. Oil Well Branch is the site closest to the river. - The Big South Fork NRR's wildlife biologist will be present to oversee activities near the river.
Cultural Resources	<ul style="list-style-type: none"> - An archeological monitor will be present during site clearing, well plugging, and revegetation activities at well permit 7192, 151-02, the Beatty Well (1818), and the two additional wells near the Beatty Well. - If archeological materials are found, the contractor will stop work and the park will determine the course of action (data recovery or avoidance). - For the five sites that occur in proximity to any well sites, the Rance Boyatt home site, rock shelters, the Rugby National Register Historic District, the 1818 Beatty Well, and the historic John Muir Trail, an archeologist will be onsite to monitor plugging and reclamation activities. - Any damage to the John Muir trail resulting from temporary access will be repaired once operations are complete.
Visitor Use and Experience	<ul style="list-style-type: none"> - Areas closed to visitor use during plugging and reclamation will be posted at the entrance to the access road, and the public will be notified by signs that will promote visitor safety.
Floodplains	<ul style="list-style-type: none"> - Environmentally friendly stream crossings, i.e., geotextile fabric with gravel or crossings hardened with concrete planks, will be installed at all fords used for this project. The type of ford used will be based on the best protection for the aquatic organisms present. This measure will also protect Soils, Water Quality, and Special Status Species.

WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE 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. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial. No major adverse or beneficial impacts were identified that would require analysis in an environmental impact statement (EIS).

Actions under the preferred alternative would result in the following effects:

- **Geology and Soils** The project will have short-term moderate adverse impacts from the increase in erosion potential from the removal of vegetation, soil compaction from the use of heavy equipment to access, plug and reclaim the areas, and the potential release of liquid hydrocarbons and/or contaminating or hazardous substances during well plugging and reclamation activities, which could locally alter the chemical and physical properties of soils. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The project will also have a long-term beneficial impact. Reclaiming the well pads and access roads, including replacing natural soils and planting of native vegetation will help stabilize soils and reduce erosion. Closing access routes to unauthorized users will also minimize soil erosion and compaction as well as access to sensitive geologic features.
- **Water Resources** There will be short-term, minor adverse impacts from the temporary increase of localized erosion potential causing turbidity and sedimentation and the potential for release of liquid hydrocarbons and/or contaminating or hazardous substances into surface and groundwater from vehicles, wellhead equipment or flow lines during well plugging and reclamation activities. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The reclamation of the well pads and access roads will also result in long-term beneficial effects from recontouring and planting and establishment of native vegetation in disturbed areas reducing soil erosion and reestablishing surface drainage flows.
- **Vegetation** Short-term impacts will be negligible to minor and adverse resulting from the clearing of vegetation at the wells and access roads and the potential for release of oil and other contaminating and hazardous substances, which could harm or kill vegetation. The measures listed in Table 1 will be implemented to mitigate these adverse effects. Beneficial impacts will also occur over the long-term from the grading of sites to promote drainage and site reclamation, replacing topsoil, seeding with a selected mix of native herbaceous vegetation and possibly planting.

- **Wetlands** The project will cause short-term, negligible to minor adverse impacts on wetlands from vegetation removal resulting in an increase in localized erosion potential, causing sedimentation in waterways and altering flow characteristics and hydrologic functions of surface waters that provide hydrology for wetlands. There is also a potential for release of liquid hydrocarbons and/or contaminating or hazardous substances during well plugging and reclamation activities into wetlands either directly or indirectly through surface water and ground water. The measures listed in Table 1 will be implemented to mitigate these adverse effects. There will also ultimately be long-term beneficial effects from ensuring that hydrocarbon contamination will not occur in the future and the reclamation of well pads and access roads, including recontouring and planting and establishment of native vegetation reducing soil erosion and reestablishing surface drainage flows.
- **Wildlife and Wildlife Habitat** Short-term impacts will be negligible to minor and adverse caused by noise disturbance, disruption of feeding, denning, spawning, reproduction, and other wildlife behaviors, from the introduction of heavy equipment, vehicle use and vegetation clearing of access roads and well pads. Plugging and reclamation activities may increase human access (with an increased potential for poaching), edge effects, and temporarily alter wildlife species composition and migration. There is also the potential for the release of oil and other contaminating and hazardous substances during plugging and reclamation activities, which could harm or kill fish and wildlife. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The reclamation of the wellpads and access roads, including monitoring for exotic species, will also enhance native plant communities in the project areas, and over time, reduce fragmentation having long-term beneficial impacts to wildlife habitat and wildlife.
- **Special Status Species** Short-term impacts will be negligible to minor and adverse resulting from the temporary increase of erosion and sedimentation from redisturbance of access roads, oil well pads, and reclamation afterward that would affect habitat of listed aquatic species such as mussels. There is also the potential of a release of liquid hydrocarbons and/or contaminating or hazardous substances during well plugging and reclamation activities. The measures listed in Table 1 will be implemented to mitigate these adverse effects. Beneficial impacts to special status species and federally designated critical habitat will also occur over the long-term from the reclamation of previously disturbed areas and the elimination of the risk of unintended discharges to the Big South Fork River from orphaned oil and gas wells.
- **Visitor Use and Experience (including health and safety)** There will be short-term minor adverse impacts from the temporary

restriction of access, odors from equipment exhaust and potential leaks and spills, visual impacts, and construction equipment noise during the time needed to plug, abandon, and reclaim the well pads and access roads. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The removal of the rig and associated structures and equipment and the removal of the risk of an unintended release of liquid hydrocarbons and/or contaminating or hazardous substances into the environment, in conjunction with site reclamation will also result in beneficial long-term impacts on visitor use and experience.

- **Park Management and Operations** The project will have short-term minor to moderate adverse impacts from the intense mobilization of park employees to implement the project. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The project will also have a long-term beneficial impact due to the decreased amount of time needed for monitoring the wells and the removal of the risk of liquid hydrocarbons and/or contaminating or hazardous substances being unintentionally released into the environment.

