

Appendices



APPENDIX A: TYPES OF NON-FEDERAL OIL AND GAS DEVELOPMENT CONDUCTED IN UNITS OF THE NATIONAL PARK SYSTEM

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INTRODUCTION

The petroleum industry is a continuous cycle of searching for new oil and gas reservoirs, developing and producing them, and finally abandoning the property once the hydrocarbons are depleted.

There are four general phases of petroleum development. The phases are (1) exploration, (2) drilling, (3) production, and (4) abandonment/reclamation. Surface uses vary for each phase in terms of intensity and duration. Also, operations related to one or all of the phases may be occurring in the same area at any given time. In Big South Fork National River and Recreation Area and Obed Wild and Scenic River, most oil and gas activities will likely be part of the production and abandonment/reclamation phases. Drilling is expected to occur on a less frequent basis. Although described below, exploration work such as geophysical surveys is not expected because zones of interest in the area are shallow (economics of seismic survey versus just drilling an explorations well) and there is a good number of wells that provide information for interpreting the subsurface.

To be of interest to the petroleum industry, petroleum deposits must be commercially valuable. There must be a reasonable chance of making a profit on the eventual sale of the oil and gas. Factors such as the market price of oil and gas, the amount of recoverable petroleum, the expected production rates, and the cost of drilling wells, producing, and transporting the product to market all determine the economic viability of developing a deposit once it is discovered.

The following sections are meant to provide the reader with a general understanding of common activities associated with each phase of oil and gas development.

EXPLORATION OPERATIONS

OCCURRENCE OF PETROLEUM

Petroleum deposits are not large underground caverns filled with oil and gas as the term reservoir might suggest. Rather, petroleum accumulates in tiny spaces within the buried rock layers. Most scientists today agree that petroleum was formed from large amounts of very small plant and animal life. These organic materials accumulated in ancient seas, which, over great periods of time, have covered much of the present land area. As time passed, sediments rich in organic matter were buried deeper and deeper. The increased pressure and temperature caused these organic remains to change into oil and natural gas. Once formed, the oil and gas migrated upward until certain forms and shapes of underground rocks halted the upward movement, trapping the hydrocarbons in large quantities. The search for these traps is the focus of the first phase of oil and gas development and exploration.

GEOLOGICAL EXPLORATION

The search for oil and gas often begins with geological exploration. The exploration geologist is looking for clues on the surface that would suggest the possibility of petroleum deposits below. Surface studies comprise the first stage of exploratory fieldwork. Geological surveys of the land surface are made using aerial photographs, satellite photographs, maps of surface outcrops of specific formations or rock types, and geochemical analyses. Field crews map surface attributes and collect surface samples of rock for analysis.

Creating maps of surface outcrops and geochemical analyses requires fieldwork. Little equipment is needed other than surveying gear and rock and soil sampling supplies. These activities require a small field party of two to four persons who can work out of a single vehicle or on foot. Access to remote areas can be gained by a four-wheel-drive vehicle, small all-terrain vehicles, helicopter, pack animals, or by walking. A small boat may be used where navigable water occurs near the area being studied. Constructing roads or channels in shallow water areas is not required at this early stage.

Geochemical analysis often requires subsurface samples to be taken from a ditch or a shallow corehole. The coreholes are usually shallow, but may generate some cuttings.

GEOPHYSICAL EXPLORATION

Geological exploration can narrow the area being searched, but subsurface geology may or may not be accurately indicated by surface outcrops. Geophysical prospecting extends the search beneath the earth's surface. The surveys identify and map characteristics favorable to oil and gas accumulation deep underground. Geophysical operations include gravitational, magnetic, and seismic surveys. Of these, the seismic survey is most common.

Gravitational and Magnetic Surveys—Gravitational and magnetic field studies yield regional or reconnaissance-type data. These surveys detect variation in gravitational attractions and magnetic fields of the various types of rock below the surface.

Gravity surveys are generally done with small, portable instruments called gravity meters or gravimeters. The number and placement of measurement points in a gravity survey depend on the site's characteristics. These include feasibility of access and the spacing pattern necessary to detail the features selected for mapping. The field party required is not large, usually 3 to 6 people. Travel on foot is possible with the smaller portable gravimeters. Progress, however, is slow, so most surveys use four-wheel-drive vehicles. In marshy areas, the use of special swamp or marsh buggies is quite common with gravity survey crews. Airborne survey operations are not yet practical due to present instrument limitations and the relatively large and rapid changes in altitude and acceleration characteristic to aircraft.

The objective of most surveys can be achieved when gravity stations are confined to existing roads or waterways. Where roads or waterways do not exist, a large level of latitude in positioning stations is possible to account for logistical or environmental constraints. Disturbance of the land surface is minimal when established access is already available. Methods of access to roadless areas are similar to those required for geological explorations described above. The surveying technique itself does not require any physical disturbance of the surface.

Magnetic surveys are often used in place of or to supplement gravity surveys. These surveys are done with relatively small airborne or portable ground instruments called magnetometers. Flight patterns usually consist of a series of parallel lines at 1- to 2-mile intervals.

Airborne surveys require geodetic and ground control points. These must be installed on the ground before the survey can take place, if not already present. A majority of the lower 48 states have been surveyed, so these points are already in place. If not, however, the area must be accessed by overland vehicles or helicopters. The size of the field party required is not large. The access to roadless areas is similar to that required for geological exploration described above. The surveying technique itself does not require any physical disturbance of the surface.

Seismic Surveys—Whereas gravity and magnetic surveys provide regional information, seismic survey can provide enough subsurface detail to locate potential oil and gas traps.

A seismic survey gathers subsurface geological information by recording impulses from an artificially generated shock wave. The energy waves travel downward toward underground formations. A series of sensitive instruments, called geophones, set out at surveyed points on the ground, record the energy waves as they are reflected off the subsurface formations and back to the surface. Cables or radio transmitters transfer information from the geophones to a recorder truck that receives and records the reflected seismic energy. Sophisticated computers analyze the data and generate a “picture” of the rocks underground. Each survey line provides a cross-section of the rock formations beneath it, and many lines may be run to create a complete picture.

In remote areas where there is little known subsurface data, a series of short seismic lines may be required to determine the attitude of the subsurface formations. After this, the pattern of seismic lines or grids is designed to make the final data more accurate and valuable. Although alignment is fairly critical, some source and recording stations may be moved or skipped for environmental or logistical reasons without seriously affecting the results of the investigation.

A more recent technique called 3-D Seismic works on the same principle as conventional seismic, but energy and recording stations are placed at a much denser spaced grid. There may be up to 150 energy source locations and 200 recording stations per square mile on a 3-D seismic project. Surveys commonly exceed a 25-square-mile-area. The 3D-Seismic surveys can provide enough detail to locate traps that have been “missed” by conventional geophysical methods and exploratory drilling. Even in areas that have been heavily explored and developed, 3D-Seismic is helping to optimize new field development and find new targets within producing fields. New life is being brought to areas thought to have been played out.

Seismic methods are usually referred to by the various methods of generating the shock wave. These include weight drop, vibrators, dinoseis (combustible gas expansion), and explosives. No matter what method of generating energy is used, the procedures for preparing the line and recording the data are relatively similar. The procedure typically consists of first surveying and flagging the locations for the geophones and the positions of the energy sources. Second, the geophones and the connecting cable are laid down. The cable is either connected with more cable to the recording truck or to a radio transmitter to send the data to the recording truck. Normally the recording truck will be within a short distance of the transmitter or within line of sight. Once the geophones and ground cable are in place, the energy source is put in place. The initiation of the energy source, whether by a “vibroseis” truck or by explosive, is controlled by the recording truck. The shock wave is set off, and the seismic signal recorded by multiple geophones. Once the signal is recorded, the ‘shooting crew travels to the next source point, and the process is repeated.

The most common energy source in seismic work is explosives placed in holes drilled to depths of several feet up to 200 feet. Explosives may range from ½- to 50-pound charges and typically increase in size with increased setting depths. Drills can be mounted on trucks, boats, or specially designed airboats or all-terrain vehicles, depending on the type of access required. In rugged topography, or to reduce surface disturbance associated with access, portable drills are sometimes carried by helicopter or by hand. Other

field equipment can include vehicles to carry water for drilling operations, personnel, surveying equipment, recording equipment, and computers.

Existing roads are used if possible, but reaching some lines may require clearing vegetation and loose rock to improve access for the crews and the trucks. Each mile of seismic line cleared to a width of 8 to 15 feet represents disturbance of about an acre of land. A network of low-standard temporary roads and trails can result from these operations. The alignment of these trails usually consists of straight lines dictated by the grid, often with little regard for steep slopes or rough terrain. Level topography with few trees and shrubs would require little or no trail construction. An area with rugged topography or larger vegetative types such as trees and large shrubs would require more trail preparations. Temporary roads and trails are usually constructed with bulldozers.

Seismic crews consist of several surveying people, people for laying and retrieving the cable and geophones, the truck drivers and drillers for the energy source, personnel in the recording truck and miscellaneous water truck drivers, cleanup people, and field crew managers. The size of the seismic crews varies from 15 to 80 people. On most seismic jobs, the people and equipment are transported in trucks or four-wheel-drive vehicles. However, the surveying, cable laying, and sometimes the drilling can be done on foot in some situations.

Under normal conditions, 3 to 5 miles of line can be surveyed each day using the explosive methods. Crews may be in the field for 1 to 4 weeks for an average conventional survey. An average 3-D survey may take several months to complete.

DRILLING AND PRODUCTION OPERATIONS

OIL AND GAS WELL DRILLING

Classification of Wells—Wells drilled for oil and gas are classified as either exploratory or development wells. An exploratory well is drilled either in search of an as-yet-undiscovered pool of oil or gas (a wildcat well) or to extend greatly the limits of a known pool. Exploratory wells may be classified as (1) wildcat, drilled in an unproven area; (2) field extension or step-out, drilled in an unproven area to extend the proved limits of a field; or (3) deep test, drilled within a field area but to unproven deeper zones. Development wells are wells drilled in proven territory in a field to complete a pattern of production.

Similar to geophysical surveys, drilling operations are relatively short-term. However the intensity of impacts is much higher due to the equipment and materials needed to drill a well and the potential duration of the operation. At a common height of 180 feet, the rig stands as tall as a 12-story building. An average drilling rig needs a level location of about 3 acres. The drilling pad and access road must be capable of supporting thousands of tons of equipment. Existing access roads may need to be widened and upgraded to accommodate heavy loads. Rigs commonly used in Tennessee and Kentucky are somewhat smaller and locations perhaps 1 to 2 acres in size.

Choosing the Site—Once exploration activities have narrowed the search to specific drilling targets, the operator must select an exact spot on the surface to drill the well. The industry prefers to drill vertically, and usually chooses a drill site directly above the desired bottomhole location. When topographical, geological, or environmental constraints prevent a drill site from being located directly above the bottomhole location, the use of direction drilling can achieve the objective. Reaches of over a mile are common for 10,000-foot-deep wells, and extended reach wells have been drilled with over 2 miles of horizontal departure.

Directional drilling involves deviating a wellbore from its vertical along a predetermined course to a target located at some depth and some horizontal distance away. It is a common practice in the industry today, with a number of uses. Directional drilling techniques can be applied if the target zone lies underneath an inaccessible location such as a heavily urbanized area, mountain, or water body, and the drill rig must be located elsewhere. The technique is most often used in offshore applications to allow many wells to be drilled from one location. It can be used to drill around or through fault planes, salt domes, or obstructions in the hole, and to provide relief to a nearby well that has blown out. More recently, the technique has been used to move surface locations as an environmental protection measure.

While directional drilling allows flexibility in the selection of the drill site, there are technical, physical, and economic constraints on its use. Geological factors such as target depths, formation properties (stability, type, dip angle, etc.), and contemplated horizontal departures physically complicate and restrict the opportunities for using directional drilling. Sophisticated equipment and specialized personnel are needed to monitor and guide the direction of the well as it is being drilled. The cost of using this technique typically ranges from 10 percent to 50 percent higher than the cost of a vertical well. While directional drilling can be applied in a wide variety of situations, project specific conditions must always be taken into account.

Accessing the Site—Wildcat drilling often takes place in remote areas. Preliminary exploration work will not have contributed any new roads to an area, although there may be some cross-country trails. Temporary access roads will have to be constructed. Existing roads may need upgrading to accommodate the heavier loads associated with truck traffic. One lane is usually adequate, but turnouts and/or traffic control are necessary to accommodate two-way traffic on longer routes. Installation of culverts or other engineering structures will be needed in steep terrain or when crossing stream channels. Soil texture, topography, and moisture conditions might dictate that roads be surfaced with material such as gravel, oyster shells, caliche, or ground limestone. Heavy equipment such as graders, bulldozers, front-end loaders, and dump trucks are commonly used in constructing roads. In marshy areas, a roadbed may be laid with heavy boards.

Preparing the Drill Site—To accommodate the rig and equipment, the drill site must be prepared. Site preparation may include extensive clearing, grading, cutting, filling, and leveling of the drill pad using heavy construction equipment. Soil material suitable for plant growth is often removed first and stockpiled for later use in reclamation. The operator may also dig reserve pits to hold large volumes of drilling mud and drill cuttings. In environmentally sensitive areas, a large effort is made not to alter the surface area comprising the drill site more than is necessary. For example, reserve pits may not be dug. Instead, large steel bins are placed on the site to receive the cuttings and other materials that are normally dumped into the reserve pits. These bins can then be trucked away from the site and the material inside them disposed of properly. Also, even in areas where reserve pits are excavated, they are often lined with thick plastic sheeting to prevent any contaminated water or other materials from seeping into the ground. The drill pad typically occupies about 2 to 3 acres.

Directional drilling may require a larger-sized rig and additional support facilities that may lead to larger pad sizes. For inland water sites, drilling barges that sit on the bottom may be used as a foundation for the drill rig. Some dredging may be done on these sites to create a slip, and protective skirts or pilings may be installed around the barge to prevent erosion by currents and tidal flow. In deeper water, jack-up, submersible and semi-submersible, rigs and drill ships may be used to drill wildcat wells. An offshore platform is typically used to drill development wells in deep water.

Since a source of freshwater is required for the drilling mud and for other purposes, a water well is sometimes drilled prior to moving the rig onto the location. If other sources are available, the water may be piped or trucked to the site.

At the exact spot on the surface where the hole is to be drilled, a rectangular pit called a cellar is dug, or culvert-like pipe is driven into the ground. If the cellar is dug, it may be lined with boards, or forms may be built and concrete poured to make walls for the cellar. The cellar is needed to accommodate drilling accessories that will be installed under the rig later.

In the middle of the cellar, the top of the well is started, sometimes with a small truck-mounted rig. The conductor hole is large in diameter, perhaps as large as 36 inches or more; is about 20 to 100 feet deep; and is lined with conductor casing, which is also called conductor pipe. If the topsoil is soft, the conductor pipe may be driven into the ground with a pile driver. In either case, the conductor casing keeps the ground near the surface from caving in. Also, it conducts drilling mud back to the surface from the bottom when drilling begins, thus the name conductor pipe.

Usually, another hole considerably smaller in diameter than the conductor hole is dug beside the cellar and also lined with pipe. Called the rathole, it is used as a place to store the kelly when it is temporarily out of the borehole during certain operations. Sometimes on small rigs, a third hole, called the mousehole, is dug. On large rigs, it is not necessary to dig a mousehole because of the rig floor's height above the ground. In either case, the mousehole is lined with pipe and extends upward through the rig floor and is used to hold a joint of pipe ready for makeup.

Rigging Up—With the site prepared, the contractor moves in the rig and related equipment. The process, known as rigging up, begins by centering the base of the rig, called the substructure, over the conductor pipe in the cellar. The substructure supports the derrick or mast, pipe, drawworks, and sometimes the engines. If a mast is used, it is placed into the substructure in a horizontal position and hoisted upright. A standard derrick is assembled piece by piece on the substructure. Meanwhile, other drilling equipment such as the mud pumps are moved into place and readied for drilling.

Other rigging-up operations include erecting stairways, handrails, and guardrails; installing auxiliary equipment to supply electricity, compressed air, and water; and setting up storage facilities and living quarters for the toolpusher and company man. Further, drill pipe, drill collars bits, mud supplies, and many other pieces of equipment and supplies must be brought to the site before the rig can make hole.

Mobilizing the drill rig to the location requires moving 10 to 25 large truckloads of equipment over public highways and smaller roads. In very remote locations, entire drilling crews and service personnel may be temporarily housed onsite. A typical drilling crew consists of five people. Drilling operations are continuous, 24 hours a day and 7 days a week. The crews usually work two 12-hour shifts. With the drilling crew, geologists, engineers, supervisors, and specialized service providers, there may be anywhere from 5 to over 20 people on a drilling location at any given time. An irregular stream of traffic to and from the rig occurs day and night.

Drilling the Surface Hole—Rotary drilling is used almost universally in modern-day drilling. Drilling is accomplished by rotating special bits under pressure. Starting to drill is called “spudding in” the well. To spud in, a large bit, say 17 ½ inches in diameter as an example, is attached to the first drill collar and is lowered into the conductor pipe by adding drill collars and drill pipe one joint at a time until the bit reaches the bottom. While drilling, the rig derrick and associated hoisting equipment support the drill string's weight. The combination of rotary motion and weight on the bit causes rock to be chipped away at the bottom of the hole.

The rotary motion is created by a square or hexagonal rod, called a kelly, which fits through a square or hexagonal hole in a large turntable, called a rotary table. The rotary table sits on the drilling rig floor and as the hole advances, the kelly slides down through it. With the kelly attached to the top joint of pipe, the pump is started to circulate mud, the rotary table is engaged to rotate the drill stem and bit, and weight is

set down on the bit to begin making hole. When the kelly has gone as deep as it can, it is raised, and a joint of drill pipe about 30 feet long is attached in its place. The drill pipe is then lowered, the kelly is attached to the top of it, and drilling recommences. By adding more and more drill pipe, the hole can steadily penetrate deeper.

Large volumes of fluid, generically called drilling mud, circulate down the drill pipe to the drill bit and back to the surface. The mud lubricates and cools the bit and carries drill cuttings to the surface. The composition of the mud system depends on the types of formations being drilled, economics, water availability, pressure, temperature, and many other significant factors. Mud can be as simple as freshwater, or a complex emulsion of water, oil, chemicals, clays, and weighting material. Chemicals added to the mud help drill and protect the hole's integrity. Weighting material is often added to prevent formation fluids from flowing into the well as it is being drilled. Mud systems can be highly toxic or relatively benign. The drilling mud along with cuttings from the well account for the largest volume of waste generated at the well site. In areas around Big South Fork National River and Recreation Area and Obed Wild and Scenic River, wells are often drilled using compressed air instead of drilling mud. Drill cuttings and fluids produced from formations while drilling are blown into a lined pit next to the drilling rig through what is known as a blooey line.

The first part of the hole is known as the surface hole. Even though the formation that contains the hydrocarbons may lie many thousands of feet below this point, drilling ceases temporarily because steps must now be taken to protect and seal off the formations that occur close to the surface. For example, freshwater zones must be protected from contamination by drilling mud. To protect them, special pipe called casing is run into the hole and cemented.

Tripping Out—The first step in running casing is to pull the drill stem and bit out of the hole. Pulling the drill stem and bit out of the hole in order to run casing, change bits, or perform some other operation in the borehole is called tripping out. To trip out, the drilling crew uses the rig's hoisting system, or drawworks, to raise the drill stem out of the hole.

Attached to the traveling block is a set of drill pipe lifting devices called elevators. Elevators are gripping devices that can be latched and unlatched around the tool joints of the drill pipe. The crew latches the elevators around the drill pipe, and the driller raises the traveling block to pull the pipe upward. When the third joint of pipe clears the rotary table, the rotary helpers set the slips and use the tongs to break out the pipe. The pipe is usually removed in stands of three joints. Removing pipe in three-joint stands, rather than in single joints, speeds the tripping out process. With the stand of pipe broken out, the crew guides it into position on the rig floor to the side of the mast or derrick.

The derrickman unlatches the elevators from the top of the pipe and stands the pipe back in the derrick. Working as a close-knit team, the driller, rotary helpers, and derrickman continue tripping out until all the drill pipe, the drill collars, and the bit are out of the hole. At this point, the only thing in the hole is drilling mud, because mud was pumped into the hole while pipe was tripped out.

Running Surface Casing—Once the drill stem is out, often a special casing crew moves in to run the surface casing. Casing is large-diameter steel pipe, and is run into the hole with the use of special heavy-duty casing slips, tongs, and elevators. Casing accessories include centralizers, scratchers, a guide shoe, a float collar, and plugs.

Centralizers keep the casing in the center of the hole so that when the casing is cemented, the cement can be evenly distributed around the outside of the casing. Scratchers help remove mud cake from the side of the hole so that the cement can form a better bond. The guide shoe guides the casing past debris in the hole, and has an opening in its center out of which cement can exit the casing. The float collar serves as a

receptacle for special cementing plugs, and allows drilling mud to enter the casing at a controlled rate. The plugs begin and end the cementing job, and serve to keep cement separated from the mud so that the mud cannot contaminate the cement. The casing crew, with the drilling crew available to help as needed, runs the surface casing into the hole one joint at a time. Casing is available in joints of about 40 feet. Once the hole is lined from bottom to top with casing, the casing is cemented in place.

Cementing—The cementing of oil well casing annuli is a universal practice done for a number of reasons, depending on casing type. Conductor casings can be cemented to prevent the drilling fluid from circulating outside the casing, causing the very surface erosion the casing was intended to prevent. Surface casings must be cemented to seal off and protect freshwater formations, provide an anchor for blowout preventer equipment, and give support at the surface for deeper strings of casing. Intermediate strings of casing are cemented in order to seal off abnormal pressure formations, effectively isolate incompetent formations that might cause drilling problems unless supported by casing and cement, and shut off zones of lost circulation. Production casing is cemented to prevent the migration of fluids to thief zones, to prevent sloughing of formations that could result in reduced production, and to isolate productive zones for future development.

An oilwell cementing service company usually performs the job of cementing the casing in place. The cement used to cement oilwells is not too different from the cement used as a component in ordinary concrete. Basically, oilwell cement is Portland cement with special additives to make it suitable for various conditions of pumping, pressure, and temperature.

Cementing service companies stock various types of cement and use special trucks to transport the cement in bulk to the well site. Bulk cement storage and handling at the rig location make it possible to mix the large quantities needed in a short time. The cementing crew mixes the dry cement with water, often using a recirculating mixer. This device thoroughly mixes the water and cement by recirculating part of the already-mixed components through a mixing compartment. Powerful cementing pumps move the liquid cement (slurry) through a pipe to a special valve made up on the topmost joint of casing. This valve is called a cementing head, or plug container. As the cement slurry arrives, the bottom plug is released from the cementing head and precedes the slurry down the inside of the casing. The bottom plug keeps any mud that is inside the casing from contaminating the cement slurry where the two liquids interface. Also, the plug wipes off mud that adheres to the inside wall of the casing and prevents it from contaminating the cement.

The plug travels ahead of the cement until it reaches the float collar. At the collar the plug stops, but continued pump pressure breaks a seal in the top of the plug and allows the slurry to pass through a passageway in it. The slurry flows out through the guide shoe, and starts up the annulus between the outside of the casing and the wall of the hole until the annulus is filled.

A top plug is released from the cementing head and follows the slurry down the casing. The top plug keeps the displacement fluid, usually drilling mud, from contaminating the cement slurry. When the top plug comes to rest on the bottom plug in the float collar, the pumps are shut down and the slurry is allowed to harden. Allowing time for the cement to set is known as waiting on cement and varies in length. In some cases, it may be only a matter of a few hours; in other cases, it may be 24 hours or even more, depending on well conditions. Adequate waiting on cement time must be given to allow the cement to set properly and bond the casing firmly to the wall of the hole. After the cement hardens and tests indicate that the job is good – that is, that the cement has made a good bond and no voids exist between the casing and the hole – drilling can be resumed.

Tripping In—To resume drilling, the drill stem and a new, smaller bit that fits inside the surface casing must be tripped back into the hole. The bit is made up on the bottommost drill collar. Then, working

together, the driller, floormen, and derrickman make up the stands of drill collars and drill pipe and trip them back into the hole.

When the drill bit reaches bottom, circulation and rotation are begun and the bit drills through the small amount of cement left in the casing, the plugs, the guide shoe, and into the new formation below the cemented casing. As drilling progresses and hole depth increases, formations tend to get harder; as a result, several round trips (trips in and out of the hole) are necessary to replace worn bits.

Controlling Formation Pressure—During all phases of drilling, an important consideration is well control. Well control is preventing the well from blowing out by using proper procedures and equipment. A blowout is the uncontrolled flow of fluids – oil, gas, water, or all three – from a formation that the hole has penetrated.

Blowouts threaten lives, property, and pollution of the environment. Rig crews receive extensive training in how to recognize and react to impending blowouts, making them relatively rare events.

The key to well control is understanding pressure and its effects. Pressure exists in the borehole because it contains drilling mud and in some formations because they contain fluids. All fluids --drilling mud, water, oil, gas, and so forth – exert pressure. The denser the fluid (the more the fluid weighs), the more pressure the fluid exerts. A heavy mud exerts more pressure than a light mud. For effective control of the well, the pressure exerted by the mud in the hole should be higher than the pressure exerted by the fluids in the formation.

Pressure exerted by mud in the hole is called hydrostatic pressure. Pressure exerted by fluids in a formation is called formation pressure. The amount of hydrostatic pressure and formation pressure depends on the depth at which these pressures are measured and the density, or weight, of each fluid. Regardless of the depth, hydrostatic pressure must be equal to or slightly greater than formation pressure, or the well kicks. The well kicks, formation fluids enter the hole, if hydrostatic pressure falls below formation pressure. Thus, one of the crew's main concerns during all phases of the drilling operation is to keep the hole full of mud whose weight is sufficiently high to overcome formation pressure.

However, unexpectedly high formation pressures can be encountered. Formation fluids can be swabbed, or pulled, into the hole by the piston-like action of the bit as pipe is tripped out of the hole. Also, the mud level in the hole can fall so that the hole is no longer full of mud. Whatever the reason, when hydrostatic pressure falls below formation pressure, crew members have a kick on their hands, and they must take quick and proper action to prevent the kick from becoming a blowout.

Helping the crew keep an eye on the rig's operation are various control instruments located on the driller's console. Some rigs have data processing systems that utilize slave computer display terminals, or CRTs (short for cathode ray tubes), on the rig floor, in the mud logging trailer, in the toolpusher's trailer, and in the company man's trailer. When limits that have been programmed into the system are exceeded, the system goes into an alarm condition.

Whether the kick warning signs come from electronic monitors, a computer printout, or the behavior of the mud returning from the hole, an alert drilling crew detects the signs and takes proper action to shut the well in. To shut a well in, large valves called blowout preventers, which are installed on top of the cemented casing, are closed to prevent further entry of formation fluids into the hole. Once the well is shut in, procedures are begun to circulate the intruded kick fluids out of the hole. Also, weighting material is added to the mud to increase its density to the proper amount to prevent further kicks, and the weighted up mud is circulated into the hole. If the mud has been weighted the proper amount, then normal operations can be resumed.

When drilling with air, there is very little hydrostatic pressure exerted downhole, and formations are drilled through in an “underbalanced” mode. This means the formations can flow into the wellbore as drilling progresses. With air drilling, well control is more dependent on the blowout preventers. It is prudent and often a regulatory requirement to have 1) extra storage capacity to hold formation fluids and 2) materials and equipment on location to “mud up” if necessary to maintain well control and wellbore integrity.

Running and Cementing Intermediate Casing—At a predetermined depth, drilling stops again in order to run another string of casing. Depending on the depth of the hydrocarbon reservoir, this string of casing may be the final one, or it may be an intermediate one. Intermediate casing is smaller than surface casing because it must be run inside the surface string and to the bottom of the intermediate hole. In general, it is run and cemented in much the same way as surface casing.

Final Depth and Well Evaluation—Using a still smaller bit that fits inside the intermediate casing, the next part of the hole is drilled. Often, the next part of the hole is the final part of the hole unless more than one intermediate string is required. After cementing the intermediate casing, drilling resumes by tripping the new bit and drill stem back in the hole. The intermediate casing shoe is drilled out, and drilling the new hole resumes.

While drilling and once reaching the total depth of the well, the operator collects information to determine if hydrocarbons have been encountered. To help the operator decide whether to abandon the well or to set a final, or production, string of casing, several techniques can be used. A thorough examination of the cuttings made indicates whether the formation contains sufficient hydrocarbons. A geologist catches cuttings at the shale shaker and analyzes them in a portable laboratory at the well site. He often works closely with a mud logger logger – a technician who monitors and records information brought to the surface by the drilling mud as the hole penetrates formations of interest.

Well logging is another valuable method of analyzing downhole formations. Using a mobile laboratory, well loggers lower sensitive tools to the bottom of the well on wireline and then pull them back up the hole. As they pass back up the hole, the tools measure and record certain properties of the formations and the fluids (oil, gas, and water) that may reside in the formations. Logging tools can also be run as part of the drill string to measure hole conditions and formation properties as the well is being drilled. This is called “measurement while drilling.”

If logging results indicate commercial quantities, a drill stem test may be run. Tools are positioned on the drill pipe to isolate the zone to be flow tested. Downhole formation pressure and fluids enter the tool and activate a recorder. Test may be designed to allow formation fluids to flow to the surface during the test or just to allow a certain volume to enter into the wellbore. In either case, provisions must be made at the surface to separate formation fluids from the mud, and to store and dispose of formation liquids. Natural gas produced during drill stem test is vented or flared. A properly designed and run drill stem test can give excellent indication of the types and volumes of fluid the zone is capable of producing.

In addition to well logging and drill stem testing, formation core samples can be taken from the hole and examined in a laboratory.

Setting Production Casing—After the drilling contractor has drilled the hole to final depth and the operating company has evaluated the formations, the company decides whether to set production casing or plug and abandon the well. If the well is judged to be a dry hole --that is, not capable of producing oil or gas in commercial quantities – the well will be plugged and abandoned.

Several cement plugs will be put in the well to seal it permanently. Cement plugs will be designed and placed to protect the zones of usable water from pollution and to prevent escape of oil, gas, or other fluids to the surface or other zones. Plugging and abandoning a well is considerably less expensive than completing it.

On the other hand, if evaluation reveals that commercial amounts of hydrocarbons exist, the company may decide to set casing and complete the well. The services of a casing crew and cementing company will once more be arranged for; and the production casing will be run and cemented in the well.

The drilling contractor nears the end of his job when the hole has been drilled to total depth and production casing has been set and cemented. In some cases, the rig and crew remain on the location to “complete” the well, or make it ready for production. In other cases, the drilling contractor moves his rig, and the operator brings in a smaller, less expensive completion rig and crew to finish up the job.

Well Completion—Completion equipment and methods employed are quite varied. The perforated completion is by far the most popular method of completing a well. Perforating is the process of piercing the casing wall, cement, and rock to provide openings through which formation fluids may enter the wellbore. Perforating is accomplished by placing guns holding special explosive charges opposite the zone to be produced. The charges are shaped so that an intense, directional explosion is formed. The well must have a good cement job and well-designed and well-executed perforation methods to get effective formation flow.

Explosives used in perforating guns are very stable. Accidents are rare as long as the people involved use proper procedures. Perforating guns may be run in the well on tubing or by wireline. Firing is accomplished by applying electric current, pressure, or mechanical force to a firing head located on the perforating gun.

In some areas, formations are competent enough that production casing is not used. The drilled hole is left uncased. Many wells in Tennessee and Kentucky are constructed with only surface casing and open hole below.

The final string of pipe usually run in a producing well is the tubing. Tubing is a string of relatively small diameter pipe through which the hydrocarbons are produced. Tubing sizes vary from less than 2 inches in diameter up to 4½ inches for large volume producers. In a flowing well, its smaller diameter produces more efficient flow than casing. Also, since it is not cemented in the hole, tubing may be removed when it becomes plugged or damaged. Tubing, when used with a packer, keeps well fluids and formation pressures away from the casing. Well fluids and high pressures can damage casing, necessitating costly repairs.

The packer consists of a pipe like device through which well fluids can flow. Rubber sealing elements form a fluid tight seal around the inside of the casing. Gripping elements, called slips, hold the packer in place. Because the packer seals off the space between the tubing and the casing, produced fluids are forced into and up the tubing.

Another device often installed in the tubing string near the surface is a “subsurface safety valve.” The valve remains opened, as long a flow is normal. When the valve senses a loss in pressure or significantly increased flow (such as would occur with a flowline break), the valve closes automatically. Subsurface safety valves can prevent uncontrolled well flow in the event of massive surface equipment failure.

Finally, a tubing head is installed at the top of the well to support the tubing. Valves, gauges, and flow control devices are installed on top of the tubing head. Together, they make up what is commonly called a Christmas tree.

When reservoir pressures are not sufficient for the well to flow on its own, operators employ artificial lift methods. The most common by far is rod pumping. A plunger pump is installed deep in the well and connected by rods to a pumping unit on the surface. The pump jack moves the rods up and down to work the downhole pump. Pump jacks are often driven with electric motors or natural gas engines. The gas lift method works by injecting high-pressure gas into the fluid column of a well to lighten and raise the fluid by expansion of the gas. Instead of pump jacks, there will be a source of high-pressure gas in the field, usually from a gas compressor. The hydraulic pumping method uses a fluid to drive a downhole motor, which in turn drives a pump that pumps the oil to the surface. Surface equipment for hydraulic pumping includes a high-pressure pump and vessels to separate the hydraulic fluid from produced fluid. Yet another type of artificial lift is electric submersible pumping, usually only used on very high-volume wells. An electric motor attached to a pump is installed downhole. Electric current is supplied to the motor through special heavy-duty armored cable. Surface facilities may just be a small transformer/control box.

The well may be stimulated to enhance flow. Stimulation may be performed before or after the completion equipment is installed. Two common types of stimulation are formation acidization and hydraulic fracturing. Stimulation treatments can improve flow to the point where commercial production is achieved in an otherwise uneconomical well.

Formation acidizing is treating the hydrocarbon-bearing rock with large volumes of acid. The most common types of acid used are hydrochloric (HCl) and hydrofluoric (HF). Oilfield acids contain additives to prevent or delay corrosion of the well's tubulars, inhibit sludging and emulsion reactions with oil in the formation, and make the acid easier to pump. The aim in acidizing is to enlarge the pore spaces and passages by dissolving rock, thus enlarging existing flow channels and opening new ones to the wellbore.

Acid is brought to the well location in tanker trucks and pumped using one or more truck-mounted pumps. Spent acid that is flowed back from the well is often kept separate from field production. The spent acid may be put into temporary tanks until it is trucked off to disposal.

In hydraulic fracturing, fluid is pumped into the formation at high enough pressures and rates to split the rock. Proppants are pumped with the fluid to hold the crack open once pumping stops. Sand and sintered bauxite beads are two common propping agents. Fracturing fluid must not only break down the formation, but also extend and transport the proppant into the fracture. The industry has developed a multitude of complex fluid and proppant systems to achieve the best results in the many varied types of reservoirs.

Many truck-mounted pumps and temporary storage tanks are needed on location to fracture-treat wells. Larger well locations may be needed if hydraulic fracturing is part of a completion procedure.

Field Development—If the wildcat well produces oil or gas in commercial quantities, one or more additional wells are normally drilled to confirm the initial finding and further test and define the extent of the oil or gas reserves. Location of the confirmation wells is dependent upon analysis of discovery well data and any existing seismic surveys. Confirmation progresses by drilling one well after another, each dependent on the results of the previous wells.

With more information in hand, facilities can be designed to handle production from the field. Next, development wells are drilled as needed to efficiently drain the reservoir. The procedures for drilling development wells are about the same as for wildcats, except that there may be a variation in the amount

and type of subsurface sampling, testing, and evaluation. More detailed seismic work may be performed to aid in the location of development wells.

A state Oil & Gas Commission usually establishes the field well spacing pattern. Typical well spacing may be one well every 640, 320, 160, 80, or 40 acres. Completely filled spacing patterns would translate to 1, 2, 4, 8, or 16 wells per square mile, respectively. In general, oil well spacing is denser for oil wells than for gas wells, and shallow well spacing is denser than for deeper wells.

Access roads to development wells are usually better planned and constructed than those for wildcat wells because these wells are expected to have longer lives. Typically a lease area will have one main route, with side roads to each well or multi-well pad location. Change from temporary to permanent roads does not take place until a well has been established as being capable of production. The amount of roadway required per square mile of field is 4 miles, based upon a spacing pattern of 40 acres and a separate pad for each well.

Directional drilling is sometimes used to concentrate the surface locations of two or more wells in one area. This technique minimizes the amount of surface area (roads and well pads) needed to develop a field. Multiple well pads may be used when developing a field inside the limits of a city or in environmentally sensitive areas.

Other surface equipment and support facilities are brought in or constructed during field development. For example, a battery of storage tanks or a pipeline may be required to handle produced oil or gas. Separation and treatment facilities are required to separate gas and water from oil. Storage tanks are required to hold brines produced during oil extraction, and a proper disposal capability, most typically reinjection, must be developed. Natural gas must be properly disposed of (usually flared) or treated to remove impurities if it is to be used or sold.

Well Servicing and Workover Operations—Sometimes it is necessary to repair downhole mechanical problems. Workover rigs are often used to repair downhole equipment or assist in large stimulation jobs. The most common well servicing operation is related to artificial lift installation, tubing string repairs, and work on other downhole completion equipment that may be malfunctioning. More involved workover operations might include cleanout of sand, scale, or paraffin deposits that accumulate in the well, casing repair, cementing, perforating new or existing zones of production, or even some limited drilling operations.

Workover rigs are scaled-down drilling rigs. They are usually equipped to stand the pipe in the derrick, rotate pipe while it is in the hole, and circulate workover fluids down and back up the well. Workover rigs are usually self-contained on a truck. They are highly mobile and can be rigged up and rigged down quickly. A well servicing job to replace a rod pump may last only 1 or 2 days. A major workover operation to change or “recomplete” to another productive zone may last more than a month.

PLUGGING/ABANDONMENT/RECLAMATION

Workover rigs are also used to plug and abandon wells once they are depleted. Plugging operations consist of removing the tubing, packer, and other completion equipment; pumping cement across producing zones; and placing cement plugs at various depths to protect freshwater zones. Finally, a cement plug is set at the surface to cap the well, and wellhead equipment is cut off. A permanent abandonment marker is often placed to identify the well’s location.

The surface owner and regulatory agencies often dictate surface reclamation. Reclamation can range from just removing equipment to reclaiming the area to conditions that existed before drilling the well.

Full-scale reclamation can include the following:

- Removal of structures, equipment, and debris used or generated during operations;
- Removal or remediation of contaminated soils;
- Recontouring of disturbed areas to near original grade;
- Spreading and preparation of topsoil;
- Planting of native vegetation, usually grasses, but sometimes also tree saplings;
- Erosion protection measures such as mulching; and
- Monitoring of revegetation and erosion control efforts.

Reclamation may last a few days or a few years, depending on the degree of contamination on the site and the ability of native species to grow.

APPENDIX B: 9B REGULATIONS

36 CFR PART 9 SUBPART – B NON-FEDERAL OIL AND GAS RIGHTS REGULATIONS

AUTHORITY: Act of August 25, 1916, 39 Stat. 535 (16 USC 1, et seq.); and the acts establishing the units of the National Park System, including but not limited to: Act of April 25, 1947, 61 Stat. 54 (16 USC 241, et seq.); Act of July 2, 1958, 72 Stat. 285 (16 USC 410, et seq.); Act of October 27, 1972, 86 Stat. 1312 (16 USC 460dd, et seq.); Act of October 11, 1974, 88 Stat. 1256 (16 USC 698 – 698e); Act of October 11, 1974, 88 Stat. 1258 (16 USC 698f – 698m); Act of December 27, 1974, 88 Stat. 1787 (16 USC 460ff et seq.).

SOURCE: 43 FR 57825, Dec. 8, 1978, unless otherwise noted.

§ 9.30 Purpose and scope.

(a) These regulations control all activities within any unit of the National Park System in the exercise of rights to oil and gas not owned by the United States where access is on, across or through federally owned or controlled lands or waters. Such rights arise most frequently in one of two situations: (1) When the land is owned in fee, including the right to the oil and gas, or (2) When in a transfer of the surface estate to the United States, the grantor reserved the rights to the oil and gas. These regulations are designed to insure that activities undertaken pursuant to these rights are conducted in a manner consistent with the purposes for which the National Park System and each unit thereof were created, to prevent or minimize damage to the environment and other resource values, and to insure to the extent feasible that all units of the National Park System are left unimpaired for the enjoyment of future generations.

These regulations are not intended to result in the taking of a property interest, but rather to impose reasonable regulations on activities which involve and affect federally-owned lands.

(b) Regulations controlling the exercise of minerals rights obtained under the Mining Law of 1872 in units of the National Park System can be found at 36 C.F.R. Part 9, Subpart A. In area where oil and gas are owned by the United States, and leasing is authorized, the applicable regulations can be found at 43 C.F.R., Group 3100.

(c) These regulations allow operators the flexibility to design plans of operations only for that phase of operations contemplated. Each plan need only describe those functions for which the operator wants immediate approval. For instance, it is impossible to define, at the beginning of exploratory activity, the design that production facilities might take. For this reason, an operator may submit a plan which applies only to the exploratory phase, allowing careful preparation of a plan for the production phase after exploration is completed. This allows for phased reclamation and bonding at a level commensurate with the level of operations approved. However, it must be noted that because of potential cumulative impacts, and because of qualitative differences in the nature of the operations, approval of a plan of operations covering one phase of operations does not guarantee later approval of a plan of operations covering a subsequent phase.

[43 FR 57825, Dec. 8, 1978, as amended at 44 FR 37914, June 29, 1979]

§9.31 Definitions.

The terms used in this Subpart shall have the following meanings:

- (a) Secretary. The Secretary of the Interior.
- (b) Director. The Director of the National Park Service or his designee.
- (c) Operations. All functions, work and activities within a unit in connection with exploration for and development of oil and gas resources, the right to which is not owned by the United States, including: gathering basic information required to comply with this subpart, prospecting, exploration, surveying, preproduction development and production; gathering, onsite storage, transport or processing of petroleum products; surveillance, inspection, monitoring, or maintenance of equipment; reclamation of the surface disturbed by such activities; and all activities and uses reasonably incident thereto performed within a unit, including construction or use of roads, pipelines, or other means of access or transportation on, across, or through federally owned or controlled lands and waters, regardless of whether such activities and uses take place on Federal, State or private lands.
- (d) Operator. A person conducting or proposing to conduct operations.
- (e) Person. Any individual, firm, partnership, corporation, association, or other entity.
- (f) Superintendent. The Superintendent, or his designee, of the unit of the National Park System containing lands subject to the rights covered by these regulations.
- (g) Commercial Vehicle. Any motorized equipment used in direct or indirect support of operations.
- (h) Unit. Any National Park System area.
- (i) Owner. The owner, or his legal representative, of the rights to oil and gas being exercised.
- (j) Designated Roads. Those existing roads determined by the Superintendent in accordance with 36 C.F.R. 1.5 and § 4.19 to be open for the use of the general public or for the exclusive use of an operator.
- (k) Oil. Any viscous combustible liquid hydrocarbon or solid hydrocarbon substance easily liquifiable on warming which occurs naturally in the earth, including drip gasoline or other natural condensates recovered from gas without resort to manufacturing process.
- (l) Gas. Any fluid, either combustible or noncombustible, which is produced in a natural state from the earth and which maintains a gaseous or rarefied state at ordinary temperature and pressure conditions.
- (m) Site. Those lands or waters on which operations are to be carried out.
- (n) Contaminating substances. Those substances, including but not limited to, salt water or any other injurious or toxic chemical, waste oil or waste emulsified oil, basic sediment, mud with injurious or toxic additives, or injurious or toxic substances produced or used in the drilling, development, production, transportation, or on-site storage, refining, and processing of oil and gas.
- (o) Statement for Management. A National Park Service planning document used to guide short- and long-term management of a unit; to determine the nature and extent of planning required to meet the unit's

management objectives; and, in the absence of more specific planning documents, to provide a general framework for directing park operations and communicating park objectives to the public.

[43 F R 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979, as amended at 60 FR 55791, Nov. 3 1995; 62 FR 30234, June 3, 1997]

§ 9.32 Access.

(a) No access on, across or through lands or waters owned or controlled by the United States to a site for operations will be granted except for operations covered by § 9.33 and, except as provided by § 9.38, until the operator has filed a plan of operations pursuant to § 9.36 and has had the plan of operations approved in accordance with § 9.37. An approved plan of operations serves as the operator's access permit.

(b) No operations shall be conducted on a site within a unit, access to which is on, across or through federally owned or controlled lands or waters except in accordance with an approved plan of operations, the terms of § 9.33 or approval under § 9.38.

(c) Any operator intending to use aircraft of any kind for access to a federally-owned or controlled site must comply with these regulations. Failure of an operator to receive the proper approval under these regulations prior to using aircraft in this manner is a violation of both these regulations and 36 C.F.R. 2.17.

(d) No access to a site outside a unit will be permitted across unit lands unless such access is by foot, pack animal, or designated road. Persons using designated roads for access to such a site must comply with the terms of § 9.50 where applicable.

(e) Any operator on a site outside the boundaries of a unit must comply with these regulations if he is using directional drilling techniques which result in the drill hole crossing into the unit and passing under any land or water the surface of which is owned by the United States. Except, that the operator need not comply in those areas where, upon application of the operator or upon his own action, the Regional Director is able to determine from available data, that such operations pose no significant threat of damage to park resources, both surface and subsurface, resulting from surface subsidence, fracture of geological formations with resultant fresh water aquifer contamination, or natural gas escape, or the like.

§ 9.33 Existing operations.

(a) Any person conducting operations on January 8, 1979 in accordance with a Federal or State issued permit may continue to do so as provided by this section. After expiration of such existing permits no operations shall be conducted except under an approved plan of operations, unless access is granted by the Regional Director under § 9.38.

(1) All Federal special use permits dealing with access on, across or through lands or waters owned or controlled by the United States to a site for the conduct of operations within any unit issued prior to January 8, 1979 shall expire according to their terms and shall not be renewed, unless by the terms of the existing permit it must be renewed.

(2) All operations on a site in a unit access to which is on, across, or through federally owned or controlled lands or waters conducted pursuant to a valid State access permit may be continued for the term of that permit, exclusive of any renewal period whether mandatory or discretionary, if conducted in accordance with the permit.

(b) Any person conducting operations on January 8, 1979 in a unit where Federal or State permits were not required prior to January 8, 1979 may continue those operations pending a final decision on his plan of operations; Provided, That:

(1) The operator (within thirty (30) days of January 8, 1979), notifies the Superintendent in writing of the nature and location of the operations; and

(2) Within sixty (60) days after such notification, the operator submits, in accordance with these regulations, a substantially complete proposed plan of operations for those operations;

(3) Failure to comply with § 9.33(b) (1) and (2) shall constitute grounds for the suspension of operations.

(c) At any time when operations which are allowed to continue under § 9.33 (a) and (b) pose an immediate threat of significant injury to federally owned or controlled lands or waters, the Superintendent shall require the operator to suspend operations immediately until the threat is removed or remedied. The Superintendent must, within five (5) days of this suspension notify the operator in writing of the reasons for the suspension and of his right to appeal the suspension under § 9.49.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

§ 9.34 Transfers of interest.

(a) Whenever an owner of rights being exercised under an approved plan of operations sells, assigns, bequeaths, or otherwise conveys all or any part of those rights, he, his agent, executor, or representative must notify the Superintendent within sixty (60) days of the transfer of: the site(s) involved; the name and address of the person to whom an interest has been conveyed; and a description of the interest transferred. Failure to so notify the Superintendent shall render the approval of any previously approved plan of operations void.

(b) The transferring owner shall remain responsible for compliance with the plan of operations and shall remain liable under his bond until such time as the Superintendent is notified of the transfer in accordance with paragraph (a). At that time the Superintendent will prohibit the new owner from operating until such time as the new owner has filed with the Superintendent: (1) A statement ratifying the existing plan of operations and stating his intent to be bound thereby, or a new plan of operations, and (2) a suitable substitute performance bond which complies with the requirements of § 9.48.

§ 9.35 Use of water.

No operator may use for operations any water from a point of diversion which is within the boundaries of any unit unless authorized in writing by the Regional Director. The Regional Director shall not approve a plan of operations requiring the use of water from such source unless the operator shows either that his right to the use of the water is superior to any claim of the United States to the water, or where the operator's claim to the water is subordinate to that of the United States that the removal of the water from the water system will not damage the unit's resources. In either situation, the operator's use of water must comply with appropriate State water laws.

§ 9.36 Plan of operations.

(a) The proposed plan of operations shall include, as appropriate to the proposed operations, the following:

(1) The names and legal addresses of the following persons: The operator and the owner(s) or lessee(s) (if rights are State-owned) other than the operator;

(2) Copy of the lease, deed, designation of operator, or assignment of rights upon which the operator's right to conduct operations is based;

(3) A map or maps showing the location of the perimeter of the area where the operator has the right to conduct operations, as described in § 9.36(a)(2), referenced to the State plane coordinate system or other public land survey as acceptable to the Superintendent;

(4) A map or maps showing the location, as determined by a registered land surveyor or civil engineer, of a point within a site of operations showing its relationship to the perimeter of the area described in § 9.36(a)(2) and to the perimeter of the site of operations; the location of existing and proposed access roads or routes to the site; the boundaries of proposed surface disturbance; the location of proposed drilling; location and description of all surface facilities including sumps, reserve pits and ponds; location of tank batteries, production facilities and gathering, service and transmission lines; wellsite layout; sources of construction materials such as fill; and the location of ancillary facilities such as camps, sanitary facilities, water supply and disposal facilities, and airstrips. The point within the site of operations identified by registered land surveyor or civil engineer shall be marked with a permanent ground monument acceptable to the Superintendent, shall contain the point's State plane coordinate values, and shall be placed at least to an accuracy of third order, class I, unless otherwise authorized by the Superintendent;

(5) A description of the major equipment to be used in the operations, including a description of equipment and methods to be used for the transport of all waters used in or produced by operations, and of the proposed method of transporting such equipment to and from the site;

(6) An estimated timetable for any phase of operations for which approval is sought and the anticipated date of operation completion;

(7) The geologic name of the surface formation;

(8) The proposed drilling depth, and the estimated tops of important geologic markers;

(9) The estimated depths at which anticipated water, brines, oil, gas, or other mineral bearing formations are expected to be encountered;

(10) The nature and extent of the known deposit or reservoir to be produced and a description of the proposed operations, including:

(i) The proposed casing program, including the size, grade, and weight of each string, and whether it is new or used;

(ii) The proposed setting depth of each casing string, and the amount of type of cement, including additives, to be used;

(iii) The operator's minimum specifications for pressure control equipment which is to be used, a schematic diagram thereof showing sizes, pressure ratings, and the testing procedures and testing frequency;

(iv) The type and characteristics of the proposed circulating medium or mediums to be employed for rotary drilling and the quantities and types of mud and weighting material to be maintained;

(v) The testing, logging, and coring programs to be followed;

(vi) Anticipated abnormal pressures or temperatures expected to be encountered; or potential hazards to persons and the environment such as hydrogen sulfide gas or oil spills, along with plans for mitigation of such hazards;

(11) A description of the steps to be taken to comply with the applicable operating standards of § 9.41 of this subpart;

(12) Provisions for reclamation which will result in compliance with the requirements of § 9.39:

(13) A breakdown of the estimated costs to be incurred during the implementation of the reclamation plan;

(14) Methods for disposal of all rubbish and other solid and liquid wastes, and contaminating substances;

(15) An affidavit stating that the operations planned are in compliance with all applicable Federal, State and local laws and regulations

(16) Background information, including:

(i) A description of the natural, cultural, social and economic environments to be affected by operations, including a description and/or map(s) of the location of all water, abandoned, temporarily abandoned, disposal, production, and drilling wells of public record within a two-mile radius of the proposed site. Where such information is available from documents identified in § 9.36(d), specific reference to the document and the location within the document where such information can be found will be sufficient to satisfy this requirement

(ii) The anticipated direct and indirect effects of the operations on the unit's natural, cultural, social, and economic environment;

(iii) Steps to be taken to insure minimum surface disturbance and to mitigate any adverse environmental effects, and a discussion of the impacts which cannot be mitigated

(iv) Measures to protect surface and subsurface waters by means of casing and cement, etc.

(v) All reasonable technologically feasible alternative methods of operations their costs, and their environmental effects, and

(vi) The effects of the steps to be taken to achieve reclamation

(17) Any other facets of the proposed operations which the operator wishes to point out for consideration; and

(18) Any additional information that is required to enable the Superintendent to establish whether the operator has the right to conduct operations as specified in the plan of operations; to effectively analyze the effects that the operations will have on the preservation, management and public use of the unit, and to make a recommendation to the Regional Director regarding approval or disapproval of the plan of operations and the amount of the performance bond to be posted.

(b) Where any information required to be submitted as part of a proposed plan of operations has been submitted to the Superintendent in substantially the same form in a prior approved plan of operations, a specific cross-reference to that information contained in the prior approved plan of operations will be sufficient to incorporate it into the proposed plan and will satisfy the applicable requirement of this section.

(c) Information and materials submitted in compliance with this section will not constitute a plan of operations until information required by § 9.36(a) (1) through (18), which the Superintendent determines as pertinent to the type of operations proposed, has been submitted to and determined adequate by the Regional Director.

(d) In all cases the plan of operations must consider and discuss the unit's Statement for Management and other planning documents as furnished by the Superintendent, and activities to control, minimize or prevent damage to the recreational, biological physical, scientific, cultural, and scenic resources of the unit, and any reclamation procedures suggested by the Superintendent.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

§ 9.37 Plan of operations approval.

(a) The Regional Director shall not approve a plan of operations:

(1) Until the operator shows that the operations will be conducted in a manner which utilizes technologically feasible methods least damaging to the federally-owned or controlled lands, waters and resources of the unit while assuring the protection of public health and safety.

(2) For operations at a site the surface estate of which is not owned by the federal government, where operations would constitute a nuisance to federal lands or waters in the vicinity of the operations, would significantly injure federally-owned or controlled lands and waters; or

(3) For operations at a site the surface estate of which is owned or controlled by the federal government, where operations would substantially interfere with management of the unit to ensure the preservation of its natural and ecological integrity in perpetuity, or would significantly injure the federally-owned or controlled lands or waters; Provided, however, that if the application of this standard would under applicable law, constitute a taking of a property interest rather than an appropriate exercise of regulatory authority, the plan of operations may be approved if the operations would be conducted in accordance with paragraph (a)(1) of this section, unless a decision is made to acquire the mineral interest.