The degree to which the proposed action affects public health and safety. Orphaned wells at Big South Fork NRR create the potential for personal injury and property damage from spontaneous release of pressurized and highly flammable well fluids. In addition, unplugged wells pose threats to human health and safety from exposure to hazardous wellhead equipment, possible flowline ruptures, and ingestion, inhalation, or absorption of spilled or released hydrocarbons, contaminants, or hazardous substances. This poses the greatest risk at those wells that are easily accessible to visitors. Plugging and reclaiming these well sites will remove the associated public health and safety hazards. In addition, some access roads associated with orphaned wells will be maintained for visitor access after plugging and reclamation is complete, in accordance with the Big South Fork NRR GMP. This will improve visitor access on these roads, and as a result reduce safety risks associated with their use.

Although there would be some potential for effects on public health and safety during plugging and reclamation operations (limited to park visitors coming on location during plugging activities), the NPS intends to close areas associated with the well site that are accessible to visitors during well plugging. In addition, if people not associated with the well work should come on the location, workers/supervisors will direct them away. Signs also will be used to direct visitors away from activities.

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. As described in the EA, museum collections, prime and unique farmlands, and wilderness areas will not be affected by this project.

One of the primary reasons the Big South Fork NRR was established is to preserve the Big South Fork of the Cumberland River as a natural, free-flowing stream for the benefit and enjoyment of present and future generations. Although the park does not include any Wild and Scenic Rivers, the enabling legislation identifies as a National River the Big South Fork of the Cumberland River, major portions of its Clear Fork and New River stems and portions of their various tributaries which are to be preserved as a natural, free-flowing stream similar to a Wild and Scenic River. Enhancing the water quality of the Big South Fork is an important management concern. There is the potential for impacts to water quality from the implementation of this project. These adverse impacts would be short-term, minor and adverse from the temporary increase of localized erosion potential causing turbidity and sedimentation and the potential for release of liquid hydrocarbons and/or contaminating or hazardous substances into surface and groundwater from vehicles, wellhead equipment or flow lines during well plugging and reclamation activities. The measures listed in Table 1 will be implemented to mitigate these adverse effects. The reclamation of the well pads and access roads will also result in long-term beneficial effects from recontouring and planting and establishment of native vegetation in disturbed areas reducing soil erosion and reestablishing surface drainage flows.

Although there is some potential for impacts to historic or cultural resources (archeological resources, historic/prehistoric structures, cultural landscapes, and ethnographic resources), the analysis conducted for the EA indicated any adverse effects of plugging and reclamation will be negligible. Prehistoric archeological sites existed in the vicinity of the well pads and access roads were typically low-density lithic scatters that were not stratified and that were devoid of features or diagnostic materials. These sites were affected by past road and well pad construction and drilling activities, as well as the maintenance, mineral extraction, and logging activities along the access roads and well sites. The roads also follow the line of previous ridgetop roads and trails that passed by, not through, historic archeological sites. For the five archeological sites that do occur in proximity to any well sites, an archeologist will be onsite to monitor plugging and reclamation activities.

Some known well sites require access along the historic John Muir Trail. As a result, there could be some temporary impacts to the John Muir Trail from vehicles and other equipment that must be brought in for plugging and reclamation. The NPS will repair any

damage to the trail resulting from this access once these operations are complete, resulting in negligible impacts.

The Beatty well, drilled in 1818, is currently cased with steel pipe and closed with a screw cap. The well was documented in an historic structure survey in 1982 and determined not eligible for listing in the National Register. However, the park archeologist will be onsite to monitor plugging operations.

One known well is located in the Ranse Boyatt Cultural Landscape, a designated cultural landscape at the park identified as being important for its intact landscape elements. However, as described in the EA, the oil well casing and unplugged well are not contributing elements or historic features associated with the cultural landscape. Although plugging and reclamation activities will temporarily introduce noise and ground disturbance that could affect the cultural landscape, the reclamation of this well will help restore natural conditions that might contribute to the landscape. As a result, any short-term impacts will negligibly affect cultural landscapes while contributing to potential long-term benefits.

Several well sites and access roads are near potential wetlands located in the Big South Fork NRRA. A site investigation for the presence of wetlands and other waters of the United States was ultimately conducted at Beatty Well (1818), Beatty Well A, Beatty Well B, and well site 151-02 (NPS 2009f). Field survey efforts identified 14 jurisdictional wetlands and five areas that qualified as wetlands under NPS guidelines but not under U.S. Army Corps of Engineers guidelines. The 19 wetlands were delineated, and account for 7.52 acres of wetland habitat.

Only a small portion of these (0.2 acre) are within the well site areas or the access road right-of-way, and numerous measures described in the mitigation section will limit the potential impacts during plugging and reclamation activities. In addition, proper plugging of the wells will ensure that hydrocarbon contamination will not occur in the future. Reclaiming the well pads and access roads will be a beneficial impact on wetlands once recontouring, planting, and establishment of native vegetation in disturbed areas is complete. This will reduce soil erosion and reestablish surface drainage flows. Over time, if fill materials are completely removed, sites are properly prepared, sites are stabilized to match original contours, and proper seed mixtures and revegetation techniques are used, these practices could eliminate the past adverse impacts caused by drilling and production operations.

Executive Order 11990 (Protection of Wetlands) requires an examination of impacts to wetlands, and the 2006 NPS Management Policies and Director's Order 77-1 provide guidelines for proposed actions within wetlands. The project will not require a Statement of Findings because the project qualifies as an

exception under DO#77-1 (Wetland Protection). According to the NPS Procedural Manual #77-1: Wetland Protection, actions designed specifically for the purpose of restoring degraded (or completely lost) natural wetland, stream, riparian, or other aquatic habitats or ecological processes are excepted. For purposes of this exception "restoration" refers to reestablishing environments in which natural ecological processes can, to the extent practicable, function at the site as they did prior to disturbance. Temporary wetland disturbances that are directly associated with and are necessary for implementing the restoration are allowed under this exception (see "conditions" in Section 4.2.2). Actions causing a cumulative total of up to 0.25 acre of new long-term adverse impacts on natural wetlands may be allowed under this exception if they are directly associated with and necessary for the restoration (e.g., small structures or berms). The project will meet these requirements, thus no Statement of Findings for wetlands is required.

Seventeen species listed under the Endangered Species Act (ESA) may occur within Big South Fork NRR, including 10 mussels, three fish, and four plants. Within the park unit, critical habitat is designated under the ESA for three of the federally listed mussels, including the Cumberland elktoe (*Alasmidonta atropurpurea*), oyster mussel (*Epioblasma capsaeformis*), and the Cumberland combshell (*Epioblasma brevidens*). In addition, the state of Tennessee lists numerous mammals, birds, amphibians, reptiles, and crayfish as in need of management, special concern, or endangered. As described in the EA, plugging and reclamation activities could result in localized, short-term negligible to minor adverse impacts on special status species during implementation and until sites are fully reclaimed. However, no critical habitat will be harmed by implementation of well-plugging, and by removing the threats associated with unplugged wells, alternative B will have long-term beneficial effects on special status species, their habitat, and the natural processes sustaining them.

The degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. No highly uncertain, unique, or unknown risks were identified during either preparation of the EA or the public comment period.

The 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 an NPS precedent for future actions with significant effects nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Impacts on geology and soils, water resources, vegetation, wetlands, wildlife and wildlife habitat, special status species, visitor use and experience (including health and safety), and park management and operations were analyzed for the selected alternative (preferred alternative) of the EA.

As described in the EA, cumulative impacts were determined by combining the impacts of the selected alternative (preferred alternative) with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Big South Fork NRR and, if applicable, the surrounding area. Overall, the selected alternative would contribute minimally to adverse cumulative effects for each of the resources impacted by the selected alternative. It would also add a beneficial increment to cumulative effects from the removal of the risk of an unintended release of hydrocarbons release of liquid hydrocarbons and/or contaminating or hazardous substances into the environment and the reclamation of well pads and access roads.

The degree to which the action may adversely affect districts, sites, highways, structures or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources. As described in the EA, the NPS has consulted with both the Tennessee and Kentucky State Historic Preservation Offices (SHPOs) for purposes of Section 106 compliance. The Tennessee SHPO has concluded "there are no National Register of Historic Places listed or eligible properties affected by this undertaking." The Kentucky SHPO indicated they "consider the oil wells potentially eligible but the plugging of the oil wells to have No Adverse Effect if the location of each is thoroughly documented, including GPS coordinates and photo documentation."

The degree to which the action may adversely affect an endangered or threatened species or its critical habitat. The NPS sent a letter to the U.S. Fish and Wildlife Service (USFWS) on October 7, 2009, to request a list of species that could be affected by well plugging and reclamation. A response was received on November 16, 2009 (see appendix A of the EA for a copy of the letter and response). Table 2 lists the species identified.

Separate from the EA, the NPS also prepared a biological assessment for consultation with the USFWS under Section 7 of the ESA, which was submitted on December 9, 2009. In a letter dated February 3, 2010, the USFWS concurred with the determinations made by the NPS in the BA. The "Public Involvement and Agency Consultation" section of this FONSI provides additional details regarding this consultation process and its outcome.

Table 2. Federally Listed Threatened and Endangered Species that May Occur in the Project Area

Common Name	Scientific Name	Status	Critical Habitat in Big South Fork NRR
Mussels			
Cumberland bean	<i>Villosa trabalis</i>	Endangered	No
Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	Endangered	Yes
Cumberlandian combshell	<i>Epioblasma brevidens</i>	Endangered	Yes
Tan riffleshell	<i>Epioblasma florentina walker</i>	Endangered	No
Littlewing pearlymussel	<i>Pegias fabula</i>	Endangered	No
Dromedary pearlymussel	<i>Dromus dromas</i>	Endangered	No
Oyster mussel	<i>Epioblasma capsaeformis</i>	Endangered	Yes
Spectaclecase	<i>Cumberlandia monodonta</i>	Candidate	No
Fluted kidneyshell	<i>Ptychobranhus subtentum</i>	Candidate	No
Clubshell	<i>Pleurobema clava</i>	Endangered	No
Fish			
Duskytail darter	<i>Etheostoma percnurum</i>	Endangered	No
Blackside dace	<i>Phoxinus cumberlandensis</i>	Threatened	No
Palezone shiner	<i>Notropis albizonatus</i>	Endangered	No
Plants			
Cumberland sandwort	<i>Arenaria cumberlandensis</i>	Endangered	No
Virginia spiraea	<i>Spiraea virginiana</i>	Endangered	No
Cumberland rosemary	<i>Conradina verticillata</i>	Threatened	No
White fringeless orchid	<i>Platanthera integrilabia</i>	Candidate	No

Based on the analysis presented in the EA, plugging and reclamation activities could result in localized short-term negligible to minor adverse impacts on federally listed species during implementation and until sites are fully reclaimed. However, no critical habitat will be harmed by implementation of well-plugging. In addition, by removing the threats associated with unplugged wells there will be long-term beneficial effects to these species, their habitat, including critical habitat, and the natural processes sustaining them under alternative B.

Whether the action threatens a violation of federal, state, or local law imposed for the protection of the environment. The selected alternative violates no federal, state, or local environmental protection laws.

IMPAIRMENT OF BIG SOUTH FORK NRRA RESOURCES OR VALUES

Implementation of the selected alternative will ultimately result in long-term beneficial effects to resources and values and will not have a major adverse impact on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Big South Fork NRRA; (2) key to the natural or cultural integrity of the park; or (3) identified as a goal in the park's GMP or other relevant NPS planning documents. Therefore, the NPS has determined that implementation of the selected alternative will not result in impairment to the resources or values of Big South Fork NRRA. This conclusion is based on a thorough analysis of the environmental impacts described in the EA for Oil and Gas Well Plugging and Reclamation and the professional judgment of the decision-maker guided by the direction in NPS Management Policies (2006).

PUBLIC INVOLVEMENT AND AGENCY CONSULTATION

In September 2009, staff of Big South Fork NRRA and resource professionals of the NPS Denver Service Center defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the proposed action to other planning efforts at the park unit.

A public scoping brochure was subsequently posted on the NPS Planning, Environment, and Public Comment (PEPC) website on October 7, 2009, and was mailed on October 8, 2009, to government agencies, tribes, organizations, businesses, and individuals. The brochure provided an overview and background of the project, the purpose of and need for action, issues and impact topics, and information on the planning process and methods for commenting. In addition, stories announcing the NPS was seeking comment on the EA were published in four local newspapers between October 27 and October 29, 2009.