(4) Where the plan of operations does not satisfy each of the requirements of § 9.36 applicable to the operations proposed.

(b) Within sixty (60) days of the receipt of a plan of operations, the Regional Director shall make an environmental analysis of such plan, and:

(1) Notify the operator that the plan of operations has been approved or rejected, and, if rejected, the reasons for the rejection; or

(2) Notify the operator that the plan of operations has been conditionally approved, subject to the operator's acceptance of specific provisions and stipulations; or

(3) Notify the operator of any modification of the plan of operations which is necessary before such plan will be approved or of additional information needed to effectively analyze the effects that the operations will have on the preservation, management and use of the unit, and to make a decision regarding approval or disapproval of the plan of operations and the amount of the performance bond to be posted; or

(4) Notify the operator that the plan of operations is being reviewed, but that more time, not to exceed an additional thirty days, is necessary to complete such review, and setting forth the reasons why additional time is required. Provided, however, That days during which the area of operations is inaccessible for such reasons as inclement weather, natural catastrophe acts of God, etc., for inspection shall not be included when computing either this time period, or that in subsection (b) above; or

(5) Notify the operator that the plan of operations has been reviewed, but cannot be considered for approval until forty-five (45) days after a final environmental statement has been prepared and filed with the Environmental Protection Agency; or

(6) Notify the operator that the plan of operations is being reviewed, but that more time to provide opportunities for public participation in the plan of operations review and to provide sufficient time to analyze public comments received is necessary. Within thirty (30) days after closure of the public comment period specified by the Regional Director, he shall comply with § 9.37(b) (1) through (5).

(c) The Regional Director shall act as expeditiously as possible upon a proposed plan of operations consistent with the nature and scope of the operations proposed. Failure to act within the time limits specified in this section shall constitute a rejection of the plan of operations from which the operator shall have a right to appeal under § 9.49.

(d) The Regional Director's analysis shall include:

(1) An examination of all information submitted by the operator;

(2) An evaluation of measures and timing required to comply with reclamation requirements;

(3) An evaluation of necessary conditions and amount of the bond or security deposit (See § 9.48);

(4) An evaluation of the need for any additional requirements in the plan;

(5) A determination regarding the impact of this operation and cumulative impacts of all proposed and existing operations on the management of the unit; and

(6) A determination whether implementation by the operator of an approved plan of operations would be a major Federal action significantly affecting the quality of the human environment or would be sufficiently controversial to warrant preparation of an environmental statement pursuant to section 102(2)(c) of the National Environmental Policy Act of 1969.

(e) Prior to approval of a plan of operations, the Regional Director shall determine whether any properties included in, or eligible for inclusion in the National Register of Historic Places or National Registry of Natural Landmarks may be affected by the proposed operations. This determination will require the acquisition of adequate information, such as that resulting from field surveys, in order to properly determine the presence and significance of cultural resources within the areas to be affected by operations. Whenever National Register properties or properties eligible for inclusion in the National Register would be affected by operations, the Regional Director shall comply with Section 106 of the Historic Preservations Act of 1966 as implemented by 36 C.F.R. Part 800.

(f) Approval of each plan of operations is expressly conditioned upon the Superintendent having such reasonable access to the site as is necessary to properly monitor and insure compliance with the plan of operations.

[43 FR 57825, Dec. 8, 1978; 44 FR 37914, June 29, 1979]

§ 9.38 Temporary approval.

(a) The Regional Director may approve on a temporary basis:

(1) Access on, across or through federally-owned or controlled lands or waters for the purpose of collecting basic information necessary to enable timely compliance with these regulations. Such temporary approval shall be for a period not in excess of sixty (60) days.

(2) The continuance of existing operations, if their suspension would result in an unreasonable economic burden or injury to the operator; provided that such operations must be conducted in accordance with all applicable laws, and in a manner prescribed by the Regional Director designed to minimize or prevent significant environmental damage; and provided that within sixty (60) days of the granting of such temporary approval the operator either:

(i) Submits an initial substantially complete plan of operations; or

(ii) If a proposed plan of operations has been submitted, responds to any outstanding requests for additional information.

(b) The Regional Director may approve new operations on a temporary basis only when:

(1) The Regional Director finds that the operations will not cause significant environmental damage or result in significant new or additional surface disturbance to the unit; and either

(2) The operator can demonstrate a compelling reason for the failure to have had timely approval of a proposed plan of operations; or

(3) The operator can demonstrate that failure to grant such approval will result in an unreasonable economic burden or injury to the operator.

[43 FR 57825, Dec. 8, 1978, as amended at 44 FR 37914, June 29, 1979]

§ 9.39 Reclamation requirements.

(a) Within the time specified by the reclamation provisions of the plan of operations, which shall be as soon as possible after completion of approved operations and shall not be later than six (6) months thereafter unless a longer period of time is authorized in writing by the Regional Director, each operator shall initiate as follows:

(1) Where the Federal government does not own the surface estate the operator shall at a minimum:

(i) Remove or neutralize any contaminating substances; and

(ii) Rehabilitate the area of operations to a condition which would not constitute a nuisance or would not adversely affect, injure, or damage federally-owned lands or waters, including removal of above ground structures and equipment used for operations, except that such structures and equipment may remain where they are to be used for continuing operations which are the subject of another approved plan of operations or of a plan which has been submitted for approval.

(2) On any site where the surface estate is owned or controlled by the Federal government, each operator must take steps to restore natural conditions and processes. These steps shall include but are not limited to:

(i) Removing all above ground structures, equipment and roads used for operations, except that such structures, equipment and roads may remain where they are to be used for continuing operations which are the subject of another approved plan of operations or of a plan which has been submitted for approval, or unless otherwise authorized by the Regional Director consistent with the unit purpose and management objectives;

(ii) Removing all other man-made debris resulting from operations;

(iii) Removing or neutralizing any contaminating substances;

(iv) Plugging and capping all nonproductive wells and filling dump holes, ditches, reserve pits and other excavations;

(v) Grading to reasonably conform the contour of the area of operations to a contour similar to that which existed prior to the initiation of operations, where such grading will not jeopardize reclamation;

(vi) Replacing the natural topsoil necessary for vegetative restoration; and

(vii) Reestablishing native vegetative communities.

(b) Reclamation under paragraph (a)(2) of this section is unacceptable unless it provides for the safe movement of native wildlife, the reestablishment of native vegetative communities, the normal flow of surface and reasonable flow of subsurface waters, and the return of the area to a condition which does not jeopardize visitor safety or public use of the unit.

§ 9.40 Supplementation or revision of plan of operations.

(a) A proposal to supplement or revise an approved plan of operations may be made by either the operator or the Regional Director to adjust the plan to changed conditions or to address conditions not previously contemplated by notifying the appropriate party in writing of the proposed alteration and the justification therefore.

(b) Any proposed supplementation or revision of a plan of operations initiated under paragraph (a) of this section by either party shall be reviewed and acted on by the Regional Director in accordance with § 9.37. If failure to implement proposed changes would not pose an immediate threat of significant injury to federally-owned or controlled lands or waters, the operator will be notified in writing sixty (60) days prior to the date such changes become effective, during which time the operator may submit comments on proposed changes. If failure to implement proposed changes would pose immediate threat of significant injury to federally-owned or controlled lands or waters, the provisions of § 9.33(c) apply.

§ 9.41 Operating Standards.

The following standards shall apply to operations within a unit:

(a) Surface operations shall at no time be conducted within 500 feet of the banks of perennial, intermittent or ephemeral watercourses; or within 500 feet of the high pool shoreline of natural or man-made impoundments; or within 500 feet of the mean high tide line; or within 500 feet of any structure or facility (excluding roads) used for unit interpretation, public recreation or for administration of the unit unless specifically authorized by an approved plan of operations.

(b) The operator shall protect all survey monuments, witness corners, reference monuments and bearing trees against destruction, obliteration, or damage from operations and shall be responsible for the reestablishment, restoration, or referencing of any monuments, corners and bearing trees which are destroyed, obliterated, or damaged by such operations.

(c) Whenever drilling or producing operations are suspended for 24 hours or more, but less than 30 days, the wells shall be shut in by closing wellhead valves or blowout prevention equipment. When producing operations are suspended for 30 days or more, a suitable plug or other fittings acceptable to the Superintendent shall be used to close the wells.

(d) The operator shall mark each and every operating derrick or well in a conspicuous place with his name or the name of the owner, and the number and location of the well, and shall take all necessary means and precautions to preserve these markings.

(e) Around existing or future installations, e.g., well, storage tanks, all high pressure facilities, fences shall be built for protection of unit visitors and wildlife, and protection of said facilities unless otherwise authorized by the Superintendent. Fences erected for protection of unit visitors and wildlife shall be of a design and material acceptable to the Superintendent, and where appropriate, shall have at least one gate which is of sufficient width to allow access by fire trucks. Hazards within visitor use areas will be clearly marked with warning signs acceptable to the Superintendent.

(f) The operator shall carry on all operations and maintain the site at all times in a safe and workmanlike manner, having due regard for the preservation of the environment of the unit. The operator shall take reasonable steps to prevent and shall remove accumulations of oil or other materials deemed to be fire hazards from the vicinity of well locations and lease tanks, and shall remove from the property or store in an orderly manner all scrap or other materials not in use.

(g) Operators will be held fully accountable for their contractor's or subcontractor's compliance with the requirements of the approved plan of operations.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

§ 9.42 Well records and reports, plots and maps, samples, tests and surveys.

Any technical data gathered during the drilling of any well, including daily drilling reports and geological reports, which are submitted to the State pursuant to State regulations, or to any other bureau or agency of the Federal government shall be available for inspection by the Superintendent upon his request.

§ 9.43 Precautions necessary in areas where high pressures are likely to exist.

When drilling in "wildcat" territory, or in any field where high pressures are likely to exist, the operator shall take all necessary precautions for keeping the well under control at all times and shall install and maintain the proper high-pressure fittings and equipment to assure proper well control. Under such conditions the surface string must be cemented through its length, unless another procedure is authorized or prescribed by the Superintendent, and all strings of casing must be securely anchored.

§ 9.44 Open flows and control of "wild" wells.

The operator shall take all technologically feasible precautions to prevent any oil, gas, or water well from blowing open or becoming "wild," and shall take immediate steps and exercise due diligence to bring under control any "wild" well, or burning oil or gas well.

§ 9.45 Handling of wastes.

Oilfield brine, and all other waste and contaminating substances must be kept in the smallest practicable area, must be confined so as to prevent escape as a result of percolation, rain high water or other causes, and such wastes must be stored and disposed of or removed from the area as quickly as practicable in such a manner as to prevent contamination, pollution, damage or injury to the lands, water (surface and subsurface), facilities, cultural resources, wildlife, and vegetation of or visitors of the unit.

§ 9.46 Accidents and fires.

The operator shall take technologically feasible precautions to prevent accidents and fires, shall notify the Superintendent within 24 hours of all accidents involving serious personal injury or death, or fires on the site, and shall submit a full written report thereon within ninety (90) days. This report supersedes the requirement outlined in 36 C.F.R. 2.17, but does not relieve persons from the responsibility of making any other accident reports which may be required under State or local laws.

§ 9.47 Cultural resource protection.

(a) Where the surface estate of the site is owned by the United States, the operator shall not, without written authorization of the Superintendent, injure, alter, destroy, or collect any site, structure, object, or other value of historical, archeological, or other cultural scientific importance in violation of the Antiquities Act (16 U.S.C. 431-433 (See 43 C.F.R. Part 3).

(b) Once approved operations have commenced, the operator shall immediately bring to the attention of the Superintendent any cultural or scientific resource encountered that might be altered or destroyed by his operation and shall leave such discovery intact until told to proceed by the Superintendent. The

Superintendent will evaluate the discoveries brought to his attention, and will determine within ten (10) working days what action will be taken with respect to such discoveries.

§ 9.48 Performance bond.

(a) Prior to approval of a plan of operations, the operator shall be required to file a suitable performance bond with satisfactory surety, payable to the Secretary or his designee. The bond shall be conditioned upon faithful compliance with applicable regulations, and the plan of operations as approved, revised or supplemented. This performance bond is in addition to and not in lieu of any bond or security deposit required by other regulatory authorities.

(b) In lieu of a performance bond, an operator may elect to deposit with the Secretary or his designee, cash or negotiable bonds of the U.S. Government. The cash deposit or the market value of such securities shall be at least equal to the required sum of the bond. When bonds are to serve as security, there must be provided to the Secretary a power of attorney.

(c) In the event that an approved plan of operations is revised or supplemented in accordance with § 9.40, the Regional Director may adjust the amount of the bond or security deposit to conform to the modified plan of operations.

(d) The bond or security deposit shall be in an amount:

(1) Equal to the estimated cost of reclaiming the site, either in its entirety or in phases, that has been damaged or destroyed as a result of operations conducted in accordance with an approved, supplemented, plan of operations; plus

(2) An amount set by the Superintendent consistent with the type of operations proposed, to bond against the liability imposed by § 9.51(a); to provide the means for rapid and effective cleanup; and to minimize damages resulting from an oil spill, the escape of gas, wastes, contaminating substances, or fire caused by operations. This amount shall not exceed twenty-five thousand dollars (\$25,000) for geophysical surveys when using more than one field party or five thousand dollars (\$5,000) when operating with only one field party, and shall not exceed fifty thousand dollars (\$50,000) for each wellsite or other operation.

(3) When an operator's total bond or security deposit with the National Park Service amounts to two hundred thousand dollars (\$200,000) for activities conducted within a given unit, no further bond requirements shall be collected for additional activities conducted within that unit, and the operator may substitute a blanket bond of two hundred thousand dollars (\$200,000) for all operations conducted within the unit.

(e) The operator's and his surety's responsibility and liability under the bond or security deposit shall continue until such time as the Superintendent determines that successful reclamation of the area of operations has occurred and, where a well has been drilled, the well has been properly plugged and abandoned. If all efforts to secure the operator's compliance with pertinent provisions of the approved plan of operations are unsuccessful, the operator's surety company will be required to perform reclamation in accordance with the approved plan of operations.

(f) Within thirty (30) days after determining that all reclamation requirements of an approved plan of operations are completed, including proper abandonment of the well, the Regional Director shall notify the operator that the period of liability under the bond or security deposit has been terminated.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915 June 29, 1979]

§ 9.49 Appeals.

(a) Any operator aggrieved by a decision of the Regional Director in connection with the regulations in this Subpart may file with the Regional Director a written statement setting forth in detail the respects in which the decision is contrary to, or is in conflict with the facts, the law, or these regulations, or is otherwise in error. No such appeal will be considered unless it is filed with the Regional Director within thirty (30) days after the date of notification to the operator of the action or decision complained of. Upon receipt of such written statement from the aggrieved operator, the Regional Director shall promptly review the action or decision and either reverse his original decision or prepare his own statement, explaining that decision and the reasons therefore, and forward the statement and record on appeal to the Director for review and decision. Copies of the Regional Director's statement shall be furnished to the aggrieved operator, who shall have thirty (30) days within which to file exceptions to the Regional Director's decision. The Department has the discretion to initiate a hearing before the Office of Hearing and Appeals in a particular case (See 43 C.F.R. 4.700).

(b) The official files of the National Park Service on the proposed plan of operations and any testimony and documents submitted by the parties on which the decision of the Regional Director was based shall constitute the record on appeal. The Regional Director shall maintain the record under separate cover and shall certify that it was the record on which his decision was based at the time it was forwarded to the Director of the National Park Service. The National Park Service shall make the record available to the operator upon request.

(c) If the Director considers the record inadequate to support the decision on appeal, he may provide for the production of such additional evidence or information as may be appropriate, or may remand the case to the Regional Director, with appropriate instructions for further action.

(d) On or before the expiration of forty-five (45) days after his receipt of the exceptions to the Regional Director's decision, the Director shall make his decision in writing; provided however, that if more than forty-five (45) days are required for a decision after the exceptions are received, the Director shall notify the parties to the appeal and specify the reason(s) for delay. The decision of the Director shall include: (1) A statement of facts; (2) conclusions; and (3) reasons upon which the conclusions are based. The decision of the Director shall be the final administrative action of the agency on a proposed plan of operations.

(e) A decision of the Regional Director from which an appeal is taken shall not be automatically stayed by the filing of a statement of appeal. A request for a stay may accompany the statement of appeal or may be directed to the Director. The Director shall promptly rule on requests for stays. A decision of the Director on request for a stay shall constitute a final administrative decision.

(f) Where, under this Subpart, the Superintendent has the authority to make the original decision, appeals may be taken in the manner provided by this section, as if the decision had been made by the Regional Director, except that the original statement of appeal shall be filed with the Superintendent, and if he decides not to reverse his original decision, the Regional Director shall have, except as noted below, the final review authority. The only decision of a Regional Director under this paragraph which shall be appealable by the Director is an appeal from a suspension under § 9.51(b). Such an appeal shall follow the procedure of paragraphs (a)-(3) of this section.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

§ 9.50 Use of roads by commercial vehicles.

(a) After January 8, 1978, no commercial vehicle shall use roads administered by the National Park Service without being registered with the Superintendent. Roads must be used in accordance with procedures outlined in an approved plan of operations.

(1) A fee shall be charged for such registration and use based upon a posted fee schedule. The fee schedule posted shall be subject to change upon sixty (60) days of notice.

(2) An adjustment of the fee may be made at the discretion of the Superintendent where a cooperative maintenance agreement is entered into with the operator.

(b) No commercial vehicle which exceeds roadway load limits specified by the Superintendent shall be used on roads administered by the National Park Service unless authorized in writing by the Superintendent, or unless authorized by an approved plan of operations.

(c) Should a commercial vehicle used in operations cause damage to roads, resources or other facilities of the National Park Service, the operator shall be liable for all damages so caused.

§ 9.51 Damages and penalties.

(a) The operator shall be held liable for any damages to federally-owned or controlled lands, waters, or resources resulting from his failure to comply with either his plan of operations, or where operations are continued pursuant to § 9.33, failure to comply with the applicable permit or, where operations are temporarily approved under § 9.38, failure to comply with the terms of that approval.

(b) The operator agrees, as a condition for receiving an approved plan of operations, that he will hold harmless the United States and its employees from any damages or claims for injury or death of persons and damage or loss of property by any person or persons arising out of any acts or omissions by the operator, his agents, employees or subcontractors done in the course of operations.

(c) Undertaking any operations within the boundaries of any unit in violation of this Subpart shall be deemed a trespass against the United States and shall be cause for revocation of approval of the plan of operations.

(1) When a violation by an operator under an approved plan of operations is discovered, and if it does not pose an immediate threat of significant injury to federally-owned or controlled lands or waters, the operator will be notified in writing by the Superintendent and will be given ten (10) days to correct the violation; if the violation is not corrected within ten (10) days approval of the plan of operations will be suspended until such time as the violation is corrected.

(2) If the violation poses an immediate threat of significant injury to federally-owned or controlled lands or waters, approval of the plan of operations will be immediately suspended until such time as the violation is corrected. The operator will be notified in writing within five (5) days of any suspension and shall have the right to appeal that decision under § 9.48.

(3) Failure to correct any violation or damage to federally owned or controlled lands, waters or resources caused by such violations will result in revocation of plan of operations approval.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

§ 9.52 Public inspection of documents.

(a) When a Superintendent receives a request for permission for access on, across or through federally-owned or controlled lands or waters for the purpose of conducting operations, the Superintendent shall publish a notice of this request in a newspaper of general circulation in the county(s) in which the lands are situated, or in such publications as deemed appropriate by the Superintendent.

(b) Upon receipt of the plan of operations in accordance with § 9.35(c), the Superintendent shall publish a notice in the FEDERAL REGISTER advising the availability of the plan for public review and comment. Written comments received within thirty (30) days will become a part of the official record. As a result of comments received or if otherwise deemed appropriate by the Superintendent, he may provide additional opportunity for public participation to review the plan of operations.

(c) Any document required to be submitted pursuant to the regulations in this Subpart shall be made available for public inspection at the office of the Superintendent during normal business hours, unless otherwise available pursuant to § 9.51(b). This does not include those records only made available for the Superintendent's inspection under § 9.41 of this Subpart or those records determined by the Superintendent to contain proprietary or confidential information. The availability of such records for inspection shall be governed by the rules and regulations found at 43 C.F.R. Part 2.

[43 FR 57825, Dec. 8, 1978; 44 FR 37915, June 29, 1979]

APPENDIX C: SITE-SPECIFIC WELL DATA

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Big South Fork National River and Recreation Area																						
Bowen R H 1	5859	Amtex Resources	Grandfathered				Lily loam, 5 to 12 percent slopes									Successional Forest						
Bowen R H 13	5865	Amtex Resources	Grandfathered				Lily-Ramsey complex, 5 to 12 percent slopes									Successional Forest						
Bowen R H 9	5861	Amtex Resources	Grandfathered	yes	262	Geo_Feature "Christian Tunnel"	Gilpin-Bouldin complex, 20 to 75 percent slopes, very stony									Mixed Pine – Oak Forest						
Bruno Gernt 4	6194	Amtex Resources	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
Carson/Rugby PFG-V-1 1	4372	B-J, Inc.	Grandfathered				Lonewood silt loam, 5 to 12 percent slopes				yes	491	R3UB1H, Riverine	yes	483	Pine Forest						
Hull Carson 1	1453	B-J, Inc.	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
Hull Carson CA-1981-1 1	4496	B-J, Inc.	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
Hull Carson CS 1	5148	B-J, Inc.	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
Hull-rosenbaum CA 1	5092	B-J, Inc.	Grandfathered				Gilpin-Sequoia complex, 5 to 12 percent slopes	yes	473	Lake/Pond						Pine Forest						
Hull-Tompkins-Rosenbaum JDE-1 1	4991	B-J, Inc.	Grandfathered				Lily loam, 5 to 12 percent slopes									Mixed Pine – Oak Forest						
John Satelle 3	7082	Cooper, William III	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Mixed Pine – Oak Forest						
Owens John Wesley 1	7313	Ace Petroleum Company	Grandfathered				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
Reed/Ray 1	8706	Cambridge Resources	Grandfathered	yes	467	Cliff Face	Lily-Gilpin complex, 5 to 12 percent slopes									Pine Forest						
Rugby Land Co 1	5495	Clowes & Ray Oil Producers	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Hemlock – White Pine Forest						
Rugby Land Co 1	6881	A B C Petroleum	Grandfathered	yes	320	Cliff Face	Lily loam, 5 to 12 percent slopes	yes	485	Perennial Stream	yes	487	R3UB1H, Riverine	yes	456	Herbaceous						
Rugby Land Co BJI-1981-1	4831	B-J, Inc.	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
Rugby Land Co JDE 1	4830	B-J, Inc.	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes	yes	247	Perennial Stream	yes	214	R3UB1H, Riverine	yes	198	Herbaceous						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Big South Fork National River and Recreation Area (continued)																						
Rugby Land Co MC-1981-02	4930	B-J, Inc.	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 75 percent slopes, very stony									Pine Forest						
Tompkins Ed CS-1 1	5037	B-J, Inc.	Grandfathered				Gilpin silt loam, 12 to 20 percent slopes									Pine Forest						
NA	1622	NA	Grandfathered				Gilpin silt loam, 12 to 20 percent slopes									Successional Forest						
NA	0579	NA	Grandfathered				Gilpin silt loam, 5 to 12 percent slopes									Successional Forest						
NA	2706	NA	Grandfathered				Gilpin silt loam, 5 to 12 percent slopes									Herbaceous						
NA	8559	NA	Grandfathered				Gilpin silt loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	1548	NA	Grandfathered				Gilpin silt loam, 5 to 20 percent slopes, eroded									Pine Forest						
NA	2233	NA	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Hemlock – White Pine Forest						
NA	3626	NA	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Successional Forest						
NA	5975	NA	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Hemlock – White Pine Forest						
NA	0560	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Successional Forest						
NA	1504	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Mixed Pine – Oak Forest						
NA	2123	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes	yes	467	Perennial Stream	yes	492	R3UB1H, Riverine	yes	435	Lowland or Submontaine Cold Deciduous Forest						
NA	3571	NA	Grandfathered	yes	17	Cliff Face	Gilpin-Petros complex, 20 to 35 percent slopes							yes	492	Successional Forest						
NA	4244	NA	Grandfathered	yes	95	Cliff Face	Gilpin-Petros complex, 20 to 35 percent slopes							yes	488	Hemlock – White Pine Forest						
NA	4658	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Hemlock – White Pine Forest						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Big South Fork National River and Recreation Area (continued)																						
NA	6056	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Pine Forest						
NA	6519	NA	Grandfathered	yes	411	Cliff Face	Gilpin-Petros complex, 20 to 35 percent slopes	yes	471	Perennial Stream	yes	451	R3UB1H, Riverine	yes	380	Pine Forest						
NA	6602	NA	Grandfathered	yes	500	Cliff Face	Gilpin-Petros complex, 20 to 35 percent slopes	yes	456	Perennial Stream	yes	426	R3RB2H, Riverine	yes	366	Lowland or Submontaine Cold Deciduous Forest						
NA	6924	NA	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes									Pine Forest						
NA	2037	NA	Grandfathered	yes	52	Cliff Face	Lily loam, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	8346	NA	Grandfathered				Lily loam, 2 to 5 percent slopes									Successional Forest						
NA	0822	NA	Grandfathered				Lily loam, 3 to 8 percent slopes									Developed or Disturbed						
NA	1145	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	1872	NA	Grandfathered	yes	326	Cliff Face	Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	2070	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	2082	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	2167	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	2198	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	2361	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Successional Forest						
NA	3046	NA	Grandfathered	yes	35	Cliff Face	Lily loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	3234	NA	Grandfathered	yes	486	Cliff Face	Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	3298	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	3323	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	3589	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	6036	NA	Grandfathered				Lily loam, 5 to 12 percent slopes	yes	492	Perennial Stream	yes	490	R3UB1H, Riverine	yes	405	Lowland or Submontaine Cold Deciduous Forest						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Big South Fork National River and Recreation Area (continued)																						
NA	6037	NA	Grandfathered				Lily loam, 5 to 12 percent slopes							yes	462	Lowland or Submontaine Cold Deciduous Forest						
NA	6356	NA	Grandfathered	yes	351	Cliff Face	Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	6399	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	7645	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Pine Forest						
NA	8372	NA	Grandfathered				Lily loam, 5 to 12 percent slopes									Developed or Disturbed						
NA	0467	NA	Grandfathered				Lily-Gilpin complex, 12 to 20 percent slopes									Successional Forest						
NA	0531	NA	Grandfathered				Lily-Gilpin complex, 12 to 20 percent slopes									Successional Forest						
NA	13306	NA	Grandfathered	yes	52	Cliff Face	Lily-Gilpin complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	4747	NA	Grandfathered				Lily-Gilpin complex, 20 to 35 percent slopes									Pine Forest	yes	188.6	Polygon - Station camp collector access			
NA	0562	NA	Grandfathered				Lily-Gilpin complex, 5 to 12 percent slopes									Successional Forest						
NA	1677	NA	Grandfathered				Lily-Gilpin complex, 5 to 12 percent slopes									Successional Forest						
NA	2593	NA	Grandfathered				Lily-Gilpin complex, 5 to 12 percent slopes									Successional Forest						
NA	6108	NA	Grandfathered				Lily-Gilpin complex, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	1102	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	1577	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Pine Forest						
NA	1776	NA	Grandfathered	yes	0	Cliff Face	Lily-Ramsey complex, 12 to 20 percent slopes									Hemlock – White Pine Forest						
NA	1951	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Pine Forest						
NA	2118	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forest						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Big South Fork National River and Recreation Area (continued)																						
NA	2190	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forest						
NA	2856	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Successional Forest						
NA	3297	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Pine Forest						
NA	3868	NA	Grandfathered	yes	190	Cliff Face	Lily-Ramsey complex, 12 to 20 percent slopes									Pine Forest						
NA	5175	NA	Grandfathered	yes	0	Cliff Face	Lily-Ramsey complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	5752	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes									Successional Forest						
NA	5782	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes	yes	434	Perennial Stream	yes	445	R3UB1H, Riverine	yes	396	Lowland or Submontaine Cold Deciduous Forests						
NA	5989	NA	Grandfathered				Lily-Ramsey complex, 12 to 20 percent slopes	yes	419	Perennial Stream	yes	415	R3UB1H, Riverine	yes	330	Lowland or Submontaine Cold Deciduous Forests						
NA	6255	NA	Grandfathered	yes	359	Cliff Face	Lily-Ramsey complex, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	1977	NA	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
NA	5958	NA	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
NA	6107	NA	Grandfathered	yes	89	Cliff Face	Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
NA	8437	NA	Grandfathered				Lily-Ramsey complex, 20 to 35 percent slopes									Herbaceous						
NA	8541	NA	Grandfathered				Lily-Ramsey complex, 5 to 12 percent slopes									Developed or Disturbed						
NA	0435	NA	Grandfathered				Lonewood silt loam, 2 to 5 percent slopes									Successional Forest						
NA	0443	NA	Grandfathered				Lonewood silt loam, 2 to 5 percent slopes									Hemlock – White Pine Forest						
NA	4909	NA	Grandfathered				Lonewood silt loam, 5 to 12 percent slopes							yes	496	Hemlock – White Pine Forest						

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Big South Fork National River and Recreation Area (continued)																						
NA	6993	NA	Grandfathered				Lonewood silt loam, 5 to 12 percent slopes									Pine Forest						
NA	7108	NA	Grandfathered				Lonewood silt loam, 5 to 12 percent slopes									Pine Forest						
NA	1376	NA	Grandfathered				Ramsey-Alticrest-Rock outcrop complex, 5 to 20 percent slopes									Mixed Pine – Oak Forest						
NA	1403	NA	Grandfathered	yes	498	Cliff Face	Ramsey-Alticrest-Rock outcrop complex, 5 to 20 percent slopes							yes	444	Lowland or Submontaine Cold Deciduous Forests						
NA	1762	NA	Grandfathered				Rock outcrop-Ramsey complex, 20 to 70 percent slopes									Pine Forest						
NA	3454	NA	Grandfathered				Wernock silt loam, 2 to 5 percent slopes							yes	493	Successional Forest						
NA	4657	NA	Grandfathered	yes	217	Cliff Face	Wernock silt loam, 2 to 5 percent slopes									Developed or Disturbed						
NA	3570	NA	Grandfathered	yes	431	Cliff Face	Wernock silt loam, 5 to 12 percent slopes									Developed or Disturbed						
NA	5789	NA	Grandfathered				Wernock silt loam, 5 to 12 percent slopes									Successional Forest						
NA	6183	NA	Grandfathered				Wernock silt loam, 5 to 12 percent slopes									Pine Forest						
Plateau Properties 1	1371	BB Petroleum	No Federal Access				Gilpin-Petros complex, 20 to 35 percent slopes									Hemlock – White Pine Forest						
Plateau Properties 5	6641	BB Petroleum	No Federal Access				Gilpin silt loam, 12 to 20 percent slopes									Successional Forest						
Plateau Properties 6	6744	BB Petroleum	No Federal Access				Gilpin silt loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
Plateau Properties 7	6880	BB Petroleum	No Federal Access				Gilpin-Petros complex, 20 to 35 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
Plateau Properties 3	1522	BB Petroleum	No Federal Access				Gilpin silt loam, 12 to 20 percent slopes									Herbaceous						
NA	1509	NA	No Federal Access				Gilpin silt loam, 12 to 20 percent slopes									Herbaceous						

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Big South Fork National River and Recreation Area (continued)																						
NA	1591	NA	No Federal Access				Gilpin silt loam, 12 to 20 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	1475	NA	No Federal Access				Gilpin silt loam, 5 to 12 percent slopes									Successional Forest						
NA	1997	NA	No Federal Access				Gilpin silt loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	2676	NA	No Federal Access				Gilpin silt loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	8297	NA	No Federal Access				Gilpin silt loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	1158	NA	No Federal Access	yes	311	Cliff Face	Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Mixed Pine – Oak Forest						
NA	1170	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Lowland or Submontaine Cold Deciduous Forests						
NA	1177	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	456	Perennial Stream	yes	466	R3RB2H, Riverine	yes	340	Mixed Pine – Oak Forest						
NA	1178	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Pine Forest						
NA	1187	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony							yes	367	Pine Forest						
NA	1190	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony							yes	192	Mixed Pine – Oak Forest						
NA	1213	NA	No Federal Access	yes	245	Cliff Face	Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	428	Perennial Stream	yes	400	R3RB2H, Riverine	yes	387	Successional Forest						
NA	1234	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony							yes	452	Successional Forest						
NA	1235	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Mixed Pine – Oak Forest						

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Big South Fork National River and Recreation Area (continued)																						
NA	1254	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Successional Forest						
NA	1257	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	395	Perennial Stream	yes	401	R3RB2H, Riverine	yes	216	Mixed Pine – Oak Forest						
NA	1284	NA	No Federal Access	yes	294	Cliff Face	Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	86	Perennial Stream	yes	58	R3RB2H, Riverine	yes	82	Hemlock – White Pine Forest						
NA	1309	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	206	Perennial Stream	yes	0	PSS1A, Freshwater Forested/ Shrub Wetland	yes	0	Lowland or Submontaine Cold Deciduous Forests						
NA	1391	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	218	Perennial Stream	yes	222	R3RB2H, Riverine	yes	17	Mixed Pine – Oak Forest						
NA	1480	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Hemlock – White Pine Forest						
NA	2096	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony									Hemlock – White Pine Forest						
NA	2156	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	397	Perennial Stream	yes	388	R3RB2H, Riverine	yes	319	Lowland or Submontaine Cold Deciduous Forests						
NA	2188	NA	No Federal Access	yes	115	Cliff Face	Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	494	Perennial Stream				yes	438	Hemlock – White Pine Forest						
NA	2979	NA	No Federal Access				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	374	Perennial Stream	yes	351	R3RB2H, Riverine	yes	301	Pine Forest						
NA	5229	NA	No Federal Access	yes	350	Cliff Face	Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony							yes	276	Mixed Pine – Oak Forest						
NA	1618	NA	No Federal Access				Gilpin-Petros complex, 20 to 35 percent slopes									Mixed Pine – Oak Forest						
NA	2472	NA	No Federal Access				Gilpin-Petros complex, 20 to 35 percent slopes									Hemlock – White Pine Forest						
NA	1111	NA	No Federal Access				Lily loam, 5 to 12 percent slopes				yes	133	PUBHh, Freshwater Pond			Successional Forest						

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Big South Fork National River and Recreation Area (continued)																						
NA	1487	NA	No Federal Access				Lily loam, 5 to 12 percent slopes									Herbaceous						
NA	1778	NA	No Federal Access				Lily loam, 5 to 12 percent slopes									Mixed Pine – Oak Forest						
NA	6085	NA	No Federal Access				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	6769	NA	No Federal Access				Lily loam, 5 to 12 percent slopes									Hemlock – White Pine Forest						
NA	1194	NA	No Federal Access				Lily-Gilpin complex, 12 to 20 percent slopes	yes	399	Perennial Stream	yes	399	R3RB2H, Riverine	yes	293	Successional Forest						
NA	1283	NA	No Federal Access				Lily-Gilpin complex, 12 to 20 percent slopes									Mixed Pine – Oak Forest						
NA	1267	NA	No Federal Access	yes	495	Cliff Face	Lily-Gilpin complex, 5 to 12 percent slopes									Temporarily Flooded Forest						
NA	2019	NA	No Federal Access				Lily-Gilpin complex, 5 to 12 percent slopes									Successional Forest						
NA	1224	NA	No Federal Access	yes	43	Cliff Face	Lily-Ramsey complex, 12 to 20 percent slopes									Temporarily Flooded Forest						
NA	1345	NA	No Federal Access				Lily-Ramsey complex, 12 to 20 percent slopes	yes	260	Lake/Pond	yes	343	PUBHh, Freshwater Pond			Developed or Disturbed						
NA	1919	NA	No Federal Access				Lily-Ramsey complex, 12 to 20 percent slopes									Pine Forest						
NA	1449	NA	No Federal Access				Lily-Ramsey complex, 20 to 35 percent slopes									Pine Forest						
NA	1989	NA	No Federal Access				Pope-Skidmore complex, 0 to 4 percent slopes, frequently flooded							yes	194	Mixed Pine – Oak Forest						
NA	1363	NA	No Federal Access				Rock outcrop-Ramsey complex, 20 to 70 percent slopes									Pine Forest						
NA	1728	NA	No Federal Access				Shelocta silt loam, 12 to 20 percent slopes									Mixed Pine – Oak Forest						
NA	2048	NA	No Federal Access				Shelocta silt loam, 12 to 20 percent slopes							yes	487	Lowland or Submontaine Cold Deciduous Forests						
NA	1279	NA	No Federal Access				Wernock silt loam, 5 to 12 percent slopes									Successional Forest						
NA	1308	NA	No Federal Access				Wernock silt loam, 5 to 12 percent slopes									Mixed Pine – Oak Forest						

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Big South Fork National River and Recreation Area (continued)																						
NA	1317	NA	No Federal Access	yes	265	Cliff Face	Wernock silt loam, 5 to 12 percent slopes									Lowland or Submontaine Cold Deciduous Forests						
NA	1343	NA	No Federal Access				Wernock silt loam, 5 to 12 percent slopes									Mixed Pine – Oak Forest						

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Cuyahoga Valley National Park																						
Astorchurst #1	102-15	M&M Royalty	Access Exempt				Chili loam, 6 to 12 percent slopes									Developed, Open Space	yes	82.8	Polygon - Buildings	yes	82.8	Polygon - Buildings
Blossom No. 13	121-028-13	Moore Well Services	Access Exempt				Ellsworth silt loam, 12 to 25 percent slopes, moderately eroded	yes	145	Swamp/ Marsh						Pasture/Hay						
Cabala No. 1E	127-055-1	Petrox	Access Exempt				Oshtemo sandy loam, 25 to 55 percent slopes							yes	372	Deciduous Forest						
Cabala No. 2E	127-055-2	Petrox	Access Exempt				Chili loam, 0 to 2 percent slopes									Pasture/Hay						
Carper-Blossom #1	122-031	Moore Well Services	Access Exempt				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Evergreen Forest	yes	190.4	Polygon - Buildings	yes	190.4	Polygon - Buildings
Girl Scouts No. 5	110-017	Broad St. Energy	Access Exempt				Caneadea silt loam, 2 to 6 percent slopes				yes	445	unknown			Deciduous Forest	yes	247.7	Polygon-Buildings	yes	247.7	Polygon-Buildings
Hale Farm No. 2	120-035-2	Enervest Operating	Access Exempt				Ellsworth silt loam, 2 to 6 percent slopes									Deciduous Forest	yes	58.2	Line - Perkins Trail	yes	58.2	Line - Perkins Trail
Hale Farm No. 1	120-035-1	Enervest Operating	Access Exempt				Fitchville silt loam, 2 to 6 percent slopes				yes	484	unknown			Deciduous Forest	yes	188.1	Polygon - Buildings	yes	188.1	Polygon - Buildings
Hudkins No. 1	122-047-1	Moore Well Services	Access Exempt				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded	yes	289	Lake/Pond	yes	315	unknown			Pasture/Hay	yes	64.3	Polygon - Buildings	yes	64.3	Polygon - Buildings
Hudkins No. 2	122-047-2	Moore Well Services	Access Exempt				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Pasture/Hay						
Hudkins No. 3	122-047-3	Moore Well Services	Access Exempt				Ellsworth silt loam, 12 to 25 percent slopes, moderately eroded				yes	321	unknown			Deciduous Forest						
KSU Foundation #1	122-047	Moore Well Services	Access Exempt				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Pasture/Hay						
Martin No. 1	116-026	Enervest Operating	Access Exempt				Rittman silt loam, 12 to 18 percent slopes, moderately eroded									Deciduous Forest	yes	478.5	Polygon - Buildings	yes	478.5	Polygon - Buildings
Myers No. 1	117-037	Moore Well Services	Access Exempt				Mahoning silt loam, 2 to 6 percent slopes									Pasture/Hay	yes	493.7	Polygon - Buildings	yes	493.7	Polygon - Buildings
Spieth No. 1L	127-066	Petrox	Access Exempt				Chili loam, 2 to 6 percent slopes	yes	357	Perennial Stream				yes	215	Deciduous Forest						

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Cuyahoga Valley National Park (continued)																						
Szalay No. 1	121-008-1	Moore Well Services	Access Exempt				Chagrin silt loam, alkaline	yes	277	Perennial Stream	yes	382	unknown	yes	0	Cultivated Crops	yes	96.7	Line - Valley Trail	yes	96.7	Line - Valley Trail
Szalay No. 2	121-008-2	Moore Well Services	Access Exempt				Chagrin silt loam, alkaline	yes	156	Perennial Stream	yes	308	unknown	yes	0	Pasture/Hay						
Wheatley No. 1	121-009-1	Moore Well Services	Access Exempt				Rough broken land, clay and silt				yes	270	unknown			Deciduous Forest						
Wheatley No. 2	121-009-2	Moore Well Services	Access Exempt				Rough broken land, clay and silt									Deciduous Forest	yes	440.3	Polygon - Buildings	yes	440.3	Polygon - Buildings
Wheatley No. 3	121-009-3	Moore Well Services	Access Exempt				Rough broken land, clay and silt									Deciduous Forest						
Wheatley No. 4	121-009-4	Moore Well Services	Access Exempt				Ellsworth silt loam, 6 to 12 percent slopes									Deciduous Forest						
Akron No. 11	116-057-11	City of Akron	Grandfathered				Chagrin silt loam, alkaline	yes	85	Perennial Stream	yes	291	unknown	yes	0	Deciduous Forest						
Akron No. 12	116-057-12	City of Akron	Grandfathered				Chagrin silt loam, alkaline	yes	232	Perennial Stream				yes	0	Deciduous Forest						
Akron No. 6	116-057-6	City of Akron	Grandfathered				Chagrin silt loam, alkaline	yes	354	Perennial Stream	yes	349	unknown	yes	108	Deciduous Forest						
Akron No. 7	116-057-7	City of Akron	Grandfathered				Chagrin silt loam, alkaline	yes	466	Perennial Stream	yes	454	unknown	yes	113	Deciduous Forest	yes	380.2	Line - Ohio & Erie Canal Towpath Trail	yes	380.2	Line - Ohio & Erie Canal Towpath Trail
Akron No. 8	116-057-8	City of Akron	Grandfathered				Chili silt loam, 2 to 6 percent slopes				yes	152	unknown			Developed, Low Intensity	yes	397.8	Line - Adam Run Trail	yes	397.8	Line - Adam Run Trail
Alright/Himelright #1	117-030	Moore Well Services	Grandfathered				Glenford silt loam, 2 to 6 percent slopes									Pasture/Hay						
Armington No. 1	115-036	Enervest Operating	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded	yes	139	Lake/Pond	yes	426	unknown			Developed, Open Space						
Bender No. 1	121-062-1	Everflow Eastern	Grandfathered				Glenford silt loam, 0 to 2 percent slopes	yes	284	Perennial Stream	yes	268	unknown	yes	0	Pasture/Hay						
Bender No. 2	121-062-2	Everflow Eastern	Grandfathered				Chagrin silt loam, alkaline	yes	266	Perennial Stream	yes	483	unknown	yes	0	Grassland/Herbaceous	yes	422.9	Point - Monument	yes	422.9	Point - Monument
Bender No. 3	121-062-3	Everflow Eastern	Grandfathered				Fitchville silt loam, 0 to 2 percent slopes	yes	466	Perennial Stream	yes	403	unknown	yes	100	Deciduous Forest						
Blossom No. 1	121-028-1	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded				yes	134	unknown			Grassland/Herbaceous	yes	470.6	Polygon - Buildings	yes	470.6	Polygon - Buildings
Blossom No. 10	121-028-10	Moore Well Services	Grandfathered				Rough broken land, clay and silt				yes	383	unknown			Deciduous Forest						
Blossom No. 11	121-028-11	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes									Deciduous Forest						

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Cuyahoga Valley National Park (continued)																						
Blossom No. 12	121-028-12	Moore Well Services	Grandfathered				Rough broken land, clay and silt				yes	404	unknown			Deciduous Forest						
Blossom No. 2	121-028-2	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded				yes	302	unknown			Deciduous Forest						
Blossom No. 3	117-031	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Pasture/Hay	yes	10.6	Polygon - Buildings	yes	10.6	Polygon - Buildings
Blossom No. 4	121-028-4	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Deciduous Forest						
Blossom No. 5	121-028-5	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Deciduous Forest						
Blossom No. 6	121-028-6	Moore Well Services	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes	yes	383	Lake/Pond	yes	316	unknown			Deciduous Forest						
Blossom No. 7	121-028-7	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Deciduous Forest						
Blossom No. 8	121-028-8	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded				yes	377	unknown			Deciduous Forest						
Blossom No. 9	121-028-9	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Deciduous Forest						
Bredenbeck No. 1	105-108	D&D Energy	Grandfathered				Chili silt loam, 0 to 2 percent slopes							yes	472	Deciduous Forest						
BSA No. 1	113-023-01	MFC Drilling	Grandfathered				Glenford silt loam, 12 to 18 percent slopes, moderately eroded				yes	149	unknown			Developed, Open Space	yes	298.1	Polygon-Buildings	yes	298.1	Polygon-Buildings
BSA No. 10	113-023-10	MFC Drilling	Grandfathered				Geeburg silt loam, 6 to 12 percent slopes, moderately eroded				yes	432	unknown			Developed, Open Space	yes	268.9	Polygon - Buildings	yes	268.9	Polygon - Buildings
BSA No. 11	113-023-11	MFC Drilling	Grandfathered				Geeburg silt loam, 6 to 12 percent slopes, moderately eroded				yes	238	unknown			Developed, Open Space	yes	432.5	Polygon-Buildings	yes	432.5	Polygon-Buildings
BSA No. 2	113-023-02	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes				yes	305	unknown			Deciduous Forest	yes	364.5	Polygon - Buildings	yes	364.5	Polygon - Buildings
BSA No. 3	113-023-03	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes									Deciduous Forest	yes	393.6	Polygon-Buildings	yes	393.6	Polygon-Buildings

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Cuyahoga Valley National Park (continued)																						
BSA No. 4	113-023-04	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes	yes	290	Lake/Pond	yes	233	unknown			Evergreen Forest						
BSA No. 5	113-023-05	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes									Deciduous Forest						
BSA No. 6	113-023-06	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes	yes	398	Lake/Pond	yes	432	unknown			Developed, Open Space	yes	223.9	Polygon - Buildings	yes	223.9	Polygon - Buildings
BSA No. 7	113-023-07	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes				yes	432	unknown			Developed, Open Space	yes	103.9	Polygon - Buildings	yes	103.9	Polygon - Buildings
BSA No. 8	113-023-08	MFC Drilling	Grandfathered				Glenford silt loam, 2 to 6 percent slopes				yes	470	unknown			Deciduous Forest	yes	78.4	Line - Camp Manatoc Connector	yes	78.4	Line - Camp Manatoc Connector
BSA No. 9	113-023-09	MFC Drilling	Grandfathered				Geeburg silt loam, 2 to 6 percent slopes	yes	288	Lake/Pond	yes	281	unknown			Evergreen Forest	yes	195.4	Polygon - Buildings	yes	195.4	Polygon - Buildings
Carter No. 1	113-050-1	Broad St. Energy	Grandfathered				Ellsworth-Urban land complex, undulating				yes	332	unknown			Grassland/Herbaceous						
Carter No. 2	113-050-2	Broad St. Energy	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes				yes	405	unknown			Deciduous Forest						
Everflow Eastern - CVNRA 1	116-016-1	Everflow Eastern	Grandfathered				Rough broken land, clay and silt				yes	493	unknown			Deciduous Forest	yes	327.1	Polygon - Buildings	yes	327.1	Polygon - Buildings
Everflow Eastern - CVNRA 2	116-016-2	Everflow Eastern	Grandfathered				Rittman silt loam, 6 to 12 percent slopes									Deciduous Forest						
Feathers No. 1	122-009	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Grassland/Herbaceous	yes	342.2	Polygon-Buildings	yes	342.2	Polygon-Buildings
Girl Scouts No. 1	110-035-1	Broad St. Energy	Grandfathered				Mahoning silt loam, 2 to 6 percent slopes				yes	65	unknown			Deciduous Forest	yes	492.8	Polygon - Buildings	yes	492.8	Polygon - Buildings
Girl Scouts No. 2	110-035-2	Broad St. Energy	Grandfathered				Mahoning silt loam, 2 to 6 percent slopes				yes	0	unknown			Deciduous Forest						
Haidnick No. 1	122-027	Moore Well Services	Grandfathered				Ellsworth silt loam, 12 to 25 percent slopes, moderately eroded									Pasture/Hay						
Johnson No. 1	109-071	Enervest Operating	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Developed, Low Intensity	yes	355.6	Line - Bike & Hike Trail	yes	355.6	Line - Bike & Hike Trail
Lebo No. 1	105-077	D&D Energy	Grandfathered				Fitchville silt loam, 2 to 6 percent slopes	yes	76	Lake/Pond	yes	212	unknown			Pasture/Hay						
LHK No. 3	108-007	Enervest Operating	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Deciduous Forest						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Cuyahoga Valley National Park (continued)																						
Lombardo	126-045	Kurtz	Grandfathered				Euclid silt loam				yes	35	unknown	yes	290	Deciduous Forest						
Morgan/Ohio Ed #1	110-029	Broad St. Energy	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes				yes	198	unknown			Deciduous Forest	yes	233.3	Bike & Hike Trail	yes	233.3	Bike & Hike Trail
Myers1/ Somma-B2	117-038-1	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Pasture/Hay	yes	497.3	Polygon - Buildings	yes	497.3	Polygon - Buildings
Parry No. 1	117-028-1	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded				yes	196	unknown			Cultivated Crops						
Parry No. 2	117-028-2	Moore Well Services	Grandfathered				Ellsworth silt loam, 12 to 25 percent slopes, moderately eroded									Cultivated Crops	yes	420.7	Polygon-Buildings	yes	420.7	Polygon-Buildings
Peters No. 1	105-082	D&D Energy	Grandfathered				Bogart loam, 0 to 2 percent slopes				yes	431	unknown			Cultivated Crops						
Primm No. 1	117-029-1	Consortium Energy LLC	Grandfathered				Rough broken land, clay and silt				yes	422	unknown			Deciduous Forest	yes	490.0	Line - Adam Run Trail	yes	490.0	Line - Adam Run Trail
Primm No. 2	117-029-2	Consortium Energy LLC	Grandfathered				Bogart loam, 2 to 6 percent slopes				yes	49	unknown			Deciduous Forest	yes	251.2	Polygon - Buildings	yes	251.2	Polygon - Buildings
Primm No. 3	117-029-3	Consortium Energy LLC	Grandfathered				Chili silt loam, 6 to 12 percent slopes				yes	212	unknown			Deciduous Forest						
Quick Armington #1	115-037-1	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Grassland/Herbaceous	yes	286.8	Line - Buckeye Sports Connector	yes	286.8	Line - Buckeye Sports Connector
Quick No. 2	115-037-2	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Shrub/Scrub	yes	118.4	Line - Cross Country Trail	yes	118.4	Line - Cross Country Trail
Rosenlieb	124-024	Moore Well Services	Grandfathered				Rittman silt loam, 12 to 18 percent slopes, moderately eroded									Evergreen Forest	yes	52.4	Line - Plateau Trail	yes	52.4	Line - Plateau Trail
Shaw No. 1	122-021	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes, moderately eroded									Deciduous Forest	yes	393.2	Polygon-Buildings	yes	393.2	Polygon-Buildings
Somma-Buergler #1	117-038-2	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes									Pasture/Hay	yes	145.5	Polygon - Buildings	yes	145.5	Polygon - Buildings
Szalay No. 3	121-004-3	Rosenlieb	Grandfathered				Conotton-Oshtemo complex, 25 to 50 percent slopes				yes	404	unknown			Deciduous Forest						
Szalay No. 4	121-004-4	Moore Well Services	Grandfathered				Tioga loam	yes	355	Perennial Stream	yes	460	unknown	yes	297	Cultivated Crop						
Thower/Talas #1	118-058	unknown. Ohio Ed?	Grandfathered				Udorthents	yes	493	Perennial Stream				yes	0	Deciduous Forest	yes	310.3	Polygon-Buildings	yes	310.3	Polygon-Buildings

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Cuyahoga Valley National Park (continued)																						
Underwood No. 1	122-045-1	Moore Well Services	Grandfathered				Ellsworth silt loam, 6 to 12 percent slopes				yes	485	unknown			Developed, Open Space	yes	95.1	Polygon - Buildings	yes	95.1	Polygon - Buildings
Underwood No. 2	122-045-2	Moore Well Services	Grandfathered				Mahoning silt loam, 0 to 2 percent slopes	yes	201	Swamp/ Marsh	yes	420	unknown			Grassland/Herbaceous						
Underwood No. 3	122-045-3	Moore Well Services	Grandfathered				Ellsworth silt loam, 2 to 6 percent slopes	yes	484	Swamp/ Marsh	yes	305	unknown			Grassland/Herbaceous	yes	430.4	Polygon-Buildings	yes	430.4	Polygon-Buildings
Underwood No. 4	122-045-4	Moore Well Services	Grandfathered				Mahoning silt loam, 0 to 2 percent slopes	yes	341	Swamp/ Marsh	yes	346	unknown			Grassland/Herbaceous						