The public was invited to submit comments on the scope of the planning process and potential alternatives from October 7 through November 6, 2009. During the public scoping period, eight comments were entered into the PEPC database either from direct entry by the commenter or through uploading of emails and hard copy letters. In all 24 comments were received, 16 were related to the alternatives; four were related to impacts of the alternatives; three were related to consultation and coordination; and one was related to private oil and gas operators. All scoping comments were considered to be important as useful guidance and public input to the public scoping process.

Comments in favor of or against the proposed action or alternatives, those that only agree or disagree with NPS policy, and those that offer opinions or provide information not directly related to the issues or impact analysis were considered non-substantive comments. Although the analysis process attempts to capture the full range of public concerns, it is important to note that comments from people who choose to respond do not necessarily represent the sentiments of the entire public.

The undertakings described in the EA are subject to Section 106 of the National Historic Preservation Act, as amended in 1992 (16 USC 470 et seq.). Project scoping letters went out to the park's affiliated tribes and to the Tennessee and Kentucky SHPOs, on October 7, 2009. A copy of the EA was also sent to the Tennessee and Kentucky SHPOs in January 2010. None of the tribes expressed concern, including the Eastern Band of the Cherokee Indians, which responded on October 16, 2009, that the project may proceed as planned. As described in the EA, the Tennessee SHPO has concluded "there are no National Register of Historic Places listed or eligible properties affected by this undertaking." The Kentucky SHPO indicated they "consider the oil wells potentially eligible but the plugging of the oil wells to have No Adverse Effect if the location of each is thoroughly documented, including GPS coordinates and photo documentation."

In accordance with section 7(c) of the ESA of 1973, as amended (16 USC 1531 et seq.), it is the responsibility of the federal agency proposing the action (in this case the NPS) to determine whether the proposed action will adversely affect any listed species or designated critical habitat. To fulfill these requirements, the NPS sent a letter to the USFWS on October 7, 2009, to request a list of species that could be affected by well plugging and reclamation. A response was received on November 16, 2009 (see Appendix A of the EA for a copy of the letter and response), and Table 2 lists the species identified.

Separate from the EA, the NPS prepared and submitted a biological assessment (BA) to the USFWS on December 9, 2009 for consultation under Section 7 of the ESA. Except for two plants (Cumberland sandwort and white fringeless orchid), the determination of effect in the BA for species listed in table 2 was "may affect, but not likely to adversely affect." For the Cumberland sandwort and white fringeless orchid, because the species are not found in the area for the proposed work, the determination was "no effect." For designated critical habitat, the determination was "not likely to result in adverse modification of critical habitat." Due to the elimination of the risk of unintended discharges to the National River from abandoned oil and gas wells, there will also be a benefit to the designated critical habitat. In a letter dated February 3, 2010, the USFWS concurred with the determinations made by the NPS in the BA.

For compliance with Clean Water Act requirements, a Section 404 Permit (U. S. Army Corps of Engineers) and a Section 401 Water Quality Certification (Kentucky Division of Water; Tennessee Department of Environment and Conservation) will be obtained for wells where impacts to streams and wetlands may occur. As necessary, a Land Disturbance Permit (Kentucky Division of Water; Tennessee Department of Environment and Conservation) will be acquired for grading activities associated with oil and gas plugging operations, and a Stormwater Pollution Prevention Plan will be prepared in support.

The EA was made available for public review and comment during a 20-day period ending February 8, 2010. An electronic copy of the EA was placed on the park's PEPC website. The public was invited to direct comments or concerns related to this project to Superintendent Young online at www.parkplanning.nps.gov/biso, or by mail to park headquarters in Oneida, TN. Copies of the EA were also made available for review at park headquarters, the park's Bandy Creek Visitor Center, the NPS Kentucky Visitor Center in Stearns at the Stearns Depot, and at area public libraries. Copies of the EA were also sent to regulatory and affected agencies during the comment period. Other entities on the mailing list received a letter and press releases announcing the availability of the EA for review were published in four local newspapers. Due to the low level of controversy relative to this project, no public scoping meetings were held.

During the 20-day public comment period, the NPS received five pieces of correspondence from four people via mail and direct entry into the NPS PEPC website. Based on an analysis of the comments made in the correspondence, one concern raised was considered substantive and required text changes to the EA, as documented in the Errata Sheet appended to this document. The text changes do not result in a change to the alternatives considered or effects detailed in the EA. The Errata Sheet also contains a summary of the comments received and NPS responses to those comments.

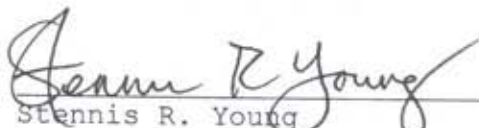
CONCLUSION

The NPS has selected the above mentioned alternative B for implementation. The impacts that will result from the selected alternative will not impair resources or values necessary to fulfill specific purposes identified in the enabling legislation for Big South Fork NRRRA.

The selected alternative does not constitute an action that normally requires preparation of an EIS. The selected alternative will not have a significant impact on the human environment. Negative environmental impacts that could occur are temporary and negligible to moderate in intensity and will ultimately result in long-term benefits. There are no significant impacts on public health and 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 selected alternative will not violate any federal, state, or local environmental law.


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

Recommended:


Stennis R. Young
Superintendent
Big South Fork NRRRA

2/17/10
Date

Approved:


David Vela
Regional Director
Southeast Region

2/15/10
Date

ERRATA SHEET

OIL AND GAS WELL PLUGGING AND RECLAMATION BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA, TENNESSEE AND KENTUCKY

This errata sheet documents changes to the text of the Oil and Gas Well Plugging and Reclamation EA as the result of information provided since the document was released on January 19, 2009. Public comments on the EA were also reviewed by an interdisciplinary team to identify any substantive comments that require text changes to the EA. Substantive comments were considered to be comments that:

- question, with reasonable basis, the accuracy of information in the EA.
- question, with reasonable basis, the adequacy of environmental analysis.
- present reasonable alternatives other than those presented in the EA.
- cause changes or revisions in the proposal.

Based on an analysis of the comments made in the correspondence received, one concern raised was considered substantive and required text changes to the EA.

EA TEXT CHANGES BASED ON NEW INFORMATION

Page 20, second paragraph of Preferred Alternative—Alternative B was revised as follows (italicized text indicates the change made): Under this alternative, the NPS would plug at least 45 known orphaned oil and gas wells (see Figure 2 in chapter 1), and associated sites and access roads, in Big South Fork NRR as described for alternative A. The majority of these wells would be plugged and reclaimed using funding received under ARRA, completing the project *within two years of obligating funding* and eliminating threats to the environment and health and safety.

Page 21, Table 2 Mitigation Measures was revised as follows: Mitigation measures for Special Status Species will include the planning and enforcement of additional spill response efforts for the Oil Well Branch site, for sites adjacent to bluffs, and/or sites with limited space to contain spills above Clear Fork and North White Oak Creek.

Page 24, second paragraph of Alternatives Summary was revised as follows (italicized text indicates the change made): With the preferred alternative, Alternative B, plugging would be done within *two years of obligating funding* having greater short-term impacts to park operations. However, threats to the environment and to public health and safety would be eliminated quickly.

Page 44, first paragraph of the Water Resources Affected Environment was revised as follows (italicized text indicates the change made): One of the primary reasons the Big South Fork NRRRA was established is to preserve the Big South Fork of the Cumberland River as a natural, free-flowing stream for the benefit and enjoyment of present and future generations. *Although the park does not include any Wild and Scenic Rivers, the enabling legislation indentifies as a National River the Big South Fork of the Cumberland River, major portions of its Clear Fork and New River stems and portions of their various tributaries which are to be preserved as a natural, free-flowing stream similar to a Wild and Scenic River.* The Big South Fork River is formed by the New River and the Clear Fork, and drains the northern portion of the Cumberland Plateau in Tennessee. As the Big South Fork flows from south to north, it is fed by a variety of sources ranging from perennial streams, such as North White Oak Creek, to many ephemeral creeks. Flooding is common during the winter months (December - March) when soils are saturated, frozen, or covered with snow. Springs and ponds can be found scattered throughout the Big South Fork NRRRA. Enhancing the water quality of the Big South Fork is an important management concern. The following sections generally describe surface and ground water at the park unit. A complete overview of the management of the water resources is contained in the Big South Fork NRRRA Water Resources Management Plan (NPS 1997).

Page 51, Environmental Consequences of No Action-Alternative A and Preferred Alternative-Alternative B on Water Resources was revised as follows: The assessment of impacts acknowledges the potential for orphaned wells and the actions needed to plug and reclaim them to cause adverse effects to water resources, including surface waters identified in the enabling legislation of the park unit as a National River (i.e., the Big South Fork of the Cumberland River, major portions of its Clear Fork and New River stems, and portions of their various tributaries) which are to be preserved as a natural, free-flowing stream similar to a Wild and Scenic River. It also acknowledges the long-term beneficial effects that would occur to these same surface waters from plugging and reclaiming these wells, which would help the NPS meet the mandates to preserve the National River in a natural, free-flowing state.

Page 81, Table 11 Federally Listed Threatened and Endangered Species that May Occur in the Project Area was revised as follows: Critical habitat designations for federally-listed mussels were updated as shown in the following table.

Common Name	Scientific Name	Status	Critical Habitat in Big South Fork NRR
Mussels			
Cumberland bean	<i>Villosa trabalis</i>	Endangered	No
Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	Endangered	Yes
Cumberlandian combshell	<i>Epioblasma brevidens</i>	Endangered	Yes
Tan riffleshell	<i>Epioblasma florentina walker</i>	Endangered	No
Littlewing pearlymussel	<i>Pegias fabula</i>	Endangered	No
Dromedary pearlymussel	<i>Dromus dromas</i>	Endangered	No
Oyster mussel	<i>Epioblasma capsaeformis</i>	Endangered	Yes
Spectaclecase	<i>Cumberlandia monodonta</i>	Candidate	No
Fluted kidneyshell	<i>Ptychobranhus subtentum</i>	Candidate	No
Clubshell	<i>Pleurobema clava</i>	Endangered	No

Page 104, 2nd paragraph of Environmental Consequences to Park Management and Operations under Preferred Alternative—Alternative B was revised as follows (italicized text indicates the change made): The same actions identified as contributing effects under alternative A would apply to alternative B. However, the plugging and reclamation activities under Alternative B would occur within *two years after funding is obligated* causing a more intense but short-term mobilization of park employees. This mobilization would result in short-term minor to moderate adverse impacts on park management and operations. However, there would also be long-term beneficial impacts from ultimately plugging and reclaiming the wells, due to the decreased amount of time needed for monitoring the wells. These benefits are more likely to be realized, and would be realized sooner under alternative B because at this time funding is available from ARRA to plug and reclaim the majority of these wells.

EA TEXT CHANGES BASED ON SUBSTANTIVE CONCERNS

Page 21, Table 2 Mitigation Measures was revised as follows: Mitigation measures for vegetation will include an evaluation of each site to determine if additional vegetation (woody trees) could be added to enhance the site restoration and to possibly create a woody screen at the route entrance. If planted, a woody tree entrance will allow the access road entrance to blend into the adjoining natural woodlands and reduce the chance that a visitor using approved trails travels down the old road.

RESPONSE TO CONCERNS

Concern: One commenter suggested the NPS would not be able to adequately control exotic plant species during reclamation, or prevent visitor use of reclaimed access roads, without planting native trees.

Response: The reclamation requirements of this project include erosion control and seeding with native grass species. Also, logs and brush may be pulled into the road corridor to facilitate restoration and reduce future use of the route. For two to three years after the project is completed the park will monitor these sites for exotic species and will treat exotic species as they are found.

Many of the sites are still associated with private mineral ownership and future oil and gas operations may utilize these access routes. Based on the past history of these sites, Virginia pines and occasionally white pines have naturally seeded into these corridors. With new soil disturbance they may reseed into some of these areas again. Because the NPS will not be grading the entire road bed, small hardwood trees that are cut off during access clearing will often resprout from the roots or cut stumps.

Regardless, the use of additional trees to facilitate restoration is a viable mitigation measure. Therefore, upon completion of restoring each access route, the park will evaluate each site to determine if additional vegetation could be added to enhance the site restoration and to possibly create a woody screen at the route entrance. If planted, a woody tree entrance could allow the access road entrance to blend into the adjoining natural woodlands and reduce the chance that a visitor using approved trails travels down the old road.