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Gauley River National Recreation Area																						
NA	47-019-082	Rockhill Resources	Grandfathered				Clifftop channery silt loam, 25 to 35 percent slopes									Oak – Hickory – Sugar Maple Forest						
NA	47-019-359	Equitable Gas	Grandfathered				Clifftop channery silt loam, 3 to 8 percent slopes									Disturbed Area						
NA	47-019-380	Mike Ross	Grandfathered				Clifftop-Nallen complex, 8 to 15 percent slopes									Eastern Hemlock Plateau Forest						
NA	47-019-389	Equitable Gas	Grandfathered				Dekalb very channery loam, 3 to 15 percent slopes, extremely stony									Disturbed Area						
NA	47-019-393	Equitable Gas	Grandfathered				Laidig-Clifftop complex, 15 to 35 percent slopes, very stony									Disturbed Area						
NA	47-019-394-1	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony									Road						
NA	47-019-394-2	Equitable Gas	Grandfathered				Laidig-Clifftop complex, 15 to 35 percent slopes, very stony									Disturbed Area						
NA	47-019-452	Texas Int. Petroleum	Grandfathered				Clifftop channery silt loam, 8 to 15 percent slopes									Eastern Hemlock – Oak – Sweet Birch / Great Laurel Forest						
NA	47-067-052	Equitable Gas	Grandfathered				Highsplint channery loam, 15 to 35 percent slopes, very stony									Developed Area						
NA	47-067-091	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony							yes	91	Oak – Hickory – Sugar Maple Forest						
NA	47-067-119	Equitable Gas	Grandfathered				Clifftop channery silt loam, 25 to 35 percent slopes									Developed Area						
NA	47-067-254	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony	yes	195	Perennial Stream	yes	221	R3UBH, Riverine	yes	175	Oak – Hickory – Sugar Maple Forest						
NA	47-067-418	Equitable Gas	Grandfathered				Clifftop channery silt loam, 8 to 15 percent slopes									Road						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Gauley River National Recreation Area (continued)																						
NA	47-067-471	Cities Service	Grandfathered				Laidig-Clifftop complex, 15 to 35 percent slopes, very stony									Developed Area						
NA	47-067-474	Equitable Gas	Grandfathered				Nallen loam, 8 to 15 percent slopes									Developed Area						
NA	47-067-475	Equitable Gas	Grandfathered				Dekalb-Rock outcrop complex, 15 to 35 percent slopes, extremely stony									Disturbed Area						
NA	47-067-511	Equitable Gas	Grandfathered				Clifftop channery silt loam, 3 to 15 percent slopes, very stony									Developed Area						
NA	47-067-512	Equitable Gas	Grandfathered				Lily loam, 8 to 15 percent slopes									Eastern Hemlock Plateau Forest						
NA	47-067-5157	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony									Oak – Hickory – Sugar Maple Forest						
NA	47-067-655	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony									Oak – Hickory Forest						
NA	47-067-656	Equitable Gas	Grandfathered				Clifftop channery silt loam, 25 to 35 percent slopes									Developed Area						
NA	47-067-657	Equitable Gas	Grandfathered				Clifftop channery silt loam, 25 to 35 percent slopes									Road						
NA	47-067-743	Equitable Gas	Grandfathered				Clifftop channery silt loam, 3 to 8 percent slopes									Developed Area						
NA	47-067-771	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony									Developed Area						
NA	47-067-782	Equitable Gas	Grandfathered				Layland-Rock outcrop complex, 35 to 70 percent slopes, very rubbly	yes	271	Perennial Stream	yes	220	R3RSA, Riverine	yes	68	Developed Area						
NA	47-067-788	Equitable Gas	Grandfathered				Clifftop channery silt loam, 25 to 35 percent slopes	yes	498	Perennial Stream				yes	468	Road						
NA	47-067-789	Equitable Gas	Grandfathered				Berks-Highsplint-Sharondale complex, 35 to 80 percent slopes, very stony									Developed Area						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplain s within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Gauley River National Recreation Area (continued)																						
NA	47-067-792	Equitable Gas	Grandfathered				Dekalb-Rock outcrop complex, 15 to 35 percent slopes, extremely stony									Developed Area						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Lake Meredith National Recreation Area																						
Barnes State 1	024445	Burnett	Grandfathered				Yomont soils, frequently flooded	yes	0	Inundation Area	yes	151	R4SBA, Riverine	yes	0	Oil/Gas Development Sites						
Barnes State 1R	027148	Burnett	Grandfathered				Yomont soils, frequently flooded	yes	0	Inundation Area	yes	123	R4SBA, Riverine	yes	0	Oil/Gas Development Sites						
Bivins 1	024745	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	37	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
Bivins 2	024606	Oilwell Operators	Grandfathered	yes	49	Caprock Polygon	Burson stony loam, steep	yes	229	Inundation Area	yes	409	L1UBHh, Lake			Transportation						
Bivins 5-R	027251	Lera	Grandfathered				Dallam fine sandy loam, 1 to 3 percent slopes									Blue Grama-Buffalograss Herbaceous Vegetation						
Bivins HH-2	034056	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	85	Inundation Area	yes	301	PEM1/SS1Ch, Freshwater Emergent Wetland			Upland Slopes/Rolling Hills Vegetation Complex						
Cecil 2	024783	Phillips	Grandfathered	yes	153	Caprock Polygon	Tascosa gravelly loam, 3 to 20 percent slopes	yes	12	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
D-Jay 2	027221	Phillips	Grandfathered	yes	33	Caprock Polygon	Tascosa gravelly loam, 3 to 20 percent slopes									Upland Slopes/Rolling Hills Vegetation Complex						
E L Snow 10	027239	Phillips	Grandfathered	yes	285	Caprock Polygon	Mobeetie fine sandy loam, 5 to 12 percent slopes	yes	446	Inundation Area						Honey Mesquite Shrubland Complex						
E L Snow 13	034468	Phillips	Grandfathered	yes	386	Caprock Polygon	Mobeetie fine sandy loam, 5 to 12 percent slopes									Honey Mesquite Shrubland Complex						
E L Snow 14	034469	Phillips	Grandfathered	yes	0	Caprock Polygon	Dallam fine sandy loam, 1 to 3 percent slopes	yes	264	Inundation Area						Honey Mesquite Shrubland Complex						
E L Snow 8	027237	Phillips	Grandfathered	yes	116	Caprock Polygon	Dallam fine sandy loam, 1 to 3 percent slopes	yes	481	Inundation Area						Honey Mesquite Shrubland Complex						
EL Snow 7	027236	Phillips	Grandfathered	yes	229	Caprock Polygon	Mobeetie and Veal soils, 5 to 20 percent slopes	yes	318	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
Evelyn 1	024845	Phillips	Grandfathered				Borrow pit									Strip Mines, Quaries, and Borrow Areas						
Evelyn 2	027215	Phillips	Grandfathered				Dallam fine sandy loam, 1 to 3 percent slopes	yes	188	Inundation Area						Strip Mines, Quaries, and Borrow Areas						
H Sneed 1	023673	Herrmann, J B	Grandfathered	yes	92	Caprock Polygon	Enterprise very fine sandy loam, 5 to 8 percent slopes	yes	0	Inundation Area						Honey Mesquite Shrubland Complex						

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Lake Meredith National Recreation Area (continued)																						
H Sneed 1-RC	035141	Herrmann, J B	Grandfathered	yes	0	Caprock Polygon	Enterprise very fine sandy loam, 5 to 8 percent slopes	yes	0	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
Ingerton A-1	024919	Phillips	Grandfathered	yes	8	Caprock Polygon	Dallam fine sandy loam, 1 to 3 percent slopes	yes	6	Inundation Area	yes	358	PUSAh, Freshwater Pond			Upland Slopes/Rolling Hills Vegetation Complex						
Ingerton A-2	024920	Phillips	Grandfathered				Likes loamy fine sand, 1 to 6 percent slopes									Honey Mesquite Shrubland Complex						
J Williams 1	025210	Phillips	Grandfathered	yes	80	Caprock Polygon	Burson stony loam, steep	yes	106	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
J Williams 2	027244	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	146	PSS1Ch, Freshwater Forested/ Shrub Wetland			Strip Mines, Quarries, and Borrow Areas						
Kermicle 3	034998	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	166	Inundation Area	yes	325	L2USAh, Lake			Mixed Urban-Built-up Land						
Kermicle 4	034862	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	159	Inundation Area	yes	304	L2USAh, Lake			Mixed Urban-Built-up Land						
McMann 2	025038	Phillips	Grandfathered				Dallam-Urban land complex, 0 to 3 percent slopes									Honey Mesquite Shrubland Complex						
McMann 3	076437	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep				yes	229	PFO1/ SS1A, Freshwater Forested/ Shrub Wetland			Steep Slope Vegetation Complex						
Phillips Eagle 2	074860	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	307	PEM1/ SS1Ch, Freshwater Emergent Wetland			Upland Slopes/Rolling Hills Vegetation Complex						
Record-B 1	025093	Phillips	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	24	PEM1/ SS1Ch, Freshwater Emergent Wetland			Steep Slope Vegetation Complex						
Red Cave A1	027232	Phillips	Grandfathered				Dallam fine sandy loam, 1 to 3 percent slopes									Upland Slopes/Rolling Hills Vegetation Complex						
Sneed 2R	027255	Lera	Grandfathered	yes	0	Caprock Polygon	Rough broken land	yes	0	Inundation Area	yes	238	PSS1/2Ah, Freshwater Forested/ Shrub Wetland			Sand Sagebrush/(Sideouts Grama, Hairy Grama) Shrubland						
Sneed F 2	027234	Phillips	Grandfathered	yes	251	Caprock Polygon	Enterprise very fine sandy loam, 5 to 8 percent slopes	yes	0	Inundation Area						Sand Sagebrush/(Sideouts Grama, Hairy Grama) Shrubland						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Lake Meredith National Recreation Area (continued)																						
State 8-A	024637	Huber	Grandfathered	yes	82	Caprock Polygon	Burson stony loam, steep	yes	211	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
State A-10A	034543	Huber	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	253	L1UBHh, Lake			Steep Slope Vegetation Complex						
State A-38A	024639	Huber	Grandfathered				Lincoln soils				yes	489	PEM1F, Freshwater Emergent Wetland			Mixed Urban-Built-up Land						
State A-60R	034547	Huber	Grandfathered	yes	434	Caprock Polygon	Burson stony loam, steep	yes	0	Lake Meredith	yes	78	PSS1Ch, Freshwater Forested/Shrub Wetland			Drawdown Areas						
State A-61R	027212	Huber	Grandfathered	yes	233	Caprock Polygon	Tascosa gravelly loam, 3 to 20 percent slopes	yes	160	Inundation Area						Upland Slopes/Rolling Hills Vegetation Complex						
State A-62RC	027213	Huber	Grandfathered				Lincoln soils	yes	445	Lake/Pond						Perennial Bottomland/Upper Terrace/Valley Floor HV Complex						
State A-9A	034542	Huber	Grandfathered	yes	423	Caprock Polygon	Burson stony loam, steep	yes	0	Lake Meredith	yes	88	PSS1Ch, Freshwater Forested/Shrub Wetland			Drawdown Areas						
Williams C-2	023950	Huber	Grandfathered	yes	335	Caprock Polygon	Burson stony loam, steep	yes	349	Inundation Area						Sand Sagebrush/(Sideouts Grama, Hairy Grama) Shrubland						
Williams C-4R	027133	Huber	Grandfathered				Mobeetie fine sandy loam, 5 to 12 percent slopes									Honey Mesquite Shrubland Complex						
Williams-C 5AR	034861	Huber	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	114	L2USAh, Lake			Steep Slope Vegetation Complex						
Williams-C A3	034997	Huber	Grandfathered	yes	0	Caprock Polygon	Burson stony loam, steep	yes	0	Inundation Area	yes	133	L2USAh, Lake			Sand Sagebrush/(Sideouts Grama, Hairy Grama) Shrubland						

Well Name	Unique ID	Well Operator	Reg Status	Sensitive Geologic Features within 500 feet	Distance to Sensitive Geologic Feature (feet)	Closest Geologic Feature	Soil Type (Hydric Soil indicated in bold)	Surface Water Bodies within 500 feet	Distance to the Surface Water Body (feet)	Closest Surface Water Body	Wetlands within 500 feet	Distance to Wetland (feet)	Closest Wetland	100-yr Floodplains within 500 feet	Distance to Flood Zone (feet)	Vegetation Cover Type	Visitor Use Areas within 500 feet	Distance to Visitor Use Area	Closest Visitor Use Area	Cultural Areas within 500 feet	Distance to Cultural Area	Closest Cultural Area
Aztec Ruins National Monument																						
Bobbie Herrera #1	NA-AZRU	Manana Gas Inc	Grandfathered				Haplargids-Blackston-Torriorthents complex, very steep									Unknown						
Big Thicket National Preserve																						
3	19900176	Premium Exploration Company	No Federal Access				Belrose-Caneyhead complex, 0 to 1 percent slopes	yes	39	Jack Gore Baygall	yes	107	PSS1F, Freshwater Forested/Shrub Wetland	yes	0	Lower Slope Hardwood Pine/Wetland Shrub Baygall Thicket						
1-A	19930787	Premium Exploration Company	No Federal Access				Belrose-Caneyhead complex, 0 to 1 percent slopes	yes	0	Swamp/ Marsh	yes	55	PFO1A, Freshwater Forested/Shrub Wetland	yes	0	Lower Slope Hardwood Pine/Wetland Shrub Baygall Thicket						
Cumberland Gap National Historic Park																						
NA	NA-CUGA1	Daugherty	Grandfathered				Muskingum stony fine sandy loam (st-l)									Unknown						
NA	NA-CUGA2	Daugherty	Grandfathered				Muskingum stony fine sandy loam (st-l)									Unknown						
New River Gorge National River																						
BERWIND 2	1900155	BERWIND OIL & GAS INC	Grandfathered				Cookport-Nallen complex, 3 to 8 percent slopes	yes	471	Lake/Pond						Oak / Ericad Forest						
Obed Wild and Scenic River																						
Marsh #5	0006708	TexFlora Energy Corporation	Access Exempt				Gilpin silt loam, 12 to 20 percent slopes									Upland Mixed Evergreen/Deciduous Forest						
Plateau Properties #1	0003754	Tanasi Oil and Gas, Inc.	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony	yes	308	Riverine Wetland	yes	308	R3RB2H, Riverine	yes	279	Upland Deciduous Forest	yes	308.4	Polygon - River			
Plateau Properties #5	0004770	Tanasi Oil and Gas, Inc.	Grandfathered				Gilpin-Petros complex, 20 to 35 percent slopes							yes	479	Upland Mixed Evergreen/Deciduous Forest						
Robinson #1	0003499	Tanasi Oil and Gas, Inc.	Grandfathered				Gilpin-Bouldin-Petros complex, 25 to 80 percent slopes, very stony							yes	440	Mixed Urban-Built-up Land						
Robinson #6	0008319	Tanasi Oil and Gas, Inc.	Grandfathered				Lily-Gilpin complex, 12 to 20 percent slopes	yes	423	Riverine Wetland	yes	423	R3RB2H, Riverine	yes	308	Upland Deciduous Forest	yes	422.5	Polygon - River			

Sources for well-specific information reported here include NPS geospatial data obtained through outreach to individual park unit resource specialists and supplemental information received from the Geologic Resources Division. These files may be found in the administrative record. Note that information presented in this matrix is derived from analysis of geospatial data and may not coincide with data presented in well inspection reports.

APPENDIX D: SITE INSPECTION INFORMATION FOR CURRENT ACCESS-EXEMPT AND GRANDFATHERED WELLS

WELL SITE CONDITIONS SUMMARY FOR CATEGORY 1 PARK UNITS WITH EXEMPT OPERATIONS

Park Unit	Number of Grandfathered / Access-Exempt Operations	Documented Occurrences of On-Site Contamination	Relative Risk of Potential Contamination	Description / Notes
Gauley River National Recreation Area	28 / 0	No	Low	Soil contamination was not identified as an issue at any well site. Chemicals are not typically used in the production process for gas wells.
Big South Fork National River and Recreation Area	98 / 54	Yes	High for some wells	<p>During reclamation of 53 wells, approximately 10% of the sites were found as warranting further action based on surface and subsurface investigations. Contamination included: staining at the wellheads; notable hydrocarbon odors; lack of or other effects on vegetation; and elevated subsurface background levels for hydrocarbons.</p> <p>Formal site inspections have been conducted over the last few years. Review of 122 site inspection reports revealed 30 sites with signs of soil contamination, leaking wellheads, or gas odors. Information was also noted regarding the presence of sensitive resources:</p> <ul style="list-style-type: none"> • 8 sites with wellhead leaks: Hurricane Ridge #1591; Hurricane Ridge #2361; Joe's Branch #1453; Joe's Branch #2198; Peter's Bridge #4658; Peter's Bridge #5975; Rugby #4930; and Sheep Ranch #562 • 14 sites with spills and contamination associated with operation and maintenance of the sites: Grassy Knob #1177; Hurricane Ridge #1343; Hurricane Ridge #1371; Hurricane Ridge #6744; Hurricane Ridge #6769; Hurricane Ridge #8437; Peter's Bridge #4658; Sheep Ranch #443; Sheep Ranch #467; Sheep Ranch #560; Silcox Ford #1224; Silcox Ford #1267; Silcox Ford #1363; and Silcox Ford #2979 • 2 sites with noises emanating from the well pad equipment: Hannah Davidson #6399 and Station Camp #6107 • 10 sites with notable hydrocarbon odors emanating from wellhead locations: Hannah Davidson #7313; Honey Creek #1548; Hurricane Ridge #2361; Long Ridge #1977; Peter's Bridge #4657; Rugby #4930; Silcox Ford #1317; Station Camp #3046; Station Camp #6107; and Tar Kiln Trail #5859 • 1 site with a tank battery leak: Sheep Ranch #5495 • 1 site with a pump jack leak: Hurricane Ridge #1371 • 13 sites with sensitive species or habitat: Silcox Ford #1224; Silcox Ford #2979; Silcox Ford #1170; Silcox Ford #1178; Silcox Ford #1187; Silcox Ford #1194; Silcox Ford #1213; Silcox Ford #1234; Silcox Ford #1235; Silcox Ford #1284; Silcox Ford #1309; Silcox Ford #2156; and Silcox Ford #5229 • 28 sites were associated with wetlands and floodplain resources (10 with floodplains specifically noted): Brewster Bridge #5989; Brewstertown #3297;

Appendix D: Site Inspection Information for Current Access-exempt and Grandfathered Wells

Park Unit	Number of Grandfathered / Access-Exempt Operations	Documented Occurrences of On-Site Contamination	Relative Risk of Potential Contamination	Description / Notes
				<p>Grassy Knob #1257; Grassy Knob #1391; Hannah Davidson #6602; Hurricane Ridge #2190; Peter's Bridge #4658; Peter's Bridge #1622; Peter's Bridge #5975; Rugby #4830; Rugby #6881; Shirley #4909; Shirley #5782; Shirley #6255; Silcox Ford #2979; Silcox Ford #1170; Silcox Ford #1178; Silcox Ford #1187; Silcox Ford #1194; Silcox Ford #1213; Silcox Ford #1234; Silcox Ford #1235; Silcox Ford #1284; Silcox Ford #1309; Silcox Ford #2156; Silcox Ford #5229; Silcox Ford #1158; and Station Camp #3046</p> <ul style="list-style-type: none"> 6 sites were associated with cultural resources: Hurricane Ridge #2190; Long Ridge #1872; Peter's Bridge #3571; Peter's Bridge #3570; Peter's Bridge #4244; and Station Camp #6107
Obed Wild and Scenic River	4 / 1	Yes	Medium	Contamination included elevated levels of hydrocarbons in pits and wellhead staining.
Aztec Ruins National Monument	1 / 0	No	Low	One gas well. Records of inspections following cleanup and remediation of drilling pits reveal no reports of contamination.
New River Gorge National River	1 / 0	No	Low	No contamination. Well was never produced. Inspections did not encounter contamination.
Lake Meredith National Recreation Area	41 / 0	Yes	High for some wells	Mix of oil and gas wells. History of incidences with oil wells (which are contained primarily within one area of the unit) includes flow line breaks; tank spills; and staining due to lack of secondary containment. Site inspection data is dated and no current information is available.
Cumberland Gap National Historical Park	2 / 0	No	Low	No formal site inspections. Gas wells (likely air drilled) are located at top of Fern Lake. No liquid storage on site.
Big Thicket National Preserve	2 / 0	Yes	High	Oil well and salt water disposal well. Risk is high for both oil and brine contamination. Site inspections reveal history of contamination, including: leaks; operator practices such as lack of secondary containment leading to contamination; and mechanical problems associated with the injection system.

Park Unit	Number of Grandfathered / Access-Exempt Operations	Documented Occurrences of On-Site Contamination	Relative Risk of Potential Contamination	Description / Notes
Cuyahoga Valley National Park	66 / 21	Yes	High for some wells	<p>Mix of oil and gas wells. History of incidences with oil wells, mostly shallow gas wells. Formal site inspections have been conducted over the last few years. Review of 41 site inspection reports revealed 25 sites with signs of soil contamination, leaking wellheads, or gas odors. Information was also noted regarding the presence of sensitive resources:</p> <ul style="list-style-type: none"> • 16 sites with wellhead leaks: Akron #12; Armington #1; Carter #1; Carter #2; Coonrad #2; CVNRA #1; CVNRA #2; Girl Scouts (GSA) #2; Haidnick #1; LHK #3; Lombardo #1; Peters #1; Quick-Armington #1; Shaw #1; Underwood #1; Underwood #3; and Underwood #4 • 5 sites with spills and contamination associated with operation and maintenance of the sites: CVNRA #2; Girl Scouts (GSA) #2; Parry #1; Parry #2; and Underwood #3 • 4 sites with noises emanating from the well pad equipment: Lombardo #1; Carter #2; Coonrad #2; CVNRA #1 • 4 sites with notable hydrocarbon odors emanating from wellhead, tank battery, or pump jack locations: Carter #2; Lombardo #1; Morgan-OH Edison #1; Peters #1; 11 sites with a tank battery leak: Armington #1; Carter #1; Carter #2; CVNRA #1; CVNRA #2; Girl Scouts (GSA) #1; Girl Scouts (GSA) #2; Haidnick #1; Himelright #1; Johnson #1; Morgan-OH Edison #1 • 1 site with a pump jack leak: Quick-Armington #1 • 11 sites with tank battery leaks: Armington #1, Carter #1, Carter #2, CVNRA #1, CVNRA #2, Girl Scouts (GSA) #1, Girl Scouts (GSA) #2, Haidnick #1, Himelright #1, Johnson #1, Morgan-OH Edison #1 • 2 sites with sensitive species or habitat: Blossom #3; Himelright #1

Sources: O'Dell pers. comm. 2013a and site inspection reports provided by CUVA and BISO. These files may be found in the administrative record.

WELL SITE CONDITIONS FOR EXEMPT WELLS AT CUYAHOGA VALLEY NATIONAL PARK FROM OIL AND GAS WELL INSPECTIONS (2006)

Well	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Battery Odor	Pump Leaks	Pump Odor	Pipeline Leaks	Spills	Noise	Sensitive Species	Other
Akron #11	GF											Invasive plants
Akron #12	GF	Y										Sludge coming from wellhead; invasive plants
Akron #6	GF											Standing water; invasive plants
Akron #7	GF											Invasive plants
Akron #8	GF											Invasive plants
Armington #1	GF	Y		Y								Bubbling at wellhead
Bender #1	GF											
Bender #2	GF											Invasive plants
Bender #3	GF											Standing water in tank battery area
Blossom #3	GF										Y	Bobolink - state species of concern; eastern meadowlark listed on report but only western meadowlark is listed as state species of interest
Bredenbeck #1	GF											
Carter #1	GF	Y		Y								
Carter #2	GF	Y	Y	Y						Y		Bubbling at wellhead; semi-explosive noise at wellhead
CVNRA #1	GF	Y		Y						Y		Noise at wellhead
CVNRA #2	GF	Y		Y					Y			Small spill
Feathers #1	GF							Y				
Girl Scouts (GSA) #1	GF			Y								

Appendices

Well	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Battery Odor	Pump Leaks	Pump Odor	Pipeline Leaks	Spills	Noise	Sensitive Species	Other
Girl Scouts (GSA) #2	GF	Y		Y					Y			Oil pooled at tank removal site
Haidnick #1	GF	Y		Y								Invasive plants
Himelright #1	GF			Y				Y			Y	Bobolink - state species of concern; eastern meadowlark listed on report but only western meadowlark is listed as state species of interest
Johnson #1	GF			Y								Heavy tank battery leaking
Lebo No. 1	GF											Rusty tanks; access roads cause flooding
LHK #3	GF	Y										Bubbling at wellhead; invasive plants
Lombardo #1	GF	Y	Y							Y		Bubbles and odor at wellhead; running water noise; invasive plants
Morgan-OH Edison #1	GF		Y	Y								Wellhead cup standing wide open
Parry #1	GF								Y			Vegetation along access road oil covered
Parry #2	GF								Y			Vegetation along access road oil covered
Peters #1	GF	Y	Y									Bubbles and odor at wellhead
Primm #1	GF											
Primm #2	GF											
Primm #3	GF											
Quick #2	GF				Y							
Quick-Armington #1	GF	Y			Y	Y	Y					

Appendix D: Site Inspection Information for Current Access-exempt and Grandfathered Wells

Well	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Battery Odor	Pump Leaks	Pump Odor	Pipeline Leaks	Spills	Noise	Sensitive Species	Other
Shaw #1	GF	Y										Invasive plants
Somma-Buergler #1	GF											
Somma-Buergler #2	GF				Y							
Szalay #4	GF											
Underwood #1	GF	Y										Notes of site were on back of scan - not available
Underwood #2	GF											Invasive plants
Underwood #3	GF	Y							Y			Spill at pump; standing water; invasive plants
Underwood #4	GF	Y										Invasive plants

Status: GF = Grandfathered; NFA = No Federal Access

**WELL SITE CONDITIONS FOR EXEMPT WELLS AT BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA FROM OIL AND GAS WELL INSPECTIONS
(2006)**

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
3589	GF										Invasive plants
5989	GF								Y		Wetlands
3297	GF								Y		Floodplain/ravine
3234	GF										
6036	GF										
6037	GF										
1257	NFA								Y		Wetlands and floodplain; stream and flooding hazard
1391	NFA								Y		Wetlands and floodplain; flooding hazard
1177	NFA					Y					Slight soil contamination during well configuration activities
1283	NFA										
6602	GF								Y		Wetlands; drainage
6399	GF						Y				Gas vibration noise from production lines
7313	GF		Y								Wellhead gas odor
3323	GF										
6356	GF										
6519	GF										
1548	GF		Y								Wellhead gas visually venting from flowline
822	GF										
3868	GF										

Appendix D: Site Inspection Information for Current Access-exempt and Grandfathered Wells

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
2190	GF								Y	Y	Floodplain and adjacent to rock shelter; examined and determined negative findings
2361	GF	Y	Y								Wellhead valve leak with strong gas odor
1677	GF										
1951	GF										
2037	GF										
2593	GF										
2856	GF										
1343	NFA					Y					Oil on ground 50 sq. ft.
1371	NFA				Y	Y					Oil on ground 30 sq. ft.; pumpline leak
6744	NFA					Y					Oil on ground 2 sq. ft.
6769	NFA					Y					Most of wellpad is covered in heavy oil, sheen
8437	GF					Y					Oil stain/trail running into woods 80 sq. ft.
1591	NFA	Y									Dried oil on wellhead
1308	NFA										
1449	NFA										
1475	NFA										
1487	NFA										
1509	NFA										
1522	NFA										
1618	NFA										

Appendices

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
1997	NFA										
2472	GF										
2706	GF										
6880	NFA										
8297	NFA										
8541	GF										
8559	GF										
1453	GF	Y									
2198	GF	Y									Casing head gas venting
1504	GF										
4372	GF										
4496	GF										
4991	GF										
5037	GF										
5092	GF										
5148	GF										
6993	GF										
7108	GF										
1872	GF									Y	Potential site - corral- with large outcrop and split rail fence
1977	GF		Y								Venting gas
1762	GF										
2118	GF										
2167	GF										
5958	GF										

Appendix D: Site Inspection Information for Current Access-exempt and Grandfathered Wells

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
7645	GF										
4658	GF	Y				Y			Y		Wetland 400 ft from wellhead, oil on ground 4 sq. ft. at wellhead
1622	GF								Y		Wetland drainage 100 ft from wellhead
5975	GF	Y							Y		Wetland 400 ft from wellhead, oil on ground 300 sq. ft. at wellhead
3571	GF									Y	Flint scatter on access road
4657	GF		Y								
3570	GF									Y	Flint scatter on access road
4244	GF									Y	Flint scatter on access road
5789	GF										
4830	GF								Y		Floodplain on bluff
6881	GF								Y		Wetlands and floodplain
4930	GF	Y	Y								
2070	GF										
2123	GF										
4831	GF										
443	GF					Y					3 sq. ft. water contamination
467	GF					Y					3 sq. ft. soil contamination outside berm
560	GF					Y					9 sq. ft. contamination inside berm
5495	GF			Y							Unsecured tank
562	GF	Y									2 sq. ft. contamination at wellhead
435	GF										
531	GF										

Appendices

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
579	GF										
6924	GF										
4909	GF								Y		Floodplain
5782	GF								Y		Floodplain
6255	GF								Y		Floodplain
1376	GF										
1403	GF										
5752	GF										
2979	NFA					Y		Y	Y		2,000 sq. ft. oil contamination; wetland river; sensitive habitat present
1170	NFA							Y	Y		Wetland stream; sensitive habitat present
1178	NFA							Y	Y		Wetland stream; sensitive habitat present
1187	NFA							Y	Y		Wetland; sensitive habitat present
1194	NFA							Y	Y		Wetland river; sensitive habitat present
1213	NFA							Y	Y		Wetland river; sensitive habitat present
1234	NFA							Y	Y		Wetland stream; sensitive ledge habitat present
1235	NFA							Y	Y		Wetland river; sensitive ledge habitat present
1284	NFA							Y	Y		Wetland river and floodplain; sensitive habitat present

Appendix D: Site Inspection Information for Current Access-exempt and Grandfathered Wells

Well Permit Number	Exemption Status	Wellhead Leaks	Wellhead Odor	Battery Leaks	Pump Leaks	Spills	Noise	Sensitive Species	Wetlands	Sensitive Cultural	Other
1309	NFA							Y	Y		Wetland river and floodplain; sensitive habitat present
2156	NFA							Y	Y		Wetland river; sensitive habitat present
5229	NFA							Y	Y		Wetland river; sensitive habitat present
1158	NFA								Y		Wetland stream
1224	NFA					Y		Y			Spur above river; 2 sq. ft. oil contamination
1267	NFA					Y					2 sq. ft. oil contamination at wellhead
1363	NFA					Y					3 sq. ft. oil contamination
1317	NFA		Y								
1111	NFA										
1190	NFA										
1279	NFA										
8706	GF										
1254-1	NFA										
3046	GF		Y						Y		Wetland marsh
6107	GF		Y				Y			Y	Cemetery adjacent to access road
4747	GF										
6108	GF										
7082	GF										
5859	GF		Y								
8346	GF										

Status: GF = Grandfathered; NFA = No Federal Access

APPENDIX E: FEDERALLY LISTED SPECIAL STATUS SPECIES OCCURRING IN CATEGORY 1 AND CATEGORY 2 PARK UNITS

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Category 1 Park Units				
Lake Meredith and Alibates Flint Quarries	Mammals	Black-footed Ferret	<i>Mustela nigripes</i>	E
	Birds	Interior Least Tern	<i>Sterna antillarum athalassos</i>	E
		Lesser Prairie-chicken	<i>Tympanuchus pallidicinctus</i>	C
		Northern Aplomado falcon	<i>Falco femoralis septentrionalis</i>	E
		Whooping Crane	<i>Grus americana</i>	E
	Fish	Arkansas River Shiner	<i>Notropis girardi</i>	T
	Plants	Slender rush pea	<i>Hoffmannseggia tenella</i>	E
Aztec Ruins	Mammals	Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SOC
	Birds	Yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C
Big Cypress	Mammals	Florida panther	<i>Puma concolor coryi</i>	E
		West Indian manatee	<i>Trichechus manatus</i>	E
	Birds	Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	E
		Red-cockaded woodpecker	<i>Picoides borealis</i>	E
		Snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E
		Wood stork	<i>Mycteria americana</i>	E
	Reptiles/ Amphibians	American alligator	<i>Alligator mississippiensis</i>	T
		American crocodile	<i>Crocodylus acutus</i>	E
		Eastern indigo snake	<i>Drymarchon corais couperi</i>	T
Big Thicket	Mammals	Louisiana black bear	<i>Ursus americanus luteolus</i>	T
	Birds	Least Tern	<i>Sterna antillarum</i>	E
		Eskimo Curlew	<i>Numenius borealis</i>	E
		Wood stork	<i>Mycteria americana</i>	E
		Red-cockaded Woodpecker	<i>Picoides borealis</i>	E
	Plants	Texan phlox, Texas trailing phlox	<i>Phlox nivalis ssp. Texensis</i>	E
Big South Fork and Obed	Fish	Duskytail darter	<i>Etheostoma percnurum</i>	E
		Blackside dace	<i>Phoxinus cumberlandensis</i>	T
		Palezone shiner	<i>Notropis albizonatus</i>	E

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Big South Fork and Obed (continued)	Invertebrates	Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	E
		Cumberlandian combshell	<i>Epioblasma brevidens</i>	E
		Cumberland bean	<i>Villosa trabalis</i>	E
		Little-wing pearlymussel	<i>Pegias fabula</i>	E
		Tan riffleshell	<i>Epioblasma florentina walkeri</i>	E
		Dromedary pearlymussel	<i>Dromus dromas</i>	E
		Oyster mussel	<i>Epioblasma capsaeformis</i>	E
		Spectaclecase	<i>Cumberlandia monodonta</i>	C
		Clubshell	<i>Pleurobema clava</i>	E
		Fluted kidneyshell	<i>Ptychobranthus subtentum</i>	C
	Plants	Cumberland sandwort	<i>Minuartia cumberlandensis</i>	E
		Virginia spiraea	<i>Spiraea virginiana</i>	T
		Cumberland rosemary	<i>Conradina verticillata</i>	T
		White fringeless orchid	<i>Platanthera integrilabia</i>	C
Cuyahoga Valley	Mammals	Indiana bat	<i>Myotis sodalis</i>	E
		Northern long-eared bat	<i>Myotis septentrionalis</i>	SOC
	Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SOC
		Henslow's sparrow	<i>Ammodramus henslowii</i>	SOC
		Cerulean warbler	<i>Dendroica cerulea</i>	SOC
	Reptiles/ Amphibians	Blanding's turtle	<i>Emydoidea blandingii</i>	SOC
Cumberland Gap	Mammals	Indiana bat	<i>Myotis sodalis</i>	E
		Gray Bat	<i>Myotis grisescens</i>	E
	Fish	Blackside dace	<i>Phoxinus cumberlandensis</i>	E
Gauley River and New River Gorge	Mammals	Virginia big-eared bat	<i>Corynorhinus townsendii</i>	E
		Indiana bat	<i>Myotis sodalis</i>	E
		Allegheny woodrat	<i>Neotoma magister</i>	SOC
	Invertebrates	Diana fritillary	<i>Speyeria diana</i>	SOC
	Plants	Virginia spiraea	<i>Spiraea virginiana</i>	T
		running buffalo clover	<i>Trifolium stoloniferum</i>	E
Padre Island	Reptiles/ Amphibians	Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	E
		Green Sea Turtle	<i>Chelonia mydas</i>	T
		Atlantic Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	E
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	T
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	E
		American Alligator	<i>Alligator mississippiensis</i>	T (S/A)
		Texas Horned Lizard	<i>Phrynosoma cornutum</i>	SOC

Appendix E: Federally Listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Padre Island (continued)	Birds	White-faced Ibis	<i>Plegadis chihi</i>	C
		Piping Plover	<i>Charadrius melodous</i>	T
		Black-capped Vireo	<i>Vireo atricapillus</i>	E
		Cerulean Warbler	<i>Dendroica cerulea</i>	T
		Ferruginous Hawk	<i>Buteo regalis</i>	SOC
		Northern Aplomado Falcon	<i>Falco femoralis</i>	E
		Loggerhead Shrike	<i>Lanius ludovicianus</i>	SOC
		Tropical Parula	<i>Parula pitaiyumi</i>	C
	Plants	Roughseed Sea Purslane	<i>Sesuvium trianthemoides</i>	C
Slender Rushpea		<i>Hoffmannseggia tenella</i>	E	
Category 2 Park Units				
Little River Canyon	Mammals	Gray Bat	<i>Myotis grisescens</i>	E
	Fish	blue shiner	<i>Cyprinella caerulea</i>	T
	Plants	Kral's water plantain	<i>Sagittaria secundifolia</i>	T
		harperella	<i>Ptilimnium nodosum</i>	E
		green pitcherplant	<i>Sarracenia oreophila</i>	E
Santa Monica Mountains	Birds	California Condor	<i>Gymnogyps californianus</i>	E
		Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
		Light-footed Clapper Rail	<i>Rallus longirostris levipes</i>	E
		California Least Tern	<i>Sterna antillarum browni</i>	E
		Southwestern Willow Flycatcher	<i>Empidonax traillii extrimus</i>	E
		Least's Bell Vireo	<i>Vireo belli pusillus</i>	E
		Western Snowy Plover	<i>Charadrius alexandrius nivosus</i>	T
		California Gnatcatcher	<i>Polioptila Californica</i>	T
	Reptiles/ Amphibians	Arroyo Southwestern Toad	<i>Bufo microscaphus californicus</i>	E
		California Red-legged Frog	<i>Rana draytonii</i>	T
	Fish	Tidewater Goby	<i>Eucyclogobius newberryi</i>	E
		Southern California Steelhead Trout	<i>Oncorhynchus mykiss</i>	E
	Invertebrates	Wright's (Quino) Checkerspot Butterfly	<i>Euphydryas editha quino</i>	E
		Riverside Fairy Shrimp	<i>Steptocephalus wootoni</i>	E

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Santa Monica Mountains (continued)	Plants	Braunton's milkvetch	<i>Astragalus brauntonii</i>	E
		San Fernando Valley spineflower	<i>Chorizanthe parryi</i> var. <i>fernandina</i>	C
		San Bernardino spineflower	<i>Chorizanthe parryi</i> var. <i>parryi</i>	SOC
		Salt marsh bird's beak	<i>Cordylanthus maritimus</i> ssp. <i>Maritimus</i>	E
		Blochman's larkspur	<i>Delphinium parryi</i> ssp. <i>Blochmaniae</i>	SOC
		Conejo liveforever	<i>Dudleya abramsii</i> ssp. <i>Parva</i>	T
		Blochman's liveforever	<i>Dudleya blochmaniae</i> ssp. <i>Blochmaniae</i>	SOC
		Canyon liveforever	<i>Dudleya cymosa</i> ssp. <i>Agourensis</i>	T
		Marcrescent liveforever	<i>Dudleya cymosa</i> ssp. <i>Marcrescens</i>	T
		Santa Monica Mountains liveforever	<i>Dudleya cymosa</i> ssp. <i>Ovatifolia</i>	T
		Many stemmed liveforever	<i>Dudleya multicaulis</i>	SOC
		Verity's liveforever	<i>Dudleya verityi</i>	T
		Conejo Buckwheat	<i>Eriogonum crocatum</i>	SOC
		Santa Susana tarplant	<i>Hemizonia minthornii</i>	SOC
		Coulter goldfields	<i>Lasthenia glabrata</i> var. <i>coulteri</i>	SOC
		Lyon's pentachaeta	<i>Pentachaeta lyonii</i>	E
Dinosaur National Monument	Birds	Spotted Owl	<i>Strix occidentalis lucida</i>	T
	Fish	Razorback Sucker	<i>Xyrauchen texanus</i>	E
		Humpback Chub	<i>Gila cypha</i>	E
		Bonytail Chub	<i>Gila elegans</i>	E
		Roundtail Chub	<i>Gila robusta</i>	E
		Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
Great Sand Dunes	Mammals	Canada Lynx	<i>Lynx canadensis</i>	T
		Black-footed ferret	<i>Mustela nigripes</i>	E
	Birds	Gunnison Sage Grouse	<i>Centrocercus minimus</i>	C
		Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C
		Southern willow flycatcher	<i>Empidonax trillix</i> extimus	E
		Bald Eagle	<i>Haliaeetus leucocephalus</i>	T
		Mexican spotted owl	<i>Strix occidentalis lucida</i>	T

Appendix E: Federally Listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Great Sand Dunes (continued)	Fish	Humpback Chub	<i>Gila cypha</i>	E
		Bonytail Chub	<i>Gila elegans</i>	E
		Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
		Razorback Sucker	<i>Xyrauchen texanus</i>	E
	Invertebrates	Uncompahgre fritillary	<i>Solora Improba acrocnerma</i>	E
	Plants	Slender spiderflower	<i>Cieome multicaulis</i>	G
		Smith's draba	<i>Draba smithii</i>	G
Mesa Verde National Park	Birds	Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E
		Mexican spotted owl	<i>Strix occidentalis lucida</i>	T
	Fish	Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
		Razorback Sucker	<i>Xyrauchen texanus</i>	E
	Plants	Mancos Milkvetch	<i>Astragalus humillimus</i>	E
		Mesa Verde cactus	<i>Sclerocactus mesae-verde</i>	T
Sand Creek Massacre	No Federally-listed special status species occur within the current park boundary			
Everglades National Park	Mammals	Florida panther	<i>Puma concolor coryi</i>	E
		West Indian Manatee	<i>Trichechus manatus</i>	E
	Birds	Piping Plover	<i>Charadrius melodus</i>	T
		Wood Stork	<i>Mycteria americana</i>	E
		Cape Sable Seaside Sparrow	<i>Ammodramus maritimus mirabilis</i>	E
	Reptiles/ Amphibians	American Alligator	<i>Alligator mississippiensis</i>	T (S/A)
		American Crocodile	<i>Crocodylus acutus</i>	T
		Eastern indigo Snake	<i>Drymarchon corais couperi</i>	T
		Green Sea Turtle	<i>Chelonia mydas</i>	E
		Leatherback sea turtle	<i>Dermochelys coriacea</i>	E
	Fish	Smalltooth Sawfish	<i>Pristis pectinata</i>	E
	Plants	Clusterspike false indigo	<i>Amorpha herbacea</i> var. <i>crenulata</i>	E
		Small's milkpea	<i>Galactia smallii</i>	E
		Garber's sandmat	<i>Chamaesyce garberi</i>	T
Indiana Dunes	Mammals	Indiana bat	<i>Myotis sodalis</i>	E
	Birds	Piping Plover	<i>Charadrius melodous</i>	E
		Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E
	Invertebrates	Karner blue butterfly	<i>Lycaeides melissa samuelis</i>	E
	Plants	Pitcher's thistle	<i>Cirsium pitcheri</i>	T
Nicodemus	No Federally-listed special status species occur within the current park boundary			

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Mammoth Cave	Mammals	gray bat	<i>Myotis grisescens</i>	E
		Indiana bat	<i>Myotis sodalis</i>	E
	Birds	Red-cockaded Woodpecker	<i>Picoides borealis</i>	E
	Invertebrates	Kentucky cave shrimp	<i>Palaemonias ganteri</i>	E
		fanshell	<i>Cyprogenia stegaria</i>	E
		northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E
		pink mucket	<i>Lampsilis abrupta</i>	E
		golf stick pearly mussel, ring pink, ring pink mussel	<i>Obovaria retusa</i>	E
		clubshell	<i>Pleurobema clava</i>	E
		rough pigtoe	<i>Pleurobema plenum</i>	E
	Plants	globe bladderpod	<i>Lesquerella globosa</i>	C
Cane River Creole	No Federally-listed special status species occur within the current park boundary			
Jean Lafitte	No Federally-listed special status species occur within the current park boundary			
Gulf Islands	Mammals	Red Wolf	<i>Canis rufus</i>	E
		Perdido Key Beach Mouse	<i>Peromyscus polionotus trissyllepsis</i>	E
		West Indian Manatee	<i>Trichechus manatus latirostris</i>	E
		Blue whale	<i>Balaenoptera musculus</i>	E
		Finback whale	<i>Balaenoptera physalus</i>	E
		Humpback whale	<i>Megaptera novaeangliae</i>	E
		Sei whale	<i>Balaenoptera borealis</i>	E
		Sperm whale	<i>Physeter macrocephalus</i>	E
		Louisiana black bear	<i>Ursus americanus luteolus</i>	T
	Birds	Charadrius melodus	<i>Piping Plover</i>	T
		Grus canadensis pulla	<i>Mississippi Sandhill Crane</i>	E
		Mycteria americana	<i>Wood Stork</i>	E
		Picoides borealis	<i>Red-Cockaded Woodpecker</i>	E

Appendix E: Federally Listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Gulf Islands (continued)	Reptiles/ Amphibians	Gulf Sturgeon	<i>Acipenser oxyrhynchus desotoi</i>	T
		Saltmarsh Topminnow	<i>Fundulus jenkinsi</i>	SOC
		Smalltooth sawfish	<i>Pristis pectinata</i>	E
		Alabama shad	<i>Alosa alabamae</i>	SOC
		Opossum pipefish	<i>Microphis brachyurus lineatus</i>	SOC
		Dusky shark	<i>Carcharhinus obscurus</i>	SOC
		Sand tiger shark	<i>Carcharias taurus</i>	SOC
		Speckled hind	<i>Epinephelus drummondhayi</i>	SOC
		Warsaw grouper	<i>Epinephelus nigritus</i>	SOC
		Scalloped hammerhead shark	<i>Sphyrna lewini</i>	C
		Key silverside	<i>Mendia conchorum</i>	SOC
		Mangrove rivulus	<i>Rivulus marmoratus</i>	SOC
	Fish	Gulf Sturgeon	<i>Acipenser oxyrhynchus desotoi</i>	T
		Saltmarsh Topminnow	<i>Fundulus jenkinsi</i>	SOC
		Smalltooth sawfish	<i>Pristis pectinata</i>	E
		Alabama shad	<i>Alosa alabamae</i>	SOC
		Opossum pipefish	<i>Microphis brachyurus lineatus</i>	SOC
		Dusky shark	<i>Carcharhinus obscurus</i>	SOC
		Sand tiger shark	<i>Carcharias taurus</i>	SOC
		Speckled hind	<i>Epinephelus drummondhayi</i>	SOC
		Warsaw grouper	<i>Epinephelus nigritus</i>	SOC
		Scalloped hammerhead shark	<i>Sphyrna lewini</i>	C
		Key silverside	<i>Mendia conchorum</i>	SOC
		Mangrove rivulus	<i>Rivulus marmoratus</i>	SOC
	Invertebrates	Elkhorn coral	<i>Acropora palmata</i>	T
		Staghorn coral	<i>Acropora cervicornis</i>	T
		Boulder star coral	<i>Montastraea annularis</i>	C
		Boulder star coral	<i>Montastraea franksi</i>	C
		Elliptical star coral	<i>Dichocoenia stokesii</i>	C
		Lamarck's sheet coral	<i>Agaricia lamarcki</i>	C
		Pillar coral	<i>Dendrogyra cylindrus</i>	C
	Plants	Mountainous star coral	<i>Montastraea faveolata</i>	C
		Rough cactus coral	<i>Mycetophyllia ferox</i>	C
		Ivory bush coral	<i>Oculina varicosa</i>	SOC

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Fort Union Trading Post	No Federally-listed special status species occur within the current park boundary			
Theodore Roosevelt	No Federally-listed special status species occur within the current park boundary			
Carlsbad Caverns	Birds	Willow Flycatcher	<i>Empidonax traillii</i>	E
		Black-capped Vireo	<i>Vireo atricapilla</i>	E
	Plants	Lee pincushion	<i>Escobaria sneedii</i> var. <i>leei</i>	T
Hopewell Culture NHP	No Federally-listed special status species occur within the current park boundary			
Washita Battlefield	No Federally-listed special status species occur within the current park boundary			
Flight 93 National Memorial	No Federally-listed special status species occur within the current park boundary			
Fort Necessity National Battlefield	No Federally-listed special status species occur within the current park boundary			
Friendship Hill National Historic Site	No Federally-listed special status species occur within the current park boundary			
Johnstown Flood National Memorial	No Federally-listed special status species occur within the current park boundary			
Steamtown National Historic Site	No Federally-listed special status species occur within the current park boundary			
Upper Delaware Scenic and Recreational River	Invertebrates	Dwarf wedgemussel	<i>Alasmodonta heterodon</i>	E
Guadalupe Mountains	Birds	Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	T
	Plants	Sneed pincushion cactus	<i>Coryphantha sneedii</i> var. <i>sneedii</i>	E
Palo Alto Battlefield	No Federally-listed special status species occur within the current park boundary			
San Antonio Missions	No Federally-listed special status species occur within the current park boundary			
Glen Canyon	Birds	Willow Flycatcher	<i>Empidonax traillii</i>	E
	Fish	razorback sucker	<i>Xyrauchen texanus</i>	E
		humpback chub	<i>Gila cypha</i>	E
		bonytail chub	<i>Gila elegans</i>	E
		roundtail chub	<i>Gila robusta</i>	E
		Colorado pikeminnow	<i>Ptychocheilus lucius</i>	E
	Plants	Brady's hedgehog cactus	<i>Pediocactus bradyi</i>	E
		Navajo sedge	<i>Carex specuicola</i>	T

Appendix E: Federally Listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	Listing Status
Bluestone National Scenic River	Mammals	Virginia big-eared bat	<i>Corynorhinus townsendii</i>	E
		Indiana bat	<i>Myotis sodalis</i>	E
		Allegheny woodrat	<i>Neotoma magister</i>	SOC
	Invertebrates	Diana fritillary	<i>Speyeria diana</i>	SOC
	Plants	Virginia spiraea	<i>Spiraea virginiana</i>	T
		running buffalo clover	<i>Trifolium stoloniferum</i>	E
Grand Teton	Mammals	Gray wolf	<i>Canis lupus</i>	E
	Birds	Canadian lynx	<i>Lynx canadensis</i>	T
	Plants	sharpleaf buttercup	<i>Ranunculus acriformis</i>	E

E = Endangered; T = Threatened; SOC = Species of Concern; S/A = Similar in Appearance; C = Candidate Species

Source: Species lists by park unit, available through the NPS Integrated Resource Management Applications (IRMA) web portal, available online at <https://irma.nps.gov>. Correspondences are on file with LBG, Inc.