Concern: During public scoping, the NPS received comments suggesting additional alternative elements, including reclaiming access roads for visitor uses, and converting the orphaned wells for compressed air energy storage.

Response: As described in the EA for alternative B, some oil and gas access roads will be maintained for visitor access, in accordance with the Big South Fork NRRRA general management plan (GMP). All other oil and gas access roads that are not identified in the GMP will be reclaimed, unless they provide access to private mineral in-holdings. These roads will be closed to horses, vehicles, and biking. The GMP does allow the public to walk anywhere including abandoned roads; however, these abandoned roads will not become part of the designated trail system unless specified in the GMP. Therefore, this alternative was not considered further.

The development of compressed air energy storage technology and the necessary infrastructure was considered outside the scope of this project. It would not meet the purpose and need for taking action, as described in chapter 1 of the EA (i.e., the wells would not be plugged, the sites would not be reclaimed, natural and cultural resources would not be protected from the effects of these past oil and gas operations in Big South Fork NRRRA, and human health and safety risks would not be minimized). In addition, development of such technology to generate electricity is not consistent with the purpose and significance of the park (as described in chapter 1 of the EA) or the special mandates described in the Big South Fork NRRRA GMP. Finally, underground storage coupled with the expense, technical and logistical issues, and use of compressed air energy storage is not a reasonable alternative per NPS guidance (e.g., Director's Order #12).

Appendix A

Taken from Environmental Assessment Appendix C Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
350	In gorge. Access via O&W Road and travel 100 meters to beginning of access road to well. Access road, no future use listed in the GMP. Estimated time to open access is 0.5 day.	Clear site and access road overgrown with small live trees and downed trees.	Surface casing cut off and covered. Remove barrel tank.	O&W Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds.
481	Adjacent area, access via the Confluence Road. This road is identified in the Big South Fork GMP. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine regrowth and downed timber.	Wellhead equipment, separator, surface casing cut off and covered.	Confluence Road would be repaired and retained. Access to well would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
581	Adjacent area, approximately 300 feet from the gorge. Access via Sheep Ranch Road to common lease road to well site. Estimated time to open access is 0.5 day.	Clear site of the few downed trees and trim side growth.	Surface casing cut off and covered, if necessary.	Sheep Ranch Road would be repaired and retained. Common lease road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
916	Adjacent area, access via Burnt Mill Bridge Road to common lease road to well access road. Travel along a multiple use trail for a short distance. Estimated time to open access is 1.5 days.	Clear site and access road of saplings and removal of many downed pines across road.	Wellhead equipment, surface casing cut off and covered.	Burnt Mill Bridge Road and common road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
1018	Adjacent area, less than 500 feet from the gorge. Access via share route with Rugby Trail and Gentlemen's Swimming Hole Hiking Trail. Travel county road to cemetery. Wellhead located just inside	Trim to original road width.	Surface casing cut off and covered, if necessary.	County road and trailhead parking would be repaired and retained. Well site area would be replanted with native seeds.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
	boundary near a trailhead. Estimated time to open access is 0.5 day.			
1056	Adjacent area. Access via Station Camp Road to Station Camp Horse Camp. Enter horse camp and travel 600 feet on the Station Camp Horse Camp connector trail to the Pilot/Wines Loop horse trail. Travel on horse trail to well site. All roads and trails are in the GMP except for the 400-foot section of access off the horse trail. Estimated time to open access is 0.5 day.	Clear site overgrown with saplings and pines.	Surface casing cut off and covered, if necessary.	Station Camp Road, Station Camp Horse Camp, Station Horse Camp connector trail, and the Pilot/Wines Loop horse trail would be repaired and retained. Well site area would be replanted with native seeds.
1231	Adjacent area, access via Grassy Knob Road to well site adjacent to oil and gas access road. Estimated time to open access is 10.0 days.	Clear site of downed timber.	Wellhead equipment, surface casing cut off, covered.	Grassy Knob Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
1319	Adjacent area. Access via Grassy Knob Road to oil and gas access road. Estimated time to open access is 10.0 days.	Clear site of downed timber.	Wellhead equipment, surface casing cut off, covered.	Grassy Knob Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
1575	Adjacent area. Access via county road to oil and gas access road in park. Access road is overgrown but easily accessible; reclamation would not be needed because other	Clear site and access road of small pines and shrubs.	Wellhead equipment, surface casing cut off, covered.	County road would be repaired and retained. Well site area would be replanted with native seeds.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
	producing wells exist beyond this one. Estimated time to open access is 0.5 day.			
1773	Adjacent area. Access via Burnt Mill Bridge Road to oil and gas access road. Estimated time to open access is 2.0 days.	Clear site and access road overgrown with pine saplings and downed timber.	Wellhead equipment, surface casing cut off, covered.	Burnt Mill Bridge Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
3454	Access crosses private property in the adjacent area and enters NPS lands. Wellhead and a portion of the oil and gas access road (approximately 140 feet) are in gorge. Improvements would need to be made to access along private property. Estimated time to open access is 1.0 day.	Clear private property access and site and access road overgrown with brush. Trim and remove downed timber.	Wellhead equipment, separator, surface casing cut off, covered.	Access road would be blocked at the NPS boundary and reclaimed. Repair and reclaim private land, if necessary. Well site area would be replanted with native seeds.
3626	Access crosses private property in the adjacent area and enters NPS lands. Wellhead and oil and gas access road are in the adjacent area. Improvements would need to be made to access along private property. Estimated time to open access is 1.0 day.	Trim and remove the few fallen trees.	Wellhead equipment, separator, surface casing cut off, covered.	Access road would be blocked at the NPS boundary and reclaimed. Repair and reclaim private land if necessary. Well site area would be replanted with native seeds.

Appendix A

Taken from Environmental Assessment Appendix C Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
3849	Adjacent area, access via Darrow Ridge Road to access road. Access along multiple use trail, located in the adjacent area. Estimated time to open access is 1.0 day.	Clear pine growth and the few fallen trees.	Wellhead equipment, surface casing cut off, covered.	Access road would be repaired and retained as a proposed multiple use trail. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
3850	Adjacent area, access via Darrow Ridge Road to access road. Access along multiple use trail, located in the adjacent area. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with saplings.	Surface casing cut off and covered, if necessary.	Access road would be repaired and retained as a proposed multiple use trail. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
4121	Adjacent area. Access via Joe Branch Road to Joe Branch Day Use Area. Travel 3,100 feet on oil and gas access road to well site. Proposed horse trail nearby may use part of the access road to this well, located on the adjacent area. Reclamation would be necessary unless the proposed horse trail utilizes part of this road. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine growth and remove downed timber.	Wellhead equipment, surface casing cut off, covered.	Joe Branch Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. If access road is used by proposed horse trail, this portion would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
4554	Adjacent area. Access via Joe Branch Road to park road to Joe Branch Day Use Area. Travel 2,400 feet on common lease road to well-specific lease road. Reclamation would be needed only on the short access spur to the well; other	Clear common and well access road of small pines.	Surface casing cut off and covered, if necessary.	Joe Branch Road would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Common road would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
	producing wells exist beyond this one. Repairs may be needed to the access road because of the additional wells in the area. Estimated time to open access is 3.0 days.			
4652	Access crosses private property in the adjacent area and enters NPS lands. Access park via Hurricane Ridge Road to common lease road to well-specific lease road. Common road is a proposed multiple use trail. Estimated time to open access is 5.0 days.	Clear overgrowth of pines and saplings and downed trees along road and pad.	Surface casing cut off and covered, if necessary.	Hurricane Ridge Road would be repaired and retained. Repair and reclaim private land, if necessary. Well access road would be blocked and reclaimed to natural conditions. Common road / proposed multiple use trail would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
5115	Access crosses private property and enters the gorge at the boundary. Estimated time to open access is 1.5 days.	Clear site and access road overgrown with pines and saplings.	Surface casing cut off and covered, if necessary.	Access road would be blocked at the NPS boundary and reclaimed. Repair and reclaim private land, if necessary. Well site area would be replanted with native seeds.
5875	Adjacent area, access via Burnt Mill Bridge Road to common lease road to well-specific lease road. Access along hiking trail for a short distance. Estimated time to open access is 0.5 day.	Clear site and access road overgrown with scattered saplings.	Surface casing cut off and covered, if necessary.	Burnt Mill Bridge Road would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Common road and hiking trail would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A

Taken from Environmental Assessment Appendix C Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
5945	Adjacent area, access via Burnt Mill Bridge Road to common lease road to well-specific lease road. Access along hiking trail for a short distance. Estimated time to open access is 1.5 days.	Mostly open, but with a few downed pines across the road. Clear access road of downed pines.	Wellhead equipment, surface casing cut off, covered.	Burnt Mill Bridge Road would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Common road and hiking trail would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6211	Adjacent area, access via Burnt Mill Bridge Road to common lease road to well-specific lease road. Access along hiking trail for a short distance. Estimated time to open access is 1.0 day.	Mostly open, but with a few downed pines across the road. Clear access road of downed pines.	Wellhead equipment, surface casing cut off, covered.	Burnt Mill Bridge Road would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Common road and hiking trail would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6439	Adjacent area. Access via Grassy Knob Road. Continue past well-specific access to Well #1319 and continue an additional 650 feet to well adjacent to the road. Estimated time to open access is 10.0 days.	Clear site and access road of downed timber.	Wellhead equipment, surface casing cut off, covered.	Grassy Knob Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6459	Adjacent area. Access via Grassy Knob Road. Continue past Well #6439 for 1,200 feet. Road ends at this well. Estimated time to open access is 10.0 days.	Clear site and access road of downed timber.	Wellhead equipment, surface casing cut off, covered.	Grassy Knob Road would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
6810	Adjacent area. Access crosses private property in the adjacent area and enters NPS lands. Enter park on well access road from private property. Estimated time to open access is 0.5 day.	Trim access road and clear of downed timber. Clear site of standing and dead pines.	Wellhead equipment, surface casing cut off, covered.	Access road would be blocked and reclaimed to natural conditions. Repair and reclaim private land, if necessary. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6895	Adjacent area, access via Darrow Ridge Road to access road. Access along multiple use trail to well specific road, located in the adjacent area. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine and remove downed timber. . Vegetation would need to be trimmed to haul an abandoned storage tank from this site.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6896	Adjacent area, access via Darrow Ridge Road and multiple use trail. Well pad located just adjacent to multiple use trail. Estimated time to open access is 0.5 day.	Trim along access road.	Surface casing cut off and covered, if necessary.	Darrow Ridge Road would be repaired and retained. Access road would be repaired and retained as a proposed multiple use trail. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6911	Adjacent area, access via Darrow Ridge Road and multiple use trail, to well specific road. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine and remove downed timber	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A

Taken from Environmental Assessment Appendix C Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
6912	Adjacent area. Access via Darrow Ridge Road and multiple use trail to common lease road to well site. Estimated time to open access is 0.5 day.	Clear site of pine trees.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use road would be repaired and retained. Common lease road to well site would be blocked and reclaimed to natural conditions when second well on this common lease road is plugged. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
6969	In gorge. Access crosses private property I and enters NPS lands. Wellhead and oil and gas access road are in gorge. Estimated time to open access is 0.5 day.	Trim access road and clear of downed timber. Clear site of standing and dead pines.	Wellhead equipment, surface casing cut off, covered.	Access road to well would be blocked and reclaimed to natural conditions. Repair and reclaim private land if necessary. Well site area would be replanted with native seeds.
7007	Adjacent area. Access via Confluence Road to well access road. Estimated time to open access is 2.0 days.	Clear site and access road overgrown with pines and saplings and remove downed timber.	Wellhead equipment, surface casing cut off, covered.	Confluence Road would be repaired and retained. Access road to well would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
7120	Adjacent area. access via Darrow Ridge Road and multiple use trail. Estimated time to open access is 0.5 day.	Clear site of pine.	Wellhead equipment, separator, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
7121	Adjacent area, access via Darrow Ridge Road and multiple use trail to well access road. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pines and saplings.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
7192	In gorge. Enter park on pipeline corridor and travel 700 feet. Well is approximately 100 feet from corridor. Care would need to be taken not to damage the pipeline during plugging; the pipeline corridor would be used to access the well. Estimated time to open access is 4.0 days.	Clear and trim site and utility corridor overgrown with pine and shrubs.	Surface casing cut off and covered, if necessary.	Access road to well would be blocked and reclaimed to natural conditions. The NPS would work with the pipeline company, Citizens Gas to mitigate against damage to pipeline. Well site area and utility corridor would be replanted with native seeds.
7208	In gorge. Road outside gorge remains within 500 feet of gorge. Enter park on common lease road. Travel 100 feet on common lease road. Continue on well specific road to well. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine growth and remove the few fallen trees.	Wellhead equipment, surface casing cut off, covered.	Common road would be repaired and retained. Access road to well would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds.
7359	Adjacent area. Enter park on Darrow Ridge Road and multiple use trail to common lease road for Permit 6912. Permit 7359 is at the end of the common lease road. Estimated time to open access is 1.0 day.	Trim and remove the few fallen trees. Clear site of small pines.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Common road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.