APPENDIX F: STATE-LISTED SPECIAL STATUS SPECIES OCCURRING IN CATEGORY 1 AND CATEGORY 2 PARK UNITS

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Category 1 Park Units				
Lake Meredith and Alibates Flint Quarries	Mammals	black-footed ferret	<i>Mustela nigripes</i>	E*
	Birds	interior least tern	<i>Sterna antillarum athalassos</i>	E*
		whooping crane	<i>Grus americana</i>	E*
		Arctic Peregrine falcon	<i>Falco peregrinus tundrius</i>	T
		Peregrine falcon	<i>Falco peregrinus</i>	E
		bald eagle	<i>Haliaeetus leucocephalus</i>	T
	Fish	Arkansas River shiner	<i>Notropis girardi</i>	T*
	Reptiles/Amphibians	Texas horned lizard	<i>Phrynosoma cornutum</i>	T
Aztec Ruins	Mammals	Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	S*
		western small-footed myotis	<i>Myotis ciliolabrum melanorhinus</i>	S
		Yuma myotis	<i>Myotis yumanensis yumanensis</i>	S
		spotted bat	<i>Euderma maculatum</i>	T
		big free-tailed bat	<i>Nyctinomops macrotis</i>	S
		western spotted skunk	<i>Spilogale gracilis</i>	S
		Gunnison's prairie dog	<i>Cynomys gunnisoni</i>	S
		red fox	<i>Vulpes vulpes</i>	S
	Birds	yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C*
		bald eagle	<i>Haliaeetus leucocephalus</i>	T
		gray vireo	<i>Vireo vicinior</i>	T
		loggerhead shrike	<i>Lanius ludovicianus</i>	S
Big Cypress	Mammals	Florida panther	<i>Puma concolor coryi</i>	E*
		West Indian manatee	<i>Trichechus manatus</i>	E*
		mountain lion	<i>Puma concolor</i>	S/A
		Big Cypress fox squirrel	<i>Sciurus niger avicennia</i>	T
		Everglades mink	<i>Mustela vison evergladensis</i>	T
		Florida black bear	<i>Ursus americanus floridanus</i>	T
	Birds	American oystercatcher	<i>Haematopus palliatus</i>	SSC
		black skimmer	<i>Rhynchops niger</i>	SSC
		brown pelican	<i>Pelecanus occidentalis</i>	SSC

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big Cypress (continued)	Birds (continued)	Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	E*
		Florida sandhill crane	<i>Grus canadensis pratensis</i>	T
		least tern	<i>Sterna antillarum</i>	T
		limpkin	<i>Aramus guarauna</i>	SSC
		little blue heron	<i>Egretta caerulea</i>	SSC
		osprey	<i>Pandion haliaetus</i>	SSC
		Peregrine falcon	<i>Falco peregrinus</i>	E
		reddish egret	<i>Egretta rufescens</i>	SSC
		red-cockaded woodpecker	<i>Picoides borealis</i>	SSC*
		Roseate spoonbill	<i>Platalea ajaja</i>	SSC
		snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E*
		snowy egret	<i>Egretta thula</i>	SSC
		tricolored heron	<i>Egretta tricolor</i>	SSC
		white ibis	<i>Eudocimus albus</i>	SSC
		white-crowned pigeon	<i>Columba leucocephala</i>	T
		wood stork	<i>Mycteria americana</i>	E*
	Reptiles/Amphibians	American alligator	<i>Alligator mississippiensis</i>	SSC*
		American crocodile	<i>Crocodylus acutus</i>	E*
		Eastern indigo snake	<i>Drymarchon corais couperi</i>	T*
	Mollusks	Florida tree snail	<i>Liguus fasciatus</i>	SSC
	Plants	airplant	<i>Catopsis berteroniana</i>	E
		auricled spleenwort	<i>Asplenium auritum</i>	E
		Bahama ladder brake fern	<i>Pteris bahamensis</i>	T
		bird's-nest spleenwort	<i>Asplenium serratum</i>	E
		Blodgett's swallowwort	<i>Cynanchum blodgettii</i>	T
		bracted colicroot	<i>Aletris bracteata</i>	E
		catesby lily	<i>Lilium catesbaei</i>	T
		chiggery grapes	<i>Tournefortia hirsutissima</i>	E
		climbing vine fern	<i>Microgramma heterophylla</i>	E
		coastal vervain	<i>Verbena maritima</i>	E
		common wild-pine	<i>Tillandsia fasciculata</i>	E
		coontie	<i>Zamia pumila</i>	CE
		cowhorn	<i>Cyrtopodium punctatum</i>	E
		Curacao bush	<i>Cordia globosa</i>	E
		Cypress peperomia	<i>Peperomia glabella</i>	E

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big Cypress (continued)	Plants (continued)	delicate ionopsis orchid	<i>Ionopsis utricularioides</i>	E
		dingy-flowered epidendrum	<i>Epidendrum anceps</i>	E
		entire-winged bristle fern	<i>Trichomanes holopterum</i>	E
		Everglades flax	<i>Linum carteri</i>	E
		Everglades palm	<i>Acoelorrhaphe wrightii</i>	T
		Fakahatchee burmannia	<i>Burmannia flava</i>	E
		Florida clamshell orchid	<i>Encyclia cochleata</i>	E
		Florida oncidium	<i>Oncidium floridanum</i>	E
		Florida peperomia	<i>Peperomia obtusifolia</i>	E
		Florida prairie clover	<i>Dalea carthagenensis</i>	E
		Florida royal palm	<i>Roystonea elata</i>	E
		Florida tree fern	<i>Ctenitis sloanei</i>	E
		Florida tripsacum	<i>Tripsacum floridanum</i>	T
		Frosted orchid	<i>Pleurothallis gelida</i>	E
		Fuch's bromeliad	<i>Guzmania monostachya</i>	E
		fuzzy-wuzzy	<i>Tillandsia pruinosa</i>	E
		ghost orchid	<i>Polyrrhiza lindenii</i>	E
		giant sword fern	<i>Nephrolepis biserrata</i>	T
		giant wild-pine	<i>Tillandsia utriculata</i>	E
		greenheart	<i>Colubrina arborescens</i>	E
		guiana plum	<i>Drypetes lateriflora</i>	T
		hand fern	<i>Ophioglossum palmatum</i>	E
		hoary pea	<i>Tephrosia angustissima</i>	E
		hoop vine	<i>Trichostigma octandrum</i>	E
		inflated wild-pine	<i>Tillandsia balbisiana</i>	T
		lace-lip ladies'-tresses	<i>Spiranthes laciniata</i>	T
		lattice-vein fern	<i>Thelypteris reticulata</i>	E
		leafless orchid	<i>Campylocentrum pachyrrhizum</i>	E
		leafy vanilla	<i>Vanilla phaeantha</i>	E
		long-lip ladies'-tresses	<i>Spiranthes longilabris</i>	T
		lowland loosestrife	<i>Lythrum flagellare</i>	E
		mahogany	<i>Swietenia mahogani</i>	T
		many-flowered airplant	<i>Catopsis floribunda</i>	E
		many-flowered grass pink	<i>Calopogon multiflorus</i>	E
		meadow joint vetch	<i>Aeschynomene pratensis</i>	E
		night-scented epidendrum	<i>Epidendrum nocturnum</i>	E
		nodding catopsis	<i>Catopsis nutans</i>	E

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big Cypress (continued)	Plants (continued)	non-crested eulophia	<i>Eulophia ecristata</i>	T
		ocimum	<i>Ocimum campechianum</i>	E
		pale lidflower	<i>Calyptanthes pallens</i>	T
		pale-flowered polystachya	<i>Polystachya concreta</i>	E
		peperomia	<i>Peperomia humilis</i>	E
		pepperbush	<i>Croton humilis</i>	E
		pineland passionvine	<i>Passiflora pallens</i>	E
		plume polypody	<i>Polypodium plumula</i>	E
		Poeppig's rosemallow	<i>Hibiscus poeppigii</i>	E
		Porter's spurge	<i>Chamaesyce porteriana</i>	E
		rigid epidendrum	<i>Epidendrum rigidum</i>	E
		Rocklands morning-glory	<i>Ipomoea tenuissima</i>	E
		royal fern	<i>Osmunda regalis</i>	CE
		satin leaf	<i>Chrysophyllum oliviforme</i>	T
		Simpson's stopper	<i>Myrcianthes fragrans</i>	T
		Simpson's zephyr-lily	<i>Zephyranthes simpsonii</i>	T
		skyblue clustervine	<i>Jacquemontia pentantha</i>	E
		small ladies'-tresses	<i>Spiranthes brevilabris</i>	E
		snowy orchid	<i>Platanthera nivea</i>	T
		soft-leaved wild-pine	<i>Tillandsia valenzuelana</i>	T
		tall twayblade	<i>Liparis nervosa</i>	E
		twisted air plant	<i>Tillandsia flexuosa</i>	T
		umbelled epidendrum	<i>Epidendrum difforme</i>	E
Big Thicket	Mammals	Louisiana black bear	<i>Ursus americanus luteolus</i>	T*
		American black bear	<i>Ursus americanus</i>	T
	Birds	American swallow-tailed kite	<i>Elanoides forficatus</i>	T
		bald eagle	<i>Haliaeetus leucocephalus</i>	T
		Eskimo curlew	<i>Numenius borealis</i>	E*
		wood stork	<i>Mycteria americana</i>	T*
		Bachman's sparrow	<i>Aimophila aestivalis</i>	T
		reddish egret	<i>Egretta rufescens</i>	T
		white-faced ibis	<i>Plegadis chihi</i>	T
		red-cockaded woodpecker	<i>Picoides borealis</i>	E*
	Fish	blue sucker	<i>Cycleptus elongatus</i>	T
		creek chubsucker	<i>Erimyzon oblongus</i>	T
	Plants	Texan phlox, Texas trailing phlox	<i>Phlox nivalis ssp. Texensis</i>	E*

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big South Fork and Obed	Mammals	eastern spotted skunk	<i>Spilogale putorius</i>	KY: S
		black bear	<i>Ursus americanus</i>	KY: S
		Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	KY: S;
		gray myotis	<i>Myotis grisescens</i>	KY: T; TN: E*
		eastern small-footed myotis	<i>Myotis leibii</i>	KY: T
		evening bat	<i>Nycticeius humeralis</i>	KY: S
		cotton mouse	<i>Peromyscus gossypinus</i>	KY: T
		masked shrew	<i>Sorex cinereus</i>	KY: S;
	Fish	lake sturgeon	<i>Acipenser fulvescens</i>	KY: E; TN: E
		palezone shiner	<i>Notropis albizonatus</i>	KY: E; TN: E*
		blackside dace	<i>Phoxinus cumberlandensis</i>	KY: T; TN: T*
		olive darter	<i>Percina squamata</i>	KY: E;
		mountain brook lamprey	<i>Ichthyomyzon greeleyi</i>	KY: T
	Invertebrates	crayfish	<i>Cambarus bouchardi</i>	KY: E; TN: E
		spectaclecase	<i>Cumberlandia monodonta</i>	KY: E*
		Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	KY: E; TN: E*
		elktoe	<i>Alasmidonta marginata</i>	KY: T
		dromedary pearly mussel	<i>Dromus dromas</i>	KY: X; TN: E*
		Cumberlandian combshell	<i>Epioblasma brevidens</i>	KY: E*
		oyster mussel	<i>Epioblasma capsaeformis</i>	KY: E; TN: E*
		tan riffleshell	<i>Epioblasma florentina walkeri</i>	KY: E; TN: E*
		pink mucket	<i>Lampsilis abrupta</i>	KY: E
		little-wing pearly mussel	<i>Pegias fabula</i>	KY: E; TN: E*
		clubshell	<i>Pleurobema clava</i>	KY: E; TN: E*
		Tennessee clubshell	<i>Pleurobema oviforme</i>	KY: E
		fluted kidneyshell	<i>Ptychobranthus subtentum</i>	KY: E
		Cumberland bean	<i>Villosa trabalis</i>	KY: E; TN: E*
	Birds	osprey	<i>Pandion haliaetus</i>	KY: T
		blue-winged teal	<i>Anas discors</i>	KY: T
		hooded merganser	<i>Lophodytes cucullatus</i>	KY: T
		American coot	<i>Fulica americana</i>	KY: E
		rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	KY: S
		brown creeper	<i>Certhia americana</i>	KY: E
		dark-eyed junco	<i>Junco hyemalis</i>	KY: S
		Savannah sparrow	<i>Passerculus sandwichensis</i>	KY: S

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big South Fork and Obed (continued)	Birds (continued)	Vesper sparrow	<i>Pooecetes gramineus</i>	KY: E;
		Blackburnian warbler	<i>Dendroica fusca</i>	KY: T
		golden-winged warbler	<i>Vermivora chrysoptera</i>	KY: T
		Canada warbler	<i>Wilsonia canadensis</i>	KY: S
		red-breasted nuthatch	<i>Sitta canadensis</i>	KY: E
		sedge wren	<i>Cistothorus platensis</i>	KY: S
		least flycatcher	<i>Empidonax minimus</i>	KY: E
		pied-billed grebe	<i>Podilymbus podiceps</i>	KY: E
		northern saw-whet owl	<i>Aegolius acadicus</i>	TN: T
		double-crested cormorant	<i>Phalacrocorax auritus</i>	KY: E
	Reptiles/Amphibians	eastern slender glass lizard	<i>Ophisaurus attenuatus longicaudus</i>	KY: T;
		southeastern five-lined skink	<i>Eumeces inexpectatus</i>	KY: S
	Plants	golden club	<i>Orontium aquaticum</i>	KY: T
		American eelgrass	<i>Vallisneria americana</i>	KY: S
		Tennessee pondweed	<i>Potamogeton tennesseensis</i>	TN: T
		American marshpennywort	<i>Hydrocotyle americana</i>	KY: E; TN: E
		American ginseng	<i>Panax quinquefolius</i>	TN: CE,S
		Canada beadruby	<i>Maianthemum canadense</i>	KY: T
		tuberous grasspink	<i>Calopogon tuberosus</i>	KY: E
		lady's-slipper orchid, moccasin flower, pink ladyslipper, pink lady's-slipper, pink lady's-slipper orchid, pink moccasin flower	<i>Cypripedium acaule</i>	TN: CE,S
		lesser rattlesnake plantain	<i>Goodyera repens</i>	KY: E; TN: S
		crested yellow orchid	<i>Platanthera cristata</i>	KY: T
		palegreen orchid	<i>Platanthera flava var. herbiola</i>	TN: T
		monkeyface, white fringeless orchid	<i>Platanthera integrilabia</i>	KY: E; TN: E
		snakemouth orchid	<i>Pogonia ophioglossoides</i>	KY: E; TN: E
		Lucy Braun's snakeroot	<i>Ageratina luciae-brauniae</i>	KY: S; TN: T
		green and gold	<i>Chrysogonum virginianum</i>	KY: E; TN: T
		hairy coreopsis, star tickseed	<i>Coreopsis pubescens</i>	KY: S
		rockcastle aster	<i>Eurybia saxicastellii</i>	KY: T; TN: E
		rough hawkweed	<i>Hieracium scabrum</i>	TN: T

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big South Fork and Obed (continued)	Plants (continued)	Monongahela Barbara's buttons	<i>Marshallia grandiflora</i>	KY: E; TN: E
		mountain decumbent goldenrod	<i>Solidago curtisii</i>	KY: T
		Virginia goldenrod	<i>Solidago gracillima</i>	KY: S
		eastern silver aster	<i>Symphyotrichum concolor</i>	KY: T
		marsh bellflower	<i>Campanula aparinoides</i>	TN: S
		American bittercress	<i>Cardamine rotundifolia</i>	TN: S
		Cumberland stitchwort	<i>Minuartia cumberlandensis</i>	KY: E; TN: E*
		Appalachian stitchwort	<i>Minuartia glabra</i>	KY: T
		quill fameflower	<i>Talinum teretifolium</i>	KY: E; TN: T
		kidneyleaf grass of Parnassus	<i>Parnassia asarifolia</i>	KY: E
		scentless mock orange	<i>Philadelphus inodorus</i>	KY: T
		arbor vitae, white cedar	<i>Thuja occidentalis</i>	KY: T; TN: S
		American yew, ground hemlock, Canada yew	<i>Taxus canadensis</i>	KY: T; TN: E
		possum haw	<i>Viburnum nudum</i>	KY: E
		sweet pinesap	<i>Monotropsis odorata</i>	KY: T; TN: T
		bearberry, southern mountain cranberry	<i>Vaccinium erythrocarpum</i>	KY: E
		horseflyweed, yellow wild indigo	<i>Baptisia tinctoria</i>	KY: T
		slenderstem peavine	<i>Lathyrus palustris</i>	KY: T; TN: S
		twining snoutbean	<i>Rhynchosia tomentosa</i>	KY: E
		spiked hoarypea	<i>Tephrosia spicata</i>	KY: E
		drumheads	<i>Polygala cruciata</i>	KY: E
		gaywings	<i>Polygala paucifolia</i>	KY: E
		racemed milkwort	<i>Polygala polygama</i>	KY: T
		American chestnut	<i>Castanea dentata</i>	KY: E; TN: S
		Allegheny chinquapin	<i>Castanea pumila</i>	KY: T
		butternut, white walnut	<i>Juglans cinerea</i>	KY: S; TN: T
		sweet fern	<i>Comptonia peregrina</i>	KY: E; TN: E
		maroon Carolina milkvine	<i>Matelea carolinensis</i>	KY: E
		yellow screwstem	<i>Bartonia virginica</i>	KY: T
		Appalachian bristle fern	<i>Trichomanes boschianum</i>	TN: T
		Cumberland rosemary	<i>Conradina verticillata</i>	KY: E; TN: T*
		tenlobe false foxglove	<i>Agalinis obtusifolia</i>	KY: E
		spreading yellow false foxglove	<i>Aureolaria patula</i>	KY: S; TN: S

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big South Fork and Obed (continued)	Plants (continued)	narrowleaf cowwheat	<i>Melampyrum lineare</i> var. <i>latifolium</i>	KY: T
		eastern sweetshrub	<i>Calycanthus floridus</i> var. <i>glaucus</i>	KY: T
		turk's-cap lily	<i>Lilium superbum</i>	KY: T
		eastern featherbells	<i>Stenanthium gramineum</i>	KY: T
		southern bog clubmoss	<i>Lycopodiella appressa</i>	KY: E
		mercury spurge	<i>Euphorbia mercurialina</i>	KY: T
		St. Peterswort	<i>Hypericum crux-andreae</i>	KY: T
		hornleaf riverweed, threadfoot	<i>Podostemum ceratophyllum</i>	KY: S
		threadleaf evening primrose, threadleaf evening-primrose, threadleaf sundrop	<i>Oenothera linifolia</i>	KY: E
		little evening-primrose	<i>Oenothera perennis</i>	KY: E
		mountain heartleaf	<i>Hexastylis contracta</i>	KY: E
		star sedge, stellate sedge	<i>Carex echinata</i> ssp. <i>echinata</i>	TN: S
		bottlebrush sedge, porcupine sedge	<i>Carex hystericina</i>	KY: H
		nerveless woodland sedge	<i>Carex leptoneuria</i>	KY: E
		eastern straw sedge	<i>Carex straminea</i>	KY: T
		Plukenet's flatsedge	<i>Cyperus plukenetii</i>	TN: S
		tawny cottongrass	<i>Eriophorum virginicum</i>	KY: E; TN: E
		loosehead beaksedge	<i>Rhynchospora chalarocephala</i>	TN: T
		Cumberland sandreed	<i>Calamovilfa arcuata</i>	KY: E; TN: E
		wavy hairgrass	<i>Deschampsia flexuosa</i>	KY: T
		needleleaf rosette grass	<i>Dichanthelium aciculare</i>	TN: E
		bearded skeletongrass	<i>Gymnopogon ambiguus</i>	KY: S
		swamp wedgescale	<i>Sphenopholis pensylvanica</i>	KY: S
		spinulose woodfern	<i>Dryopteris carthusiana</i>	KY: S; TN: T
		common maidenhair	<i>Adiantum capillus-veneris</i>	KY: T
		long beech fern, narrow beech fern, northern beech fern	<i>Phegopteris connectilis</i>	TN: S
		American barberry, Canadian or Allegheny barberry	<i>Berberis canadensis</i>	KY: E; TN: S
		southern blue monkshood	<i>Aconitum uncinatum</i>	KY: T
		whiteleaf leather flower	<i>Clematis glaucophylla</i>	TN: E
		goldenseal	<i>Hydrastis canadensis</i>	TN: CE,S

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Big South Fork and Obed (continued)	Plants (continued)	prairie redroot	<i>Ceanothus herbaceus</i>	KY: T
		Appalachian spiraea	<i>Spiraea virginiana</i>	KY: T; TN: E*
		witch alder	<i>Fothergilla major</i>	TN: T
		boykinia	<i>Boykinia aconitifolia</i>	KY: T
		Michaux's saxifrage	<i>Saxifraga michauxii</i>	KY: T
		fox grape, foxgrape	<i>Vitis labrusca</i>	KY: S
		sand grape	<i>Vitis rupestris</i>	KY: T; TN: E
Cuyahoga Valley	Mammals	Indiana bat	<i>Myotis sodalis</i>	E*
		bobcat	<i>Lynx rufus</i>	E
	Birds	American bittern	<i>Botaurus lentiginosus</i>	E
		northern harrier	<i>Circus cyaneus</i>	E
		king rail	<i>Rallus elegans</i>	E
		black tern	<i>Chlidonias niger</i>	E
		yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	E
		golden-winged warbler	<i>Vermivora chrysoptera</i>	E
		Peregrine falcon	<i>Falco peregrinus</i>	T
		osprey	<i>Pandion haliaetus</i>	T
		Upland sandpiper	<i>Bartramia longicauda</i>	T
		black-crowned night heron	<i>Nycticorax nycticorax</i>	T
		dark-eyed junco	<i>Junco hyemalis</i>	T
		hermit thrush	<i>Catharus guttatus</i>	T
		least bittern	<i>Ixobrychus exilis</i>	T
		bald eagle	<i>Haliaeetus leucocephalus</i>	T*
		least flycatcher	<i>Empidonax minimus</i>	T
		sharp-shinned hawk	<i>Accipiter striatus</i>	SOC
		sedge wren	<i>Cistothorus platensis</i>	SOC
		marsh wren	<i>Cistothorus palustris</i>	SOC
		Henslow's sparrow	<i>Ammodramus henslowii</i>	SOC*
		cerulean warbler	<i>Dendroica cerulea</i>	SOC*
		prothonotary warbler	<i>Protonotaria citrea</i>	SOC
		bobolink	<i>Dolichonyx oryzivorus</i>	SOC
		northern bobwhite	<i>Colinus virginianus</i>	SOC
		common moorhen	<i>Gallinula chloropus</i>	SOC
		great egret	<i>Casmerodius albus</i>	SOC
		sora rail	<i>Porzana carolina</i>	SOC
		Virginia rail	<i>Rallus limicola</i>	SOC
		black vulture	<i>Coragyps atratus</i>	SOC
		Canada warbler	<i>Wilsonia canadensis</i>	SI
		magnolia warbler	<i>Dendroica magnolia</i>	SI

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cuyahoga Valley (continued)	Birds (continued)	northern waterthrush	<i>Seiurus noveboracensis</i>	SI
		winter wren	<i>Troglodytes troglodytes</i>	SI
		black-throated blue warbler	<i>Dendroica caerulescens</i>	SI
		northern saw whet owl	<i>Aegolius acadicus</i>	SI
		pine siskin	<i>Carduelis pinus</i>	SI
		purple finch	<i>Carpodacus purpureus</i>	SI
		red-breasted nuthatch	<i>Sitta canadensis</i>	SI
		Blackburnian warbler	<i>Dendroica fusca</i>	SI
		common snipe	<i>Gallinago gallinago</i>	SI
		northern pintail	<i>Anas acuta</i>	SI
		redhead duck	<i>Aythya americana</i>	SI
		brown creeper	<i>Certhia americana</i>	SI
		long eared owl	<i>Asio otus</i>	SI
		mourning warbler	<i>Oporonis philadelphia</i>	SI
		short eared owl	<i>Asio flammeus</i>	SI
		golden crowned kinglet	<i>Regulus satrapa</i>	SI
		American wigeon	<i>Anas americana</i>	SI
		gadwall	<i>Anas strepera</i>	SI
		green winged teal	<i>Anas crecca</i>	SI
		northern shoveler	<i>Anas clypeata</i>	SI
		ruddy duck	<i>Oxyura jamaicensis</i>	SI
		yellow headed blackbird	<i>Xanthocephalus xanthocephalus</i>	SI
	Reptiles/Amphibians	spotted turtle	<i>Clemmys guttata</i>	T
		Blanding's turtle	<i>Emydoidea blandingii</i>	SOC*
	Plants	bristly sarsaparilla	<i>Aralia hispida</i>	E
		drooping wood sedge	<i>Carex arctata</i>	E
		hairy tick-trefoil	<i>Desmodium glabellum</i>	E
		variegated scouring-rush	<i>Equisetum variegatum</i>	E
		ground juniper	<i>Juniperus communis</i>	E
		large-leaved mountain-rice	<i>Oryzopsis asperifolia</i>	E
		Philadelphia panic grass	<i>Panicum philadelphicum</i>	E
		pasture blue grass	<i>Poa saltuensis</i>	E
		compass-plant	<i>Silphium laciniatum</i>	E
		spotted coral-root	<i>Corallorhiza maculata</i>	E
		ovate spikerush	<i>Eleocharis ovata</i>	E
		silvery sedge	<i>Carex argyrantha</i>	T
		pipsissewa	<i>Chimaphila umbellata</i>	T

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cuyahoga Valley (continued)	Plants (continued)	golden-knees	<i>Chrysogonum virginianum</i>	T
		bearded wheat grass	<i>Elymus trachycaulus</i>	T
		Greene's rush	<i>Juncus greenei</i>	T
		gray beard-tongue	<i>Penstemon canescens</i>	T
		great rhododendron	<i>Rhododendron maximum</i>	T
		leafy goldenrod	<i>Solidago squarrosa</i>	T
		seaside arrow-grass	<i>Triglochin maritimum</i>	T
		bug on a stick (moss)	<i>Buxbaumia aphylla</i>	T
Cumberland Gap	Mammals	Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	KY: S; TN: D, VA: LE, S2
		gray bat	<i>Myotis grisescens</i>	KY: T, S2; TN: E, S2; VA: LE, S1; USFWS: E
		eastern small-footed bat	<i>Myotis leibii</i>	KY: T, S2; TN: D, S2S1
		Indiana bat	<i>Myotis sodalis</i>	KY: E, S1; TN: E, S1; VA: LE, S1; USFWS: E
		woodland jumping mouse	<i>Napaeozapus insignis</i>	TN: D, S4
		Allegheny woodrat	<i>Neotoma magister</i>	TN: D
		hairy-tailed mole	<i>Parascalops breweri</i>	TN: D
		masked shrew	<i>Sorex cinereus</i>	KY: S; TN: D
		long-tailed shrew	<i>Sorex dispar</i>	KY: N (s.d. <i>bitchi</i> : E), S1; TN: D
		smoky shrew	<i>Sorex fumeus</i>	TN: D
		pygmy shrew	<i>Sorex hoyi</i>	TN: S2
		eastern spotted skunk	<i>Spilogale putorius</i>	KY: S, S2
		southern bog lemming	<i>Synaptomys cooperi</i>	TN: D, S4
		black bear	<i>Ursus americanus</i>	KY: S, S2
	Birds	Swainson's Warbler	<i>Limnothlypis swainsonii</i>	TN: D; VA: SC, S2B
		mourning warbler	<i>Oporornis philadelphia</i>	VA: SC, S1B
		osprey	<i>Pandion haliaetus</i>	KY: T, S2B
		rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	KY: S, S3B
		golden-crowned kinglet	<i>Regulus satrapa</i>	VA: SC, S2B, S5N
		red-brested nuthatch	<i>Sitta canadensis</i>	KY: E, S1B; VA: SC, S2B, S4N
		yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	TN: D, S1B, S4N

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cumberland Gap (continued)	Birds (continued)	winter wren	<i>Troglodytes troglodytes</i>	VA: SC, S2B, S4N
		golden-winged warbler	<i>Vermivora chrysoptera</i>	KY: T, S2B; TN: D, S3B; VA: SC, S3B
		red-eyed vireo	<i>Vireo olivaceus</i>	VA: SC, S5
		Canada warbler	<i>Wilsonia canadensis</i>	KY: SC, S5
	Fish	western sand darter	<i>Ammocrypta clara</i>	KY: E, S1; TN: T, S1; VA: ST, S1
		rainbow darter	<i>Etheostoma caeruleum</i>	VA: S2
		arrow darter	<i>Etheostoma sagitta</i>	TN: D, S2
		silverjaw minnow	<i>Notropis buccatus</i>	TN: T, S1
		rosyface shiner	<i>Notropis rubellus</i>	TN: D, S2
		tangerine darter	<i>Percina aurantiaca</i>	TN: D; VA: S2
		blackside dace	<i>Phoxinus cumberlandensis</i>	KY: T, S2; TN: T, S2S1; USFWS: T
	Plants	climbing fumitory	<i>Adlumia fungosa</i>	KY: E, S1; TN: T, S2
		tall hairy groovebur	<i>Agrimonia gryposepala</i>	KY: T, S1
		wild leek	<i>Allium tricoccum</i>	TN: S-CE, S1
		fly-poison	<i>Amianthium muscitoxicum</i>	KY: T, S1
		wild sarsaparilla	<i>Aralia nudicaulis</i>	KY: E
		brook saxifrage	<i>Boykinia aconitifolia</i>	KY: T, S2
		Porter's reedgrass	<i>Calamagrostis porteri</i>	KY: N, S2; TN: E, S1
		Porter's reedgrass	<i>Calamagrostis porteri</i> ssp. <i>Porteri</i>	KY: T, S2
		round-leaf water cress	<i>Cardamine rotundifolia</i>	TN: S, S2
		Appalachian sedge	<i>Carex appalachica</i>	KY: T, S2; TN: S1
		tarheel sedge	<i>Carex austrocaroliniana</i>	KY: S; TN: S2
		inland sedge	<i>Carex interior</i>	VA: S1
		purple sedge	<i>Carex purpurifera</i>	VA: S2
		stellate sedge	<i>Carex radiata</i>	KY: N, S2
		American chestnut	<i>Castanea dentata</i>	KY: E, S1; TN: S, S2
		Allegheny chinkapin	<i>Castanea pumila</i>	KY: T, S2
		Allegheny chinkapin	<i>Castanea pumila</i> var. <i>pumila</i>	KY: S1
		Alabama lipfern	<i>Cheilanthes alabamensis</i>	KY: H, SHS1
		satincurls	<i>Clematis catesbyana</i>	KY: H, SHS1

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cumberland Gap (continued)	Plants (continued)	Carolina coralbread	<i>Cocculus carolinus</i>	VA: S1
		convallaria	<i>Convallaria majuscula</i>	KY: E, S1
		pale corydalis	<i>Corydalis sempervirens</i>	KY: S; TN: E, S1
		pear hawthorn	<i>Crataegus calpodendron</i>	VA: S1
		pink lady's -slipper	<i>Cypripedium acaule</i>	TN: S-CE, S4
		small yellow lady's slipper	<i>Cypripedium parviflorum</i>	KY: T, S2
		wavy hairgrass	<i>Deschampsia flexuosa</i>	KY: T, S2
		largebract ticktrefoil	<i>Desmodium cuspidatum</i>	VA: S2
		pinebarren ticktrefoil	<i>Desmodium strictum</i>	VA: S2
		nodding wild-rye	<i>Elymus canadensis</i>	VA: S2
		tawny cottongrass	<i>Eriophorum virginicum</i>	KY: E, S1; TN: E, S1
		rattlesnake-master	<i>Eryngium yuccifolium</i>	VA: S2
			<i>Eupatorium incranatum</i>	VA: S2
		Steele's eupatori,	<i>Eupatorium steelei</i>	KY: T, S2
		mercury spurge	<i>Euphorbia mercurialina</i>	KY: T, S1
			<i>Eurybia surculosa</i>	VA: S1
		showy gentian	<i>Gentiana decora</i>	KY: S
		mountain heartleaf	<i>Hexastylis contracta</i>	KY: E, S1
		rough hawkweed	<i>Hieracium scabrum</i>	TN: T, S2
		Canadian summer bluet	<i>Houstonia canadensis</i>	VA: S2
		rock clubmoss	<i>Hyperzia porophila</i>	VA: S1
		golden-seal	<i>Hydrastis canadensis</i>	TN: S-CE
		Shawnee salad	<i>Hydrophyllum virginianum</i>	KY: T, S2; TN: T
		butternut	<i>Juglans cinerea</i>	KY: S, S3; TN: T
		woods-rush	<i>Juncus subcaudatus</i>	KY: N, S1
		smooth veiny peavine	<i>Lathyrus venosus</i>	KY: S, S2
		Canada lily	<i>Lilium canadense</i>	TN: T, S3
		kidkey-leaf twayblade	<i>Listera smallii</i>	KY: T, S2
		limber honeysuckle	<i>Lonicera dioica</i>	TN: S, S2
		runing clubmoss	<i>Lycopodium clavatum</i>	KY: E, S1
		southern loosestrife	<i>Lysimachia tonsa</i>	TN: S2
		bigleaf magnolia	<i>Magnolia macrophylla</i>	VA: S1
		false lily-of-the-valley	<i>Maianthemum canadense</i>	KY: T, S2
		American cow-wheat	<i>Melampyrum lineare</i>	KY: N, S2
		American cownwheat	<i>Melampyrum lineare var. latifolium</i>	KY: T, S2

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cumberland Gap (continued)	Plants (continued)	small-flowered false helleborne	<i>Melanthium parviflorum</i>	KY: E, S1
		Appalachian sandwort	<i>Minuartia glabra</i>	KY: T, S1
		Appalachian sandwort	<i>Minuartia groenlandica</i>	TN: E, S1S1
		whorled wood aster	<i>Oclemena acuminata</i>	KY: T, S2
			<i>Oligoneuron rigidum</i> var. <i>rigidum</i>	VA: S2
		American ginseng	<i>Panax quinquefolius</i>	TN: S-CE; VA: ST
		silvery nailwort	<i>Paronychia argyrocoma</i>	KY: E< S1; TN: T, S1
		longsepal beardtongue	<i>Penstemon calycosus</i>	VA: S1
		large-leaved phlox	<i>Phlox amplifolia</i>	VA: S2
			<i>Polygonatum biflorum</i> var. <i>commutatum</i>	TN: S2
		halberd-leaf tearthumb	<i>Polygonum arifolium</i>	TN: T, S1
			<i>Prosartes maculata</i>	KY: S
		Allegheny mountain buttercup	<i>Ranunculus allegheniensis</i>	TN: S1
		catawba rhododendron	<i>Rhododendron catawbiense</i>	KY: N, S2
		Carolina rhododendron	<i>Rhododendron minus</i>	TN: S2
		bristly locust	<i>Robinia hispida</i> var. <i>rosea</i>	KY: N, S2
		prairie rose	<i>Rosa setigera</i>	VA: S1
		Virginia rose	<i>Rosa virginiana</i>	TN: S, SH
		smooth blackberry	<i>Rubus canadensis</i>	KY: E, S1
		pursh's wild-petunia	<i>Ruellia purshiana</i>	TN: S, S1
		nettle-leaf sage	<i>Salvia urticifolia</i>	KY: E, S1
		michaux's saxifrage	<i>Saxifraga michauxii</i>	KY: T, S2
		hoary skullcap	<i>Scutellaria incana</i>	VA: S2
		ovate catchfly	<i>Silene ovata</i>	KY: E, S1; TN: E, S2S1
		roundleaf catchfly	<i>Silene rotundifolia</i>	VA: S2
		prairie rosinweed	<i>Silphium terebinthinaceum</i>	TN: S2S1
		white blue-eyed grass	<i>Sisyrinchium albidum</i>	VA: S2
		upright carrionflower	<i>Smilax ecirrata</i>	VA: S1
			<i>Solidago cutrisii</i>	KY: T, S2
		roan mountain goldenrod	<i>Solidago roanensis</i>	KY: T, S1
		twistedstalk	<i>Streptopus lanceolatur</i> var. <i>roseus</i>	TN: S1
		smooth blue aster	<i>Symphyotrichum laeve</i>	KY: N, S2

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Cumberland Gap (continued)	Plants (continued)	painted trillium	<i>Trillium undulatum</i>	KY: T, S2
		southern mountain cranberry	<i>Vaccinium erythrocarpum</i>	KY: E, S1
		fox grape	<i>Vitis labrusca</i>	KY: S, S2
		Appalachian cliff fern	<i>Woodsia appalachiana</i>	KY: H, SH; TN: S, S1
	Reptiles/Amphibians	Black Mountain salamander	<i>Desmognathus welteri</i>	TN: D
		Kentucky spring salamander	<i>Gyrinophilus porphyriticus duryi</i>	VA: S2
		four-toed salamander	<i>Hemidactylium scutatum</i>	TN: D
		Cumberland Plateau salamander	<i>Plethodon kentucki</i>	TN: S2
		southern ravine salamander	<i>Plethodon kentucki</i>	TN: S2
Gauley River and New River Gorge	Mammals	Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	S1
		Virginia big-eared bat	<i>Corynorhinus townsendii</i>	S2*
		least shrew	<i>Cryptotis parva</i>	S2
		silver-haired bat	<i>Lasionycteris noctivagans</i>	S2
		hoary bat	<i>Lasiurus cinereus</i>	S3
		small-footed myotis	<i>Myotis leibii</i>	S1
		Indiana bat	<i>Myotis sodalis</i>	S1*
		Allegheny woodrat	<i>Neotoma magister</i>	S3*
		evening bat	<i>Nycticeius humeralis</i>	SH
		golden mouse	<i>Ochrotomys nuttalli</i>	S2
		eastern cougar	<i>Puma concolor cougar</i>	SH
		eastern mole	<i>Scalopus aquaticus</i>	S3
		long-tailed shrew	<i>Sorex dispar</i>	S2, S3
		southern pygmy shrew	<i>Sorex hoyi winnennana</i>	S2, S3
		southern bog lemming	<i>Synaptomys cooperi</i>	S2
		meadow jumping mouse	<i>Zapus hudsonius</i>	S3
	Birds	Cooper's hawk	<i>Accipiter cooperii</i>	S3B, S4N
		sharp-shinned hawk	<i>Accipiter straitus</i>	S3B, S4N
		spotted sandpiper	<i>Actitis macularia</i>	S3B
		grasshopper sparrow	<i>Ammodramus savannarum</i>	S3B
		green-winged teal	<i>Anas crecca</i>	SHB, S2N
		American Black duck	<i>Anas rubripes</i>	S2B, S4N
		great blue heron	<i>Ardea herodias</i>	S2B, S4N
		American bittern	<i>Botaurus lentiginosus</i>	S1B, S1N
		Swainson's thrush	<i>Catharus ustulatus</i>	S1B

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gauley River and New River Gorge (continued)	Birds (continued)	brown creeper	<i>Certhis americana</i>	S3B, S4N
		common nighthawk	<i>Chordeiles minor</i>	S3B
		northern harrier	<i>Circus cyaneus</i>	S1B, S3N
		black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	S3B
		northern bobwhite	<i>Colinus virginianus</i>	S3B, S3N
		eastern wood peewee	<i>Contopus virens</i>	SB5
		black vulture	<i>Coragyps atratus</i>	S3
		yellow-rumped warbler	<i>Dendroica coronata</i>	S3B, S3N
		Backburnian warbler	<i>Dendroica fusca</i>	S3B
		bobolink	<i>Dolichonyx oryzivorus</i>	S2B
		horned hawk	<i>Eremophila alpestris</i>	S2B, S3N
		Peregrine falcon	<i>Falco peregrinus</i>	S1B, S2N
		American coot	<i>Fulica americana</i>	S1B, S3N
		bald eagle	<i>Haliaeetus leucocephalus</i>	S2B, S3N
		Swainson's warbler	<i>Limnethlypsis swainsonii</i>	S2B
		hooded merganser	<i>Lophodytes cucullatus</i>	S1B, S4N
		red-hooded woodpecker	<i>Melanerpes erythrocephalus</i>	S2B, S3N
		osprey	<i>Pandion haliaetus</i>	S2B, S2N
		cliff swallow	<i>Petrochelidon pyrrhonota</i>	S3B
		pied-billed grebe	<i>Podilymbus podiceps</i>	S2B, S4N
		Vesper sparrow	<i>Pooecetes gramineus</i>	S3B, S3N
		prothonotary warbler	<i>Protonotaria citrea</i>	S2B
		bank swallow	<i>Riparia riparia</i>	S2B
		yellow-billed sapsucker	<i>Sphyrapicus varius</i>	S1B, S3N
		dickcissel	<i>Spiza americana</i>	S2B
		golden-winged warbler	<i>Vermivora chrysoptera</i>	S2B
		Nashville warbler	<i>Vermivora ruficapilla</i>	S1B
	Fish	candy darter	<i>Etheostoma osburni</i>	S2
		bigmouth chub	<i>Nocomis platyrhynchus</i>	S3, S4
		New River shiner	<i>Notropis scabriceps</i>	S2
		mountain redbelly dace	<i>Phoxinus oreas</i>	S3
		elktoe mussel	<i>Alasmodonta marginata</i>	S2
		purple wartyback	<i>Cyclonaias turberculata</i>	S1
		spike mussel	<i>Elliptio dilatata</i>	S2
		wavy-rayed lampmussel	<i>Lampsilis fasciola</i>	S2
		pocketbook mussel	<i>Lampsilis ovata</i>	S1
		green floater	<i>Lasmigona subviridis</i>	S2

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gauley River and New River Gorge (continued)	Fish (continued)	maple leaf	<i>Quadrula auqdrula</i>	S2
		lilliput	<i>Toxolasma parvus</i>	S2
	Mussels	pistolgrip	<i>Tritogonia verrucosa</i>	S2
	Invertebrates	swamp metalmark	<i>Calephelis borealis</i>	S2
		tiger beetle	<i>Cicindela ancocisconensis</i>	S3
		Diana fritillary	<i>Speyeria diana</i>	S2
	Plants	dwarf anemone	<i>minima</i>	S1
		purple needlegrass	<i>Aristida purpurascens</i>	S1
		hairy rock-cress	<i>Arabis hirsute</i> var. <i>pycnocarpa</i>	S2
		spreading rock-cress	<i>Arabis patens</i>	S2
		wild false indigo	<i>Baptisia australis</i>	S3
		grass pink	<i>Calopogon tuberosus</i> var. <i>tuberosus</i>	S1
		bitter cress	<i>Cardamine flagelifera</i>	S2
		summer sedge	<i>Carex aestivalis</i>	S2
		Carey's sedge	<i>Carex careyana</i>	S1
		bearded sedge	<i>Carex comosa</i>	S2
		Emory's sedge	<i>Carex emoryi</i>	S1
		inland sedge	<i>Carex interior</i>	S1
		midland sedge	<i>Carex mesochorea</i>	S2
		troublesome sedge	<i>Carex molesta</i>	S3
		black-edge sedge	<i>Carex nigromarginata</i>	S3
		wesk stellate sedge	<i>Carex seorsa</i>	S1
		bent sedge	<i>Carex styloflexa</i>	S1
		prairie straw sedge	<i>Carex suberecta</i>	S1
		cat-tail sedge	<i>Carex typhina</i>	S2
		pretty sedge	<i>Carex woodii</i>	S1, S2
		slender day-flower	<i>Commelina erecta</i>	S2
		spring coralroot	<i>Corallorhiza wisteriana</i>	S2
		star tickweed	<i>Coreopsis pbuescens</i> var. <i>robusta</i>	S2
		northern croton	<i>Croton glandulosus</i> var. <i>septentrionalis</i>	S3
		pretty dodder	<i>Cuscuta indecora</i>	S1
		Fraser's sedge	<i>Cymophyllus fraseriansu</i>	S3
		reflexed flatsedge	<i>Cyperus refractus</i>	S3
		awned cyperus	<i>Cyperus squarrosus</i>	S3
		sand tick-trefoil	<i>Desmodium lineatum</i>	S1

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gauley River and New River Gorge (continued)	Plants (continued)	flat-stemmed spikerush	<i>Eleocharis compressa</i>	S2
		matted spikerush	<i>Eleocharis intermedia</i>	S1
		creeping spike-rush	<i>Eleocharis palustris</i>	S3
		yellow buckwheat	<i>Erigonum allenii</i>	S2
		vervain thoroughwort	<i>Eupatorium pilosum</i>	S2
		annual fimbry	<i>Fimbristylis annua</i>	S1
		downy milkpea	<i>Galactia volubilis</i>	S2
		Appalachian gentian	<i>Gentiana austromontana</i>	S1
		Canada frostweed	<i>Helianthemum canadense</i>	S2
		smooth sunflower	<i>Helianthus laevigatus</i>	S2
		McDowell sunflower	<i>Helianthus occidentalis</i> <i>spp. Occidentalis</i>	S2
		halberd-leaved mallow	<i>Hibiscus laevis</i>	S2
		coppery St. John's-wort	<i>Hypericum virgatum</i>	S1
		forked rush	<i>Juncus dichotomus</i>	S1
		winged loosestrife	<i>Lythrum alatum</i>	S2
		starflower false Solomon's seal	<i>Maianthemum stellatum</i>	S2
		two-flower melic grass	<i>Melica mutica</i>	S2
		slender water nymph	<i>Najas gracillima</i>	S2
		evening-primrose	<i>Oenothera pilosella</i>	S2
		red pine	<i>Pinus resinosa</i>	S1
		blackseed needlegrass	<i>Piptochaetium avenaceum</i>	S2
		small purple-fringe orchid	<i>Platanthera psycodes</i>	S1
		drooping bluegrass	<i>Poa saltuensis</i>	S1
		rose pogonia	<i>Pogonia ophioglossoides</i>	S2
		Curtis milkwort	<i>Polygala curtissii</i>	S2
		water smartweed	<i>emersum</i>	S2
		hoary mountain-mint	<i>Pycnanthemum incanum</i> <i>var. puberulum</i>	S1
		Loomis' mountain-mint	<i>Pycnanthemum Illmisii</i>	S2
		Torrey's mountain-mint	<i>Pycnanthemum torrei</i>	S1
		low spearwort	<i>Ranunculus pusillus</i>	S1
		globe beaked-rush	<i>Rhynchorpora recognia</i>	S2
		shining willow	<i>Salix lucida</i>	S1
		Carey's saxifrage	<i>Saxifrage careyana</i>	S3
		weakstalk bulrush	<i>Schoenoplectus purchianus</i>	S3
		rock skullcap	<i>Scutellaria saxatilis</i>	S2

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gauley River and New River Gorge (continued)	Plants (continued)	Virginia cress	<i>Sibbaldia virginica</i>	S2?
		Virginia mallow	<i>Sida hermaphrodita</i>	S3
		snowy campion	<i>Silene nivea</i>	S1
		Virginia cup-plant	<i>Silphium perfoliatum</i> var. <i>connatum</i>	S1
		Rand's goldenrod	<i>Solidago sempervirens</i> ssp. <i>randii</i>	S1
		little ladies'-tresses	<i>Spiranthes tuberosa</i>	S3
		Virginia spiraea	<i>Spiraea virginiana</i>	G2*
		rough dropseed	<i>Sporobolus clandestinus</i>	S1
		Nuttall's hedge-nettle	<i>Stachys nuttallii</i>	S3
		smooth hedge-nettle	<i>Stachys tenuifolia</i> var. <i>tenuifolia</i>	S3
		mountain meadow-rue	<i>Thalictrum flavum</i>	S1
		Steele's meadow rue	<i>Thalictrum steeleanum</i>	S1
		running buffalo clover	<i>Trifolium stoloniferum</i>	G3*
		nodding pogonia	<i>Triphora trianthophora</i>	S2
		sand grape	<i>Vitis rupestris</i>	S2
		Allegheny cliff fern	<i>Woodsia scopulina</i>	S2
	Reptiles/Amphibians	eastern worm snake	<i>Carphophis amoenus</i>	S3
		timber rattlesnake	<i>Crotalis horridus</i>	S3
		northern coal skink	<i>Eumeces anthracinus anthracinus</i>	S2
		broad-headed skink	<i>Eumeces laticeps</i>	S2
		wood turtle	<i>Glyptemys insculpta</i>	S2
		common map turtle	<i>Graptemys geographica</i>	S2
		rough green snake	<i>Opheodrys aestivus</i>	S3
		river cooter	<i>Pseudemys concinna</i>	S2
		Jefferson salamander	<i>Ambystoma jeffersonianum</i>	S3
		green salamander	<i>Aneides aeneus</i>	S3
		black-bellied salamander	<i>Desmognathus quadramaculatus</i>	S3
		cave salamander	<i>Eurycea lucifuga</i>	S3
		Cumberland Plateau salamander	<i>Plethodon kentucki</i>	S2
		midland mud salamander	<i>Pseudotriton montanus diastictus</i>	S1
		northern red salamander	<i>Pseudotriton ruber</i>	S3

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Padre Island	Reptiles/Amphibians	Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	E*
		green sea turtle	<i>Chelonia mydas</i>	T*
		Atlantic hawksbill sea turtle	<i>Eretmochelys imbricata</i>	E*
		loggerhead sea turtle	<i>Caretta caretta</i>	T*
		leatherback sea turtle	<i>Dermochelys coriacea</i>	E*
		spot-tailed earless lizard	<i>Holbrookia lacerate</i>	SOC
		Texas horned lizard	<i>Phrynosoma cornutum</i>	T*
		Texas indigo snake	<i>Drymarchon corais erebennus</i>	T
		Texas scarlet snake	<i>Cemophora coccinea lineri</i>	T
		Texas tortoise	<i>Gopherus berlandieri</i>	T
	Birds	eastern brown pelican	<i>Pelecanus occidentalis</i>	E
		reddish egret	<i>Egretta rufescens</i>	T
		white-faced ibis	<i>Plegadis chihi</i>	T*
		sooty tern	<i>Sterna fuscata</i>	T
		piping plover	<i>Charadrius melodus</i>	T*
		American Peregrine falcon	<i>Falco Peregrines anatum</i>	T
		bald eagle	<i>Haliaeetus leucocephalus</i>	T
		black-capped vireo	<i>Vireo atricapilla</i>	E*
		northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	E*
		swallow-tailed kite	<i>Elanoides forficatus</i>	T
		tropical parula	<i>Parula pitaiayumi</i>	T*
		white-tailed hawk	<i>Buteo albicaudatus</i>	T
	Plants	roughseed sea purslane	<i>Sesuvium trianthemoides</i>	SOC*
Category 2 Park Units				
Little River Canyon	Mammals	gray bat	<i>Myotis grisescens</i>	AL: SP, E*
		northern bat	<i>Myotis septentrionalis</i>	AL: SP
	Birds	Cooper's hawk	<i>Accipiter cooperii</i>	AL: SP
		golden eagle	<i>Aquila chrysaetos</i>	AL: SP
		bald eagle	<i>Haliaeetus leucocephalus</i>	AL: SP
		osprey	<i>Pandion haliaetus</i>	AL: SP
		merlin	<i>Falco columbarius</i>	AL: SP
	Reptiles/Amphibians	southeastern five-lined skink	<i>Eumeces inexpectatus</i>	AL: SP
		green salamander	<i>Aneides aeneus</i>	AL: SP
		blue shiner	<i>Cyprinella caerulea</i>	AL: SP, T*

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Santa Monica Mountains	Mammals	pallid bat	<i>Antrozous pallidus</i>	SOC
		spotted bat	<i>Euderma maculatum</i>	SOC
		greater western mastiff bat	<i>Eumops perotis californicus</i>	SOC
		California leaf-nosed bat	<i>Macrotus californicus</i>	SOC
		Pacific Western big-eared bat (Townsend's big-eared bat)	<i>Corynorhinus townsendii</i>	SOC
		salt marsh ornate shrew	<i>Sorex ornatus salicornicus</i>	SOC
		American badger	<i>Taxidea taxus</i>	SOC
		coastal desert woodrat	<i>Neotoma lepida intermedia</i>	SOC
		ringtail	<i>Bassariscus astutus</i>	SOC
	Birds	California condor	<i>Gymnogyps californianus</i>	E*
		yellow-billed cuckoo	<i>Coccyzus americanus</i>	T*
		bald eagle	<i>Haliaeetus leucocephalus</i>	E
		light-footed clapper rail	<i>Rallus longirostris levipes</i>	E*
		California least tern	<i>Sterna antillarum browni</i>	E*
		southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E*
		Least's bell vireo	<i>Vireo belli pusillus</i>	E*
		Belding's Savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	E
		bank swallow	<i>Riparia riparia</i>	T
		western snowy plover	<i>Charadrius alexandrius nivosus</i>	SOC
		California gnatcatcher	<i>Poliopitila Californica</i>	SOC
		western least bittern	<i>Ixobrychus exilis hersperis</i>	SOC
		loggerhead shrike	<i>Lanius ludovicianus</i>	SOC
		tri-colored blackbird	<i>Agelaius tricolor</i>	SOC
		Southern California rufous-crowned sparrow	<i>Aimophila ruficeps canescens</i>	SOC
		northern harrier	<i>Circus cyaneus</i>	SOC
		long-eared owl	<i>Asio otus</i>	SOC
		burrowing owl	<i>Athene cunicularia</i>	SOC
		yellow warbler	<i>Dendroica petechia</i>	SOC
		grasshopper sparrow	<i>Ammodramus savannarum</i>	SOC
		California horned lark	<i>Eremophila alpestris actia</i>	SOC
		San Diego (Coastal) cactus wren	<i>Campylorhynchus brunneicapillus cousei</i>	SOC

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Santa Monica Mountains (continued)	Birds (continued)	mountain plover	<i>Charadrius montanus</i>	SOC
		golden eagle	<i>Aquila chrysaetos</i>	SOC
		short-eared owl	<i>Asio flammeus</i>	SOC
		white-tailed kite	<i>Elanus Caeruleus</i>	SOC
		yellow-breasted chat	<i>Icteria virens</i>	SOC
		common loon	<i>Gavia immer</i>	SOC
	Reptiles/Amphibians	arroyo southwestern toad	<i>Bufo microscaphus californicus</i>	SOC*
		California red-legged frog	<i>Rana draytonii</i>	SOC*
		coast range newt	<i>Taricha torosa torosa</i>	SOC
		southwestern pond turtle	<i>Emys mamorata pallida</i>	SOC
		Blainville's (Coast) horned lizard	<i>Phrynosoma blainvillii</i>	SOC
		San Diego mountain kingsnake	<i>Lampropeltus zonata pulchra</i>	SOC
		coast patch-nosed snake	<i>Salvadora hexalepis virgultea</i>	SOC
		coastal whiptail	<i>Aspidosceli</i>	SOC
		San Bernardino ringneck snake	<i>Diadophis punctatus modestus</i>	SOC
		two-striped garter snake	<i>Thamnophis hammondi</i>	SOC
		silvery legless lizard	<i>Anniella pulchra pulchra</i>	SOC
	Fish	arroyo chub	<i>Gila orcutti</i>	SOC
		Pacific lamprey	<i>Lampetra tridentata</i>	SOC
	Invertebrates	salt marsh skipper	<i>Panoquina errans</i>	SOC
		Belkins Dune tabanid fly	<i>Brennania belkini</i>	SOC
		Globose dune beetle	<i>Coleus globosus</i>	SOC
	Plants	NA	<i>Cordylanthus maritimus ssp. Maritimus</i>	E*
		NA	<i>Pentachaeta lyonii</i>	E*
Dinosaur National Monument	Both NPSpecies and park unit staff report no state-listed species.			
Great Sand Dunes	Mammals	Canadian lynx	<i>Lynx canadensis</i>	T
		black-footed ferret	<i>Mustela nigripes</i>	E
		Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SOC
		northern pocket gopher	<i>Thomomys talpoides agrestis</i>	SOC
	Birds	gunnison sage grouse	<i>Centrocercus minimus</i>	SOC*
		ferruginous hawk	<i>Buteo regalis</i>	SOC
		western snowy plover	<i>Charadrius alexandrinus nivosus</i>	SOC
		mountain plover	<i>Charadrius montanus</i>	SOC

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Great Sand Dunes	Birds (continued)	greater sandhill crane	<i>Grus canadensis tabida</i>	SOC
		yellow-billed cuckoo	<i>Coccyzus americanus</i>	C
		southern willow flycatcher	<i>Empidonax traillii extimus</i>	E*
		bald eagle	<i>Haliaeetus leucocephalus</i>	T*
		Mexican spotted owl	<i>Strix occidentalis lucida</i>	T*
		long-billed curlew	<i>Numenius americanus</i>	SOC
	Fish	humpback chub	<i>Gila cypha</i>	T*
		bonytail chub	<i>Gila elegans</i>	E*
		Rio Grande chub	<i>Gila pandora</i>	SOC
		Rio Grande cutthroat trout	<i>Oncorhynchus clarki virginalis</i>	SOC
		Colorado pikeminnow	<i>Ptychocheilus lucius</i>	T*
		razorback sucker	<i>Xyrauchen texanus</i>	E*
		Rio Grande sucker	<i>Catostomus plebeus</i>	E
	Reptiles/Amphibians	boreal toad	<i>Bufo boreas pop.</i>	E
		northern leopard frog	<i>Rana pipiens</i>	
	Plants	slender spiderflower	<i>Cleome multicaulis</i>	G*
		Smith's draba	<i>Draba smithii</i>	G*
Mesa Verde National Park	Both NPSpecies and park unit staff report no state-listed species.			
Sand Creek Massacre	Both NPSpecies and park unit staff report no state-listed species.			
Everglades National Park	Mammals	Florida panther	<i>Puma concolor coryi</i>	FL: LE, E*
			<i>Ursus americanus floridanus</i>	FL: LT
		Caribbean manatee, manatee, West Indian	<i>Trichechus manatus</i>	FL: LE, E*
	Birds	snail kite	<i>Rostrhamus sociabilis</i>	FL: LE
		snowy plover	<i>Charadrius alexandrinus</i>	FL: LT
		piping plover	<i>Charadrius melodus</i>	FL: LT, T*
		least tern	<i>Sterna antillarum</i>	FL: LT
		roseate tern	<i>Sterna dougallii</i>	FL: LT
		wood stork	<i>Mycteria americana</i>	FL: LE, E*
		white-crowned pigeon	<i>Patagioenas leucocephala</i>	FL: LT
		Cape Sable seaside sparrow	<i>Ammodramus maritimus mirabilis</i>	FL: LE, E*

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Everglades National Park (continued)	Reptiles/Amphibians	American crocodile	<i>Crocodylus acutus</i>	FL: LE, T*
		Loggerhead; cabezon	<i>Caretta caretta</i>	FL: LT
		common green sea turtle, Green Sea Turtle	<i>Chelonia mydas</i>	FL: LE, E*
		Leatherback, leatherback sea turtle, leatherback	<i>Dermochelys coriacea</i>	FL: LE, E*
		gopher tortoise	<i>Gopherus polyphemus</i>	FL: LT
	Plants	tawnyberry, tawnyberry holly	<i>Ilex krugiana</i>	FL: LT
		Florida silver palm	<i>Coccothrinax argentata</i>	FL: LT
		Carter's orchid	<i>Basiphyllaea corallicola</i>	FL: LE
		cowhorn orchid	<i>Cyrtopodium punctatum</i>	FL: LE
		longclaw orchid	<i>Eltroplectris calcarata</i>	FL: LE
		clamshell orchid	<i>Encyclia cochleata</i> var.	FL: LE
		night scented orchid	<i>Epidendrum nocturnum</i>	FL: LE
		Cape Sable orchid	<i>Oncidium undulatum</i>	FL: LE
		Britton's shadow witch	<i>Ponthieva brittoniae</i>	FL: LE
			<i>Sacoila lanceolata</i> var.	FL: LT
		southern ladies'-tresses	<i>Spiranthes torta</i>	FL: LE
		wormvine orchid	<i>Vanilla barbellata</i>	FL: LE
		Bahama sachsia	<i>Sachsia polycephala</i>	FL: LT
		sea rosemary	<i>Argusia gnaphalodes</i>	FL: LE
		smooth strongbark	<i>Bouerreria cassinifolia</i>	FL: LE
		cinnamonbark, wild	<i>Canella winteriana</i>	FL: LE
		Simpson's applecactus	<i>Harrisia simpsonii</i>	FL: LE
		mistletoe cactus	<i>Rhipsalis baccifera</i>	FL: LE
		Christmasberry	<i>Crossopetalum ilicifolium</i>	FL: LT
		Florida crossopetalum	<i>Crossopetalum rhacoma</i>	FL: LT
		Florida boxwood	<i>Schaefferia frutescens</i>	FL: LE
		bracted colicroot	<i>Aletris bracteata</i>	FL: LE
		meadow jointvetch	<i>Aeschynomene</i>	FL: LE
		clusterspike false indigo, crenulate lead-plant	<i>Amorpha herbacea</i> var. <i>crenulata</i>	FL: LE, E*
		Small's milkpea	<i>Galactia smallii</i>	FL: LE, E*
		Everglade Key	<i>Stylosanthes calcicola</i>	FL: LE
		Caribbean princewood	<i>Exostema caribaeum</i>	FL: LE
		Havana skullcap	<i>Scutellaria havanensis</i>	FL: LE
		coastal mock vervain	<i>Glandularia maritima</i>	FL: LE
		depressed shrubverbena	<i>Lantana depressa</i> var.	FL: LE
		Sanibel shrubverbena	<i>Lantana depressa</i> var.	FL: LE

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Everglades National Park (continued)	Plants (continued)	Blodgett's silverbush	<i>Argythamnia blodgettii</i>	FL: LE
		Pineland sandmat, wedge	<i>Chamaesyce deltoidea</i>	FL: LE
		Garber's sandmat	<i>Chamaesyce garberi</i>	FL: LE, E*
		Porter's sandmat	<i>Chamaesyce porteriana</i>	FL: LE
		manchineel	<i>Hippomane mancinella</i>	FL: LE
		Florida Keys noseburn	<i>Tragia saxicola</i>	FL: LT
		Small's flax	<i>Linum carteri</i> var. <i>smallii</i>	FL: LE
		Key byrsonima, Long Key	<i>Byrsonima lucida</i>	FL: LT
		whiteflower passionflower	<i>Passiflora multiflora</i>	FL: LE
		pineland passionflower	<i>Passiflora pallens</i>	FL: LE
		goatsfoot	<i>Passiflora sexflora</i>	FL: LE
		milkbark	<i>Drypetes diversifolia</i>	FL: LE
		upland cotton	<i>Gossypium hirsutum</i>	FL: LE
		white fenrose	<i>Kosteletzkya depressa</i>	FL: LE
		swampbush	<i>Pavonia paludicola</i>	FL: LE
		myrtle of the river, myrtle-	<i>Calyptanthus zuzygium</i>	FL: LE
		redberry stopper	<i>Eugenia confusa</i>	FL: LE
		long-stalk stopper, mangroveberry	<i>Psidium longipes</i>	FL: LT
			<i>Alvaradoa amorphoides</i>	FL: LE
		Polynesian peperomia	<i>Peperomia humilis</i>	FL: LE
		baby rubberplant	<i>Peperomia obtusifolia</i>	FL: LE
		powdery strap airplant	<i>Catopsis berteroniana</i>	FL: LE
		Florida strap airplant	<i>Catopsis floribunda</i>	FL: LE
		West Indian tufted	<i>Guzmania monostachia</i>	FL: LE
		twisted airplant	<i>Tillandsia flexuosa</i>	FL: LT
		Florida flatsedge	<i>Cyperus floridanus</i>	FL: LT
		Florida pineland	<i>Digitaria pauciflora</i>	FL: LT
		Florida gamagrass	<i>Tripsacum floridanum</i>	FL: LT
			<i>Asplenium dentatum</i>	FL: LE
		Florida Tree Fern	<i>Ctenitis sloanei</i>	FL: LE
		clubbed creepingfern	<i>Odontosoria clavata</i>	FL: LE
		hollyleaf fringedfern	<i>Lomariopsis kunzeana</i>	FL: LE
		clinging snakefern	<i>Microgramma</i>	FL: LE
		plumed rockcap fern	<i>Pecluma plumula</i>	FL: LE
		golden leatherfern	<i>Acrostichum aureum</i>	FL: LT
		fragrant maidenhair	<i>Adiantum melanoleucum</i>	FL: LE
		fan maidenhair	<i>Adiantum tenerum</i>	FL: LE
		southern lipfern	<i>Cheilanthes microphylla</i>	FL: LE

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Everglades National Park (continued)	Plants (continued)	Bahama brake	<i>Pteris bahamensis</i>	FL: LT
		least halberd fern	<i>Tectaria fimbriata</i>	FL: LE
		creeping maiden fern	<i>Thelypteris reptans</i>	FL: LE
		toothed latticevein fern	<i>Thelypteris serrata</i>	FL: LE
		Lamarck's tremma	<i>Trema lamarckianum</i>	FL: LE
		Cuban nakedwood	<i>Colubrina cubensis</i> var.	FL: LE
		West Indian cherry	<i>Prunus myrtifolia</i>	FL: LT
		West Indian mahogany	<i>Swietenia mahagoni</i>	FL: LT
		white ironwood	<i>Hypelate trifoliata</i>	FL: LE
		Wright's flowering fern	<i>Anemia wrightii</i>	FL: LE
		Eaton's spikemoss	<i>Selaginella eatonii</i>	FL: LE
		bejuco colorado	<i>Ipomoea microdactyla</i>	FL: LE
		rockland morningglory	<i>Ipomoea tenuissima</i>	FL: LE
		pineland clustervine, pineland jacquemontia	<i>Jacquemontia curtissii</i>	FL: LT
		skyblue clustervine	<i>Jacquemontia</i>	FL: LE
Indiana Dunes	Both NPSpecies and park unit staff report no state-listed species.			
Nicodemus	Both NPSpecies and park unit staff report no state-listed species.			
Mammoth Cave	Mammals	Rafinesque's big-eared bat	<i>Corynorhinus rafinesquii</i>	S
		southeastern bat	<i>Myotis austroriparius</i>	E
		gray bat	<i>Myotis grisescens</i>	T*
		eastern small-footed bat	<i>Myotis leibii</i>	T
		Indiana bat	<i>Myotis sodalis</i>	E*
		evening bat	<i>Nycticeius humeralis</i>	S
	Birds	hooded merganser	<i>Lophodytes cucullatus</i>	T
		sharp-shinned hawk	<i>Accipiter striatus</i>	S
		northern harrier	<i>Circus cyaneus</i>	T
		bald eagle	<i>Haliaeetus leucocephalus</i>	T
		osprey	<i>Pandion haliaetus</i>	T
		pied-billed grebe	<i>Podilymbus podiceps</i>	E
		American coot	<i>Fulica americana</i>	E
		rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>	S
		brown creeper	<i>Certhia americana</i>	E
		dark-eyed junco	<i>Junco hyemalis</i>	S
		Savannah sparrow	<i>Passerculus sandwichensis</i>	S
		blackburnian warbler	<i>Dendroica fusca</i>	T
		golden-winged warbler	<i>Vermivora chrysoptera</i>	T
		Canada warbler	<i>Wilsonia canadensis</i>	S

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Mammoth Cave (continued)	Birds (continued)	red-breasted nuthatch	<i>Sitta canadensis</i>	E
		sedge wren	<i>Cistothorus platensis</i>	S
		Bewick's wren	<i>Thryomanes bewickii</i>	S
		least flycatcher	<i>Empidonax minimus</i>	E
	Invertebrates	Kentucky cave shrimp, Mammoth cave shrimp	<i>Palaemonias ganteri</i>	E*
		NA	<i>Scoterpes copei</i>	T
		spectacle case, spectaclecase	<i>Cumberlandia monodonta</i>	E
		fanshell	<i>Cyprogenia stegaria</i>	E*
		northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E*
		snuffbox	<i>Epioblasma triquetra</i>	E
		longsolid, long-solid	<i>Fusconaia subrotunda</i>	S
		pink mucket	<i>Lampsilis abrupta</i>	E*
		pocketbook	<i>Lampsilis ovata</i>	E
		golf stick pearly mussel, ring pink, ring pink mussel	<i>Obovaria retusa</i>	E*
		sheepnose	<i>Plethobasus cyphus</i>	E
		clubshell	<i>Pleurobema clava</i>	E*
		rough pigtoe	<i>Pleurobema plenum</i>	E*
		pyramid pigtoe	<i>Pleurobema rubrum</i>	E
		Kentucky creekshell	<i>Villosa ortmanni</i>	T
		clubshell	<i>Pleurobema clava</i>	E
	Fish	spotted darter	<i>Etheostoma maculatum</i>	T
		northern cavefish	<i>Amblyopsis spelaea</i>	S
		southern cavefish	<i>Typhlichthys subterraneus</i>	S
	Reptiles/Amphibians	corn snake	<i>Elaphe guttata</i>	S
		coal skink	<i>Eumeces anthracinus</i>	T
	Plants	delta arrowhead	<i>Sagittaria platyphylla</i>	T
		sessilefruit arrowhead, sessile-fruited arrowhead	<i>Sagittaria rigida</i>	E
		heartleaf pondweed, spotted pondweed	<i>Potamogeton pulcher</i>	T
		cutleaf meadowparsnip	<i>Thaspium pinnatifidum</i>	T
		Eggert's sunflower	<i>Helianthus eggertii</i>	T
		western dwarf dandelion	<i>Krigia occidentalis</i>	E
		tansy rosinweed	<i>Silphium pinnatifidum</i>	S
		cypressknee sedge	<i>Carex decomposita</i>	T
		fringed nutrush	<i>Scleria ciliata</i>	E

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Mammoth Cave (continued)	Plants (continued)	creeping mannagrass	<i>Glyceria acutiflora</i>	E
		bearded skeletongrass	<i>Gymnopogon ambiguus</i>	S
		rough dropseed	<i>Sporobolus clandestinus</i>	T
		redtwig doghobble	<i>Leucothoe recurva</i>	E
		roundhead lespedeza	<i>Lespedeza capitata</i>	S
		stuves lespedeza, tall lespedeza	<i>Lespedeza stuevei</i>	S
		twining snoutbean	<i>Rhynchosia tomentosa</i>	E
		buffalo clover	<i>Trifolium reflexum</i>	E
		American chestnut	<i>Castanea dentata</i>	E
		water oak	<i>Quercus nigra</i>	T
		maroon Carolina milkvine	<i>Matelea carolinensis</i>	E
		yellow screwstem	<i>Bartonia virginica</i>	T
		downy gentian	<i>Gentiana puberulenta</i>	E
		butternut	<i>Juglans cinerea</i>	S
		narrowleaf bluecurls	<i>Trichostema setaceum</i>	E
		eastern sweetshrub	<i>Calycanthus floridus</i> var. <i>glaucus</i>	T
		wood lily	<i>Lilium philadelphicum</i>	T
		false Solomons seal, starry false lily of the vally, starry false Solomon's seal	<i>Maianthemum stellatum</i>	E
		little evening-primrose	<i>Oenothera perennis</i>	E
		spinulose wood fern, spinulose woodfern	<i>Dryopteris carthusiana</i>	S
		French's shootingstar	<i>Dodecatheon frenchii</i>	S
		fox grape	<i>Vitis labrusca</i>	S
		agrimony, tall hairy agrimony, tall hairy grooveburr	<i>Agrimonia gryposepala</i>	T
		Allegheny brookfoam	<i>Boykinia aconitifolia</i>	T
		spreading yellow false foxglove	<i>Aureolaria patula</i>	S
		September elm	<i>Ulmus serotina</i>	S
		prostrate blue violet	<i>Viola walteri</i>	T
Cane River Creole	Both NPSpecies and park unit staff report no state-listed species.			
Jean Lafitte	Both NPSpecies and park unit staff report no state-listed species.			

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gulf Islands	Mammals	Perdido Key Beach mouse	<i>Peromyscus polionotus trissyllepsis</i>	FL: E*
		West Indian manatee	<i>Trichechus manatus latirostris</i>	FL: E; MS: E*
		blue whale	<i>Balaenoptera musculus</i>	FL: E; MS: E*
		finback whale	<i>Balaenoptera physalus</i>	FL: E; MS: E*
		humpback whale	<i>Megaptera novaeangliae</i>	FL: E; MS: E*
		sei whale	<i>Balaenoptera borealis</i>	FL: E; MS: E*
		sperm whale	<i>Physeter macrocephalus</i>	FL: E; MS: E*
		Louisiana black bear	<i>Ursus americanus luteolus</i>	MS: E*
		Florida black bear	<i>Ursus Aamericanus floridanus</i>	FL: T;
	Birds	burrowing owl	<i>Athene cunicularia</i>	FL: SSC
		southeastern snowy plover	<i>Charadrius alexandrinus tenuirostris</i>	MS: E*
		snowy plover	<i>Charadrius alexandrinus</i>	FL: T; MS: E
		piping plover	<i>Charadrius melodus</i>	FL: T; MS: E*
		Marian's marsh wren	<i>Cistothorus palustris marianae</i>	FL: SSC
		little blue heron	<i>Egretta caerulea</i>	FL: SSC
		reddish egret	<i>Egretta rufescens</i>	FL: SSC
		snowy egret	<i>Egretta thula</i>	FL: SSC
		tricolored heron	<i>Egretta tricolor</i>	FL: SSC
		white ibis	<i>Eudocimus albus</i>	FL: SSC
		Peregrine falcon	<i>Falco peregrinus</i>	MS: E
		Southeastern American kestrel	<i>Falco sparverius paulus</i>	FL: T
		Mississippi sandhill crane	<i>Grus canadensis pulla</i>	MS: E*
		American oystercatcher	<i>Haematopus palliatus</i>	FL: SSC
		bald eagle	<i>Haliaeetus leucocephalus</i>	MS: E
		wood stork	<i>Mycteria americana</i>	FL: E; MS: E*
		osprey	<i>Pandion haliaetus</i>	FL: SSC
		brown pelican	<i>Pelecanus occidentalis</i>	FL: SSC; MS: E
		red-cockaded woodpecker	<i>Picoides borealis</i>	FL: E; MS: E*
		black skimmer	<i>Rynchops niger</i>	FL: SSC
		least tern	<i>Sterna antillarum</i>	FL: T; MS: E
	Reptiles/Amphibians	American alligator	<i>Alligator mississippiensis</i>	FL: SSC
		loggerhead turtle	<i>Caretta caretta</i>	FL: T; MS: E*
		green sea turtle	<i>Chelonia mydas</i>	FL: T; MS: E*
		leatherback turtle	<i>Dermochelys coriacea</i>	FL: E; MS: E*

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gulf Islands (continued)	Reptiles/Amphibians (continued)	Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	FL: E; MS: E*
		hawksbill sea turtle	<i>Eretmochelys imbricata</i>	FL: E; MS: E*
		eastern indigo snake	<i>Drymarchon corais couperi</i>	FL: T; MS: E*
		gopher tortoise	<i>Gopherus polyphemus</i>	FL: T; MS: E*
		alligator snapping turtle	<i>Macrolemys temminckii</i>	FL: SSC*
		gulf salt marsh snake	<i>Nerodia clarkii clarkii</i>	MS: E*
		Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	FL: SSC*
		black pine snake	<i>Pituophis melanoleucus lodiingi</i>	MS: E*
		dusky gopher frog	<i>Rana capito sevosa</i>	MS: E*
		Alabama redbelly turtle	<i>Pseudemys alabamensis</i>	MS: E*
		Mississippi diamondback terrapin	<i>Malaclemys terrapin pileata</i>	MS: E*
	Fish	gulf sturgeon	<i>Acipenser oxyrhynchus desotoi</i>	FL: SSC; MS: E*
		saltmarsh topminnow	<i>Fundulus jenkinsi</i>	FL: SSC; MS: E*
		smalltooth sawfish	<i>Pristis pectinata</i>	FL: E*
		Alabama shad	<i>Alosa alabamae</i>	FL: SSC; MS: SSC*
		opossum pipefish	<i>Microphis brachyurus lineatus</i>	FL: SSC; MS: SSC*
		dusky shark	<i>Carcharhinus obscurus</i>	FL: SSC; MS: SSC*
		sand tiger shark	<i>Carcharias taurus</i>	FL: SSC; MS: SSC*
		speckled hind	<i>Epinephelus drummondhayi</i>	FL: SSC; MS: SSC*
		Warsaw grouper	<i>Epinephelus nigritus</i>	FL: SSC; MS: SSC*
		scalloped hammerhead shark	<i>Sphyrna lewini</i>	FL: C; MS: C
		key silverside	<i>Mendia conchorum</i>	FL: SSC*
		mangrove rivulus	<i>Rivulus marmoratus</i>	FL: SSC*
	Invertebrates	elkhorn coral	<i>Acropora palmata</i>	FL: T*
		staghorn coral	<i>Acropora cervicornis</i>	FL: T*
		boulder star coral	<i>Montastraea annularis</i>	FL: C*
		boulder star coral	<i>Montastraea franksi</i>	FL: C*
		elliptical star coral	<i>Dichocoenia stokesii</i>	FL: C
		Lamarck's sheet coral	<i>Agaricia lamarcki</i>	FL: C
		pillar coral	<i>Dendrogyra cylindrus</i>	FL: C

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Gulf Islands (continued)	Invertebrates (continued)	mountainous star coral	<i>Montastraea faveolata</i>	FL: C
		rough cactus coral	<i>Mycetophyllia ferox</i>	FL: C
		ivory bush coral	<i>Oculina varicosa</i>	FL: SSC*
	Plants	Cruise's golden aster	<i>Chrysopsis gossypina cruiseana</i>	FL: E
		Florida perforate cladonia	<i>Cladonia perforata</i>	FL: E*
		Gulf Coast lupine	<i>Lupinus westianus</i>	FL: T
		Louisiana quillwort	<i>Isoetes louisianensis</i>	MS: E*
Fort Union Trading Post	Both NPSpecies and park unit staff report no state-listed species.			
Theodore Roosevelt	Both NPSpecies and park unit staff report no state-listed species.			
Carlsbad Caverns	Birds	Lucifer hummingbird	<i>Calothorax lucifer</i>	T
		Costa's hummingbird	<i>Calypte costae</i>	T
		Baird's sparrow	<i>Ammodramus bairdii</i>	T
		thick-billed kingbird	<i>Tyrannus crassirostris</i>	E
		gray vireo	<i>Vireo vicinior</i>	T
		neotropic cormorant	<i>Phalacrocorax brasilianus</i>	T
	Fish	Rio Grande cooter	<i>Pseudemys gorzugi</i>	T
		greenthroat darter	<i>Etheostoma lepidum</i>	T
	Reptiles/Amphibians	gray-banded kingsnake	<i>Lampropeltis alterna</i>	E
		blotched watersnake	<i>Nerodia erythrogaster transversa</i>	E
		mottled rock rattlesnake	<i>Crotalus lepidus lepidus</i>	T
	Plants	shining corralroot	<i>Hexalectris nitida</i>	E
		Guadalupe leastdaisy, Hershey aster	<i>Chaetopappa hersheyi</i>	SOC
		five-flowered rockdaisy	<i>Perityle quinqueflora</i>	SOC
		yellowseed fiddleleaf	<i>Nama xylopodum</i>	SOC
		sparseflower jewelflower	<i>Streptanthus sparsiflorus</i>	SOC
		long-tubercled coryphantha	<i>Coryphantha scheeri</i> var. <i>scheeri</i>	SOC
		Lee pincushion	<i>Escobaria sneedii</i> var. <i>leei</i>	E
		Sneed pincushion	<i>Escobaria sneedii</i> var. <i>sneedii</i>	E
		great sage	<i>Salvia summa</i>	SOC
		cardinal beardtongue	<i>Penstemon cardinalis</i> ssp. <i>Regalis</i>	SOC

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Hopewell Culture NHP	Mammals	big brown bat	<i>Eptesicus fuscus</i>	OH: SC
		little brown bat, little brown myotis	<i>Myotis lucifugus</i>	OH: SC
		northern long-eared bat, northern myotis	<i>Myotis septentrionalis</i>	OH: SC
		Indiana bat	<i>Myotis sodalis</i>	OH: E, E*
	Birds	sharp-shinned hawk	<i>Accipiter striatus</i>	OH: SC
		northern harrier	<i>Circus cyaneus</i>	OH: E
		bald eagle	<i>Haliaeetus leucocephalus</i>	OH: T
		black vulture	<i>Coragyps atratus</i>	OH: SC
		osprey, western osprey	<i>Pandion haliaetus</i>	OH: T
		northern pintail	<i>Anas acuta</i>	OH: SI
		American wigeon	<i>Anas americana</i>	OH: SI
		northern shoveler	<i>Anas clypeata</i>	OH: SI
		eurasian teal, greenwinged teal	<i>Anas crecca</i>	OH: SI
		gadwall	<i>Anas strepera</i>	OH: SI
		redhead	<i>Aythya americana</i>	OH: SI
		ruddy duck	<i>Oxyura jamaicensis</i>	OH: SI
		common tern	<i>Sterna hirundo</i>	OH: E
		upland sandpiper	<i>Bartramia longicauda</i>	OH: T
		Wilson's phalarope	<i>Phalaropus tricolor</i>	OH: SI
		Peregrine falcon	<i>Falco peregrinus</i>	OH: T
		northern bobwhite	<i>Colinus virginianus</i>	OH: SC
		sandhill crane	<i>Grus canadensis</i>	OH: E
		common moorhen	<i>Gallinula chloropus</i>	OH: SC
		sora	<i>Porzana carolina</i>	OH: SC
		king rail	<i>Rallus elegans</i>	OH: E
		Virginia rail	<i>Rallus limicola</i>	OH: SC
		blue grosbeak	<i>Guiraca caerulea</i>	OH: SI
		brown creeper	<i>Certhia americana</i>	OH: SI
		Henslow's sparrow	<i>Ammodramus henslowii</i>	OH: SC
		lark sparrow	<i>Chondestes grammacus</i>	OH: E
		dark-eyed junco	<i>Junco hyemalis</i>	OH: T
		pine siskin	<i>Carduelis pinus</i>	OH: SI
		purple finch	<i>Carpodacus purpureus</i>	OH: SI
		bobolink	<i>Dolichonyx oryzivorus</i>	OH: SC
		western meadowlark	<i>Sturnella neglecta</i>	OH: SI
		loggerhead shrike	<i>Lanius ludovicianus</i>	OH: E

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Hopewell Culture NHP (continued)	Birds (continued)	black-throated blue warbler	<i>Dendroica caerulescens</i>	OH: SI
		cerulean warbler	<i>Dendroica cerulea</i>	OH: SC
		blackburnian warbler	<i>Dendroica fusca</i>	OH: SI
		Kirtland's warbler, Kirtland's wood warbler	<i>Dendroica kirtlandii</i>	OH: E, E*
		magnolia warbler	<i>Dendroica magnolia</i>	OH: SI
		mourning warbler	<i>Oporornis philadelphia</i>	OH: SI
		prothonotary warbler	<i>Protonotaria citrea</i>	OH: SC
		northern waterthrush	<i>Seiurus noveboracensis</i>	OH: SI
		golden-winged warbler	<i>Vermivora chrysoptera</i>	OH: E
		Canada warbler	<i>Wilsonia canadensis</i>	OH: SI
		golden-crowned kinglet	<i>Regulus satrapa</i>	OH: SI
		red-breasted nuthatch	<i>Sitta canadensis</i>	OH: SI
		marsh wren	<i>Cistothorus palustris</i>	OH: SC
		sedge wren	<i>Cistothorus platensis</i>	OH: SC
		Bewick's wren	<i>Thryomanes bewickii</i>	OH: E
		winter wren	<i>Troglodytes troglodytes</i>	OH: SI
		hermit thrush	<i>Catharus guttatus</i>	OH: T
		least flycatcher	<i>Empidonax minimus</i>	OH: T
		Bell's vireo	<i>Vireo bellii</i>	OH: SI
		American bittern	<i>Botaurus lentiginosus</i>	OH: E
		cattle egret, western cattle egret	<i>Bubulcus ibis</i>	OH: E
		little blue heron	<i>Egretta caerulea</i>	OH: SI
		snowy egret	<i>Egretta thula</i>	OH: E
		least bittern	<i>Ixobrychus exilis</i>	OH: T
		black-crowned night heron, black-crowned night-heron	<i>Nycticorax nycticorax</i>	OH: T
		yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	OH: E
		chuck-will's-widow	<i>Caprimulgus carolinensis</i>	OH: SI
		northern saw-whet owl	<i>Aegolius acadicus</i>	OH: SI
		short-eared owl	<i>Asio flammeus</i>	OH: SI
		long-eared owl	<i>Asio otus</i>	OH: SI
		barn owl, common barn-owl	<i>to alba</i>	OH: T
		rough green snake, rough greensnake	<i>Opheodrys aestivus</i>	OH: SC
		queen snake, queensnake	<i>Regina septemvittata</i>	OH: SC
		smooth earth snake, smooth earthsnake	<i>Virginia valeriae</i>	OH: SC

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Hopewell Culture NHP (continued)	Birds (continued)	common box turtle, eastern box turtle	<i>Terrapene carolina</i>	OH: SC
	Plants	arborvitae, eastern white	<i>Thuja occidentalis</i>	OH: P
		spreading sedge	<i>Carex laxiculmis</i>	OH: P
		ovate spikerush, ovoid spikerush, ovoid spikerush	<i>Eleocharis ovata</i>	OH: E
Washita Battlefield	None listed			
Flight 93 National Memorial	Work in progress			
Fort Necessity National Battlefield	Birds	yellow-bellied flycatcher	<i>Empidonax flaviventris</i>	PA: PE
	Plants	American yew	<i>Taxus canadensis</i>	PA: TU
		purple bluets	<i>Houstonia purpurea</i> var. <i>purpurea</i>	PA: TU
		pawpaw	<i>Asimina triloba</i>	PA: N
		bushy St. John's-wort	<i>Hypericum densiflorum</i>	PA: PT
		southern adder's-tongue	<i>Ophioglossum vulgatum</i>	PA: PX
		red pine	<i>Pinus resinosa</i>	PA: N
		slender wheatgrass	<i>Elymus trachycaulus</i>	PA: N
Friendship Hill National Historic Site	Birds	bald eagle	<i>Haliaeetus leucocephalus</i>	PA: PT
		osprey	<i>Pandion haliaetus</i>	PA: PT
		yellow-bellied flycatcher	<i>Empidonax flaviventris</i>	PA: PE
	Plants	harbinger-of-spring	<i>Erigenia bulbosa</i>	PA: PT
		mistflower	<i>Conoclinium coelestinum</i>	PA: N
		sourwood	<i>Oxydendrum arboreum</i>	PA: TU
		pawpaw	<i>Asimina triloba</i>	PA: N
		red pine	<i>Pinus resinosa</i>	PA: N
		wild-oat	<i>Chasmanthium latifolium</i>	PA: TU
		blue monkshood	<i>Aconitum uncinatum</i>	PA: PT
		white morning-glory	<i>Ipomoea lacunosa</i>	PA: N
Johnstown Flood National Memorial	Reptiles/Amphibians	smooth green snake	<i>Liochlorophis vernalis</i>	SOC
Steamtown National Historic Site	Park has not determined whether state-listed special status species occur within the current park boundary			
Upper Delaware Scenic and Recreational River	Birds	bald eagle	<i>Haliaeetus leucocephalus</i>	NY: T
	Invertebrates	dwarf wedgemussel	<i>Alasmidonta heterodon</i>	NY: E; PA: E*
		brook floater mussel	<i>Alasmidonta varicosa</i>	NY: T
	Fish	bridle shiner	<i>Notropis bifrenatus</i>	PA: E*
	Reptiles/Amphibians	timber rattlesnake	<i>Crotalus horridus</i>	NY: T
	Plants	riverweed	<i>Podostemum ceratophyllum</i>	NY: T

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Guadalupe Mountains	Birds	Mexican spotted owl	<i>Strix occidentalis lucida</i>	T
	Plants	sneed pincushion cactus	<i>Coryphantha sneedii</i> var. <i>sneedii</i>	E
Palo Alto Battlefield	Birds	white-tailed hawk	<i>Buteo albicaudatus</i>	T
		wood stork	<i>Mycteria americana</i>	T
		Texas Botteri's sparrow	<i>Aimophila botterii texana</i>	T
		white-faced ibis	<i>Plegadis chihi</i>	T
	Reptiles/Amphibians	regal black-striped snake	<i>Coniophanes imperialis</i>	T
		Texas horned lizard	<i>Phrynosoma cornutum</i>	T
		Berlandier's tortoise, Texas tortoise	<i>Gopherus berlandieri</i>	T
		Mexican smilisca, Mexican treefrog	<i>Smilisca baudinii</i>	T
San Antonio Missions	Birds	Peregrine falcon	<i>Falco peregrinus</i>	T
	Reptiles/Amphibians	Texas tortoise	<i>Gopherus berlandieri</i>	T
Glen Canyon	Mammals	big free-tailed bat	<i>Nyctinomops macrotis</i>	UT: SC
		mule-eared bat, Townsend's big-eared	<i>Corynorhinus townsendii</i>	UT: SC
		spotted bat	<i>Euderma maculatum</i>	AZ: WSC; UT: SC
		Allen's big-eared bat	<i>Idionycteris phyllotis</i>	UT: SC
		fringed myotis	<i>Myotis thysanodes</i>	UT: SC
		silky pocket mouse	<i>Perognathus flavus</i>	UT: SC
	Birds	northern goshawk	<i>Accipiter gentilis</i>	AZ: WSC; UT: CS
		Ferruginous hawk	<i>Buteo regalis</i>	AZ: WSC; UT: SC
		bald eagle	<i>Haliaeetus leucocephalus</i>	AZ: WSC; UT: SC
		California condor	<i>Gymnogyps californianus</i>	AZ: WSC; UT: E
		osprey	<i>Pandion haliaetus</i>	AZ: WSC
		long-billed curlew	<i>Numenius americanus</i>	UT: SC
		yellow-billed cuckoo	<i>Coccyzus americanus</i>	AZ: WSC; UT: C
		Peregrine falcon	<i>Falco peregrinus</i>	AZ: WSC
		sandhill crane	<i>Grus americana</i>	UT: E
		grasshopper sparrow	<i>Ammodramus savannarum</i>	UT: SC
		bobolink	<i>Dolichonyx oryzivorus</i>	AZ: WSC; UT: SC
		gray catbird	<i>Dumetella carolinensis</i>	AZ: WSC
		American redstart	<i>Setophaga ruticilla</i>	AZ: WSC

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Glen Canyon (continued)	Birds (continued)	willow flycatcher	<i>Empidonax traillii</i>	AZ: WSC, *E
		great egret	<i>Ardea alba</i>	AZ: WSC
		snowy egret	<i>Egretta thula</i>	AZ: WSC
		American white pelican	<i>Pelecanus erythrorhynchos</i>	UT: SC
		Lewis's woodpecker	<i>Melanerpes lewis</i>	UT: SC
		Clark's grebe	<i>Aechmophorus clarkii</i>	AZ: WSC
		burrowing owl	<i>Athene cunicularia</i>	UT: SC
		spotted owl	<i>Strix occidentalis</i>	AZ: WSC
	Reptiles/Amphibians	western banded gecko	<i>Coleonyx variegatus</i>	UT: SC
		desert night lizard	<i>Xantusia vigilis</i>	UT: SC
		northern leopard frog	<i>Rana pipiens</i>	AZ: WSC
	Fish	bluehead sucker	<i>Catostomus discobolus</i>	UT: CS
		flannelmouth sucker	<i>Catostomus latipinnis</i>	UT: CS
		razorback sucker	<i>Xyrauchen texanus</i>	AZ: WSC; UT: E, E*
		humpback chub	<i>Gila cypha</i>	AZ: WSC; UT: E, E*
		bonytail, bonytail chub	<i>Gila elegans</i>	AZ: WSC; UT: E
		roundtail chub	<i>Gila robusta</i>	AZ: WSC; UT: CS, E*
		Colorado pikeminnow, Colorado squawfish	<i>Ptychocheilus lucius</i>	AZ: WSC; UT: E, E*
	Plants	Kaibab agave	<i>Agave utahensis</i> var. <i>kaibabensis</i>	AZ: SR
		fineleaf yucca, narrowleaf yucca	<i>Yucca angustissima</i> var. <i>angustissima</i>	AZ: SR
		Kanab yucca	<i>Yucca angustissima</i> var. <i>kanabensis</i>	AZ: SR
		Engelmann's hedgehog cactus, variegated	<i>Echinocereus engelmannii</i> var.	AZ: SR
		Navajo Bridge pricklypear	<i>Opuntia nicholii</i>	AZ: SR
		great pricklypear, Mojave pricklypear	<i>Opuntia phaeacantha</i> var. <i>major</i>	AZ: SR
		Brady's hedgehog cactus, Brady's pediocactus	<i>Pediocactus bradyi</i>	AZ: HS, E*
		cave-dwelling primrose	<i>Primula specuicola</i>	AZ: SR
		Jones' cycladenia, Jones' waxy dogbane, Jones'	<i>Cycladenia humilis</i> var. <i>jonesii</i>	AZ: HS
		lonely lily, lonely-lily	<i>Eremocrinum albomarginatum</i>	AZ: SR
		Navajo sedge	<i>Carex specuicola</i>	AZ: HS, T*

Appendix F: State-listed Special Status Species Occurring in Category 1 and Category 2 Park Units

Park Unit	Species Type	Common Name	Scientific Name	State Listing Status
Bluestone National Scenic River	Both NPSpecies and park unit staff report no state-listed species.			
Grand Teton	Both NPSpecies and park unit staff report no state-listed species.			

Sources: NPS IRMA Species Listings by Park Unit; Personal correspondence with individual park resource specialists conducted between 2010 and 2013. Correspondences are on file with LBG, Inc.

E = Endangered; T = Threatened; FP = Fully Protected; G = Global concern; S = Sensitive; SSC = Special Status Concern; SI = Special Interest; SOC = Species of Concern; S/A = Similar in Appearance; C = Candidate Species; CE = Commercially Exploited

WSC: Wildlife of Special Concern (Animal = Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep). Species indicated on printouts as WC are currently the same as those in Threatened Native Wildlife in Arizona (1988).

SP: Species Protected; LE: Listed as Endangered; SC: Wildlife Species of Concern (A wildlife species or subspecies within the state of Utah for which there is credible scientific evidence to substantiate a threat to continued population viability.); LE: Listed as Endangered; LT: Listed as Threatened; PT: Pennsylvania Threatened (Species that may become endangered within the foreseeable future throughout their range in Pennsylvania unless the casual factors affecting the organism are abated)

* Also federally listed

APPENDIX G: FEDERALLY LISTED SPECIES LIKELY TO OCCUR NEAR WELLS IN CATEGORY 1 PARKS

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
Lake Meredith and Alibates Flint Quarries	Mammals	Black-footed Ferret	<i>Mustela nigripes</i>	E	Yes	Prairie dog towns in grasslands, steppe and shrub steppe	10 (1-Blue Grama, 9-Upland Slopes)
	Birds	Interior Least Tern	<i>Sterna antillarum athalassos</i>	E	Yes	Beaches and sandbars	1 (Drawdown Areas)
		Lesser Prairie-chicken	<i>Tympanuchus pallidicinctus</i>	T	Yes	Mixed grass-dwarf shrub communities that occur on sandy soils	12 (1-Blue Grama, 2-Sand Sagebrush, 9-Upland Slopes)
		Northern Aplomado falcon	<i>Falco femoralis septentrionalis</i>	E	Yes	Open rangeland and savanna, semiarid grasslands with scattered trees and shrubs	17 (1-Blue Grama, 5-Honey Mesquite, 2-Sand Sagebrush, 9-Upland Slopes)
		Whooping Crane	<i>Grus americana</i>	E	No	During migration, prefers marshes, shallow lakes, lagoons, grain and stubble fields, and barrier islands. Nesting occurs in dense emergent vegetation in shallow ponds.	2 (1-Drawdown Areas, 1-Perennial Bottomland)
	Fish	Arkansas River Shiner	<i>Notropis girardi</i>	T	No	Turbid, freshwater, broad, shallow, and unshaded channels of creeks and small to large rivers, over mostly silt and shifting sand bottoms.	None
	Plants	Slender rushpea	<i>Hoffmannseggia tenella</i>	E	No	Sparsely vegetated openings within bluestem-sacahuista grasslands on heavy clay soils of the South Texas Coastal Plain.	None

Appendix G: Federally Listed Species Likely to Occur Near Wells in Category 1 Parks

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
Aztec Ruins	Mammals	Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SOC	No	Mesic habitats characterized by coniferous and deciduous forests, and nearby caves, mine tunnels, and other old buildings.	None
	Birds	Yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	C	No	Deciduous riparian woodland, especially including dense stands of cottonwood and willow.	None
Big Thicket	Mammals	Louisiana black bear	<i>Ursus americanus luteolus</i>	T	No	Diverse, productive bottomland forest with diverse food resources, including a variety of hard-mast-producing species, and little to no human activity.	1 (1-Lower Slope Hardwood Pine)
	Birds	Least Tern	<i>Sterna antillarum</i>	T	No	Beaches and sandbars.	None
		Eskimo Curlew	<i>Numenius borealis</i>	E	No	Nests in open arctic tundra, but inhabits beaches, grasslands, pastures, and plowed fields.	None
		Wood Stork	<i>Mycteria americana</i>	E	No	Mainly freshwater wooded (cypress trees, mangroves, dead hardwoods) lagoons, but also occurs along brackish wetlands and flooded fields, and on islands adjacent to stream or shallow lakes.	None
		Red-cockaded Woodpecker	<i>Picoides borealis</i>	E	Yes	Broad savanna with a scattered overstory of large pines and a dense groundcover containing a diversity of grass, forb, and shrub species.	1 (1-Lower Slope Hardwood Pine)

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
	Plants	Texan phlox, Texas trailing phlox	<i>Phlox nivalis ssp. texensis</i>	E	Yes	Deep, sandy soils in fire-maintained openings in upland longleaf pine savannahs or post oak-bluejack oak woodlands.	1 (1-Lower Slope Hardwood Pine)
Big Southfork and Obed	Fish	Duskytail darter	<i>Etheostoma percnurum</i>	E	No	Gravel, rubble, and slabrock pools and runs of small to medium rivers.	None
		Blackside dace	<i>Phoxinus cumberlandensis</i>	T	No	Small upland headwaters and creeks 2-5 meters wide where riffle and pool areas are about equal, and substrates are sand, sandstone, and shale.	None
		Palezone shiner	<i>Notropis albizonatus</i>	E	No	Upland large creeks and small rivers with permanent flow, in runs and flowing upper portions of pools over clean substrates of bedrock, cobble, and gravel mixed with clean sand.	None
	Invertebrates	Cumberland elktoe	<i>Alasmidonta atropurpurea</i>	E	No	Small creeks to medium-sized river with shallow flats or pools with slow current and sand substrate with scattered cobble/boulder material.	None
		Cumberlandian combshell	<i>Epioblasma brevidens</i>	E	No	Typically at depths of less than one meter, in large creeks to large rivers, in substrates ranging from coarse sand to mixtures of gravel, cobble, and boulder-sized particles.	None

Appendix G: Federally Listed Species Likely to Occur Near Wells in Category 1 Parks

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
		Cumberland bean	<i>Villosa trabalis</i>	E	No	Buried in shallow riffle and shoal areas, often located under large rocks, at depths less than 1 meter.	None
		Little-wing pearlymussel	<i>Pegias fabula</i>	E	No	At the head of riffles of small, cool streams with sand and fine gravel between cobble in 6-10 inches of water.	None
		Tan riffleshell	<i>Epioblasma florentina walkeri</i>	E	No	Freshwater headwaters, riffles, and shoals in sand and gravel substrates.	None
		Dromedary pearlymussel	<i>Dromus dromas</i>	E	No	Clean, fast-flowing water in substrates that contain relatively firm rubble, gravel, and stable, clean substrates.	None
		Oyster mussel	<i>Epioblasma capsaeformis</i>	E	No	Moderate to swift currents in large creeks and rivers in substrates composed of coarse sand and gravel to boulder-sized particles.	None
		Spectaclecase	<i>Cumberlandia monodonta</i>	C	No	In firm mud between large rocks in quiet water very near the interface with swift currents of large rivers.	None
		Clubshell	<i>Pleurobema clava</i>	E	No	Sand/gravel substrate in riffle/run situations in less than 1.5 feet of water, in small to medium-sized rivers.	None

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
		Fluted kidneyshell	<i>Ptychobranthus subtentum</i>	C	No	Sand, gravel, and cobble substrates in small to medium rivers, in areas with swift currents or riffles with flowing, well-oxygenated waters.	None
	Plants	Cumberland sandwort	<i>Minuartia cumberlandensis</i>	E	No	Found on the sandy floors of cool, humid, cave-like overhangs called rock houses, which are formed through the differential weathering of sandstone strata ledges.	None
		Virginia spiraea	<i>Spiraea virginiana</i>	T	Yes	Periodically flood-scoured banks of high-gradient mountain streams in areas with deciduous trees and shrubs, and sometimes associated with an herbaceous wetland.	50 (24-Lowland or Submontane Cold Deciduous Forests, 23-Successional Forests, 3-Upland Deciduous Forests)
		Cumberland rosemary	<i>Conradina verticillata</i>	T	No	Boulder/cobble/gravel-bars, sand bars and islands, sandy river banks, floodplains in river gorges, and similar sunny riparian areas where seasonal flooding minimizes competition and creates new gravel-bar habitats.	None
		White fringeless orchid	<i>Platanthera integrilabia</i>	C	No	Wet, flat, boggy areas at the head of streams or seepage slopes.	None

Appendix G: Federally Listed Species Likely to Occur Near Wells in Category 1 Parks

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
Cuyahoga Valley	Mammals	Indiana bat	<i>Myotis sodalis</i>	E	Yes	Hibernates in caves; maternity sites generally are behind loose bark of dead or dying trees or in tree cavities; foraging habitats include riparian areas, upland forests, ponds, and fields.	50 (5-Cultivated Crops, 19-Deciduous Forest, 8-Open Space Developed, 8-Grassland, 10-Pasture)
		Northern long-eared bat	<i>Myotis septentrionalis</i>	SOC	Yes	Old-growth forests composed of trees 100 years old or older, with intact interior forest habitat, uneven forest structure (resulting in multilayered vertical structure), single and multiple tree-fall gaps, standing snags, and woody debris.	4-Evergreen Forests
	Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	SOC	Yes	Breeding habitat most commonly includes areas close to (within 4 km) coastal areas, bays, rivers, lakes, reservoirs, or other bodies of water that reflect the general availability of primary food sources including fish, waterfowl, or seabirds.	23 (19-Deciduous Forest, 4-Evergreen Forests)
		Henslow's sparrow	<i>Ammodramus henslowii</i>	SOC	Yes	Open fields and meadows with grass interspersed with weeds or shrubby vegetation, especially in damp or low-lying areas.	32 (5-Cultivated Crops, 8-Open Space Developed, 8-Grassland, 10-Pasture, 1-Shrub)
		Cerulean warbler	<i>Dendroica cerulea</i>	SOC	Yes	A structurally mature hardwood forest in a mesic or wetter situation, with a closed canopy.	23 (19-Deciduous Forest, 4-Evergreen Forest)

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
	Reptiles/ Amphibians	Blanding's turtle	<i>Emydoidea blandingii</i>	SOC	No	Waters with soft bottom and aquatic vegetation, such as marshes, ponds, swamps, lake shallows, backwater sloughs, shallow slow-moving rivers, protected coves and inlets of large lakes, oxbows, and pools adjacent to rivers.	None
Cumberland Gap	Mammals	Indiana bat	<i>Myotis sodalis</i>	E	Unknown	Hibernates in caves; maternity sites generally are behind loose bark of dead or dying trees or in tree cavities; foraging habitats include riparian areas, upland forests, ponds, and fields.	Unknown Vegetation Types
		Gray Bat	<i>Myotis grisescens</i>	E	Unknown	In caves with adjacent forested areas along the banks of streams and lakes.	Unknown Vegetation Types
	Fish	Blackside dace	<i>Phoxinus cumberlandensis</i>	E	No	Small upland headwaters and creeks 2-5 meters wide where riffle and pool areas are about equal, and substrates are sand, sandstone, and shale.	None
Gauley River	Mammals	Virginia big-eared bat	<i>Corynorhinus townsendii</i>	E	Yes	Limestone karst regions dominated by mature hardwood forests of hickory, beech, maple, and hemlock.	7 (1-Hemlock, 5-Oak Forests, 1-Oak-Ericad Forest)
		Indiana bat	<i>Myotis sodalis</i>	E	Yes	Hibernates in caves; maternity sites generally are behind loose bark of dead or dying trees or in tree cavities; foraging habitats include riparian areas, upland forests, ponds, and fields.	7 (1-Hemlock, 5-Oak Forests, 1-Oak-Ericad Forest)

Appendix G: Federally Listed Species Likely to Occur Near Wells in Category 1 Parks

Park Unit	Species Type	Common Name	Scientific Name	Listing Status	Likely to Occur Near Wells?	Preferred Habitat	Likely Number of Wells Corresponding to Preferred Habitat
		Allegheny woodrat	<i>Neotoma magister</i>	SOC	No	Extensive rocky areas such as outcrops, cliffs, talus slopes with boulders and crevices, and caves.	None
	Invertebrates	Diana fritillary	<i>Speyeria diana</i>	SOC	Yes	Deciduous or mixed forest with a lot of violets in the understory.	7 (1-Hemlock, 5-Oak Forests, 1-Oak-Ericad Forest)
	Plants	Virginia spiraea	<i>Spiraea virginiana</i>	T	Yes	Periodically flood-scoured banks of high-gradient mountain streams in areas with deciduous trees and shrubs, and sometimes associated with a herbaceous wetland.	7 (1-Hemlock, 5-Oak Forests, 1-Oak-Ericad Forest)
		Running buffalo clover	<i>Trifolium stoloniferum</i>	E	Yes	Mesic woodlands in partial to filtered sunlight, where there is periodic disturbance for a prolonged period (e.g., mowing, trampling, or grazing).	7 (1-Hemlock, 5-Oak Forests, 1-Oak-Ericad Forest)

Source: NPS IRMA Species Listings by Park Unit; Personal correspondence with individual park resource specialists conducted between 2010 and 2013. Correspondences are on file with LBG, Inc.

E = Endangered; T = Threatened; SOC = Species of Concern; C = Candidate Species

APPENDIX H: CONSULTATION LETTERS AND RESPONSES

TRIBAL CONSULTATION



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

November 14, 2013



Dear :

The National Park Service (NPS) is preparing a Draft Programmatic Environmental Impact Statement (DEIS) on revisions to nonfederal oil and gas rights regulations Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). In our effort to involve you in this planning effort, I am writing to update you about this project and to inquire if you desire to consult with the NPS regarding the proposed project. The DEIS and Proposed Rule will be released for public comment in 2014. We will consult again with you when the DEIS and Proposed Rule is released. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty years and have not been substantively updated during that period. The EIS will analyze a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations will also be analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one affiliated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future operations).

The 9B regulations control all activities associated with nonfederal oil and gas development inside park boundaries where access is on, across, or through federally owned or controlled lands or waters. At this time 534 nonfederal oil and gas operations exist in a total of 12 units of the National Park System.

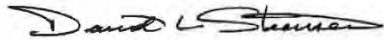
The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators,
- Ensure funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation,
- Add authority to cite operators for minor acts of noncompliance,
- Require compensation for operator's privileged use of federal lands,
- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For more information on the rulemaking effort, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. If you wish to consult with the NPS regarding this project, please write to the address above or contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov. Thank you for your consideration.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division

1/2/14

DEPARTMENT OF THE INTERIOR Mail - 9B regulations



9B regulations

Ron P. Maldonado <ronpmaldonado@navajo-nsn.gov>
To: "michael_b_edwards@nps.gov" <michael_b_edwards@nps.gov>
Cc: "edward_kassman@nps.gov" <edward_kassman@nps.gov>

Fri, Dec 27, 2013 at 11:32 AM

Gentlemen, the Navajo Nation request a formal face to face meeting with the NPS to discuss the DEIS.

Ronald P. Maldonado, acting Tribal Historic Preservation Officer
Programs Manager
Cultural Resource Compliance Section
Facility Management Program
Navajo Nation Historic Preservation Department
Ph (928) 871-7132/7145
Cell 505-870-2830
Fax (928)871-7886

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IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

April 29, 2014

Navajo Nation
Ronald P. Maldonado
Acting Tribal Historic Preservation Officer
Navajo Nation Historic Preservation Department
P.O. Box 9000
Window Rock, AZ 86515

Dear Mr. Maldonado:

Thank you for your response to the National Park Service's (NPS) initial tribal consultation letter regarding the Draft Programmatic Environmental Impact Statement (DEIS) on revisions to nonfederal oil and gas rights regulations Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations") and Proposed Rule.

Your response requested a formal face to face meeting to discuss the DEIS. We would welcome such a meeting and will follow up with you shortly regarding those details.

Please note that of the 39 NPS park units with which you are traditionally associated, this DEIS only addresses 5 units: Aztec Ruins National Monument, Dinosaur National Monument, Glen Canyon National Recreation Area, Great Sand Dunes National Park, and Mesa Verde National Park. Of these 5 units, only Aztec Ruins National Monument contains active oil and gas operations. The remaining 4 units are denoted as category 2 units for purposes of the DEIS, which means that there is the possibility that non-federal oil and gas development could occur in the future, but is not currently occurring.

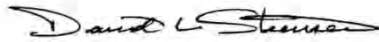
Aztec Ruins National Monument contains four active oil and gas operations. Two existing operations are currently regulated by NPS, one was directionally drilled from outside park boundaries and issued a 9.32(e) exemption, and one well is grandfathered and currently exempt from the NPS 9B Oil and Regulations. The exemption relating to this grandfathered well would be eliminated under the NPS's proposed regulatory revisions. Application of the 9B regulations to the operation of this well would then provide additional resource protection, primarily by requiring that the operator meet NPS operating standards and maintain financial assurance to ensure compliance with the regulations, including proper reclamation of the area of operation. Specific operational mitigation measures would include improved road and pad maintenance to reduce erosion and sedimentation and control vegetation. Road upgrades necessary to prevent

impacts to cultural resources would also be identified during the permit process (which would occur if the NPS proposed regulatory revision is adopted).

The proposed rule would also cover any future oil and gas operations occurring inside National Park units, including any future operations at the park units listed above. Any future operations would undergo site specific environmental compliance, as well as tribal consultation, prior to any permit being issued.

We will be in touch with you shortly regarding formal face to face consultation, and will also consult with you again when the DEIS and Proposed Rule are released. For more information on the rulemaking effort, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. You may also contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "David L. Steensen".

David L. Steensen, Chief
Geologic Resources Division



12/20/13

SAN CARLOS APACHE TRIBE
Historic Preservation & Archaeology Department
P.O. Box 0
San Carlos, Arizona 85550
Tel. (928) 475-5797. Fax (928) 475-2423

Tribal Consultation Response Letter

Date: 12/12/13

Contact Name: Raymond L. Stevenson, Chief

Company:

Address:

Project Name/ID:

Att: Michael H. Edwards
HPS.gov

Dear Sir or Madam:

Under Section 106 and 110 of the National Historic Preservation Act, we are replying to the above referenced project. Please see the appropriate marked circle, including the signatures of Vernelda Grant, Tribal Historic Preservation Officer (THPO), and the concurrence of the Chairman of the San Carlos Apache Tribe:

☐ **NO INTEREST/NO FURTHER CONSULTATION** (sign & date)

I have determined that there is not a likelihood of eligible properties of religious and cultural significance to the San Carlos Apache Tribe in the proposed project area.

☒ **CONCURRENCE WITH REPORT FINDINGS & THANK YOU** (sign & date)

☐ **REQUEST ADDITIONAL INFORMATION** (sign & date)

I require additional information in order to provide a finding of effect for this proposed undertaking, i.e. Project description ___ Map ___ Photos ___ Other ___

☐ **NO EFFECT** (sign & date)

I have determined that there are no properties of religious and cultural significance to the San Carlos Apache Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.

☐ **NO ADVERSE EFFECT** (sign & date)

Properties of cultural and religious significance within the area of effect have been identified that are eligible for listing in the National Register for which there would be no adverse effect as a result of the proposed project.

☐ **ADVERSE EFFECT** (sign & date)

I have identified properties of cultural and religious significance within the area of potential effect that are eligible for listing in the National Register. I believe the proposed project would cause an adverse effect on these properties. Please contact the THPO for further discussion.

STIPULATION: We were taught traditionally not to disturb the natural world in a significant way, and that to do so may cause harm to oneself or one's family. Apache resources can be best protected by managing the land to be as natural as it was in pre-1870s settlement times. Please contact the THPO, if there is a change in any portion of all previously discussed projects. Thank you for contacting the San Carlos Apache Tribe, your effort is greatly appreciated.

CONCURRENCE:

Terry Rambler, Tribal Chairman

Date



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

April 29, 2014

San Carlos Apache Tribe
Historic Preservation and Archaeology Department
ATTN: Vernelda Grant
PO Box 0
San Carlos, AZ 85550

Dear Chairman Rambler:


Thank you for your response to the National Park Service's (NPS) initial tribal consultation letter regarding the Draft Programmatic Environmental Impact Statement (DEIS) on revisions to nonfederal oil and gas rights regulations Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations") and Proposed Rule.

Your response requested concurrence with our report findings, and requested additional information on any occurrences within New Mexico parks. Currently, there is only one park within New Mexico, Aztec Ruins National Monument, which has active oil and gas operations (four total). Two existing operations are currently regulated by NPS, one was directionally drilled from outside park boundaries and issued a 9.32(e) exemption, and one well is grandfathered and currently exempt from the NPS 9B Oil and Regulations. Note that the exemption relating to this grandfathered well would be eliminated under the NPS's proposed regulatory revisions. Application of the 9B regulations to the operation of this well would then provide additional resource protection, primarily by requiring that the operator meet NPS operating standards and maintain financial assurance to ensure compliance with the regulations, including proper reclamation of the area of operation. Specific operational mitigation measures would include improved road and pad maintenance to reduce erosion and sedimentation and control vegetation. Road upgrades necessary to prevent impacts to cultural resources would also be identified during the permit process (which would occur if the NPS proposed regulatory revision is adopted).