Appendix A
Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
7365	Adjacent area, access via Darrow Ridge Road and multiple use trail to well specific access road. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with scattered saplings.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail would be repaired and retained. Access road blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
8292	Adjacent area. Access via common lease road to well-specific lease road. Common road also used for access to logging area outside of boundary. Over half the access crosses private property. Other wells are accessed from this road so reclamation would be minimal. Estimated time to open access is 1.0 day.	Clear site and access road overgrown with pine saplings.	Wellhead equipment, surface casing cut off, covered.	Well access road would be blocked and reclaimed to natural conditions. Common road would be repaired and retained. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
8293	Adjacent area. Access via well specific access road. A portion of the access crosses private property. Estimated time to open access is 4.0 days.	Trim small trees.	Wellhead equipment, surface casing cut off, covered.	Well access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
8366	Adjacent area, access via Darrow Ridge Road and multiple use trail to Christian Cemetery Multiple Use Trail. Travel on Christian Cemetery Multiple Use Trail to proposed horse trail to well pad. Estimated time to open access is 2.0 days.	Clear site and access road and trail overgrown with pines.	Wellhead equipment, surface casing cut off, covered.	Darrow Ridge Road and multiple use trail and Christian Cemetery Multiple Use Trail would be repaired and retained. Proposed horse trail would be blocked and repaired. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
8408	Adjacent area. Access crosses private property in the adjacent area	Clear site and access road overgrown with	Surface casing cut off and covered, if	Access road would be blocked at the NPS boundary and reclaimed. Repair and reclaim

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Taken from Environmental Assessment Appendix C Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
151-02	In gorge. Access via Divide Road to Terry Cemetery Road. Continue on Terry Cemetery Road to Terry Cemetery trail head. Follow the Longfield Branch horse trail to No Business Creek. Ford No Business Creek. Follow the proposed Ranse Boyatt trail for 3,000 feet to well located in a field. Reclamation would be needed on all sections of the access that are in the gorge in order to repair the horse trail after plugging. Reclamation at the well head would be minimal because the well is in an open field. Entire access is identified in GMP as existing and proposed. Estimated time to open access is 1.0 day.	Minimal - Some standing trees in the field at the wellhead.	Surface casing cut off and covered, if necessary.	Access routes would be repaired and reclaimed to road or horse trail conditions. Well site area would be replanted with native seeds.

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Taken from Environmental Assessment Appendix C
Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
151-13	Adjacent area. Access via Station Camp Road to Station Camp Horse Camp. Enter horse camp and travel 600 feet on the Station Camp Horse Camp connector trail to the Pilot/Wines Loop horse trail. Travel on horse trail to well site. All roads and trails are in the GMP except for the 400-foot section of access off the horse trail. Estimated time to open access is 2.0 days.	Remove downed trees, brush and standing trees.	Surface casing cut off and covered, if necessary.	Station Camp Road, Station Camp Horse Camp, Station Horse Camp connector trail, and the Pilot/Wines Loop horse trail would be repaired and retained. Well specific road will be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds. Private minerals may be accessed in the future.
Beatty Well (1818)	In gorge. Access via Bald Knob/Hill Cemetery Multiple Use Trail to the Ledbetter Trailhead. Travel on Ledbetter Trail to the Oil Well Branch Trail to the gorge and to Beatty Well access. Access is part of a multiple use trail and proposed horse trail. A short access would need to be constructed from the trail to the well site. Estimated time to open access is 10.0 days.	Cut back brush, remove downed trees. Clear access to well.	Surface casing filled with cement and left in place to maintain historic integrity of 1818 oil well.	Bald Knob/Hill Cemetery Multiple Use Trail, Ledbetter Trail, and Oil Well Branch Trail would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Maintain historic integrity of 1818 historic well and site (mark well and protect with NPS sign). Well site area would be replanted with native seeds.
Beatty Well A (adjacent to trail)	In gorge. Access via Bald Knob/Hill Cemetery Multiple Use Trail to the Ledbetter Trailhead. Travel on Ledbetter Trail to the Oil Well Branch Trail to the gorge and to Beatty Well access. Access is part of a multiple use trail and proposed horse trail.	Clear site and access, overgrown with brush, and remove downed timber.	Surface casing cut off and covered, if necessary.	Bald Knob/Hill Cemetery Multiple Use Trail, Ledbetter Trail, and Oil Well Branch Trail would be repaired and retained. Well site area would be replanted with native seeds.

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Taken from Environmental Assessment Appendix C

Well Plugging and Surface Reclamation for 45 Known Wells

Well Number	Location in Park, Site Access	Vegetative Clearing Requirements	Structures to be Removed	Well Pad and Access Road Reclamation
Beatty Well B (on bench adjacent to Oil Well Branch)	Well is adjacent to trail. Estimated time to open access is 10.0 days. In gorge. Access via Bald Knob/Hill Cemetery Multiple Use Trail to the Ledbetter Trailhead. Travel on Ledbetter Trail to the Oil Well Branch Trail to the gorge and to Beatty Well access. Approximately 500 feet of access would need to be cleared in the Oil Well Branch drainage to access the well. Estimated time to open access is 10.0 days.	Cut back brush, remove downed trees. Clear access to well.	Surface casing cut off and covered, if necessary.	Bald Knob/Hill Cemetery Multiple Use Trail, Ledbetter Trail, and Oil Well Branch Trail would be repaired and retained. Well access road would be blocked and reclaimed to natural conditions. Well site area would be replanted with native seeds.