The proposed rule would also cover any future oil and gas operations occurring inside National Park units, including any future operations at Aztec Ruins National Monument, Carlsbad Caverns National Park, and Chaco Culture National Historic Park. Note that there are no current oil and gas operations at Carlsbad Caverns National Park or Chaco Culture National Historic Park. Any future operations would undergo site specific environmental compliance, as well as tribal consultation, prior to any permit being issued.

We will consult with you again when the DEIS and Proposed Rule are released. For more information on the rulemaking effort, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. If you wish to consult with the NPS regarding this project, please write to the address above or contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov. Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "David L. Steensen". The signature is fluid and cursive, with the first name "David" being more prominent.

David L. Steensen, Chief
Geologic Resources Division

1/2/14 DEPARTMENT OF THE INTERIOR Mail - NPS, draft Programmatic EIS on revisions to nonfederal oil and gas rights regulations, multiple counties, multipl...



NPS, draft Programmatic EIS on revisions to nonfederal oil and gas rights regulations, multiple counties, multiple states

Johnnie L. Jacobs <jjacobs@choctawnation.com>
To: "michael_b_edwards@nps.gov" <michael_b_edwards@nps.gov>

Fri, Dec 27, 2013 at 4:23 AM

Dear Michael,

Thank you for the correspondence regarding the DEIS that will be released for public comment in 2014. The Choctaw Nation of Oklahoma would like the opportunity to review the DEIS at the earliest opportunity, and if possible, before the release to the general public. Thank you again for the early notification, we look forward to working with NPS on this review. If you have any further questions, please let us know.

Thank you,

Ms. Johnnie Jacobs
NHPA Section 106 Coordinator
Choctaw Nation of Oklahoma
Historic Preservation Department
P.O. Box 1210
Durant, OK 74701
jjacobs@choctawnation.com

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IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

April 29, 2014

Choctaw Nation of Oklahoma
NHPA Section 106 Coordinator
ATTN: Johnnie Jacobs
P.O. Box 1210
Durant, OK 74701

Dear Ms. Jacobs:

Thank you for your response to the National Park Service's (NPS) initial tribal consultation letter regarding the Draft Programmatic Environmental Impact Statement (DEIS) on revisions to nonfederal oil and gas rights regulations Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations") and Proposed Rule.

Your response requested an opportunity to review the DEIS at the earliest possible opportunity, and if possible, before the release to the general public. The NPS will respond to your request as soon as we have a document ready for printing and permission to release the DEIS, but as you indicated, preferably prior to its actual release to the general public.

For more information on the rulemaking effort, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. If you wish to consult with the NPS regarding this project, please write to the address above or contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov. Thank you for your consideration.

Sincerely,

David L. Steensen, Chief
Geologic Resources Division



LeRoy N. Shingoitewa
CHAIRMAN

Herman G. Honanie
VICE-CHAIRMAN

December 2, 2013

David L. Steensen, Chief
Attention Michael B. Edwards, Edward O. Kassman, Jr.
National Park Service, Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

Dear Mr. Steensen,

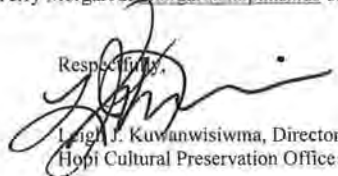
This letter is in response to your correspondence dated November 14, 2013, regarding the National Park Service (NPS) preparing a draft Programmatic Environmental Impact Statement on revisions to nonfederal oil and gas rights regulations. The Hopi Tribe claims cultural affiliation to the prehistoric cultural groups in the Southwest. The Hopi Cultural Preservation Office supports the identification and avoidance of prehistoric archaeological sites, and we consider the prehistoric archaeological sites of our ancestors to be Traditional Cultural Properties. Therefore, we appreciate the NPS's continuing solicitation of our input and your efforts to address our concerns.

Your correspondence states that the NPS has identified the Hopi Tribe as "one affiliated with one or more of the following parks units..." We continually point out to the NPS that pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA), "cultural affiliation" is defined as a shared group identity between an earlier identifiable group and a modern day tribe, and is not between a modern day tribe and a NPS place. Please use the term "traditionally associated" when referring to the relationship between modern day tribes and NPS places.

The Hopi Tribe claims cultural affiliation to the prehistoric cultural groups at Aztec Ruins in Category 1, parks that have current oil and gas operations, and Dinosaur, Great Sand Dunes, Mesa Verde, Chaco and Glen Canyon in Category 2, parks that have potential for future operations. The Hopi Cultural Preservation Office understands the Environmental Impact Statement will analyze a range of alternatives to revising existing regulations and the potential environmental impacts on park resources.

Therefore, we desire to consult with the NPS on the proposed project and look forward to receiving a copy of the Draft Environmental Impact Statement and Proposed Rule for review and comment. If you have any questions or need additional information, please contact Terry Morgart at tmorgart@hopi.nsn.us or 928-734-3619. Thank you for your consideration.

Respectfully,



Leigh J. Kuwanwisiwma, Director
Hopi Cultural Preservation Office

cc: Superintendents: Aztec, Chaco, Dinosaur, Glen Canyon, Great Sand Dunes, Mesa Verde
New Mexico and Colorado State Historic Preservation Offices

P.O. Box 123

KYKOTSMOVI, AZ 86039

(928) 734-3000



United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Julie Roemely
Office of Federal Activities
NEPA Compliance Division
1200 Pennsylvania Ave
Mailcode 2252A
Washington, DC 20004

Dear Ms. Roemely:

The National Park Service (NPS) has prepared a Notice of Proposed Rulemaking (NPRM) and Draft Programmatic Environmental Impact Statement (DEIS) on proposed revisions to its current nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21. NPS seeks your review pursuant to Section 309 of the Clean Air Act.

An electronic copy of the DEIS has been filed with EPA's E-NEPA filing system, and the proposed rule may be found at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm.

The DEIS covers eight states where there are existing operations (Texas, New Mexico, Florida, Tennessee, Kentucky, Ohio, West Virginia, Virginia), plus another thirteen states where there is no current oil and gas activity within NPS boundaries, but where future development could occur.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System where access is on, across, or through federally- owned or controlled lands or waters. The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public health and safety, and minimize adverse effects on park infrastructure and management. These regulations have been in effect for over thirty six years and have not been substantively updated during that period.

The NPS has identified a need for minor revisions to the 9B regulations, which include the following key elements:

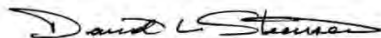
- Remove exemptions from 9B regulations for currently exempt operators
Under the proposed regulations, the NPS would eliminate two regulatory provisions that exempt 60% of the oil and gas operations in NPS units. At this time, there are 9 units of the National Park System containing a combined total of 319 active nonfederal oil and gas operations currently operating under exempt status. The proposed rule would include a procedure for bringing previously exempt operations into compliance with the 9B regulations. Under this provision, all operations within NPS boundaries would be required to obtain an operations permit.
- Ensure adequate funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation
Under the proposed regulations, the existing financial assurance limit that NPS can require per operator would be removed and replaced with an amount of financial assurance equal to the estimated cost of reclamation. With this provision in place, the NPS could conduct reclamation in the short-term using the financial assurance in the event of an operator default.
- Add authority to cite operators for minor acts of noncompliance
Under the proposed regulations, an existing penalty provision would be added to the 9B regulations which would allow the NPS to issue an operator a citation to address minor acts of noncompliance.
- Require compensation for operator's privileged use of federal lands
Under the proposed regulations, a fee for new privileged access across federal lands outside the boundary of an operator's mineral right would be authorized.

The proposed action is described more fully in Chapter 2, "Alternatives", as "Alternative B: Proposed Rule" starting on page 29, as well as in the NPRM.

This proposed rule change is programmatic in nature; no ground disturbing activities are being authorized, with the proposed rule change providing for additional resource protection and mitigation measures. Future actions will be analyzed separately and will be subject to further site specific consultation and compliance, including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act of 1966, as amended. Over the long term, this rule change would likely result in beneficial impacts on park service resources.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.


Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service

PEPC Project ID: 28329, DocumentID: 59453
Correspondence: 27

Author Information

Keep Private: No
 Name: Susan E. Bromm
 Organization: US EPA  Official Rep.
 Organization Type: F - Federal Government
 Address: N/A
 Washington, DC 20460
 USA
 E-mail:

Correspondence Information

Status: Reviewed Park Correspondence Log:
 Date Sent: Date Received: 12/28/2015
 Number of Signatures: 1 Form Letter: No
 Contains Request(s): No Type: Letter
 Notes:

Correspondence Text

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the U.S. National Park Service's (NPS) 2015 Draft Environmental Impact Statement (EIS) for the Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities (CEQ No. 20150295).

The draft EIS evaluated the impacts of two alternatives, in addition to the no action alternative. The alternatives included the following elements: 1) eliminating two regulatory provisions that exempt 60% of the oil and gas operations in NPS units. All operators in NPS units would be required to comply with the 9B regulations; 2) eliminating the financial assurance (bonding) cap. Financial assurance would be equal to the reasonable estimated cost of site reclamation; 3) improving enforcement authority by incorporating existing NPS penalty provisions. Law enforcement staff would have authority to write citations for noncompliance with the regulations; 4) authorizing compensation to the federal government for new access on federal lands outside the boundary of an operator's mineral right; and 5) reformatting the regulations to make it easier to identify an operator's information requirements and operating standards that apply to each type of operation.

EPA appreciates the efforts of the NPS to revise the 9B oil and gas regulations that have been in effect for the last 36 years. EPA supports the selection of Alternative B as the Preferred Alternative. As a result of the revisions, grandfathered/exempt nonfederal oil and gas activities on NPS lands will be subject to the NPS's 98 oil and gas regulations; in addition all operations will be subject to Regulation 9B's existing standards. We appreciate the NPS' efforts to protect public health and safety by incorporating new requirements that will ensure that all non-federal oil and gas operations conducted in

Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

Page 1 of 3

national park units avoid or minimize adverse effects on natural and cultural resources, visitor use, and park infrastructure and management.

Based on our review of the draft EIS, we offer the following comments for consideration to be included in the final EIS:

- We recommend that the final EIS address the possibility of high concentrations of radioactive elements in any waste waters and associated solids or explain why no radioactive elements are expected. The draft EIS does not mention the possibility that the produced/flowback fluid may contain radioactive elements and that the radioactive elements may become concentrated in the fluid. However, geologic formations (especially black shales) that contain oil and gas deposits (and produced water) also contain naturally-occurring radionuclides, which are referred to as Naturally Occurring Radioactive Materials. Radionuclides, along with other minerals that are dissolved in the produced/flowback water, separate and settle out, forming various wastes at the surface such as in mineral scales inside pipes, sludges/sediments in the bottom of tanks, contaminated equipment or components, in spills to the surface, and produced waters. These wastes are classified as Technologically Enhanced Naturally Occurring Radioactive Material due to the extraction process which concentrates the naturally occurring radionuclides and exposes them to the surface environment and possible human contact.

- We recommend the final EIS discuss whether there is potential for induced seismicity due to underground injection of produced/flowback waters and what mitigations or management controls would be used to reduce or eliminate any problems or concerns. Induced seismicity is an increasing concern in regions of the United States where the produced fluids and wastewaters from oil and natural gas production activities are being injected into the subsurface through deep disposal wells.

Since additional NEPA analysis will be needed for any plans of operation associated with oil and gas activities, EPA recommends that the NPS:

- As appropriate use the "Memorandum of Understanding (MOU) Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process" which the EPA, U.S. Department of Agriculture and U.S. Department of Interior entered into on June 11, 2011. Based on this MOU, future projects implemented under the NPS' regulations may be subject to additional air quality analyses and project level mitigation. It may be appropriate to utilize the MOU's agency stakeholder process to share reasonably foreseeable development and emissions inventory information and to determine appropriate steps for the air quality analysis, such as quantitative air quality modeling.

- Disclose and consider the potential environmental effects of oil and gas development on air quality in the planning areas, and determine whether there is a need to revise management actions or develop stipulations to minimize the potential air quality impact of oil and gas development. This would include emissions of criteria air pollutants and hazardous air pollutants that can cause or contribute to human health impacts or impacts to Air Quality Related Values such as visibility, vegetation, water, fish and wildlife. We also recommend that you identify potential mitigation measures including control measures and design features such as equipment type and design requirements, emission standards or limitations, best management practices, dust suppression measures for unpaved roads and construction areas, add-on control technologies, and limitations on the density and/or pace of development.

Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

- We also recommend that the NPS revise and update the information provided on page 187 of the draft EIS concerning the EPA's hydraulic fracturing drinking water study. Specifically, we suggest that the NPS review and consider using the more recent information provided in the EPA's draft hydraulic fracturing drinking water assessment report (USEPA 2015). This assessment summarizes over 950 sources of data and information on the potential impacts of hydraulic fracturing on drinking water resources in the United States. The assessment is organized following the same hydraulic fracturing water cycle outlined in the progress report (USEPA 2012) cited in the draft EIS. The EPA also suggests that the NPS review and cite as appropriate the final reports and journal articles that have resulted from the EPA's hydraulic fracturing drinking water study. Specifically, we suggest the NPS take a look at the reports concerning: water acquisition for hydraulic fracturing in Pennsylvania and Colorado (USEPA 2015); chemicals used in hydraulic fracturing (USEPA 2015); well construction characteristics (USEPA 2015), and; spills of hydraulic fracturing fluids and flowback and produced water (USEPA 2015). The draft assessment, final EPA technical reports, and journal articles resulting from the EPA's study may be downloaded through the web site: www.epa.gov/hfstudy. Finally, the EPA suggests that the reference USEPA 2013c is not part of the hydraulic fracturing drinking water study and is inappropriately used in the context of the paragraph on page 187. Consider the use of EJSCREEN, the EPA's environmental justice screening and mapping tool that utilizes standard and nationally consistent data to highlight places that may have higher environmental burdens and vulnerable populations, when determining potential project-specific impacts to minority and low-income populations.

- Conduct appropriate greenhouse gas (OHO) and climate change analyses for subsequent project-specific operation actions. We recommend the use of the Council on Environmental Quality's December 2014 revised draft guidance for consideration of OHO emissions and climate change impacts in NEPA.

In addition, we recommend the final EIS include information related to the Endangered Species Act and National Historic Preservation Act consultation and coordination requirements in the appendix to final EIS.

In summary, the EPA believes the actions proposed under the draft EIS will result in reduced adverse impacts on resources. We have rated the proposed action a "LO" (Lack of Objections).

A copy of the EPA's rating criteria is enclosed. If we can provide further explanation of our comments, I can be reached at 202-564-5400, or you can contact Julie Roemele of my staff at 202-564-5632.

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United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Julie Roemely
Office of Federal Activities
NEPA Compliance Division
1200 Pennsylvania Ave
Mailcode 2252A
Washington, DC 20004

Dear Ms. Roemely:

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The DEIS covers eight states where there are existing operations (Texas, New Mexico, Florida, Tennessee, Kentucky, Ohio, West Virginia, Virginia), plus another thirteen states where there is no current oil and gas activity within NPS boundaries, but where future development could occur.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System where access is on, across, or through federally- owned or controlled lands or waters. The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public health and safety, and minimize adverse effects on park infrastructure and management. These regulations have been in effect for over thirty six years and have not been substantively updated during that period.

The NPS has identified a need for minor revisions to the 9B regulations, which include the following key elements:

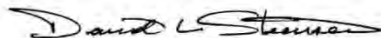
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- Require compensation for operator's privileged use of federal lands
Under the proposed regulations, a fee for new privileged access across federal lands outside the boundary of an operator's mineral right would be authorized.

The proposed action is described more fully in Chapter 2, "Alternatives", as "Alternative B: Proposed Rule" starting on page 29, as well as in the NPRM.

This proposed rule change is programmatic in nature; no ground disturbing activities are being authorized, with the proposed rule change providing for additional resource protection and mitigation measures. Future actions will be analyzed separately and will be subject to further site specific consultation and compliance, including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act of 1966, as amended. Over the long term, this rule change would likely result in beneficial impacts on park service resources.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



United States Department of the Interior

FISH AND WILDLIFE SERVICE

JAN 28 2016



In Reply Refer To:
FWS/AES/DER/BCP/062171
09E30000-2016-I-0037

National Park Service
Attn: David L. Steensen
Chief, Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

Dear Mr. Steensen:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter dated October 21, 2015, requesting our concurrence on your determination that a proposed revision to the National Park Service's (NPS) non-federal oil and gas rights regulations, Title 3, Code of Federal Regulations, Part 9, Subpart B ("9B regulations") may affect, but is not likely to adversely affect threatened or endangered species and their designated critical habitat under section 7(a)(2) of the Endangered Species Act of 1973, as amended (ESA). As described in your letter, the existing 9B regulations govern the exercise of non-federal (state and privately owned) oil and gas rights within the boundaries of the National Park System where access is on, across, or through federally-owned or controlled lands or waters. NPS has identified a need for minor revisions to the 9B regulations. The purpose of the revisions is to avoid or minimize the adverse effects of non-federal oil and gas operations on natural and cultural resources, visitor use and experience, provide for public safety, and minimize adverse effects on park infrastructure and management.

The proposed revisions will:

- Remove exemptions from 9B regulations for currently exempt operators;
- Ensure adequate funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation;
- Add authority to cite operators for minor acts of noncompliance; and,
- Require compensation for operator's privileged use of federal lands.

As noted in your letter, oil and gas operations in general can result in adverse effects to federally-listed species. The Draft Environmental Impact Statement states (page 274), "... bringing previously exempt oil and gas operations under the 9B regulations would not change the direct impacts of the footprint of well pads on wildlife; there would still be loss of habitat due to temporary vegetation removal and reestablishment of original vegetation within the footprint of previous disturbance." However, the change in regulation would reduce indirect impacts and the risks of impacts to federally-listed species from oil and gas operations because of the implementation of better operating practices, resulting in long-term beneficial impacts (page

274). This is based on two new stipulations: 1) the requirement for agency consultations prior to beginning operations, which may include conducting biological surveys in proposed operations areas; and 2) scheduling work times to avoid or minimize affects to federally-listed species. As explained in more detail in the Draft Environmental Impact Statement, the revisions “make the 9B regulations applicable to all operators conducting non-federal oil or gas operations on lands or waters within a park unit, regardless of the ownership or jurisdictional status of those lands or waters” (DEIS, page 33). Under this provision, all operations within NPS boundaries would be required to obtain an operations permit, allowing for site-specific analysis.

The proposed revisions include additional mitigation measures and best management practices to avoid and minimize impacts to federally-listed species and critical habitat during the three phases of oil and gas operations. These are:

Geophysical exploration

- Sufficient setbacks (buffer zones) and/or timing restrictions for sensitive periods in a given species’ life cycle.
- Consultation with the Service, use of project area surveys, and completion of biological assessments prior to issuance of an operations permit.

Well drilling and production

- Require that least damaging methods are used for site preparations.
- Careful siting of developments based on biological survey and/or assessment results.
- Closure or restriction of motorized public access on roads that are used for oil and gas development.
- Require drilling multiple wells from one pad.
- Preconstruction surveys to ensure that impacts would not be excessive.
- Require open containers that collect stormwater to have netting or covers.
- Require biological surveys and/or assessments and consultations with the Service.

Impacts of plugging and reclamation

- Require consultation pursuant to the ESA.
- Perform biological surveys of the area that could be potentially impacted.
- Avoid areas of known sensitive species and timing reclamation to avoid critical growth periods, nesting or spawning seasons for sensitive species.
- Monitor site recovery and success as determined by measuring species survival, native vegetation density and diversity, percent cover, etc.

The proposed rule change is programmatic in nature and no site-specific actions would be authorized. In addition, site-specific analysis would be conducted for future operations following authorization of the revised rule. Any potential for adverse effects from specific oil and gas operations would be subject to further section 7 consultation and compliance with the ESA. Based on the stipulations, mitigation measures, and best management practices, the Service concurs with the determination that the proposed rule revision may affect, but is not likely to adversely affect federally-listed threatened and endangered species or designated critical habitat.

Steensen

3

If you have any questions about this concurrence, please contact Patrice Ashfield of the Branch of Consultation and Habitat Conservation Planning at (703) 358-2478.

Sincerely,

A handwritten signature in black ink that reads "Craig Aubrey". The signature is fluid and cursive, with the first name "Craig" and last name "Aubrey" clearly distinguishable.

Craig Aubrey, Chief
Division of Environmental Review
Ecological Services Program

References

Draft Environmental Impact Statement, 2015. Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities. National Park Service. U.S. Department of the Interior. 420 pages.



United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

State Historic Preservation Officer
Division of Historical Resources
R.A. Gray Building
500 S. Bronough Street
Tallahassee, FL 32399-0250

To Whom It May Concern:

The National Park Service (NPS) has prepared a Notice of Proposed Rulemaking (NPRM) and Draft Programmatic Environmental Impact Statement (DEIS) on proposed revisions to its current nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS is continuing National Historic Preservation Act (NHPA) Section 106 consultation under 36 CFR 800 for this rule revision/DEIS and is seeking your concurrence with a finding of no adverse effect to cultural resources. NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System where access is on, across, or through federally- owned or controlled lands or waters. The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public health and safety, and minimize adverse effects on park infrastructure and management. These regulations have been in effect for over thirty six years and have not been substantively updated during that period.

The NPS has identified a need for minor revisions to the 9B regulations, all of which are beneficial to cultural resources compared to the existing condition, and which include the following key elements:

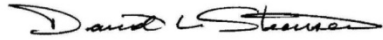
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- Ensure adequate funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation
Under the proposed regulations, the existing financial assurance limit that NPS can require per operator would be removed and replaced with an amount of financial assurance equal to the estimated cost of reclamation. With this provision in place, the NPS could conduct reclamation in the short-term using the financial assurance in the event of an operator default.
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- Require compensation for operator's privileged use of federal lands
Under the proposed regulations, a fee for new privileged access across federal lands outside the boundary of an operator's mineral right would be authorized.

The proposed action is described in Chapter 2, "Alternatives", as "Alternative B: Proposed Rule" beginning on page 29. Impacts occurring as a result of the NPS preferred alternative, Alternative B, are discussed on pages 332 through 349.

This proposed rule change is programmatic in nature; no ground disturbing activities are being authorized, with the proposed rule change providing for additional resource protection and mitigation measures. Future actions will be analyzed separately and will be subject to further site specific consultation and compliance, including Section 106 of the National Historic Preservation Act of 1966, as amended. Over the long term, this rule change would likely result in beneficial impacts to cultural resources. Consequently, the NPS preferred alternative and proposed rule will not affect cultural resources. Tribal consultation is ongoing for this project, but no tribal comments have been received that would alter this finding. The National Park Service is requesting your concurrence on this finding of no adverse effect.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,

A handwritten signature in black ink, reading "David L. Steensen". The signature is fluid and cursive, with the first name "David" and last name "Steensen" clearly legible.

David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

State Historic Preservation Officer
Kentucky Heritage Council / State Historic Preservation Office
300 Washington Street
Frankfort, KY 40601

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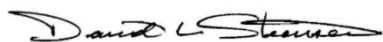
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David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

State Historic Preservation Officer
New Mexico Historic Preservation Division
Department of Cultural Affairs
Bataan Memorial Building
407 Galisteo Street, Suite 236
Santa Fe, NM 87501

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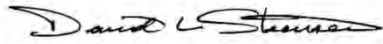
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United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

State Historic Preservation Officer
Ohio History Center
800 E. 17th Ave., Columbus, Ohio 43211

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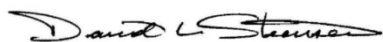
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United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711

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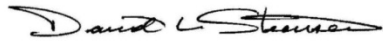
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Tennessee Historical Commission
E. Patrick McIntyre, Jr., Executive Director
2941 Lebanon Road
Nashville, TN 37243-0442

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2801 Kensington Avenue
Richmond, VA 23221

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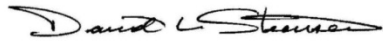
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United States Department of the Interior

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State Historic Preservation Officer
West Virginia Division of Culture and History
The Culture Center
Capitol Complex
1900 Kanawha Boulevard East
Charleston, WV 25305-0300

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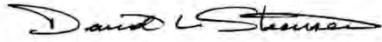
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MATTHEW G. BEVIN
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

DON PARKINSON
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

December 23, 2015

Mr. David L. Steensen, Chief
Geological Resources Division
National Park Service
P.O. Box 25287
Denver, Colorado, 80225

Re: DEIS on Proposed Revisions to Current Nonfederal Oil and Gas Rights Regulations (9B Regulations)

Dear Mr. Steensen:

Thank you for the above referenced DEIS.

Upon review we concur with your determination that these revisions have No Adverse Effect on cultural resources.

Should you have any questions, feel free to contact Nick Laracuente of my staff at 502.564.7005, extension 122.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP:nrl KHIC # 45437

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TENNESSEE HISTORICAL COMMISSION
2941 LEBANON ROAD
NASHVILLE, TENNESSEE 37243-0442
OFFICE: (615) 532-1550
www.tnhistoricalcommission.org

November 30, 2015

Mr. David Steensen
National Park Service
Geologic Resources Division
Post Office Box 25287
Denver, Colorado 80225

RE: NPS, NON-FEDERAL OIL & GAS REGULATIONS, UNINCORPORATED,
MULTI COUNTY

Dear Mr. Steensen:

Pursuant to your request, this office has reviewed documentation concerning the above-referenced undertaking received Monday, November 23, 2015. This is a requirement of Section 106 of the National Historic Preservation Act for compliance by the participating federal agency or applicant for federal assistance. Procedures for implementing Section 106 of the Act are codified at 36 CFR 800 (Federal Register, December 12, 2000, 77698-77739).

Considering available information, we concur that proposed Alternate B for revisions to the "9B Regulations" will not adversely affect any property that is eligible for listing in the National Register of Historic Places. Therefore, this office has no objection to the adoption of Alternate B. Please direct questions and comments to Jennifer M. Barnett (615) 741-1588, ext. 105. We appreciate your cooperation.

Sincerely,

A handwritten signature in cursive script, reading "E. Patrick McIntyre, Jr.", is written in dark ink.

E. Patrick McIntyre, Jr.
Executive Director and
State Historic Preservation Officer

EPM/jmb



COMMONWEALTH of VIRGINIA

Department of Historic Resources

Molly Joseph Ward
Secretary of Natural Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Julie V. Langan
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
www.dhr.virginia.gov

November 24, 2015

Mr. David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service
P.O. Box 25287
Denver, Colorado 80225

Re: Proposed Revision of 9B Regulations Governing Non-federal Oil and Gas Activity
Draft Environmental Impact Statement and Proposed Rule
DHR Project No. 2015-1262

Dear Mr. Steensen:

Thank you for your letter of October 21, 2015 advising us that the National Park Service has prepared a Notice of Proposed Rulemaking and Draft Environmental Impact Statement (DEIS) on proposed revisions to its current nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B. We appreciate receiving a copy of the DEIS and have completed our review of the document. We understand that the proposed rule change is programmatic in nature and no specific undertakings are being authorized. Future actions will be subject to consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. We agree that the proposed rule change will likely result in beneficial effects to historic properties. For this reason we fully support the National Park Service's preferred alternative, Alternative B. Based upon the documentation provided, this letter provides our concurrence with your determination that the proposed revision will have No Adverse Effect on historic properties.

If you have any questions concerning our comments, or if we may provide any further assistance, please do not hesitate to contact me at (804) 482-6088.

Sincerely,

A handwritten signature in cursive script, reading "Ethel R. Eaton".

Ethel R. Eaton, Ph.D., Senior Policy Analyst
Review and Compliance Division

Administrative Services
10 Courthouse Ave.
Petersburg, VA 23803
Tel: (804) 862-6408
Fax: (804) 862-6196

Eastern Region Office
2801 Kensington Avenue
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Western Region Office
962 Kime Lane
Salem, VA 24153
Tel: (540) 387-5443
Fax: (540) 387-5446

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033



The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

Randall Reid-Smith, Commissioner

Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
HO/AA Employer

Mr. David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
United States Department of the Interior
National Park Service
PO Box 25287
Denver, CO 80225

RE: Proposed Revisions of 9B Regulations Governing Non-Federal Oil and Gas Activities
FR# 16-91-MULTI

Dear Mr. Steensen:

We have reviewed the draft Environmental Impact Statement and additional information that was submitted in reference to the above mentioned project to determine its effects to cultural resources. As required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to the information submitted, the National Park Service (NPS) is proposing to make minor revisions to the 9B regulations that govern non-federal oil and gas activities within the boundaries of the National Park System. The proposed revisions are programmatic in nature and include adding provisions that would allow the NPS to issue citations to operators for minor noncompliance issues and remove the current cap on the existing financial assurance limit that NPS can require per operator for reclamation. It is our understanding that no ground disturbing activities are being authorized with the proposed rule change; any future actions will be analyzed separately and subject to further site specific consultation and compliance in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. We have no objections to the proposed revisions as described and concur with your determination that they will have no adverse effect on historic properties.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the permit conditions, please contact Lora A Lamarre-DeMott, Senior Archaeologist, at (304) 558-0240.*

Sincerely,

A handwritten signature in blue ink that reads "Susan M. Pierce".

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/LLD



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Address:

Dear (tribal contact):

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm.

In our effort to involve you in this planning effort, I am writing a second time to update you about this project and to again inquire if you desire to consult with the NPS regarding the proposed project, as well as seek your concurrence on our findings of effect. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2 *et seq.*) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one traditionally associated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future operations). NPS believes that this proposed regulation revision will not have a substantial direct effect on Native American Indian tribes, and will not cause adverse effects to cultural resources. NPS seeks your concurrence, as well as your comment on the DEIS and proposed rule.

The 9B regulations control all activities associated with nonfederal oil and gas development inside park boundaries where access is on, across, or through federally owned or controlled

lands or waters. At this time 534 nonfederal oil and gas operations exist in a total of 12 units of the National Park System.

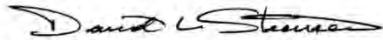
The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators,
- Ensure funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation,
- Add authority to cite operators for minor acts of noncompliance,
- Require compensation for operator's privileged use of federal lands,
- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Ms. Johnnie Jacobs
Choctaw Nation
Choctaw Nation of Oklahoma
P.O. Box 1210
Durant, Oklahoma 74702-1210

Dear Ms. Jacobs:

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

In our effort to involve you in this planning effort, on November 14, 2013, we invited you to consult with us. We received a response back from you requesting consultation and review of the DEIS, once available. You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2 *et seq.*) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one traditionally associated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future operations). NPS believes that this proposed regulation revision will not have a substantial direct effect on Native American Indian tribes, and will not cause adverse effects to cultural

resources. NPS seeks your concurrence, as well as your comment on the DEIS and proposed rule.

The 9B regulations control all activities associated with nonfederal oil and gas development inside park boundaries where access is on, across, or through federally owned or controlled lands or waters. At this time 534 nonfederal oil and gas operations exist in a total of 12 units of the National Park System.

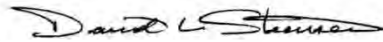
The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators,
- Ensure funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation,
- Add authority to cite operators for minor acts of noncompliance,
- Require compensation for operator's privileged use of federal lands,
- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Mr. Leroy Shingoitewa, Chairman
Hopi Tribe of Arizona
Hopi Tribal Council
P.O. Box 123
Kykotsmovi, Arizona 86039

Dear Chairman Shingoitewa:

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

In our effort to involve you in this planning effort, on November 14, 2013, we invited you to consult with us. We received a response back from you requesting consultation and review of the DEIS, once available. You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2 *et seq.*) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one traditionally associated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future operations). NPS believes that this proposed regulation revision will not have a substantial direct effect on Native American Indian tribes, and will not cause adverse effects to cultural

resources. NPS seeks your concurrence, as well as your comment on the DEIS and proposed rule.

The 9B regulations control all activities associated with nonfederal oil and gas development inside park boundaries where access is on, across, or through federally owned or controlled lands or waters. At this time 534 nonfederal oil and gas operations exist in a total of 12 units of the National Park System.

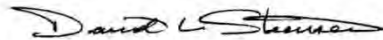
The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators,
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- Add authority to cite operators for minor acts of noncompliance,
- Require compensation for operator's privileged use of federal lands,
- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Mr. Ronald Maldonado
Navajo Nation
Historic Preservation Department
P.O. Box 4960
Window Rock, Arizona 86515

Dear Mr. Maldonado:

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

In our effort to involve you in this planning effort, on November 14, 2013 we invited you to consult with us. We received a response back from you requesting a face-to-face meeting for consultation and review of select DEIS chapters on December 27, 2013. We followed up with you by letter on April 29, 2014, and by phone on May 13, 2014, following your initial request, and confirmed that you ultimately wanted to review the DEIS, once available.

You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2 *et seq.*) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one traditionally associated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future

operations). NPS believes that this proposed regulation revision will not have a substantial direct effect on Native American Indian tribes, and will not cause adverse effects to cultural resources. NPS seeks your concurrence, as well as your comment on the DEIS and proposed rule.

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The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators,
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- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Geologic Resources Division
P.O. Box 25287
Denver, Colorado 80225

October 21, 2015

Mr. Terry Rambler, Chairman
Apache Tribe
San Carlos Apache Tribe
P.O. Box 0
San Carlos, Arizona 85550

Dear Chairman Rambler:

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). NPS anticipates a 60 day public comment period beginning on October 23 and ending on December 21.

In our effort to involve you in this planning effort, on November 14, 2013, we invited you to consult with us. We received a response back from you requesting consultation and review of the DEIS, once available. You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov. Additionally, a copy of the DEIS and NPRM are included here for your convenience. For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. The NPS is available to discuss the project with you in more detail if necessary.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed.

Executive Order 13175, Federal regulations (36 CFR 800.2 *et seq.*) implementing Section 106 of the National Historic Preservation Act of 1966, as amended, and NPS Management Policies all require consultation with federally recognized American Indian tribes on a government-to-government basis. The NPS has identified your tribe as one traditionally associated with one or more of the following park units listed in Attachment 1 (Category 1 parks have current oil and gas operations, Category 2 parks do not have active operations, but have potential for future operations). NPS believes that this proposed regulation revision will not have a substantial direct effect on Native American Indian tribes, and will not cause adverse effects to cultural

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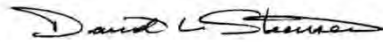
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- Require compensation for operator's privileged use of federal lands,
- Improve the workability of the permitting procedures, and
- Account for improvements in oil and gas technology and industry practices.

For any questions, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov.

Sincerely,



David L. Steensen, Chief
Geologic Resources Division
Natural Resources, Stewardship and Science Directorate
National Park Service

PUEBLO OF SANTA ANA

Tribal Historic Preservation Office

December 8, 2015

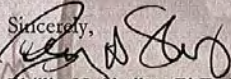
Mr. Edward Kassman, Geologic Resource Division
National Park Service
P.O. Box 25287
Denver, CO 80225

Dear Mr. Kassman,

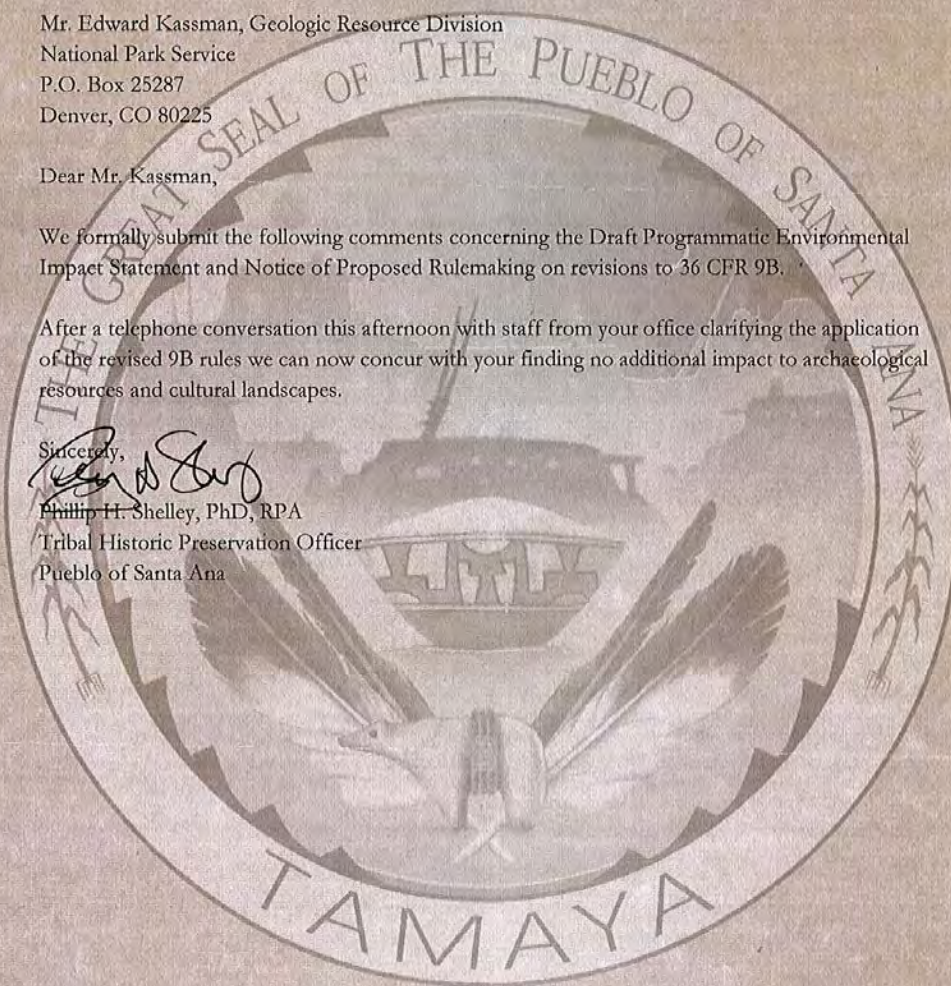
We formally submit the following comments concerning the Draft Programmatic Environmental Impact Statement and Notice of Proposed Rulemaking on revisions to 36 CFR 9B.

After a telephone conversation this afternoon with staff from your office clarifying the application of the revised 9B rules we can now concur with your finding no additional impact to archaeological resources and cultural landscapes.

Sincerely,



Philip H. Shelley, PhD, RPA
Tribal Historic Preservation Officer
Pueblo of Santa Ana



02 DOVE ROAD ♦ SANTA ANA PUEBLO ♦ NM 87004
TEL: 505-771-6700 ♦ FAX: 505-771-6745

12/7/2015 RE: Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities - michael_b_edwards@nps.gov - DEPARTMENT OF THE INTERIOR ...

Archive Spam Delete Move to Labels More

RE: Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities

Daniel R. Ragle <dragle@choctawnation.com>

2:5

to me, edward_kassman

The Choctaw Nation of Oklahoma thanks you for the correspondence regarding the above referenced project. Th reviewed the Draft Programmatic Environmental Impact Statement and Notice of Proposed Rulemaking on revisi regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"). The Choctaw Nation c concur with the revisions made to the 9B regulations. The Choctaw Nation of Oklahoma would concur that there properties and cultural resources, and that work should proceed as planned. However, as the project lies in an an the Tribe, we request that work be stopped and our office contacted immediately if any Native American cultural r you have any questions, please contact me by email.

Thank You,

Daniel Ragle
NHPA Section 106 Reviewer
Choctaw Nation of Oklahoma
Historic Preservation Department
P.O. Box 1210
Durant, OK 74702
(580)924-8280 ext. 2727
dragle@choctawnation.com

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, c have received this message in error, you are hereby notified that we do not consent to any reading, dissemination, distribution or copying o communication in error, please notify the sender immediately and destroy the transmitted information. Please note that any view or opinions author and do not necessarily represent those of the Choctaw Nation.

<https://mail.google.com/mail/u/0/?ui=2&view=blot&ver=1ah1036lkn78z&search=inbox&th=1517e6fee6416258&cvid=9>

1/1

From: Edwards, Michael [michael_b_edwards@nps.gov]
Sent: Thursday, February 18, 2016 8:14 AM
To: Schnabel, Joshua
Subject: Fwd: DEIS & NPRM and Revisions to nonfederal oil and Gas Rights

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Project Admin Record

Josh - for the admin record, and Chapter 5.

Michael B. Edwards
Project Manager
Environmental Protection Specialist
Environmental Quality Division, Planning & Compliance Branch
WASO-NRSS
303.969.2694 (work)
303.638.1928 (cell)
303.987.6782 (fax)



----- Forwarded message -----

From: Edwards, Michael <michael_b_edwards@nps.gov>
Date: Thu, Jan 7, 2016 at 2:18 PM
Subject: Re: DEIS & NPRM and Revisions to nonfederal oil and Gas Rights
To: "Danny D. Naranjo" <ddnaranjo@santaclarapueblo.org>

Hi Danny,

Thanks for taking the time to talk with us today. Please don't hesitate to reach out with any additional questions or comments.

Sincerely,
Michael

Michael B. Edwards
Project Manager
Environmental Protection Specialist
Environmental Quality Division, Planning & Compliance Branch
WASO-NRSS
303.969.2694 (work)
303.638.1928 (cell)
303.987.6782 (fax)



On Mon, Jan 4, 2016 at 2:08 PM, Danny D. Naranjo <ddnaranjo@santaclarapueblo.org> wrote:

Good Afternoon Michael any time after 1pm would due I can be reached at (505)692-6285. Any information you can provide me about the project prior to our phone call would be great you have a good one.

From: Edwards, Michael [mailto:michael_b_edwards@nps.gov]
Sent: Monday, January 04, 2016 11:04 AM
To: Danny D. Naranjo <ddnaranjo@santaclarapueblo.org>
Subject: Re: DEIS & NPRM and Revisions to nonfederal oil and Gas Rights

Hi Danny,

Thanks for your email. We welcome your participation as a consulting party. Would you be available for a call with our 9B project team this coming Thursday afternoon (Jan. 7)? If so, what time would work best for you and what is a good number to reach you at?

Sincerely,

Michael

Michael B. Edwards

Project Manager

Environmental Protection Specialist

Environmental Quality Division, Planning & Compliance Branch

WASO-NRSS

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Appendices

303.987.6782 (fax)



On Mon, Jan 4, 2016 at 10:27 AM, Danny D. Naranjo <ddnaranjo@santaclarapueblo.org> wrote:

Good Morning,

Sorry for the late reply to this letter. The Pueblo of Santa Clara would like to be a consulting party in this matter. Our concerns are with the natural and cultural resources that may be effected by oil and gas exploration. We would like to be a part of the planning process and would like to be informed of any activity with this project. We would like to see some stronger wordage to help protect Cultural and natural Resources within the project areas. Any other information you can provide is greatly appreciated thank you.

Danny Naranjo

Land and Cultural Resources Technician

ddnaranjo@santaclarapueblo.org

(505)692-6285 Ext.#1234



IN REPLY REFER TO:
I A 2(AKRO-RNR)

United States Department of the Interior NATIONAL PARK SERVICE

Alaska Region
240 West 5th Avenue, Room 114
Anchorage, Alaska 99501

JAN 11 2016

Dear Alaska Tribal Leader:

The National Park Service (NPS) has prepared a Draft Programmatic Environmental Impact Statement (DEIS) and Notice of Proposed Rulemaking (NPRM) on revisions to nonfederal oil and gas rights regulations at Title 36, Code of Federal Regulations, Part 9, Subpart B ("9B regulations"), open for public comment through December 28, 2015. As explained more fully below, although the scoping for the DEIS identified oil and gas development as not sufficiently likely to occur in Alaska park units ("Category 3" units), the NPS's Alaska Regional Office, in recognition of its relationship with its tribal affiliates, wanted to contact you directly for any input you may have. NPS will accept any comments you may have through **February 12, 2016**. If comments are submitted after February 12, 2016, please send them by hard copy, or by email, to the address listed below.

You may obtain an electronic copy of the DEIS at <http://parkplanning.nps.gov/DEIS9B>, and the proposed rule at www.regulations.gov by searching for "RIN 1024-AD78". For general background information and a pre-recorded webinar, please see http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm.

The existing 9B regulations govern the exercise of nonfederal (state and privately owned) oil and gas rights within the boundaries of units of the National Park System. These regulations have been in effect for over thirty six years and have not been substantively updated during that period. The DEIS analyzes a range of reasonable alternatives for revising the existing 9B regulations and the potential environmental impacts on park resources including: threatened and endangered species, water resources, soils, vegetation, wetlands, air resources, wildlife, cultural resources, and soundscapes. Effects on oil and gas operators, visitor experience and public safety, adjacent lands, and park operations have also been analyzed. The DEIS analyzes Category 1 parks which have current oil and gas operations, and Category 2 parks (park is located within or very near known petroleum development and oil and gas development activity is occurring near the park). Alaska park units have been identified as Category 3 (no oil and gas activity is currently occurring within park boundaries, park is located within or near a known petroleum resource area and low development activity is occurring near park, or nonfederal acreage in park is likely too low for oil and gas development). Category 3 parks were not analyzed in the DEIS because the NPS determined that oil and gas development was not sufficiently likely to occur in those parks. The NPS based this determination on the best information available, including Resource Management Plans by the Bureau of Land Management.

The 9B regulations control all activities associated with nonfederal oil and gas development inside park boundaries where access is on, across, or through federally owned or controlled lands or waters. At this time, 534 nonfederal oil and gas operations exist in a total of 12 units of the National Park System.

The purpose of the 9B regulations is to avoid or minimize the adverse effects of nonfederal oil and gas operations on natural and cultural resources, visitor uses and experiences, provide for public safety, and minimize adverse effects on park infrastructure and management.

Revisions to the 9B regulations are proposed as follows:

- Remove exemptions from 9B regulations for currently exempt operators.
Under the proposed rule, the NPS would eliminate two regulatory provisions that exempt 60% of the oil and gas operations in NPS units (Category 1 and 2 parks). At this time, there are 9 units of the National Park System containing a combined total of 319 active nonfederal oil and gas operations currently operating under exempt status. The proposed rule would include a procedure for bringing previously exempt operations into compliance with the 9B regulations. Under this provision, all operations within NPS boundaries would be required to obtain an operations permit. *Note that there are no current operations in Alaska, thus no exempt operators either.*
- Ensure adequate funding for reclamation by removing an insufficient regulatory bonding cap and making bond amounts equal to the cost of reclamation.
Under the proposed rule the existing financial assurance limit that NPS can require per operator would be removed and replaced with an amount of financial assurance equal to the estimated cost of reclamation. With this provision in place, the NPS could conduct reclamation in the short-term using the financial assurance in the event of an operator default.
- Add authority to cite operators for minor acts of noncompliance.
Under the proposed rule, an existing penalty provision would be added to the 9B regulations which would allow the NPS to issue an operator a citation to address minor acts of noncompliance.
- Require compensation for operator's privileged use of federal land.
Under the proposed rule, a fee for new privileged access across federal lands outside the boundary of an operator's mineral right would be authorized.
- Improve the workability of the permitting procedures.
- Account for improvements in oil and gas technology and industry practices.

The proposed rule is programmatic in nature; no ground disturbing activities are being authorized, with the proposed rule providing for additional resource protection and mitigation measures. Future actions will be analyzed separately and will be subject to further site specific consultation and compliance, including Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act of 1966, as amended.

For any questions or submission of comments after February 12, 2016, please contact Michael B. Edwards of the NPS's Environmental Quality Division at (303) 969-2694, michael_b_edwards@nps.gov, or Edward O. Kassman, Jr., of the NPS's Geologic Resources Division at (303) 969-2146, edward_kassman@nps.gov; Edward O. Kassman, Jr., Geologic Resources Division, National Park Service, P.O. Box 25287, Denver, Colorado 80225.

Sincerely,

A handwritten signature in blue ink, appearing to read "Herb Frost", written over a horizontal line.

Herbert C. Frost, Ph.D.
Regional Director

APPENDIX I: PUBLIC COMMENT ANALYSIS REPORT

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INTRODUCTION AND GUIDE

INTRODUCTION

On October 23, 2015, the National Park Service (NPS) released for public review the draft Environmental Impact Statement (draft EIS) for the Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities (Proposed Rule) through the publication of a Notice of Availability in the *Federal Register*. The Environmental Protection Agency (USEPA) also issued a Notice of Availability that was published in the *Federal Register* on October 30, 2015.

Members of the public also received notice of the availability of the draft EIS through a newsletter posted on the NPS Planning, Environment, and Public Comment (PEPC) website at <http://parkplanning.nps.gov/DEIS9B>. Following the release of the draft EIS and Proposed Rule, a 60-day public comment period was open that ended on December 28, 2015. During the comment period, a pre-recorded webinar was provided that included a presentation by staff from the NPS Geologic Resources Division explaining the proposed revisions to the rule. The availability of this webinar was announced in the newsletter, which directed the public to the website at http://www.nature.nps.gov/geology/oil_and_gas/9b_index.cfm. The public was encouraged to submit comments regarding the draft EIS via the PEPC website or by mail.

NATURE OF THE COMMENTS RECEIVED

During the comment period, 28 unique pieces of correspondence were received on the draft EIS. Once all correspondence were received at the end of the public comment period, each was read, and specific comments within each piece of correspondence were identified. A total of 115 comments were derived from the correspondence received. A substantial number of commenters expressed support for the proposed rule change, citing existing concerns over the adequacy of the current rule to provide resource protection at NPS units. Several commenters suggested additional elements be included in the provisions of the rule, as described under Alternative B of the draft EIS. Some commenters expressed concerns over the accuracy of data presented in the draft EIS and called for additional detail to be incorporated in the analysis of impacts, especially with regard to water resources and air quality. Commenters also expressed concern over the extent of analysis regarding directionally drilled operations.

THE COMMENT ANALYSIS PROCESS

Comment analysis is a process used to compile and correlate similar public comments into a format that can be used by decision makers and the draft EIS and Proposed Rule planning team. Comment analysis assists the team in organizing, clarifying, and addressing technical information pursuant to National Environmental Policy Act (NEPA) regulations. It also aids in identifying the topics and issues to be evaluated and considered throughout the planning process.

The process includes six main components:

1. developing a coding structure
2. employing a comment database for comment management (PEPC)
3. reading and coding of public comments
4. interpreting and analyzing the comments to identify issues and themes
5. drafting concern statements
6. preparing a comment summary

A coding structure was developed to help sort comments into logical groups by topics and issues. The coding structure was derived from an analysis of the range of topics discussed during internal NPS scoping and the comments themselves. The coding structure was designed to capture all comment content rather than to restrict or exclude any ideas.

The NPS PEPC database was used to manage the comments. The database stores the full text of all correspondence and allows each comment to be coded by topic and issue. Some outputs from the database include tallies of the total number of correspondence and comments received, sorting and reporting of comments by a particular topic or issue, and demographic information regarding the sources of the comments.

Analysis of the public comments involved the assignment of the codes to statements made by the public in their correspondence. All comments were read and analyzed, including those of a technical nature; opinions, feelings, and preferences of one element or one potential alternative over another; and comments of a personal or philosophical nature.

Although the analysis process attempts to capture the full range of public concerns, this content analysis report should be used with caution. Comments from people who chose to respond do not necessarily represent the sentiments of the entire public. Furthermore, this was not a vote-counting process, and the emphasis was on the content of the comment rather than the number of times a comment was received.

RELATIONSHIP TO THE COMMENT ANALYSIS PROCESS FOR THE RULE REVISION

The draft EIS for the Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities and the Proposed Rule were both released to the public simultaneously and underwent separate concurrent public comment periods. Comments on the draft EIS were obtained in the form of 28 unique pieces of correspondence through the NPS PEPC website, and comments on the Proposed Rule were obtained in the form of 20 unique pieces of correspondence submitted via Regulations.gov. Despite the effort to partition these two public processes, comments on the two documents were intermingled, with many comments on the draft EIS included in the correspondence submitted under Regulations.gov and many comments on the Proposed Rule submitted through the NPS PEPC.

As a result, and in a dedicated effort to fully capture all concerns expressed by members of the public, comments pertaining to specific components of the Proposed Rule that were submitted under the draft EIS have been included in the Proposed Rule public comment summary report. Attachment 2 of this report includes pieces of correspondence received related to both the draft EIS and the Proposed Rule, if the correspondence contained comments related to the draft EIS.

DEFINITION OF TERMS

Primary terms used in the document are defined below.

Correspondence — Correspondence is the entire document received from a commenter. It can be in the form of a letter, written comment form, or a comment submitted online using the NPS PEPC website.

Comment — A comment is a portion of the text within the item of correspondence that addresses a single subject. It could include such information as an expression of support or opposition to the use of a potential management measure, additional data regarding the existing condition, or an opinion debating the adequacy of analysis.

Code — A grouping based on a common subject. Codes were developed during the scoping process and are used to track major subjects throughout the planning process.

Concern Statement — A written summary of all comments received under a particular code that relate to the same issue or theme. Some codes were separated into several concern statements to provide a better focus on the content of comments.

GUIDE TO THIS DOCUMENT

This report is organized as follows.

Content Analysis Report — This is the basic report produced from PEPC, which provides information on the numbers and types of comments received, organized by various demographics.

Data show the amount of correspondence by type (e.g., web forms, letters, etc.); amount received by organization type (conservation organizations, federal government, individuals, etc.); and amount received by state.

Concern Response Report — This report summarizes the substantive comments received during the draft EIS public review comment process. These comments are organized by code and further consolidated into concern statements. Representative quotes are then provided for each concern statement. The NPS provides a response for each concern statement.

Attachment 1: Correspondence Distribution by Code and Index by Organization Type — These reports summarize the number of correspondence and signatures associated with each code and provide more detail regarding the specific organizations that submitted correspondence, as well as the codes assigned to comments within each of those correspondence.

Attachment 2: Copies of Correspondence from all Entities, Excluding those Received from Unaffiliated Individuals — This attachment contains copies of correspondence received during the comment period from all entities (government, organizations, businesses, etc.) on both the draft EIS and the Proposed Rule, if the correspondence is related to the draft EIS. Attachment 2 does not include correspondence received from individual commenters (unaffiliated individuals).

CONTENT ANALYSIS REPORT

TABLE 1. CORRESPONDENCE DISTRIBUTION BY TYPE

Type	Pieces of Correspondence	% of Correspondence
Web form	26	93
Letter	2	7

Note: Any comments related specifically to the proposed rule were moved to the comment analysis report for the proposed rule and are no longer contained in this report. Thus, the numbers reported in this table may not accurately reflect the number of correspondence received under the public comment period for the draft EIS.

TABLE 2. CORRESPONDENCE BY ORGANIZATION TYPE

Organization Type	Pieces of Correspondence	% of Correspondence
Conservation/preservation	1	3.5
Federal government	1	3.5
Unaffiliated individual	26	93
TOTAL	28	100.0

Note: Any comments related specifically to the proposed rule were moved to the comment analysis report for the proposed rule and are no longer contained in this report. Thus, the numbers reported in this table may not accurately reflect the number of correspondence received under the public comment period for the draft EIS.

TABLE 3. CORRESPONDENCE DISTRIBUTION BY STATE

State	Pieces of Correspondence	% of Correspondence
Washington	5	18
Arizona	3	10
Colorado	3	10
Alaska	2	7
Texas	2	7
District of Columbia	1	3
Tennessee	2	7
California	2	7
Virginia	2	7
Pennsylvania	1	4
Oregon	1	4
Utah	1	4
New Mexico	1	4
North Carolina	1	4
New Jersey	1	4

Note: Any comments related specifically to the proposed rule were moved to the comment analysis report for the proposed rule and are no longer contained in this report. Thus, the numbers reported in this table may not accurately reflect the number of correspondence received under the public comment period for the draft EIS.

CONCERN RESPONSE REPORT

Report Date: 02/03/2016

AE1000 - Data Accuracy - General Comments/Issues

CONCERN STATEMENT: (Concern ID: 55543) One commenter expressed concern about the accuracy of data presented in narrative, tables, and figures in the draft EIS.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 481892 Organization Type:** Unaffiliated Individual

Representative Quote: Pages 129 and 130, Table 28. Number of Current Operations, Production, and Operators by Park and Table 29. Production from Current Operations, some parks, like Padre Island National Seashore, have no information. The NPS should state why some parks have no information for these tables.

RESPONSE: New River Gorge National River and Padre Island National Seashore do not have operations producing measureable quantities of oil and gas.

CONCERN STATEMENT: (Concern ID: 55544) One commenter indicated that the information provided in the draft EIS regarding well counts was in error.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 483933 Organization Type:** Unaffiliated Individual

Representative Quote: Page 11, Table 2. Regulatory Status of Non-Federal Oil and Gas Wells and Number of Operators in National Park System Units and Page 368, Access-exempt operations, NPS refers to 37 wells being subject to the 9B regulation and that there are 39 total wells in BTNP. I believe this information is in error. My information documents many more wells that have been approved for drilling outside (directionally), but next to, and underneath, BTNP by NPS. These wells include:

- a. Comstock Oil and Gas Blackstone Collins #3 Well; (1)
- b. Blackstone Minerals #3 Well; (1)
- c. BP American Production Company 9 Wells; (9)
- d. C&E Operating Hankammer No. 1 Well; (1)
- e. Century Exploration 7 Wells; (7)
- f. Century Exploration Phineas #3 and Wile E. Coyote Wells; (2)
- g. Century Exploration BP America A-7 Well No. 2; (1)
- h. Century Exploration DC Montgomery #1; (1)
- i. Choice Exploration Bayou Estates #1-5 Wells; (5)
- j. Comstock Oil and Gas Unit B1 and D1 Wells; (2)
- k. Davis Southern Operating Company P.C Bernal #1 and 3 additional Wells; (4)
- l. Davis Brothers Oil Producers 9 Wells; (9)
- m. Davis Brothers Oil Producers Salisbury #1 and #2 Wells; (2)
- n. Davis Southern Operating Company #1A, #2, #3, and #4A Montgomery Wells; (4)
- o. Endeavor Natural Gas Blackstone Minerals B-2 Well; (1)
- p. Ergon Energy Partners Sherwood Forest 5 Wells; (5)
- q. Famcor Natural Gas Carroll No. 2, 3, 4, and 5 Wells; (4)

- r. Famcor Oil Roberts-Duke #6 and #7 Wells and Knight # 1 Well; (3)
- s. Famcor Oil Carroll-BSMC #2 and #3 Wells, Carroll-BSMC #1 and #5 Wells, and the Carroll #4 Well; (5)
- t. Fort Apache Energy Baptist Foundation #1 and Nordin #1 Wells; (2)
- u. Penwell Energy Frost #1 Well; (1)
- v. Penwell Energy Vastar #7 Well; (1)
- w. Peoples Energy Production Vastar Unit 2-A No. 2 Well; (1)
- x. Samson Lone Star Mil-Vid Properties A-3 #1 Well; (1)
- y. Union Gas Operating Company Bertrand-Nelson #1 and BP Rafferty A-45 #1, 2, and 3 Wells; (4)
- z. Union Gas Operating Company Rice University #1 and #2 Wells; (2)

This is a total of 79 wells that have been approved by the NPS to be drilled underneath BTNP since 2002. This information is in conflict with what is stated on Page 12, Scope of NPS Jurisdiction on Directional Drilling Operations From Land Outside Parks, which mentions 68 wells have been directionally drilled from outside four parks. Not all of the 79 wells were probably drilled but the NPS must tell the public how many wells (as opposed to locations where wells are drilled) have been approved for directional drilling from outside the National Park System and in BTNP and the three other parks. Accurate information is very important.

RESPONSE: The NPS used the best available data at the time of publication of the draft EIS. Once the NPS approves an exemption, the decision to move forward with drilling a well is entirely the operator's. NPS has updated the final EIS with the current number of approved directionally drilled wells under an exemption, using our best available data. Note that operators often choose to drill fewer wells than may have been approved by the NPS due to circumstances outside the control of NPS, thus NPS emphasis on the number of drilled wells. At Big Thicket National Preserve, it is important to note that 62 of the 70 total directionally drilled wells have been drilled (roughly 78.5% of the proposed 79 well total referenced by the commenter). This is well within reasonable expectations, as companies often decide not to drill for many reasons. Of the 38 active directionally drilled wells, 30 are at Big Thicket. Additionally, the commenter seems to misunderstand that the 37 and 39 wells referenced on page 11, table 2, of the draft EIS are wells that are wholly within the boundary of Big Thicket National Preserve. The 39 total wells referenced on page 11, table 2, of the draft EIS are wells that are in addition to the 62 directional (§9.32(e) exemption) wells drilled from outside Big Thicket National Preserve.

CONCERN STATEMENT: (Concern ID: 55545) One commenter pointed out inconsistencies in the presentation of information in the EIS, including data provided in tables, appendices, and narrative text.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 481890 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 127, Socioeconomics, it is reported that there are 5 operations at Alibates Flint Quarries National Monument. Page 126, Table 26. Park Operations with Respect to Oil and Gas in Category 1 Park Units, reports that there is one grandfathered oil/gas well in this park. NPS should state which figure is correct.

RESPONSE: We were unable to find the discrepancy the commenter noted. The data in the draft EIS is correct. Alibates Flint Quarries National Monument has five operations within the park boundary, all of which are under approved 9B plans.

AL1100 - Alternatives: Alternative Concept B - Proposed Rule

CONCERN STATEMENT: (Concern ID: 55601) Commenters question that a mineral right holder has a right of reasonable access on the surface within the boundary of that right.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 482205
Organization Type: Conservation/Preservation

Representative Quote: The Services rationale for permitting directional drilling exemptions is that it expects operators to choose to conduct surface operations outside Park boundaries and access minerals via directional drilling if an exemption remains available. Purportedly, compared to Alternative C, which would subject all directional drilling from outside the park boundary to permitting requirements, Alternative B would result in less operations within the park and less impacts to park resources. Assuming that simply shifting drilling to right outside the Park boundary is environmentally superior (which is highly questionable, based on the Services environmental analysis so far, see section II below), the Service could accomplish the same objective by requiring instead of incentivizing all surface operations to be located outside the park boundary, where access to the targeted minerals is still technologically feasible. See DEIS at 190 (noting Services ability to require staging areas [for seismic exploration]&to be located outside the park to prevent any spills from reaching park resources). Better yet, the Park Service should require siting of surface operations and drilling where they would cause the least possible harm and avoid any sensitive resources. The EIS, however, fails to consider these alternatives.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482257
Organization Type: Conservation/Preservation

Representative Quote: The Service's EIS and proposed rulemaking notice suggest incorrectly that non-federal mineral owners whose minerals are within the park boundary have an absolute right to extract their minerals, including via fracking.

RESPONSE: The holders of the mineral interest have a property right within the boundary of their mineral interest that includes reasonable use of the surface to develop the minerals. Given this right of reasonable use of the surface estate, the NPS generally cannot require operators to locate surface facilities outside the boundary of the mineral right. While directional drilling is possible in certain circumstances, and the regulations provide an incentive for it, a general rule requiring surface operations to be located outside park unit boundaries would not be consistent with these rights of surface use.

Many 9B parks (Padre Island National Seashore, Big Thicket National Preserve, Lake Mead National Recreation Area, and Big South Fork National River and Recreation Area) have oil and gas management plans that identify sensitive resource areas. For those parks that do not develop specific oil and gas management plans, the park will identify sensitive resource areas for operators during early project scoping. In addition, the overall NPS operating standard requiring that operators use “technologically feasible, least damaging methods” ensures that approved operations consider the potential effects on sensitive resources administered by the NPS.

CONCERN STATEMENT: (Concern ID: 55685) One commenter questioned whether under alternative C an existing inholder with a plan of operations could acquire an exemption.

Representative Quote(s):

Corr. ID: 21 Organization: Center for Biological Diversity **Comment ID:** 484666

Organization Type: Conservation/Preservation

Representative Quote: [Footnote 2] The EIS notes that "[t]his provision would address existing operations that are located wholly on non-federally owned or administered lands within a unit," but it is unclear whether it is intended to only apply to existing operations. If this exemption applies to new operations, it is unclear why the Service would allow such an exemption, except to skew the comparison of alternatives in favor of Alternative B. Under Alternative C, operators would unsurprisingly be more likely to conduct operations from inholdings even where it provided no other advantage over drilling from outside-if such operations could be exempted from permitting requirements, while outside drilling could not.

Representative Quote(s):

Corr. ID: 19 **Organization:** Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 482206
Organization Type: Conservation/Preservation

Representative Quote: While Alternative C would subject all directional drilling from outside the park boundary to permitting requirements (both surface and subsurface operations), it also falls short. Alternative C would allow exemptions for operations on inholdings from permitting requirements if the Service does not reasonably expect 'that operational requirements are needed to protect against a significant threat of damage to federally owned, administered, or controlled lands, waters or resources of the unit, or park visitor and employee health and safety. DEIS at 45. It is unclear whether this exemption applies only to existing operations or new operations as well.

RESPONSE: Under alternative C, this provision would apply to both new and existing operations located wholly on non-federal lands. NPS considers this a reasonable alternative given the high standard that the NPS provides for granting exemptions under this alternative.

CONCERN STATEMENT: (Concern ID: 55546) One commenter expressed concern over the apparent inaccuracy of the statement in the description of alternative B that the NPS would require plans of operations for all new activities, when directionally drilled operations would be exempt from such requirements.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483950 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 74, alternative B: Proposed Rule (Preferred Alternative), the NPS states By requiring plans of operations for all new activities. This statement is misleading. All new drilling activities that occur outside the National Park System but are allowed to occur through the subsurface are new activities but will not be required to have plans of operations.

RESPONSE: On page 74 of the draft EIS, NPS states the general rule that all new and existing operations must obtain an operations permit and meet all applicable operating standards. The exception to the general rule is that some operators who directionally drill from a surface location outside a park boundary to a bottomhole location inside of a park may apply for an exemption to the operations permit requirement.

CONCERN STATEMENT: (Concern ID: 55547) One commenter requested including the joint and several liability requirement in alternative B to provide an additional incentive for existing operations not currently regulated to come into compliance.

Representative Quote(s):

Corr. ID: 22 **Organization:** Coalition to Protect America's National Parks **Comment ID:** 480723

Organization Type: Conservation/Preservation

Representative Quote: Under Alternative C, the new joint and several liability requirement could create an additional incentive for owners to ensure that their operators comply with the 9B regulations. Specific language is not given, but in practice this would make little difference to permitted operations if bond limits are removed as proposed and adequate bonds are obtained. However, it may provide an additional incentive for existing operations not currently regulated to come into compliance - the mineral owner is in it for the long term while some currently unregulated marginal operators may just walk away. We could support this Alternative C provision (and this provision alone) if it were included under Alternative B, the Preferred Alternative.

RESPONSE: NPS included joint and several liability as a reasonable alternative in the draft EIS because it could encourage lessors to emphasize to their lessees stricter compliance with applicable laws and regulations in their lease documents, including the responsibility to plug and reclaim their operations. However, because NPS is including a bonding amount covering the full reasonable cost of reclamation in the final EIS and final rule, the NPS believes the joint and several liability provision is unnecessary.

AL1140 - Alternative B Elements: Mitigation measures for surface operations located adjacent to park units

CONCERN STATEMENT: (Concern ID: 55620) One commenter suggested that NPS apply mitigation measures to operations located adjacent to NPS park units.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483954 **Organization Type:** Unaffiliated Individual

Representative Quote: Pages 161, 176, 210, 228, 269, 340, and 353, Directional Drilling, NPS states it cannot impose preventive measures such as mitigation on private lands next to National Park System lands where directional drilling is done. This is a false statement. NPS used to do this before it changed its policy in 2002. I have read BTNP EA's where NPS did not approve an exemption until off-site water flow issues that could bring contaminants onto National Park System lands had been resolved.

RESPONSE: NPS evaluated whether to extend this authority to operations outside its boundaries in alternative C, but this alternative element was not identified as the preferred alternative and not adopted in the proposed rule. The existing 9B regulations have not generally allowed NPS to regulate surface activities outside park boundaries; a 2003 guidance document was issued in order to restate those requirements and clarify this point.

CONCERN STATEMENT: (Concern ID: 55548) One commenter called for the NPS to state that its exemption approval process is part of the 9B regulation and can only be done via the 9B regulation.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483935 **Organization Type:** Unaffiliated Individual

Representative Quote: NPS must state that its exemption approval process is part of the 9B Regulation and can only be done via the 9B Regulation.

RESPONSE: The exemption approval process is part of the 9B regulations.

AL1200 - Alternatives: Alternative Concept C - Modified Proposed Rule

CONCERN STATEMENT: (Concern ID: 55608) Commenters stated that the text describing the alternatives in the draft EIS was not presented clearly enough.

Corr. ID: 21 **Organization:** Center for Biological Diversity **Comment ID:** 484665

Organization Type: Conservation/Preservation

Representative Quote: [Footnote 1] Elsewhere, the DEIS repeatedly refers to the exemption criteria as requiring "no effect on the federal interest." See, e.g., DEIS at 168, 182. "No effect on the federal interest" is a much higher bar than "no significant threat of damage to federally owned, administered, or controlled lands, waters or resources of the unit, or park visitor and employee health and safety." If "no effect on the federal interest" is a shorthand reference to the latter, it is misleading. The DEIS must clearly define the alternatives at issue, or else a meaningful comparison between them is not possible.

RESPONSE: The NPS notes that the standard cited by the commenter should have read "no significant effect" for the review standard that applies to alternative C – proposed and previously exempt operations located wholly on non-federal lands. The NPS has updated the final EIS accordingly.

CONCERN STATEMENT: (Concern ID: 55549) One commenter opposed the additional/expanded provisions of alternative C, citing that these provisions would create additional administrative burdens, remove incentives to protect park resources, and be difficult to regulate.

Representative Quote(s):

Corr. ID: 22 **Organization:** Coalition to Protect America's National Parks **Comment ID:** 480720

Organization Type: Conservation/Preservation

Representative Quote: While expanded NPS jurisdiction as proposed under Alternative C may seem desirable to further regulate such directional drilling operations, we believe: 1) It would remove incentive to locate such operations outside the park; and 2) It would require a novel extension of NPS legal authority that would be highly controversial and difficult to achieve in the current political climate, and is unnecessary for effective management of the activity.

Corr. ID: 22 **Organization:** Coalition to Protect America's National Parks **Comment ID:** 480721

Organization Type: Conservation/Preservation

Representative Quote: It is not clear how this would be accomplished administratively, and it would still require the operator to submit information and NPS to analyze potential effects and likely NEPA compliance. This seems to add unnecessary regulatory confusion with no apparent benefits; and, if an operation were exempted, no bond would be obtained for the operation, creating a restoration problem in case of a future abandonment. For these reasons, we oppose this provision.

RESPONSE: NPS agrees. This rationale supports the identification of alternative B as the preferred alternative with respect to the final rule's directional drilling provision.

CONCERN STATEMENT: (Concern ID: 55551) One commenter expressed a preference for the additional/expanded provisions of alternative C, but suggested adding provisions that would allow for even greater NPS oversight of directionally drilled operations, including site visits, inspections, and required mitigation.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 480669 **Organization Type:** Unaffiliated Individual

Representative Quote: Page v, Alternative C: Modified Proposed Rule, I favor this alternative with changes. It is important for NPS to regulate those who drill under the National Park System to ensure that both subsurface and surface impacts do not occur. Currently, NPS encourages operators to directionally drill under National Park System lands. This exemption approval process directs most of the oil/gas impacts onto private lands with little or no NPS regulatory authority and implemented with many voluntary mitigation measures.

I prefer a more controlled regulatory process for directionally drilled wells outside the National Park System. NPS must have authority to visit the drill site that is off-site to ensure that it is being done correctly and that the operators abide by mitigation measures that are mandatory. In this way, a less risky type of drilling will occur without the need for a formal plan of operations.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483934 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 30, Accessing Oil and Gas Rights Inside a Park Boundary from a Surface Location Outside the Park Boundary and Page 33, No Access Exempt Operations, NPS fails to reveal that it used to exercise jurisdiction (2002) outside the National Park System for wells drilled underneath the National Park System.

RESPONSE: NPS has evaluated public comments on expanding NPS jurisdiction outside the boundary of a unit to include surface operations of a well directionally drilled into the boundary of the unit, and has determined that expanding NPS jurisdiction would remove the incentives to locate operations outside the park. The 9B regulations have never provided NPS with such authority in the past. The NPS 2003 guidance simply clarified this point and restated the existing regulations, as was specifically held in *Sierra Club v. Mainella*, Civil Action No. 04-2012 (JDB) (2005).

AL1600 - Alternatives: Other/New Alternatives, Alternative Elements, or Management Tools

CONCERN STATEMENT: (Concern ID: 55554) One commenter suggested that the rule should require National Environmental Policy Act-level review of operator permit applications for directionally drilled operations.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 480672 **Organization Type:** Unaffiliated Individual

Representative Quote: I want a specific rule in the 9B regulation that states that public review/comment periods as required by NEPA will occur and that the exemption approval process for wells drilled outside the National Park System, but through it, will require an EA.

RESPONSE: NPS follows Council on Environmental Quality (CEQ) and Department of Interior (DOI) NEPA regulations and NPS NEPA policy to comply with the National Environmental Policy Act. Creating additional NEPA policy and regulations through this rulemaking is unnecessary given the CEQ and DOI NEPA regulations and NPS NEPA policy, and is outside the scope of this rulemaking.

CONCERN STATEMENT: (Concern ID: 55555) One commenter suggested that acquisition of mineral rights should be incorporated as an element of the proposed rule.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 480668 **Organization Type:** Unaffiliated Individual

Representative Quote: 3) Page iii, Planning Objectives and Pages 72 and 73, Uniform Acquisition of Oil

and Gas Rights in All Units Where Mineral Development is Ongoing or Likely in the Future, NPS states in the last objective, ... while still maintaining the ability of the NPS to protect park resources and values to the fullest extent practical, the last option is the buying of mineral rights because surface land impacts would be unacceptably high. NPS should also list this option as an objective.

NPS should determine the cost of mineral rights that exist under NPS lands and include this in the DEIS. After this is done then NPS should acquire these mineral rights and retire them so there are no problems with oil/gas activities in the future.

RESPONSE: As stated in the draft EIS “Alternatives Eliminated from Further Consideration” section, the NPS determined that uniform acquisition is financially infeasible and unnecessary to protect park system resources and values. Acquisition of mineral rights is not a regulation of a park use, and it is neither necessary nor appropriate to include it in the proposed rule. NPS will continue its practice of determining, on a case-by-case basis, whether a proposed operation meets the operating standards and approval standards of the 9B regulations. If, in working collaboratively with prospective operators, the operator’s proposed operation does not meet 9B approval standards, the NPS does have the authority to deny the operation and seek acquisition of the mineral right.

CONCERN STATEMENT: (Concern ID: 55556) One commenter suggested that the rule require surprise inspections.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 481897 **Organization Type:** Unaffiliated Individual

Representative Quote: Surprise or unannounced inspections should be required for all oil/gas activities that affect the National Park System, whether within or outside of a unit.

RESPONSE: The NPS final rule at § 9.121 states that “The NPS may access your area of operations at any time to monitor the potential effects of the operations and to ensure compliance with this subpart where applicable.”

CONCERN STATEMENT: (Concern ID: 55557) One commenter suggested that the rule should require application processing fees be used to monitor operations.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 481916 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 143, Authority to Recover Costs of Permitting and Administration of the Regulations, and Pages 168, 182, 198, 211, 217, 234, 235, 254, 276, 289, 294, 304, 322, 328, 346, 359, and 382, if NPS is going to emphasize that funds collected from processing proposed oil/gas plans could support increased monitoring as a significant difference between Alternatives B and C then it must require that these funds be used for monitoring and not just say they could be used for monitoring. Otherwise the claim that Alternative B is better than Alternative C in this respect is not proven. As mentioned on Page 382, unless NPS follows through by changing its policy no money for monitoring will come from these fees.

RESPONSE: NPS wishes to maintain flexibility for superintendents to use their discretion on how best to use the funds collected under this authority. Monitoring may be a good use of these funds, but there may be other uses of these funds that can help protect park resources and values.

CONCERN STATEMENT: (Concern ID: 55558) One commenter suggested that the rule require the use of NPS employees for monitoring rather than third-party monitors.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 481917 Organization Type:** Unaffiliated Individual

Representative Quote: Page 144, General Terms and Conditions, I prefer that NPS employees conduct monitoring of oil/gas operations rather than third-party monitors. There is a better chance for strong enforcement when your own employees understand the NPS mission and are motivated to fulfill it than to delegate this important job to someone who is doing this just because it is a job. I do not believe in privatizing NPS enforcement. I am willing to pay taxes to ensure that there are enough NPS employees to do the job right.

RESPONSE: NPS wishes to maintain flexibility for superintendents to use their discretion on whether to use NPS personnel for monitoring or whether to require that an operator hire a third-party monitor.

AL1650 - Alternatives: "No Fracking" Alternative

CONCERN STATEMENT: (Concern ID: 55604) Some commenters suggested that the NPS should consider analyzing a no-fracking alternative.

Representative Quote(s):

Corr. ID: 15 Organization: Not Specified **Comment ID: 481250 Organization Type:** Unaffiliated Individual

Representative Quote: However, the alternatives proposed do not go far enough. I strongly support a ban on hydraulic fracturing and other extreme techniques to access oil and gas beneath park lands. Even operations located outside of park boundaries, but adjacent to a park, can have significant impacts on air and water quality, wildlife habitat, soil and vegetation, soundscapes and views, night skies, visitor experience, and public health and safety.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482187 Organization Type:** Conservation/Preservation

Representative Quote: The EIS fails to study a no fracking alternative and these significant risks. To the extent that this failure results from the Services belief that a fracking ban or moratorium would violate property rights, this assumption is incorrect.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482209 Organization Type:** Conservation/Preservation

Representative Quote: the EIS is deficient in that it fails to consider an alternative that would prohibit fracking on or affecting Park Service lands.

RESPONSE: Congress has directed the NPS to “ensure that management of System units is enhanced by the availability and utilization of a broad program of the highest quality science and information” (54 USC 100702). NPS notes that some studies show, in some limited instances (improper cementing of casing and well integrity issues), oil and gas operations that include hydraulic fracturing stimulation completion methods can negatively affect surrounding resources and the environment. However, other studies show that done properly, wells completed using hydraulic fracturing completion methods would present no more risk to the surrounding environment than conventionally completed wells. Based on NPS research and review of studies provided during the public comment period, NPS does not believe that a blanket ban on hydraulic fracturing completion methods in NPS units is necessary at this time. The NPS will continue to revisit and update its policy as more information on hydraulic fracturing completion methods becomes available. Further, the NPS notes that proposed well completion programs using hydraulic fracturing are not given blanket approval. The final rule includes operating standards and

approval standards designed to ensure that operators employ technologically feasible least damaging methods and will not impair park system resources or values. NPS will consider hydraulic fracturing operations on a case-by-case basis and analyze potential impacts on park resources and values pursuant to NEPA, using approval standards of the regulation.

CC1000 - Consultation and Coordination: General Comments

CONCERN STATEMENT: (Concern ID: 55559) Commenters called for the EIS to better describe the consultation that occurred under Section 7 and Section 106 as well as how environmental or conservation organizations were included in the consultation process.

Representative Quote(s):

Corr. ID: 27 Organization: US EPA **Comment ID:** 480684 **Organization Type:** Federal Government

Representative Quote: In addition, we recommend the final EIS include information related to the Endangered Species Act and National Historic Preservation Act consultation and coordination requirements in the appendix to final EIS.

Representative Quote(s):

Corr. ID: 21 Organization: Metropolitan State University **Comment ID:** 480794

Organization Type: Unaffiliated Individual

Representative Quote: it should be noted that you also did not include any environmental or conservation organizations in the list of people that received this draft for review.

RESPONSE: The final EIS includes information related to all consultation requirements, including the Endangered Species Act and National Historic Preservation Act. CEQ regulations at 40 CFR 1502.10(i) require that we disclose a list of agencies, organizations, and individuals to whom the statement is sent. NPS disclosed in Chapter 5 of the draft EIS to whom the draft EIS was sent. "Environmental or conservation organizations" were not sent a copy of the statement but were notified through direct mailing and/or federal register notices.

CC1550 - Public Notice Requirements

CONCERN STATEMENT: (Concern ID: 55595) Multiple commenters called for retaining public review/comment requirements. One commenter expressed concern that public review will be handled through NEPA, and another commenter suggested that specific public notice requirements should be inserted in the proposal at the sections where NPS determines a proposed application is complete and will begin formal review.

Representative Quote(s):

Corr. ID: 22 Organization: Coalition to Protect America's National Parks **Comment ID:** 480719

Organization Type: Conservation/Preservation

Representative Quote: neither the proposed Public Participation (9.200) nor any other regulatory section addresses NEPA or other public notice requirements. While it may be the NPS intent that normal NEPA and other compliance processes will provide adequate public notice and participation opportunities, this needs to be clearly stated in the regulatory proposal. We suggest specific public notice requirements be inserted in the proposal at the sections where NPS determines a proposed application is complete and it will begin formal review

Corr. ID: 28 Organization: Not Specified **Comment ID: 480671 Organization Type:** Unaffiliated Individual

Representative Quote: Page v, Alternative B: Proposed Rule (Preferred Alternative) and Alternative C: Modified Proposed Rule, the proposed rule eliminates public review/comment requirements from the 9B regulation. I oppose this. If NPS's view is that this is taken care of by the National Environmental Policy Act (NEPA) then it can prepare a rule that states this. I am concerned this is a back-door way for NPS to eliminate the requirement to conduct an environmental assessment (EA) for the exemption approval process that allows operators to directionally drill under the National Park System.

RESPONSE: NPS follows CEQ and DOI NEPA regulations and NPS NEPA policy to comply with the National Environmental Policy Act. Creating additional NEPA policy and regulations through this rulemaking is unnecessary given that CEQ and DOI NEPA regulations and NPS NEPA policy already provide for public notice and comment.

GA1000 - Impact Analysis: Impact Analyses

CONCERN STATEMENT: (Concern ID: 55606) Commenters expressed concern about potential impacts from directional drilling and the lack of analysis of these impacts. One commenter suggested that the EIS should include an analysis of impacts on geology and soils that occur on nearby private lands as a result of the incentive to locate oil and gas operations outside of parks.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482207 Organization Type:** Conservation/Preservation

Representative Quote: The EIS performs no analysis of these significant effects of exempting operations and fails to address their mitigation. See, e.g., DEIS 193, 199. The EIS also fails to study an alternative that would allow no exemptions for operations accessing any nonfederal minerals underlying federal land, which would allow a meaningful comparison between allowing exemptions and not allowing them. The Service must revise and recirculate the EIS and study the impacts of exempting operations.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482174 Organization Type:** Conservation/Preservation

Representative Quote: Relatedly, the EIS fails to acknowledge the significant impacts of such exempt operations that would escape enforceable requirements, as well as the impacts of shifting drilling from inside to outside the park and increasing directional drilling overall.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482208 Organization Type:** Conservation/Preservation

Representative Quote: The EIS utterly fails to study the impacts of increased directional drilling from outside the park under Alternative B. More directional drilling outside the park could result in more intensive drilling of longer boreholes, involving overall greater freshwater depletion, surface disturbance, air pollution, greenhouse gas emissions, and noise compared to a scenario where drilling outside the park is not encouraged. DEIS A-5 (Directional drilling may require a larger- sized rig and additional support facilities that may lead to larger pad sizes.). The EIS neglects to acknowledge any of these effects in its comparison of Alternatives B and C, and as a result it does not study mitigation that would reduce these effects. Furthermore, the DEIS fails to address the commonsense relationship between well development immediately outside the park and downstream, downwind, and downslope effects to resources within the park. If increased cumulative impacts on park resources or neighboring communities would result, the Service should develop mitigation offsets that would compensate for

these effects.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483953 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 158, Currently Exempt Operations, NPS assumes that there will be minimal disturbance to geology and soils. However, this assumption only exists if NPS ignores the impacts to geology and soils that occur next door on private lands due to NPS policy to push drilling and environmental impacts there. NPS should not make such cavalier statements and ignore what environmental impacts occur on private lands due to NPS policy.

RESPONSE: Impacts on adjacent lands are recognized in the EIS for all topics in the discussions about directional drilling in the no-action alternative description, where it is stated that “wells directionally drilled and produced from outside park units to bottomholes beneath the park units would directly impact [resources] on adjacent lands ...” Additional text has been added to the final EIS in the directional drilling discussions for each resource to clarify that these impacts would be as described in the section “Impacts of Oil and Gas Operation on [Resource]”. However, the NPS has a clear policy directive to preserve NPS lands, and having oil and gas operations sited off park property is preferable to having impacts on park lands.

Locating all operations (surface and downhole) inside the boundary of a park unit would subject park resources and values to the long-term impacts of surface occupancy within the park – impacts that would last years, if not decades. Therefore, the NPS feels the best course of action is to maintain the incentive in the proposed rule to encourage operators to locate operations outside the boundary of a unit.

NPS also points out that there is “a meaningful comparison between allowing exemptions and not allowing them,” as alternative C does not exempt directional drilling operations outside the park unit boundary from a plan of operations. The draft EIS also analyzed the difference between exempting and not exempting these directionally drilled operations.

CONCERN STATEMENT: (Concern ID: 55561) One commenter called for additional detail in the analysis of impacts from directional drilling, including better documentation of surface disturbance on private lands adjacent to national park system lands where directional drilling occurs beneath national park system lands, such as at Big Thicket National Preserve. The commenter also requested documentation of impacts of such exempt operations caused by increased directional drilling from outside the park.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID:** 481922 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 156, Table 35. Surface Disturbance Estimates for Non-Federal Oil and Gas Operations in Category 1 Park Units, documentation for BTNP is not available. Documentation should be available because there is a good record of what oil/gas activities have occurred in BTNP for the past 30 years. The NPS fails to document surface disturbance on private lands adjacent to National Park System lands where directional drilling occurs under National Park System lands. NPS should document this disturbance since it is due to NPS urging of operators to drill off-site and therefore partially is caused by NPS and its policies. Federal access is required for these wells to ensure that down-hole activities are conducted appropriately. NEPA requires that all impacts are represented in a DEIS.

RESPONSE: Page 156, table 35, footnote 1 states that “Exempt operations considered in this table exclude those directionally drilled from locations outside of NPS boundaries as well as those operations that do not require federal access.” This table does not purport to address the impacts of directional

drilling. However, the impacts of directional drilling operations, whether exempted (alternative B), or not exempted (alternative C) are fully analyzed for each impact topic, consistent with this programmatic document.

CONCERN STATEMENT: (Concern ID: 55563) One commenter called for revision or removal of the statement pertaining to the percentage of operators who would have located within the national park system without existing incentives to locate elsewhere.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 480670 **Organization Type:** Unaffiliated Individual

Representative Quote: NPS, in this DEIS, states inaccurately, on pages 169, 200, 218, 235, 255, 277, 295, 311, 329, 347, and 383, that ... and logistics were neutral for another 37% of operations. Thus, only 26% of operations would have located outside of park boundaries. Stated another way, the vast majority of operations, or nearly three quarters of the total, would have located within the park boundaries if no NPS regulations existed. This is a misleading and inaccurate statement. If 37% of operators were neutral about where they favored locating their drilling site, then this means they are neither for nor against drilling in the National Park System and could be persuaded either way. NPS can recommend, encourage, and has a strong policy preference exists which compels the NPS to locate operations outside of identified sensitive areas. What can be said is that 37% of the operators would have preferred a drilling site within the National Park System, 26% would have located their drilling site outside the National Park System, and 37% has no strong preference and are subject to persuasion to drill outside the National Park System. NPS must not deceive the public with statements that are erroneous and thus overlay the risk of environmental impacts for Alternative C.

RESPONSE: NPS has updated the final EIS with the following clarification: According to NPS analysis of operations directionally drilling into a park, 37% of operations showed surface logistics that favored a vertical well drilled in the park. Another 37% of operations showed that surface logistics made a vertical well impractical, but there were more favorable surface locations inside the park than outside from which to drill a directional well. Thus, of all of the operations that directionally drilled from outside a park unit, only 26% showed unfavorable surface logistics for locating operations inside a park unit. Therefore, one can conclude that the other 74% were incentivized by the waiver from regulations to locate their operations outside of the park units.

GA1100 - Impact Analysis: Cumulative Impacts

CONCERN STATEMENT: (Concern ID: 55687) One commenter requested additional detail in the discussion and analysis of cumulative impacts from oil and gas operations that use hydraulic fracturing.

Representative Quote(s):

Corr. ID: 21 **Organization:** Center for Biological Diversity **Comment ID:** 485351

Organization Type: Conservation/Preservation

Representative Quote: Scientific and public health research is also greatly hindered when information relating to chemical use is kept hidden. The Service will lose the ability to study, track, and disclose aggregate data on the effects of fracking by allowing operators to withhold this information. This is especially troubling given that the Service has a duty under NEPA and CEQ regulations to analyze the cumulative environmental impacts of a particular action. A fully informed evaluation of the cumulative impacts of well stimulation and enhanced oil recovery on Park Service lands requires gathering and

aggregating information. Without it, the Service cannot conceivably base its decisions on an adequate analysis of the risks associated with oil and gas activities.

RESPONSE: The NPS encourages the public disclosure of all chemicals used in any hydraulic fracturing operation. The NPS requires operators to submit chemical disclosure information that they provide to FracFocus, a publicly available database. However, because federal law may protect the identity of some chemicals as trade secrets, the NPS is allowing that information to be withheld if the operator and any other owner of the trade secret submit affidavits containing specific information explaining the reasons for the claim for protection. If the NPS has questions about the validity of the claim for protection, the NPS can require the operator to provide the withheld information to the NPS, and then would make a determination as to whether it is proper to withhold the data from the public.

CONCERN STATEMENT: (Concern ID: 55564) One commenter indicated that the description of catastrophic and high-intensity fire under cumulative impacts should also be characterized as beneficial because, in some ecosystems, fires provide a normal ecosystem function.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483955 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 163, Table 39. Cumulative Impacts on Geology and Soils (Programmatic Level for Category 1 and 2 Park Units), catastrophic and high intensity fire in some ecosystems is the norm and is not bad. Therefore the NPS should not suggest without any reservations that such fires are bad.

RESPONSE: Catastrophic wild fires are not considered cumulative actions because they are not always a result of an action being taken which is human-caused. The effects of catastrophic fire vary with the type of habitat present and its natural fire regime, and these effects could be beneficial if they result in perpetuation of fire-dependent ecosystems. These effects are reflected in the “Affected Environment” section, and a statement recognizing this has been added to the final EIS in the vegetation section. Preventing high-intensity catastrophic fire is considered a benefit to soils because such fires are known to adversely affect organic matter and associated soil structure and nutrient content (Neary, Daniel G.; Ryan, Kevin C.; DeBano, Leonard F., eds. 2005, revised 2008, Wildland fire in ecosystems: effects of fire on soils and water. Gen. Tech. Rep. RMRS-GTR-42-vol.4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 250 p.). This has been so noted in the cumulative assessment.

CONCERN STATEMENT: (Concern ID: 55565) One commenter called for additional detail in the discussion and analysis of cumulative impacts from oil and gas operations and requested that the description of cumulative impacts include illegal off-road vehicle use, poaching, non-native invasive plant species, and animal introductions or increases.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483958 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 164, Table 40. Cumulative Impacts on Geology and Soils - Category 1 Park Units with Exempt Operations, the NPS should add illegal ORV use, poaching, NNIPS and animal introductions or increase.

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 481920 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 149, Cumulative Impacts Analysis Method, in this summation NPS does not list toll roads (one has been proposed for BTNP), mountain biking, illegal use of off-road vehicles, wild

fires, and poaching.

RESPONSE: These additional cumulative actions have been included in the final EIS description of cumulative actions. Toll roads are now listed under the land development category and are considered wherever the analysis mentions impacts of roads; mountain biking is now listed under the recreational use category; illegal use of off-road vehicles is already considered as part of the ORV use category that is already listed; and poaching is now described as an illegal recreational use under the recreational use category. Wildfires are not regarded as cumulatively considerable because they are not human-caused plans, policies, or actions.

IT1000 - Issues/Impact Topics: General Adequacy of the Analysis and Level of Detail

CONCERN STATEMENT: (Concern ID: 55567) Commenters indicated that insufficient analysis in the EIS resulted in inadequate evaluation of seismic impacts from underground injection of produced/flowback waters.

Representative Quote(s):

Corr. ID: 20 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 482256 **Organization Type:** Conservation/Preservation

Representative Quote: The proliferation of unconventional oil and gas development, including increases in extraction and injection, will increase earthquake risk in areas susceptible to induced seismicity. Accordingly, the EIS must fully assess the risk of induced seismicity cause by all unconventional oil and gas extraction and injection activities, including wastewater injection wells.

The analysis should assess the following issues based on guidance from the scientific literature, the National Research Council, and the Department of Energy : (1) whether existing oil and gas wells and wastewater injection wells in the area covered by the RMP have induced seismic activity, using earthquake catalogs (which provide an inventory of earthquakes of differing magnitudes) and fluid extraction and injection data collected by industry; (2) the region's fault environment by identifying and characterizing all faults in these areas based on sources including but not limited to the USGS Quaternary Fault and Fold database and the most recent Colorado Geological Survey Fault Activity Map GIS layer. In its analysis, the Service should assess its ability to identify all faults in these areas, including strike-slip faults and deep faults that can be difficult to detect;

Corr. ID: 27 Organization: US EPA **Comment ID:** 480679 **Organization Type:** Federal Government

Representative Quote: We recommend the final EIS discuss whether there is potential for induced seismicity due to underground injection of produced/flowback waters and what mitigations or management controls would be used to reduce or eliminate any problems or concerns. Induced seismicity is an increasing concern in regions of the United States where the produced fluids and wastewaters from oil and natural gas production activities are being injected into the subsurface through deep disposal wells.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 480673 **Organization Type:** Unaffiliated Individual

Representative Quote: Pages vii and viii, Geology and Soils, the NPS does not address how injection of fracking wastes causes earth quakes. NPS must state what it will do to eliminate or mitigate this impact so that National Park System lands are not adversely impacted.

RESPONSE: Produced water (typically of high saline content) often represents the largest volume of waste generated at oil and gas sites. Disposal by injection into deep formations is currently the most

common method of disposal. Injecting large volumes of water into deep sedimentary formations raises the pore pressure of large areas and has been associated with induced earthquakes. Of the approximately 40,000 waste fluid disposal wells nationwide, only a small fraction have induced earthquakes large enough to be of concern to the public. The US Geological Survey is working closely with the US Environmental Protection Agency, state and local regulators, and state geological surveys to better understand the causes of these earthquakes and develop recommended mitigation techniques to avoid these hazards.

National park system units with oil and gas currently have no oil and gas operations that use hydraulic fracturing completion techniques. NPS does not allow disposal wells inside park unit boundaries. Furthermore, the proposed rule is not authorizing any on-the-ground proposal. If proposals for operations using hydraulic fracturing techniques are submitted to the NPS, the NPS will conduct site-specific analysis to determine the potential for induced seismicity, and the NPS will use the 9B regulations to apply avoidance and mitigations to the extent necessary.

CONCERN STATEMENT: (Concern ID: 65567) One commenter indicated that the use of “best professional judgement” was insufficient for the analysis of impacts in the EIS, and that the draft EIS should include a comparison of alternatives and impacts in comparison form.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 485345 **Organization Type:** Unaffiliated Individual

Representative Quote: I oppose the use of best professional judgment in lieu of using existing or not exorbitantly costly acquired quantitative data. I request that NPS clarify and detail clearly the comparative differences between each alternative and define clearly what the words/phrases used to define their impacts mean.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 585345 **Organization Type:** Unaffiliated Individual

Representative Quote: Analyses in the DEIS is based on "best professional judgment" which is simply what a group of people think is important based on their experience and training. This level of assessment, analyses, and evaluation for environmental impacts and alternatives is an insufficient base for this DEIS.

NPS must define what "best professional judgment" means so that the public can review, comment on, and understand what NPS refers to. The qualitative description of words/phrases used to describe environmental impacts or the protectiveness of an alternative does not provide the public with the degree of comparison required by the CEQ.

The use of "best professional judgment" is not a substitute when quantitative information is available to show what impacts are or could be. This is the concern that I have when NPS develops and uses on Pages 145-151, in the "General Analysis Methods, Basic Assumptions Used in This Analysis, Significance of the Impacts, and Cumulative Impacts Analysis Method". These methods are based, in most part, on "best professional judgment" but the public is not told how this phrase is defined and what it means. The interaction of the methods with the requirement in Section 1502.22 of the CEQ's NEPA implementing regulations must be discussed in the DEIS . . .

I request that NPS clarify and detail clearly the comparative differences between each alternative and define clearly what the words/phrases used to define their impacts mean.”

Corr. ID: 28 Organization: Not Specified **Comment ID:** 480667 **Organization Type:** Unaffiliated Individual

Representative Quote: A qualitative assessment, analysis, and evaluation of environmental impacts is not sufficient to deal with the clearly articulated Council on Environmental Quality (CEQ) requirements

in Section 1502.14, which states that the DEIS should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public.

RESPONSE: Page 145 of the draft EIS states that: “Primary steps for assessing impacts include identifying potential impacts on park resources and values from oil and gas exploration, drilling and production, and reclamation under the no-action alternative, and the impacts from currently exempt operations, and then assessing the change (if any) to those impacts under the action alternatives. The degree of potential impacts on resources from oil and gas development depends on the type and location of operations and mitigation measures used to reduce impacts. As a result, a qualitative analysis of the potential impacts of oil and gas operations on the resources was conducted based on actual experience of the NPS in management of non-federal oil and gas operations, best professional judgment, and information available in the literature to assess their effects on park resources and visitor values. This analysis also addresses regulated operations, although the change in regulation would not cause changes at oil and gas operation sites.

Where possible, site-specific analysis that pertains to existing exempt operations is provided. Information obtained from NPS natural resource inventory and monitoring network data, park geographic information system (GIS) data, oil and gas management plans, and park site inspection records was used to characterize impacts of exempt operations and predict the impacts of bringing those operations under regulations as proposed in the action alternatives.”

This 9B rule revision draft EIS is primarily a programmatic document, which analyzes broadly the effects of minor updates to an existing rule, and all of the updates in the proposed rule have been found to further protect park system resources compared to existing conditions under the current rule. NPS cannot predict exactly where future operations will be located, so it is necessary for this to be a programmatic document in which impacts are described broadly, although NPS has used park specific resource information, including quantitative data, where practicable. Moreover, the rule will not allow for new oil and gas development without future site-specific NEPA analysis.

NPS Management Policies define Professional Judgement as follows: “Professional judgment— a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account

- the decision-maker’s education, training, and experience;
- advice or insights offered by subject matter experts and others who have relevant knowledge and experience;
- good science and scholarship; and, whenever appropriate,
- the results of civic engagement and public involvement activities relating to the decision.”

NPS provides a comparative difference between the alternatives throughout the Executive Summary, and chapters 2 and 4. See for example table ES-1 (comparison of impacts), Table 5 (comparison of alternatives), and Table 7 (comparison of impacts), as well as written text throughout chapter 4.

In summary, NPS relied on a broad array of information in analyzing impacts, as described in the document and for which citations are provided. The regulation at 40 CFR 1502.22 requires disclosure of incomplete or unavailable information when there are reasonably foreseeable significant adverse impacts. NPS found the potential for locally significant effects in the case of a spill, however, NPS did not lack information in reaching this conclusion.

CONCERN STATEMENT: (Concern ID: 55569) One commenter requested that the draft EIS include solitude (a component of wilderness) as an impact topic.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483930 **Organization Type:** Unaffiliated Individual

Representative Quote: Pages xiii and xiv, Visitor Use and Experience (including human health and safety, visitation patterns, visitor activities, recreation, interpretation), Page xvi, Natural Soundscapes and Acoustic Environment, Page xviii, Park Management and Operations, and Page xix, Socioeconomics (including non-federal oil and gas exploration and development and regional and local economics) and Pages 15 through 17, Impact Topics, the NPS fails to include solitude as an important and valuable benefit that the National Park System provides to humans. Solitude should be an impact topic in the DEIS and the impacts that oil/gas activities have on this important and valuable benefit should be covered.

RESPONSE: NPS does not consider solitude a resource unto itself, and it is captured under visitor use and experience. NPS has provided additional information on solitude in chapter 4 in the final EIS.

CONCERN STATEMENT: (Concern ID: 55570) One commenter expressed concern that the soundscape analysis was incomplete because the impacts of noise on the soundscape were not analyzed.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483972 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 314, Natural Soundscapes and Acoustic Environment, Methodology, NPS states, Other considerations such as wildlife behavior, wildlife habitat, cultural soundscapes, the intrinsic acoustic environment, and overall soundscape were not considered in the site-specific analysis. This means that the soundscape analysis is incomplete. NPS failed to look at all impacts of noise on the soundscape and thus underestimates the impact of noise. This is not acceptable DEIS analysis.

RESPONSE: While this programmatic EIS does not evaluate impacts to soundscapes at a local, site-specific level for each of the 319 exempt operations, several assertions are made in the analysis that adequately characterize the range of probable impacts on soundscapes from these operations. Noise attenuation information is presented in table 61 on page 315 and in the subsequent description of “Typical Impacts of Oil and Gas Operations on Natural Soundscapes and Acoustic Environment,” as well as in detailed narrative describing impacts from exempt operations on page 321. The reader is also referred to appendix C for the specific distances from visitor use areas for each operation. As noted on page 321, there are currently 319 exempt operations in category 1 park units, 43 of which are within 500 feet of an exempt operation. An initial site-specific assessment of noise impacts from oil and gas operations would be performed at the time of permit review when operations would be required to submit plans of operations in compliance with the revised regulations.

CONCERN STATEMENT: (Concern ID: 55571) One commenter expressed concern over statements in the draft EIS that many impacts would be relatively short term when the plan will last 20 to 30 years.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483976 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 388, Relationship Between Local Short-term Uses of the Environment and Maintenance and Enhancement of Long-term Productivity, NPS states, For all alternatives in this plan/EIS, many impacts would be relatively short-term. This is untrue. Since this plan will last 20-30 years

the impacts will in many cases be long-term particularly since 80-100 more wells will be drilled in the National Park System during that time.

RESPONSE: The EIS defines duration in accordance with the Council on Environmental Quality (CEQ) regulations, which direct public agencies to assess the significance of the impacts in terms of context, intensity, and duration (40 CFR 1502.16). Duration describes the length of time an effect will occur, either short term or long term. The draft EIS describes short-term impacts as those that occur up to one year. Long-term impacts were defined as those occurring over several seasons through the next 20 to 30 years. The impacts analysis for each impact topic in chapter 4 describes whether the impacts are short or long term.

The statement that “many impacts would be relatively short-term” is not in error. While the proposed action here is a regulatory revision that could be in effect for 20 to 30 years, that action alone obviously does not create any direct impacts. Impacts will occur as a result of individual operations, and as stated in the draft EIS, many of those impacts will be short-term. For example, drilling impacts would last only for the period of active drilling.

It is true that there will be many such impacts in different times and places across the national park system over the lifetime of the regulation, but that simply means there could be many short-term impacts. The commenter assumes that short-term impacts of 80 to 100 wells must necessarily equal long-term impacts, but that is clearly incorrect: those impacts would occur in 80 to 100 different times and places, so it simply means that there would be 80 to 100 different sets of short-term impacts (along with some long-term impacts, as discussed in the draft EIS).

In addition, all of these impacts must be weighed relative to existing conditions, recognizing that there would be long-term beneficial impacts from the regulatory revision relative to the existing condition.

The proposed action does not either directly or indirectly affect the rate at which new wells are drilled, and the estimate of “80–100 more wells” drilled in the national park system over the next 20 to 30 years is premised upon a variety of factors, including the projected cost of operations, prevailing global economic market forces, and fluctuations in supply and demand, all of which are highly uncertain.

CONCERN STATEMENT: (Concern ID: 55572) One commenter requested more information regarding the use of specific buffer distances in describing resources potentially impacted by oil and gas activities.

Representative Quote(s):

Corr. ID: 21 **Organization:** Metropolitan State University **Comment ID:** 480727

Organization Type: Unaffiliated Individual

Representative Quote: The first one of these issues is the proximity of drilling activities within the Park Units to groundwater sources, wetlands, areas of geologic importance, and visitor access. It is clearly implied by the tables in Appendix C of the EIS that 500 feet is what the NPS considers to be the cut-off, but that is not expressly stated on any of the documentation that is present in the EIS. This would be a very important distinction, as many of the existing grandfathered wells are located in much closer proximity than this.

Corr. ID: 19 **Organization:** Center for Biological Diversity and Kentucky Heartwood

Comment ID: 484658 **Organization Type:** Conservation/Preservation

Representative Quote: Setbacks may not be adequate to protect groundwater from potential fracking fluid contamination. A recent study by the University of Colorado at Boulder suggests that setbacks of even up to 300-feet may not prevent contamination of drinking water resources. The study found that

15 organic compounds found in hydraulic fracturing fluids may be of concern as groundwater contaminants based on their toxicity, mobility, persistence in the environment, and frequency of use. These chemicals could have 10 percent or more of their initial concentrations remaining at a transport distance of 300 feet, the average setback distance in the U.S. The effectiveness and feasibility of any proposed setbacks must be evaluated.

Corr. ID: 28 Organization: Not Specified **Comment ID: 481924 Organization Type:** Unaffiliated Individual

Representative Quote: Page 157, Regulated Operations (Current and Future), Page 166, Previously Exempt Operations, Pages 190 through 193, 198, 207, 208, 216, 217, 224, 225, 226, 227, 233, 245, 253, 262, 263, 267, 274, 275, 284, 285, 301, 308, 318, 319, 320, 336, 337, 339, and 345, NPS refers to recommended setbacks that apply for some sensitive areas in some National Park System lands. I am very concerned that NPS uses the Final Programmatic Oil and Gas Management Plan and EIS (OGMPEIS) for BTNP, December 2005, as an acceptable example of how NPS natural resources are protected from oil/gas activities.

RESPONSE: Appendix C is an informational tool, not part of a regulatory requirement. Appendix C shows existing exempt wells and their locations relative to various park resources. Please see page 157 of the draft EIS for information regarding setbacks. Essentially, those parks that have developed site-specific oil and gas management plans have also identified recommended setbacks based on the resources at the particular park unit. The NPS proposed rule includes a provision at §9.112 describing the operating standard of a 500-foot setback from surface water, including an intermittent or ephemeral watercourse, or wetland; or within 500 feet of any structure or facility used by the NPS for interpretation, public recreation, or administration. Under this provision, a Superintendent may increase or decrease this distance to protect park resources and values based on site-specific analysis of the proposal.

CONCERN STATEMENT: (Concern ID: 55573) One commenter expressed concern over the use of qualitative analysis that seemed subjective and used conclusory statements without providing adequate definitions of terms used to characterize impacts.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 480665 Organization Type:** Unaffiliated Individual

Representative Quote: This DEIS continues the use of conclusory statements that Judge Bates ruled against. Judge Bates stated in his decision that the descriptors negligible, minor, moderate, and major are largely undefined or are defined in a manner that includes few objective bounds. These descriptors and others in this DEIS are not defined with objective bounds as required by Judge Bates's decision. NPS has failed to take the hard look that Judge Bates stated that it must do.

In this DEIS words/phrases are defined so that they are conclusory and so that they do not have objective bounds.

Corr. ID: 28 Organization: Not Specified **Comment ID: 480666 Organization Type:** Unaffiliated Individual

Representative Quote: This lack of definition for these words/phrases makes it impossible for the public to accurately know how, for example, small, slight, minimal, and limited are different from each other and how additional qualifiers like very, generally, or relatively affect their meanings. Dictionary definitions are not sufficient when so many different impact topics are assessed using the same definition-less descriptor words/phrases with additional qualifier words added. There is no clear understanding how much harm or benefit these words/phrases connote. Is a whenever possible standard really acceptable for the National Park System. This is not acceptable environmental impact analysis.

RESPONSE:

The NPS NEPA policy, as described in the Director’s Order 12 Handbook, and based on the DOI and CEQ NEPA regulations, states in part the following:

“Analyzing impacts means considering how the condition of a resource would change, either negatively or positively, as a result of implementing each of the alternatives under consideration... A written impact analysis should:

- describe the impacts that each of the alternatives under consideration would have on affected resources;

- use quantitative data to the extent practicable;

- discuss the importance of impacts through consideration of their context and intensity; and

- provide a clear, rational link between the facts presented and the conclusions drawn.”

The words described by the commenter from the draft EIS are used in their ordinary meanings and are not intended to serve as defined impact thresholds. NPS NEPA policy does not require defined impact thresholds.

Nor does NPS NEPA policy require exclusive use of quantitative data. This 9B rule revision draft EIS is primarily a programmatic document, which analyzes broadly the effects of minor updates to an existing rule, and all of the updates in the proposed rule have been found to further protect park system resources compared to existing conditions under the current rule. NPS cannot predict exactly where future operations will be located, so it is necessary for this to be a programmatic document in which impacts are described broadly, although NPS has used park-specific resource information, including quantitative data, where practicable. Moreover, the rule will not allow for new oil and gas development without future site-specific NEPA analysis.

The commenter relies chiefly on a 10-year old district court opinion, *Sierra Club v. Mainella*, 459 F. Supp. 2d 76 (D.D.C. 2006) that is not relevant here. That opinion only involved three site-specific environmental assessments for operations in one park unit. Indeed, an earlier opinion in the same case expressly rejected a programmatic challenge to the NPS 9B program. *Sierra Club v. Mainella*, Civil Action No. 04-2012 (JDB) (2005). The opinion cited by the commenter criticized the NPS use of defined impact thresholds, finding inconsistencies between the actual analysis and the definitions applied. NPS has not used impact thresholds of that sort in this draft EIS, nor does NPS believe any of the other critiques from that opinion are relevant here.

The 9B rule revision draft EIS describes the impact of each alternative, uses quantitative data where practicable, discusses the importance of impacts through context and intensity, and provides a clear, rational link between the facts found and the conclusions reached.

An environmental assessment or EIS should not contain every conceivable piece of information available. The Council on Environmental Quality (CEQ) states that EAs and EISs should be “analytic, rather than encyclopedic” (40 CFR 1502.2(a)) and directs agencies to discuss impacts in proportion to their significance and only briefly discuss impacts that are not important (40 CFR 1502.2(b)). This means a NEPA document should focus only on the analyses necessary for decisions to be made. Providing an extensive level of detail on every impact without regard to its relative importance to the decision being made can obscure the issues and impacts that are truly important.

IT1100 - Issues/Impact Topics: Soils and Geology

CONCERN STATEMENT: (Concern ID: 55576) One commenter indicated that insufficient analysis in the EIS resulted in inadequate evaluation and characterization of the impact on soils from spilling of drilling muds.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 481921 Organization Type:** Unaffiliated Individual

Representative Quote: the NPS states that drilling mud may pose a risk of impacts on geology and soils if there are spills but that its presence alone does not represent an impact. This is a semantic statement. Use of shakers and other equipment to move muds results in the spilling of drilling muds. If diesel fuel is used in muds they are directly toxic and should not be labeled as waste but as a contaminating substance.

RESPONSE: This statement has been revised in the final EIS to clearly acknowledge that drilling mud can result in adverse impacts on soils if spilled. The potential impacts of drilling mud spills are also recognized and described in the section “Typical Impacts of Oil and Gas Operations on Water Resources.”

IT1300 - Issues/Impact Topics: Water Resources

CONCERN STATEMENT: (Concern ID: 55609) One commenter expressed concern about the level of detail in the analysis of impacts on drinking and surface waters.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood

Comment ID: 485346 Organization Type: Conservation/Preservation

Representative Quote: Surface waters can be contaminated in many ways from unconventional well stimulation. In addition to storm water runoff, surface water contamination may also occur from chemical and waste transport, chemical storage leaks, and breaches in pit liners. The spilling or leaking of fracking fluids, flowback, or produced water is a serious problem. Harmful chemicals present in these fluids can include volatile organic compounds (VOCs), such as benzene, toluene, xylenes, and acetone. As much as 25 percent of fracking chemicals are carcinogens, and flowback can even be radioactive. As described below, contaminated surface water can result in many adverse effects to wildlife, agriculture, and human health and safety. It may make waters unsafe for drinking, fishing, swimming and other activities, and may be infeasible to restore the original water quality once surface water is contaminated. The Service should consider this analysis in the EIS.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 485348 Organization Type:** Conservation/Preservation

Representative Quote: Rapid runoff, even without contaminants, can harm the environment by changing water flow patterns and causing erosion, habitat loss, and flooding. Greater runoff volumes may also increase the amount of sediment that is carried to lakes and streams, affecting the turbidity and chemical content of surface waters. Because a National Pollutant Discharge Elimination System permit is not required for oil and gas operations, it is particularly important that the impact of runoff is considered as part of the NEPA process.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 484961 Organization Type:** Conservation/Preservation

Representative Quote: According to the EPA, evidence of any fracturing-related fluid migration affecting a drinking water resources & could take years to discover. The EIS must consider long-term studies on the potential for fluid migration through newly created subsurface pathways. Fluid migration is of particular concern when oil and gas operations are close to drinking water supplies.

Corr. ID: 19 **Organization:** Center for Biological Diversity and Kentucky Heartwood

Comment ID: 484660 **Organization Type:** Conservation/Preservation

Representative Quote: Unfiltered drinking water supplies, such as drinking water wells, are especially at risk because they have no readily available means of removing contaminants from the water. Even water wells with filtration systems are not designed to handle the kind of contaminants that result from unconventional oil and gas extraction. In some areas hydraulic fracturing may occur at shallower depths or within the same formation as drinking water resources, resulting in direct aquifer contamination. The EIS must disclose where the potential for such drilling exists.

Corr. ID: 21 **Organization:** Center for Biological Diversity **Comment ID:** 482278

Organization Type: Conservation/Preservation

Representative Quote: fracking presents serious risks to drinking water and surface water, due to the intentional creation of underground fractures through which methane and fracking chemicals may migrate to neighboring aquifers or the surface. Fracking and horizontal drilling also pose higher risks of well failure than conventional wells. Further, increased use, storage, and transport of millions of gallons of fracking chemicals, produced water, and other wastewaters results in a significant risk of spills and leaks that could contaminate water resources.

RESPONSE: One commenter cites to a draft 2015 US Environmental Protection Agency (EPA) report entitled “Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Sources,” EPA/600/R-15/047a, June 2015. This EPA report is a draft currently undergoing peer review. Additional information from the report has been added to the final EIS in the section on impacts on water resources; however, it must be noted that the report is still in draft form and conclusions provided are not yet final. In developing the final rule’s information requirements, operating standards, monitoring, and reporting requirements, the NPS has considered the EPA 2015 study noted by the commenter as well as other studies addressing potential impacts to groundwater. NPS notes that there are some studies that show, in some limited instances (improper cementing of casing and well integrity issues, particularly in areas with a shale layer in close proximity to zones of useable quality water), oil and gas operations that include hydraulic fracturing stimulation completion methods could have impacts on water resources near the oil and gas operation. However, other studies show that when done properly, oil and gas development (including hydraulic fracturing) does not present increased risk to the surrounding water resources. The final rule includes operating standards and approval standards designed to ensure that operators employ technologically feasible, least-damaging methods that will protect water resources.

Additionally, NPS notes that the proposed action is an update to an existing regulation. The action is not authorizing any on-the-ground proposal. NPS considers oil and gas operations on a case-by-case basis and analyzes potential impacts on park resources and values, including water resources, under the 9B regulation’s approval standards and accompanying NEPA analysis. The NPS will continue to revisit and update its policy as more information on the impacts to water resources from oil and gas development (including hydraulic fracturing) becomes available.

CONCERN STATEMENT: (Concern ID: 55610) One commenter expressed concern about the level of detail in the analysis of waste disposal impacts on water quality.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482215**
Organization Type: Conservation/Preservation

Representative Quote: Disposal of wastes from oil and gas operations can also lead to contamination of water resources. Potential sources of contamination include:

- leaching from landfills that receive drilling and fracking solid wastes;
- spreading of drilling and fracking wastes over large areas of land;
- wastewaters discharged from treatment facilities without advanced total dissolved solids removal processes, or inadequate capacity to remove radioactive material removal; and
- breaches in pits or underground disposal wells.

The EIS must evaluate the potential for contamination from each of these disposal methods.

RESPONSE: The NPS regulations contain operating standards for safe disposal of waste waters and require the operator to provide information about disposal methods under 36 CFR 9.83 and specifically for hydraulic fracturing operations under 36 CFR 9.118(b). Landfilling, spreading of waste, and pits are not permitted on NPS lands. If waste waters are transported to off-site facilities, such disposal must meet the regulatory requirements of the state to protect against acceptance of harmful materials in landfills or land application sites, at wastewater treatment facilities, or in injection wells. The NPS would not approve a permit for development of oil and gas without adequate documentation that all operating standards are being met and that waste is being disposed of properly. Text has been added to the final EIS in the section on impacts on water resources to better describe the requirements for disposal of waste waters. Once an oil and gas operator's application is received, the NPS will conduct site-specific analysis on the proposal, including wastewater impacts, in light of NPS operating standards and other regulatory requirements.

CONCERN STATEMENT: (Concern ID: 55611) Commenters expressed concern over the level of detail in the analysis of impacts on water quantity.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 484651**
Organization Type: Conservation/Preservation

Representative Quote: The freshwater in the area therefore would be greatly affected by the increased demand for water if fracking and other unconventional oil and gas extraction are permitted. A no-fracking alternative would preserve scarce water resources and keep critical sources of drinking water in the NPS park units safe and clean. The EIS must analyze where water will be sourced, how much, and the effects on water sources under different alternatives. All of these effects must be analyzed in the context of increasing water scarcity in New Mexico due to climate change, drought, and increasing population growth.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 484657**
Organization Type: Conservation/Preservation

Representative Quote: Withdrawal of large quantities of freshwater from streams and other surface waters will undoubtedly have an impact on the environment. Withdrawing water from streams will decrease the supply for downstream users, such as farmers or municipalities. Rising demand from oil and gas operators has already led to increased competition for water between farmers and oil and gas operators. With the prolonged drought, some farmers in New Mexico have been forced to sell their

water out of the aquifer to the booming oil and gas industry. Reductions in stream flows may also lead to downstream water quality problems by diminishing the water bodies capacity for dilution and degradation of pollutants. The EIS must examine these issues.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482246

Organization Type: Conservation/Preservation

Representative Quote: Hydraulic fracturing and horizontal drilling requires water volumes that far exceed the amounts used in conventional natural gas development. The Service must take into account the much higher fresh water requirements of these practices.

RESPONSE: The NPS addresses use of water at §9.120(b), which states, “[t]he operator/permittee may not use any surface water or groundwater owned or administered by the United States that has been diverted or withdrawn from a source located within the boundaries of an NPS unit unless the use has been approved in accordance with NPS policy.” Water usage by an oil and gas operation is not explicitly precluded, although use of large quantities of water would likely be prohibited as not in accordance with NPS Management Policies at 4.6.2, Water Rights. The final EIS has been updated to clarify impacts to water sources, congruent with the programmatic analysis.

CONCERN STATEMENT: (Concern ID: 55613) One commenter expressed concern about the level of detail in the analysis of impacts on groundwater quality and the associated impacts on human health, from well integrity issues and, spills, and injection of flowback waste water.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 484661

Organization Type: Conservation/Preservation

Representative Quote: Current federal rules do not ensure well integrity. The well casing can potentially fail over time and potentially create pathways for contaminants to reach groundwater. Well casing failure can occur due to improper or negligent construction. The EIS should study the rates of well casing failures over time and evaluate the likelihood that well casing failures can lead to groundwater contamination.

Representative Quote: Studies have reported many instances around the country of groundwater contamination due to surface spills of oil and gas wastewater, including fracking flowback. Fracking and other unconventional techniques likewise pose inherent risks to groundwater due to releases below the surface, and these risks must be properly evaluated. Once groundwater is contaminated, it is very difficult, if not impossible, to restore the original quality of the water. As a result, in communities that rely on groundwater drinking water supplies, groundwater contamination can deprive communities of usable drinking water. Such long-term contamination necessitates the costly importation of drinking water supplies.

Groundwater contamination can occur in a number of ways, and the contamination may persist for many years. Poorly constructed or abandoned wells are recognized as one of the most likely ways by which contaminants may reach groundwater. Faulty well construction cementing, or casing, as well as the injection of fracking waste underground, can all lead to leaks. Improper well construction and surface spills are cited as a confirmed or potential cause of groundwater contamination in numerous incidents at locations across the U.S.

RESPONSE: The NPS final rule has information requirements, operating standards, and reporting requirements that will ensure well integrity over the life of the well. If future studies can demonstrate alternative methods to improve well integrity, the NPS rule, with its non-prescriptive operating

standards, can require and apply these improvements to future operations.

See Concern 55610 regarding impacts of disposal of waste water on water quality.

CONCERN STATEMENT: (Concern ID: 555621) One commenter expressed concern about the use of open-air pits and their potential effects on wildlife.

Corr. ID: 20 **Organization:** Center for Biological Diversity **Comment ID:** 482249

Organization Type: Conservation/Preservation

Representative Quote: In addition, open air pits that store waste fluid pose risks for wildlife that may come into contact with the chemicals stored in the pits. Already, there have been several documented cases of animal mortality resulting from contact with pits. A field inspection of open pits in Wyoming found 269 bird carcasses, the likely cause of death being exposure to toxic chemicals stored in the open pits. Open pits can also serve as breeding grounds for mosquitoes, which serve as a vector for West Nile virus, a threat to humans and animals alike. In Wyoming, an increase of ponds led to an increase of West Nile virus among greater sage-grouse populations. Recently, new information has come to light that operators in California have been dumping wastewater into hundreds of unpermitted open pits. The EIS must take into account the impact of any existing pits that are grandfathered under the proposed regulations.

RESPONSE: The draft EIS analyzes the impacts of pits, particularly for exempt operations under the current regulation, however, the proposed rule prohibits open pits. Any open pits that are associated with previously exempt operations will be reclaimed as part of bringing the responsible operator under a new operations permit.

The regulation at §9.118(a) states: “Drilling. (1) You must use containerized mud circulation systems for operations. (2) You must not create earthen pits for any use. Earthen pits used solely for secondary containment on sites existing before [effective date of the final rule] may continue in use; however, the Superintendent may require such structures to be lined or removed depending on site-specific operational and environmental conditions.”

CONCERN STATEMENT: (Concern ID: 55577) One commenter requested better graphical presentation of aquifer types in maps presented in the EIS.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 480676 **Organization Type:** Unaffiliated Individual

Representative Quote: Figure 3. Aquifer Types Associated With Category 1 and 2 Park Units, the colors on the map are so similar that it is hard to tell the Carbonate-rock aquifers from the Semi- consolidated sand aquifers. Better color differentiation would be help the public understand the map.

RESPONSE: NPS believes that the different colors representing different aquifers are reasonably discernable.

CONCERN STATEMENT: (Concern ID: 55578) One commenter stated the need for more detailed analysis of impacts stemming from the possibility of radioactive elements in waste water.

Representative Quote(s):

Corr. ID: 27 **Organization:** US EPA **Comment ID:** 480678 **Organization Type:** Federal Government

Representative Quote: We recommend that the final EIS address the possibility of high concentrations of radioactive elements in any waste waters and associated solids or explain why no radioactive

elements are expected.

RESPONSE: Information has been added to the final EIS in the section “Typical Impacts of Oil and Gas Operations on Water Resources” to specifically include radioactive elements as part of the “substances naturally occurring in the oil-or gas-producing formation” in flowback waste waters that are mentioned in the draft EIS. Information about the presence of radioactive materials in waste waters is provided; however, requirements for proper testing and disposal of waste waters would be included in any permit approved for development of non-federal oil and gas on NPS property.

CONCERN STATEMENT: (Concern ID: 55579) Commenters stated the need for more detailed analysis of impacts on drinking water, particularly in light of updated information on the effects of hydraulic fracturing on drinking water. These commenters suggested that the draft EIS include information contained in the 2015 EPA report about hydraulic fracturing.

Representative Quote(s):

Corr. ID: 27 Organization: US EPA **Comment ID:** 480682 **Organization Type:** Federal Government

Representative Quote: We also recommend that the NPS revise and update the information provided on page 187 of the draft EIS concerning the EPA's hydraulic fracturing drinking water study. Specifically, we suggest that the NPS review and consider using the more recent information provided in the EPA 's draft hydraulic fracturing drinking water assessment report (USEPA 2015).

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483968 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 187, Impacts of Well Drilling and Production, the NPS says that an EPA report about hydraulic fracturing is due in 2014. This report should be available for NPS to use in this DEIS. NPS must use the best, most current, sound, science for this DEIS.

RESPONSE: The commenter cites to a draft 2015 EPA report entitled “Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Sources,” EPA/600/R-15/047a, June 2015. This EPA report is a draft currently undergoing peer review. Additional information from the report has been added to the final EIS in the section on impacts on water resources; however, it must be noted that the report is still in draft and conclusions provided are not yet final. The NPS notes that the EPA draft study did not conclusively evaluate the impacts of hydraulic fracturing on drinking water due to the limited amount of information available on the subject. However, the 9B rulemaking EIS recognizes and includes a discussion of the types of potential effects of hydraulic fracturing on drinking water that are detailed in the report. NPS notes that there are some studies that show, in some limited instances (improper cementing of casing and well integrity issues), oil and gas operations which include hydraulic fracturing stimulation completion methods can negatively affect surrounding resources and the environment. However, other studies show that done properly, wells completed using hydraulic fracturing completion methods would present no more risk to the surrounding environment than conventionally completed wells. This discussion can be found in Chapter 4, Water Resources, Typical Impacts of Oil and Gas Operations, Impacts of Well Drilling and Production. This discussion details the potential for contamination that may occur from spilling or leaking during storage, mixing or pumping of fracking fluids, spill or leaks from well casing failure, and risk from handling and offsite transport of flowback or produced water.

IT1400 - Issues/Impact Topics: Non-native Invasive Plant Species

CONCERN STATEMENT: (Concern ID: 55580) One commenter requested that the National Park Service acknowledge that nonnative invasive plant species can spread rapidly and that seismic testing can result in the spread of these invasive species.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 483970 Organization Type:** Unaffiliated Individual

Representative Quote: Pages 239 and 241, Impacts from Geophysical Exploration, NPS states The majority of impacts & are limited in extent and severity, because of the temporary nature of the disturbance and localized areas disturbed by survey crews. NPS does not acknowledge how fast non-native invasive plant species (NNIPS) spread. NNIPS are a long-term threat and seismic testing over large areas (often 10's or 100's of square miles) potentially can cause the spread of NNIPS.

RESPONSE: The final EIS now Includes text in the discussion of impacts on vegetation from geophysical exploration to acknowledge that nonnative invasive plant species can spread rapidly and that seismic testing can result in the spread of these invasive species indirectly through ground disturbance and through vehicle tires tracking in nonnative species.

IT1500 - Issues/Impact Topics: Air Quality

CONCERN STATEMENT: (Concern ID: 55614) One commenter requested more detail in the analysis of impacts from air toxics and any other pollutants that may pose a risk to human health, particularly as related to hydraulic fracturing.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID: 482223 Organization Type:** Conservation/Preservation

Representative Quote: Fracking results in additional air pollution that can create a severe threat to human health. One analysis found that 37 percent of the chemicals found at fracked gas wells were volatile, and that of those volatile chemicals, 81 percent can harm the brain and nervous system, 71 percent can harm the cardiovascular system and blood, and 66 percent can harm the kidneys. Also, California's South Coast Air Quality Management District has identified three areas of dangerous and unregulated air emissions from fracking: (1) the mixing of the fracking chemicals; (2) the use of the silica, or sand, as a proppant, which causes the deadly disease silicosis; and (3) the storage of fracking fluid once it comes back to the surface. Preparation of the fluids used for well completion often involves onsite mixing of gravel or proppants with fluid, a process which potentially results in major amounts of particulate matter emissions. Further, these proppants often include silica sand, which increases the risk of lung disease and silicosis when inhaled. Finally, as flowback returns to the surface and is deposited in pits or tanks that are open to the atmosphere, there is the potential for organic compounds and toxic air pollutants to be emitted, which are harmful to human health as described above.

The EIS should study the potential for oil and gas operations sites in the park system to emit such air toxics and any other pollutants that may pose a risk to human health. The EIS should rely on the most up-to-date information regarding the contribution of oil and gas operations to VOC and air toxics levels.

RESPONSE: The NPS thoroughly analyzed the impacts of oil and gas operations at all stages to air quality, and disclosed the range of pollutants that could be present and that adverse effects could occur. However, the draft EIS is a programmatic document with limited site-specific analysis given that the

locations, numbers, and types of future operations are unknown. Once an oil and gas operator's application is received, the NPS will conduct site-specific analysis on the proposal, including impacts to air quality, in light of NPS operating standards and other regulatory requirements.

Pursuant to Executive Order 12866, "[e]ach agency shall identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt" (EO 12866 (b)(8)). Consistent with the direction provided in EO 12866, and as stated in the proposed rule, "[t]he NPS would maintain the current practice of setting non-prescriptive operating standards to allow operators the flexibility to design their proposed operation using the latest technological innovations that will best protect park system resources, values, and visitor health and safety." NPS will carry this practice through to the final rule rather than developing prescriptive operating standards. To that end, the mixing of fracking chemicals, use of silica, or sand as a proppant, and the storage of fracking fluid are all addressed through applicable operating standards at 36 CFR 9.111, 9.113, 9.116, and 9.118.

The NPS proposed rule also prohibits the use of any earthen pits. NPS also notes that all Occupational Safety and Health Administration (OSHA) requirements would apply to operations in NPS units, including the use of misting equipment to suppress fugitive silica dust, respirators, personal protective equipment.

CONCERN STATEMENT: (Concern ID: 55622) One commenter stated that NPS should use air modeling with independent data to understand the areas and communities that would be affected by air pollution.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 485349
Organization Type: Conservation/Preservation

Representative Quote: The Service should use air modeling to understand what areas and communities will most likely be affected by air pollution. It is crucial to gather independent data rather than relying on industry estimates, which may be inaccurate or biased. Wind and weather patterns, and atmospheric chemistry, determine the fate and transport of air pollution over a region, over time. The EIS should be informed by air modeling to show where the air pollution will flow.

RESPONSE: The NPS thoroughly analyzed the impacts of oil and gas operations at all stages to air quality, and disclosed the range of pollutants that could be present and that adverse effects could occur. However, the draft EIS is a programmatic document with limited site-specific analysis given that the locations, numbers, and types of future operations are unknown. Once an oil and gas operator's application is received, the NPS will conduct site-specific analysis on the proposal, including impacts to air quality - through modeling if applicable, in light of NPS operating standards and other regulatory requirements.

CONCERN STATEMENT: (Concern ID: 55581) The EPA requested that the National Park Service disclose and consider the potential environmental effects of oil and gas development on air quality in the planning areas and determine whether there is a need to revise management actions or develop stipulations to minimize the potential air quality impacts of oil and gas development. The commenter suggested that NPS identify mitigation measures for potential impacts on air quality from oil and gas development, recommended that future projects should be subject to air quality analysis and project-level mitigation based on a federal memorandum of understanding, and that these projects should be subject to greenhouse gas and climate change analysis.

Representative Quote(s):

Corr. ID: 27 Organization: US EPA **Comment ID:** 480680 **Organization Type:** Federal Government

Representative Quote: As appropriate use the "Memorandum of Understanding (MOU) Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process" which the EPA, U.S. Department of Agriculture and U.S. Department of Interior entered into on June 11, 2011. Based on this MOU, future projects implemented under the NPS' regulations may be subject to additional air quality analyses and project level mitigation. It may be appropriate to utilize the MOU's agency stakeholder process to share reasonably foreseeable development and emissions inventory information and to determine appropriate steps for the air quality analysis, such as quantitative air quality modeling.

Corr. ID: 27 Organization: US EPA **Comment ID:** 480683 **Organization Type:** Federal Government

Representative Quote: Conduct appropriate greenhouse gas (OHO) and climate change analyses for subsequent project-specific operation actions. We recommend the use of the Council on Environmental Quality's December 2014 revised draft guidance for consideration of OHO emissions and climate change impacts in NEPA.

Corr. ID: 27 Organization: US EPA **Comment ID:** 485377 **Organization Type:** Federal Government

Representative Quote: We also recommend that you identify potential mitigation measures including control measures and design features such as equipment type and design requirements, emission standards or limitations, best management practices, dust suppression measures for unpaved roads and construction areas, add-on control technologies, and limitations on the density and/or pace of development.

Corr. ID: 27 Organization: US EPA **Comment ID:** 480681 **Organization Type:** Federal Government

Representative Quote: Disclose and consider the potential environmental effects of oil and gas development on air quality in the planning areas, and determine whether there is a need to revise management actions or develop stipulations to minimize the potential air quality impact of oil and gas development. This would include emissions of criteria air pollutants and hazardous air pollutants that can cause or contribute to human health impacts or impacts to Air Quality Related Values such as visibility, vegetation, water, fish and wildlife.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483962

Organization Type: Unaffiliated Individual

Representative Quote: NPS should require volatile organic compound (VOC) monitoring (hydrocarbon monitoring) using hand-held devices to reduce impacts that oil/gas activities have on the creation of ozone (smog). Region-wide haze and ozone formation impacts have occurred due to shale gas and oil drilling. Such drilling creates visibility and haze problems in the National Park System.

RESPONSE: The proposed rule contains information requirements and operating standards that address air quality, including use of engines that adhere to current Federal and State emission standards, construction, maintenance, and use of roads to minimize fugitive dust emissions, and use of equipment and practices that minimize releases or flaring of gas. This draft EIS is a programmatic document, but NPS will identify site-specific mitigation measures for potential impacts on air quality in future permit applications, potentially including measures based on the federal oil and gas memorandum of understanding, handheld volatile organic compound monitoring, etc., as appropriate. Similarly, NPS will conduct appropriate greenhouse gas and climate change analyses for subsequent project-specific operation actions, using the Council on Environmental Quality's December 2014 revised draft guidance for consideration of greenhouse gas emissions and climate change impacts in NPS units.

IT1600 - Issues/Impact Topics: Socioeconomics

CONCERN STATEMENT: (Concern ID: 55698) One commenter requested more detail in the analysis of financial costs to communities from unconventional oil and gas operations (hydraulic fracturing).

Representative Quote(s):

Corr. ID: 20 **Organization:** Center for Biological Diversity **Comment ID:** 484648

Organization Type: Conservation/Preservation

Representative Quote: Development of unconventional wells could exact extraordinary financial costs to communities and future generations, setting aside the immeasurable loss of irreplaceable, natural values that can never be recovered. The EIS must provide an accounting of these potential costs in addition to the social cost of carbon.

RESPONSE: The EIS does assess impacts related to unconventional wells within each resource topic by specifically addressing hydraulic fracturing and well stimulation. With regard to the social and financial costs to communities of unconventional wells, the EIS acknowledges in the socioeconomics analysis that individuals may attribute values and benefits to experiences of the environment, uses of natural resources, or the existence of particular ecological or environmental conditions. However, these experiences are intangible, do not often involve market transactions, and therefore lack prices. The draft EIS acknowledges on page 363 that nonmarket values for improved environmental qualities can be considerable but are often difficult and time-consuming to estimate. As a result, these values are described briefly in the methodology section for socioeconomics but are further described and assessed within the analysis of each relevant natural resource topic within the document. As discussed on pages 18-19 of the draft EIS, the effects of the rule on global GHG emissions were dismissed as an impact topic, because they were expected to be negligible or beneficial. The comment offers nothing to change that analysis, nor any support for its apparent assumption that these impacts are somehow particularly associated with unconventional wells.

CONCERN STATEMENT: (Concern ID: 55587) One commenter requested that the socioeconomic impacts include a description of how far communities and areas adjacent to the park units and nearby communities extend.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483974 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 363, Study Area and Page 364, Local and Regional Economies, the NPS fails to state how far communities and areas adjacent to the park units and nearby communities extend. The public must have this information so that it understands the methodology for impact assessment.

RESPONSE: Communities are impacted by oil and gas operations at the local and regional scale to varying degrees depending upon the extent to which oil and gas exploration and development supports local jobs and income, with indirect effects to local and regional economies through the spending of earned wages, which in turn support downstream jobs and income. Oil and gas production also provides economic benefits to economies where these companies are headquartered and the nation overall. Additionally, oil and gas value of production is often taxed through severance taxes and ad valorem taxes, although these taxes vary by state, and local governments often benefit from property and sales and use taxes on oil and gas equipment. For these reasons, the precise geographic proximity of oil and gas operations in relation to adjacent communities is less indicative of potential effects to communities than the aforementioned economic factors, which are analyzed in detail in the Socioeconomics analysis in the EIS. This additional explanation has been added to the final EIS discussion of typical impacts of oil

and gas operations on local and regional economies.

CONCERN STATEMENT: (Concern ID: 55588) One commenter suggested that greater detail be provided in the analysis of socioeconomic impacts, including an estimate of the cost to repair any surface damage done by the operator on the private property where the drilling occurs.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 483975 Organization Type:** Unaffiliated Individual

Representative Quote: Page 371, Directional Drilling, another cost not mentioned by NPS is the cost to repair any surface damage done by the operator on the private property where the drilling occurs.

RESPONSE: The cost to repair surface damage on private property outside of NPS boundaries is generally contained in surface agreements with surface owners outside the boundary of a unit. If an operator's lease boundary encompasses a surface location outside the boundary, the operator can exercise its right of reasonable access. However, reclamation costs are likely similar to the costs of reclamation inside NPS boundaries, highly specific on the location, type, duration of operation. This disclosure will be added to the final EIS.

Impacts on adjacent lands are recognized in the EIS for all topics under the Directional Drilling discussion under the no action alternative discussion, where it is stated that "wells directionally drilled and produced from outside park units to bottomholes beneath the park units would directly impact [resources] on adjacent lands ..." Additional text has been added to the final EIS in the directional drilling discussions for each resource to clarify that these impacts would be as described in the section "Impacts of Oil and gas Operation on [Resource]".

The draft EIS is a programmatic document with limited site specific analysis given that the location, number, and type of future operations is unknown. Once an oil and gas operator's application is received, the NPS will conduct site specific analysis on the proposal, in light of NPS operating standards and other regulatory requirements.

IT1900 - Issues/Impact Topics: Park Management and Operations

CONCERN STATEMENT: (Concern ID: 55574) One commenter requested that the National Park Service provide information about how any of the alternatives can be implemented or how many of the elements of each alternative can be implemented if NPS personnel and budgets do not increase.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 483973 Organization Type:** Unaffiliated Individual

Representative Quote: Pages 357 through 361, Alternatives B and C, Impacts on Park Management and Operations, if National Park System personnel and budgets do not increase then the NPS should state how any of the alternatives can be implemented or how many of the elements of each alternative can be implemented. The public should be provided this information.

RESPONSE: The draft EIS discloses the estimated costs to the federal government of implementing the 9B regulations. The 9B regulation revisions would both increase and decrease park administrative burdens, depending on the activity. NPS does not control future appropriations, however NPS estimates that any additional administrative responsibilities would fall under existing workload of park staff and would not require additional full time employees or other administrative or material resources.

IT2000 - Issues/Impact Topics: Climate Change and Greenhouse Gases

CONCERN STATEMENT: (Concern ID: 55585) One commenter suggested that the draft EIS should include an analysis of climate change impacts, including an analysis of direct/indirect carbon dioxide and methane releases that would result from the estimated amount of fossil fuels removed from reservoirs.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID: 583960 Organization Type:** Unaffiliated Individual

Representative Quote: The NPS must also provide mitigation measures to reduce climate change gases and the effects of climate change gases in the DEIS. NPS must state where the resource management strategies to address climate change are that the Secretarial Order 3289 requires. To suggest that Overall incremental contributions to greenhouse gas emissions from operations located on NPS lands are relatively low, whatever that means, is an abdication of NPS responsibility under NEPA to clearly state what environmental impacts are. The suggestion that in comparison to total greenhouse gas emissions that drilling on or under National Park System lands produces very little CO₂ or CH₄ is like saying that the killing of one person is small in relation to the killing of 100's of people. The person is still dead! The planet still gets hotter and more uninhabitable for people, other organisms, and ecosystems.

Climate change alters existing ecosystems and makes it more difficult for plants and animals to adapt successfully to changed ecosystems. NPS must in the DEIS address questions like:

- a. How will this proposal affect and be affected by climate change?
- b. What can be done to create more resilient and resistant habitats and ecosystems?
- c. What can NPS do to reduce CO₂, CH₄, or other greenhouse gas emissions within the National Park System?
- d. What can be done to assist plants and animals in the National Park System so they can adapt to climate change?

Corr. ID: 28 Organization: Not Specified **Comment ID: 483960 Organization Type:** Unaffiliated Individual

Representative Quote: Page 172, Air Quality, Methodology, NPS should include CO₂ as an air pollutant since the U.S. Environmental Protection Agency has designated CO₂ as an air pollutant so that it is regulated due to climate change impacts.

Corr. ID: 28 Organization: Not Specified **Comment ID: 483941 Organization Type:** Unaffiliated Individual

Representative Quote: Page 19, Impact Topics, Climate Change and Page 23, Global Warming Executive Order and Policies, NPS should estimate direct/indirect carbon dioxide (CO₂) and methane (CH₄) emissions (for example, the approximate CO₂ emissions due to the estimated amount of fossil fuel removed from the reservoir). NPS must estimate direct, indirect, connected, and cumulative climate change gas emissions due to well drilling and put this information in the DEIS so the public and decision-makers can review, comment on, and understand the total environmental impacts of this proposal due to climate change.

RESPONSE: This EIS evaluates climate change in two ways. First, the effects of climate change on park resources are considered and are addressed in "Chapter 3: Affected Environment." Climate change can affect park resources, especially vegetation, wildlife and wildlife habitat (including special-status species), and water resources, and this effect is discussed in the introduction to chapter 3. Second, the

NPS has considered the contribution of the proposed rule changes to greenhouse gases emissions and potential related impacts on climate change. The proposed action is merely a revision of existing regulation: operations would occur under both the existing rule and the proposed rule. But because the proposed rule changes will bring operations that are currently exempt from existing regulatory standards into compliance, the resulting net impact on greenhouse gas emissions would be beneficial when compared to the baseline under alternative A. Overall incremental contributions to greenhouse gas emissions from operations located on NPS lands are relatively low. In addition, permitting requirements implemented under new state greenhouse gas emissions regulations which are currently being promulgated by several states will have the effect of mitigating these emissions, thereby lowering overall contributions. These greenhouse gas permitting actions are discussed under cumulative impacts in the analysis. Because the proposed action would have negligible adverse or beneficial impacts related to greenhouse gas contribution and associated climate change, that aspect of climate change was dismissed from further evaluation. The draft EIS is a programmatic document with limited site specific analysis given that the location, number, and type of future operations is unknown. Once an oil and gas operator's application is received, the NPS will conduct site specific analysis on the proposal, in light of NPS operating standards and other regulatory requirements.

Additionally, please see Concern ID: 55581 above for more information on air quality mitigation measures.

CONCERN STATEMENT: (Concern ID: 55697) One commenter requested more detail in the analysis of impacts on air quality, including the use of modelling to characterize impacts, as well as contributions to greenhouse gas emissions and climate change from oil and gas operations.

Representative Quote(s):

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482240

Organization Type: Conservation/Preservation

Representative Quote: In performing a full analysis of climate impacts, the Service must consider all potential sources of greenhouse gas emissions (e.g. greenhouse gas emissions generated by transporting large amounts of water for fracking). The Service should also perform a full analysis of all gas emissions that contribute to climate change, including methane and carbon dioxide. The EIS should calculate the amount of greenhouse gas that will result on an annual basis from (1) each of the fossil fuels that can be developed within each Park Service unit, (2) each of the well stimulation or other extraction methods that can be used, including, but not limited to, fracking, acidization, acid fracking, and gravel packing, and (3) cumulative greenhouse gas emissions expected over the long term (expressed in global warming potential of each greenhouse pollutant as well as CO equivalent), including emissions throughout the entire fossil fuel lifecycle discussed above.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482241

Organization Type: Conservation/Preservation

Representative Quote: In addition to quantifying the total emissions that would result from allowing fracking, an EIS should consider the environmental impacts of these emissions, resulting from climate disruption's ecological and social effects.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482252

Organization Type: Conservation/Preservation

Representative Quote: Because expansion of oil and gas production in the areas subject to fracking will substantially increase the emissions of greenhouse gases, this activity will further contribute to the harms from climate change to wildlife and ecosystems.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 484647

Organization Type: Conservation/Preservation

Representative Quote: Before allowing more oil and gas extraction, the Service must: (1) comprehensively analyze the total greenhouse gas emissions which result from past, present, and potential future fossil fuel permitting and all other activities on its lands, (2) consider their cumulative significance in the context of global climate change, carbon budgets, and other greenhouse gas pollution sources outside the park system, and (3) formulate measures that avoid or limit their climate change effects. By continuing oil and gas permitting, including fracking operations, in the absence of any overall plan addressing climate change the Service is effectively burying its head in the sand.

RESPONSE: Please see response to Concern ID: 55585.

CONCERN STATEMENT: (Concern ID: 55589) One commenter requested that the draft EIS include a climate change ecological resilience and resistance plan (CCERRP) for the national park system.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483945 **Organization Type:** Unaffiliated Individual

Representative Quote: NPS should prepare and include in the DEIS a climate change ecological resilience and resistance plan (CCERRP) for the National Park System. The CCERRP would assess the biological and ecological elements in the National Park System and the effects that climate change has had and will have on them. The CCERRP would also assist plants, animals, and ecosystems in adapting to climate change and would require monitoring of changes and mitigation measure effectiveness to reduce the impacts of oil/gas activities.

RESPONSE: Please see response to Concern ID: 55585. A CCERRP is outside the scope of this planning effort.

CONCERN STATEMENT: (Concern ID: 55590) One commenter stated that there would be both irretrievable or irreversible commitments of resources and unavoidable adverse impacts given the additional carbon dioxide and methane and the global warming impacts that will occur over the next 20 to 30 years under alternative B as a result of the extraction, refining, and use of oil/natural gas.

Representative Quote(s):

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483978 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 391, Unavoidable Adverse Impacts, NPS states under Alternative B, Implementation of the new regulations would result in no adverse impacts and primarily beneficial impacts. This statement is untrue. The additional CO₂ and CH₄ and the global warming impacts that will occur over the next 20-30 years under Alternative B, due to the extraction, refining, and use of oil/natural gas are unavoidable adverse impacts that are harmful to humans, organisms, and ecosystems.

Corr. ID: 28 Organization: Not Specified **Comment ID:** 483977 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 389, Irreversible or Irretrievable Commitments of Resources, NPS states under Alternative B, Implementation of the new regulations is not expected to result in any irretrievable or irreversible commitments of resources within the parks except for the continued extraction of the mineral resources. This statement is untrue. The additional CO₂ and CH₄ and the global warming impacts that will occur over the next 20-30 years under Alternative B due to the extraction, refining, and use of oil/natural gas are irreversible and irretrievable actions that are harmful to humans, organisms, and ecosystems.

RESPONSE: NPS clearly disclosed that there could be both irreversible and irretrievable commitment of resources and unavoidable adverse impacts for multiple impact topics from continued operation of permitted wells and construction inside and outside the parks. However, the actual regulatory revisions are beneficial compared to the existing regulation. For example, regulating previously exempt operations would have a beneficial effect compared to the existing condition. Thus, while overall operations could result in impacts, the regulatory revision –the proposed action, is beneficial.

IT2200 - Issues/Impact Topics: Wildlife/Wildlife Habitat

CONCERN STATEMENT: (Concern ID: 55615) One commenter indicated that the analysis in the draft EIS did not sufficiently evaluate impacts on wildlife and wildlife habitat, including wetland and aquatic habitat, aquatic dependent species, and threatened and endangered species, and population-level impacts.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 484650
Organization Type: Conservation/Preservation

Representative Quote: Many plant and animal species depend on wetland habitats, and even small changes can lead to significant impacts. Wetlands provide a variety of eco-service functions, including water purification, protection from floods, and functioning as carbon sinks. The ecological importance of wetlands is unquestionable, and their full protection is paramount. The EIS must analyze these potential impacts to wetlands, and the related, potential indirect impacts that may stem from such impacts.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482242
Organization Type: Conservation/Preservation

Representative Quote: The expansion of oil and gas development activities will harm wildlife through habitat destruction and fragmentation, stress and displacement caused by development- related activities (e.g., construction and operation activities, truck traffic, noise and light pollution), surface water depletion leading to low stream flows, water and air contamination, introduction of invasive species, and climate change. These harms can result in negative health effects and population declines.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 484645
Organization Type: Conservation/Preservation

Representative Quote: The Service should conduct a full assessment of the direct and indirect impacts of unconventional oil and gas development activities on wildlife and ecosystems through a suite of comprehensive studies on all species and ecosystems that could be affected. The studies should be particularly detailed for federally and state listed species, federal and state candidates for listing, and state species of special concern. The studies should address the following impacts:

(1) habitat loss, degradation, and fragmentation, including edge effects; (2) water depletion; (3) air and water contamination; (4) introduction of invasive species; (5) climate change impacts; (6) health and behavioral effects such as increased stress and changes in life history behaviors; (7) changes in demographic rates such as reproductive success and survival; and (8) potential for population-level impacts such as declines and extirpations. These studies should consider these harms individually and cumulatively.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482243
Organization Type: Conservation/Preservation

Representative Quote: Oil and gas development creates a network of well pads, roads, pipelines, and

other infrastructure that lead to direct habitat loss and fragmentation, as well as displacement of wildlife from these areas due to increased human disturbance. Habitat loss occurs as a result of a reduction in the total area of the habitat, the decrease of the interior-to-edge ratio, isolation of one habitat fragment from another, breaking up of one habitat into several smaller patches of habitat, and decreasing the average size of a habitat patch. New research has revealed the extent of this habitat loss. For example, in the western United States, the amount of high-quality habitat for the pronghorn has shrunk drastically due to oil and gas development.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482253

Organization Type: Conservation/Preservation

Representative Quote: Oil and gas development has been linked to population-level impacts on wildlife, including lower reproductive success of sage grouse and declines in the abundance of songbirds and aquatic species. For example, young greater-sage grouse avoided mating near infrastructure of natural-gas fields, and those that were reared near infrastructure had lower annual survival rates and were less successful at establishing breeding territories compared to those reared away from infrastructure. In Wyoming, an increasing density of wells was associated with decreased numbers of Brewer's sparrows, sage sparrows, and vesper sparrows. In the Fayetteville Shale of central Arkansas, the proportional abundance of sensitive aquatic taxa, including darters, was negatively correlated with gas well density. The EIS must consider the population-level impacts that oil and gas development may have on wildlife in non-federal oil and gas areas that may be developed.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 482255

Organization Type: Conservation/Preservation

Representative Quote: The Service must use the existing readily available data to identify which sensitive species that are of critical concern with regards to the lands included in, or in immediate proximity to, the areas in which fracking operations could be conducted. The EIS must discuss any impacts to such species.

Corr. ID: 20 Organization: Center for Biological Diversity **Comment ID:** 481925

Organization Type: Conservation/Preservation

Representative Quote: P. 19: When streams and other surface waters are depleted, the habitat for countless plants and animals will be harmed, and the depletion places tremendous pressure on species that depend on having a constant and ample stream of water. Physical habitats such as banks, pools, runs, and glides (low gradient river sections) are important yet susceptible to disturbance with changing stream flows. Altering the volume of water can also change the water's temperature and oxygen content, harming some species that require a certain level of oxygenated water. Decreasing the volume of streamflow and stream channels by diverting water to fracking would have a negative impact on the environment. The physical equipment itself that is designed to intake and divert water may also pose a threat to certain wildlife. If not properly designed, such equipment and intake points may be a risk to wildlife."

RESPONSE: Impacts to wetlands, aquatic species, wildlife habitat, and wildlife, including threatened and endangered species, are fully analyzed in the draft EIS, including but not limited to habitat loss and fragmentation, air and water contamination, introduction of non-native / invasive species, species life change behaviors such as decreased reproductive success, and species declines, consistent with a programmatic impacts analysis.

Despite the overall adverse effects from oil and gas operations, the proposed action strengthens environmental protections compared to the existing regulation, and is beneficial compared to the

existing condition.

Once an oil and gas permit application is received, the NPS will conduct site-specific analysis on the proposal, including specific impacts to wetlands, water resources and aquatic species, wildlife habitat, and wildlife, in light of NPS operating standards and other regulatory requirements. As noted in response to concern 55611, any water withdrawals or diversions, which could affect aquatic habitat and species, must be approved in accordance with NPS policy, and use of large quantities of water would likely be prohibited.

IT2300 - Issues/Impact Topics: Environmental Justice

CONCERN STATEMENT: (Concern ID: 55616) One commenter requested a more detailed analysis of the risks to human health, environmental justice, and the environment from spills and accidents.

Representative Quote(s):

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 482212
Organization Type: Conservation/Preservation

Representative Quote: The EIS should evaluate how often accidents can be expected to occur, and the effect of chemical and fluid spills. Such analysis should also include identification of the particular harms faced by communities near oil and gas fields. The EIS must include specific mitigation measures and alternatives based on a cumulative impacts assessment, and the particular vulnerabilities of environmental justice communities in both urban and rural settings.

Corr. ID: 19 Organization: Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 486877
Organization Type: Conservation/Preservation

Representative Quote: Some sites may also use on-site wastewater treatment facilities. Improper use or maintenance of the processing equipment used for these facilities may result in discharges of contaminants. Other spill causes include equipment failure (most commonly, blowout preventer failure, corrosion and failed valves) and failure of container integrity. Spills can result from accidents, negligence, or intentional dumping.

The EIS should examine and quantify the risks to human health and the environment associated with on-site chemical and wastewater storage, including risks from natural events and negligent operator practices. Again, such analysis must also include an analysis of potential impacts faced by environmental justice communities in both rural and urban settings.

RESPONSE: The draft EIS does evaluate risks associated with chemical and wastewater storage and the impact of chemical and fluid spills, and the fact that accidents can occur. The draft EIS also disclosed accidents that have occurred on NPS lands (see for example page 150, draft EIS). NPS cannot predict with certainty how often accidents are expected to occur, but notes that a primary reason for the regulation revision is to enhance the safety of oil and gas operations, both to NPS staff and visitors, as well as to NPS resources. Existing operating standards that minimize impacts include removal of contaminated soils, effective erosion control, proper secondary containment around storage tanks, regular pump jack maintenance, removal of debris, waste, and equipment no longer needed in operations. The proposed regulation would codify these standards as regulatory provisions for enforcement purposes, and will apply to a broader set of operations previously exempt operations. See for example the Proposed Rule at Section 9.111.

The NPS does not anticipate that any effects from the proposed rule changes would result in disproportionately high or adverse impacts on low-income populations or communities. Consequently, NPS dismissed environmental justice as an impact topic (please see page 19, draft EIS).

CONCERN STATEMENT: (Concern ID: 55592) One commenter suggested that the draft EIS should analyze the mandatory closure or restriction of roads where drilling occurs.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 483971 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 260, Impacts of Well Drilling and Production, NPS states that public access can be closed or restricted on roads where drilling occurs. The question is not what can be done but what will the NPS do. The NPS is subject to personnel shortages and political pressure. NPS should state it will close off or restrict roads with oil/gas drilling to reduce impacts on wildlife.

RESPONSE: The draft EIS says at page 260 “Park unit management, however, can close or restrict motorized public access on roads that are to be used for oil and gas development, if necessary.” NPS action will be dependent on the specific facts presented in each site specific case. It may not be the case that in every instance the NPS would want to close off or restrict public road access to oil and gas access sites.

ON1100 - Other NEPA Issues: Purpose and Need

CONCERN STATEMENT: (Concern ID: 55617) One commenter stated that neither action alternative adequately meets the stated purpose and need for the rule revision.

Representative Quote(s):

Corr. ID: 19 **Organization:** Center for Biological Diversity and Kentucky Heartwood **Comment ID:** 484105
Organization Type: Conservation/Preservation

Representative Quote: Neither Alternative B nor Alternative C meets the proposed rulemakings purpose and need to minimize adverse effects to the greatest extent possible. Each could result in potentially significant impacts to Park resources if directional drilling outside the Park boundary or drilling on inholdings, respectively, is allowed without enforceable permit requirements or safeguards to prevent damage to Park resources, or hold exempt operators accountable for any damage they may cause. See, e.g., DEIS at 194 (describing impacts of insufficient financial assurance under no-action alternative).

RESPONSE: NPS disagrees. The purpose of the proposed revisions to the Title 36 of the Code of Federal Regulations (CFR) 9B regulations is to protect public health and safety; improve understanding, application and effectiveness of the regulations for the NPS and for industry; and incorporate new requirements that will ensure that all non-federal oil and gas operations conducted in national park system units avoid or minimize, to the greatest possible extent, adverse effects on natural and cultural resources, visitor uses and experiences, park infrastructure and management.

Alternative B and the proposed rule are replete with enforceable permit requirements, operating standards, and mitigation measures. NPS cannot simply ban nonfederal oil and gas operators from oil and gas activities within NPS park units without purchasing the mineral rights (an alternative analyzed in the draft EIS as considered but dismissed), because they are property rights. As clearly stated in the purpose and need for this action, the intent of this regulation is not to prohibit exercise of these rights, but rather to establish reasonable regulations consistent with these rights. As disclosed in the draft EIS, there is the potential for significant impacts in some scenarios, but NPS believes the regulatory revisions mitigate these to the greatest extent possible, and substantially improve upon current conditions.

ON1200 - Other NEPA Issues: NEPA Process

CONCERN STATEMENT: (Concern ID: 55597) One commenter expressed concern over the adequacy of the level of technical expertise and credibility of individuals involved in the preparation of the EIS.

Representative Quote(s):**Corr. ID: 21 Organization:** Metropolitan State University **Comment ID:** 480793**Organization Type:** Unaffiliated Individual

Representative Quote: The CEQ Guidelines clearly call for interdisciplinary preparation of any Environmental Impact Statement (1502.6). While you do provide a list of individuals who worked on this EIS and their job title, you provide zero proof of credibility in that area and it is far from interdisciplinary. Sixteen individuals are listed as preparers: 4 from the National Park Service, 10 consultants from Louis Berger Group, Inc. and 2 editorial and design personnel. As consulting companies are paid by the lead agency, their credibility as interdisciplinary is at worst unethical and at best questionable. For you to be in compliance of CEQ guidelines and your EIS to be seen as a true reflection of the NPS's intentions, you must have some other organizations involved in the preparation.

RESPONSE: CEQ regulations at 40 CFR 1502.6 require an interdisciplinary approach, which was utilized by the NPS in the development of this EIS. The consultants from the Louis Berger Group include subject matter experts for each impact topic. NPS also consulted with individual park resource managers, NPS petroleum engineers, regional oil and gas specialists, regulatory specialists, park managers, and other subject matter experts. Ultimately, NPS reviewed and is responsible for the content of the EIS, and its own subject matter experts approved the document.

Regarding conflicts of interest, Louis Berger was required to sign the following disclosure statement as required by the CEQ regulations:

"To the best of my knowledge and belief, neither I, xxx, as owner or delegated representative of yyy Company, nor any member of my family, have any direct interest, financial or otherwise, in the outcome of this project, and that our participation in preparing the environmental impact statement therefore presents no conflict of interest. In the event that I later become aware of such conflict of interest, I agree to disqualify myself and report this fact to the Contracting Officer and to abide by any instructions that he/she may give me in this matter." (Council on Environmental Quality regulations, CFR 1506.5, DO-12 2.11)."

PN7100 - Purpose and Need: Purpose and Need for Taking Action

CONCERN STATEMENT: (Concern ID: 55598) One commenter suggested that the term "minor violations" be used wherever the National Park Service currently uses the term "noncompliance."

Representative Quote(s):**Corr. ID: 28 Organization:** Not Specified **Comment ID:** 480674 **Organization Type:** Unaffiliated Individual

Representative Quote: Page 2, Need for Action, NPS mentions the need for changes to the 9B regulation to deal with minor violations of an approved plan or operation. Throughout the DEIS the NPS refers to minor acts of noncompliance (see Pages iii, vii, ix, x, xi, xii, xiii, xiv, xv, xvi, xvii, 3, 44, 57, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 142, 162, 170, 171, 177, 194, 203, 211, 220, 221, 229, 238, 254, 257, 258, 270, 279, 297, 304, 313, 322, 331, 348, 349, 358, and 371) instead of violations. Non-compliance is a state of being and not a specific element like a violation. Wherever the NPS uses noncompliance as referred to in the quote above, it should change this, to be consistent and correct, to minor violations.

RESPONSE: NPS describes a class of violations in the draft EIS and preamble to the proposed rule as minor acts of non-compliance, because they are in fact "minor" in nature. However, the actual regulatory text uses the term "violation." See "Prohibitions and Penalties" Section 9.180-9.182 of the rule.

RF1000 - Suggested References/Documentation

CONCERN STATEMENT: (Concern ID: 55600) One commenter noted that an often-cited NPS reference was missing from the bibliography and should be provided in the Final EIS.

Representative Quote(s):

Corr. ID: 28 **Organization:** Not Specified **Comment ID:** 481923 **Organization Type:** Unaffiliated Individual

Representative Quote: Pages 157, 207, 260, 320 Regulated Operations (Current and Future), the DEIS refers to NPS 2013 frequently. There is no NPS 2013 in the Reference section of this DEIS. NPS must publish all references that it has used in this DEIS.

RESPONSE: References have been corrected in the final EIS.

ATTACHMENT 1: CORRESPONDENCE DISTRIBUTION BY CODE

[Notes: Each comment may have multiple codes. As a result, the total number of pieces of correspondence below may be different than the actual correspondence total, and may also differ from the total number of comments stated elsewhere in this report.

Any comments related specifically to the proposed rule were moved to the comment analysis report for the proposed rule and are no longer contained in this report. Thus, the numbers reported in this table may not accurately reflect the number of pieces of correspondence received under the public comment period for the draft EIS.]

Code	Description	Pieces of Correspondence	Signatures
NS1000	Non-Substantive: General Support	20	20
MT1000	Miscellaneous Topics: General Comments	7	7
IT1000	Issues/Impact Topics: General Adequacy of the Analysis and Level of Detail	3	3
IT1500	Issues/Impact Topics: Air Quality	2	2
AL1100	Alternatives: Alternative Concept B – Proposed Rule	2	2
CC1550	Public Notice Requirements	2	2
AL1200	Alternatives: Alternative Concept C – Modified Proposed Rule	2	2
AL1130	Alternative B Elements: "No Access" and/or Grandfathered Exempt Operations	1	1
IT1300	Issues/Impact Topics: Water Resources	2	2
CC1000	Consultation and Coordination: General Comments	2	2
AL1130	Alternative B Elements: "No Access" and/or Grandfathered Exempt Operations	1	1
AL1650	Alternatives: "No Fracking" Alternative	2	3
AE1000	Data Accuracy - General Comments/Issues	1	1
NS1100	Non-Substantive: General Opposition	1	1
IT2600	Issues/Impact Topics: Mitigation Measures	1	1
IT2300	Issues/Impact Topics: Environmental Justice	1	2
IT2000	Issues/Impact Topics: Climate change and greenhouse gases	1	1
GA1000	Impact Analysis: Impact Analyses	1	1
IT1400	Issues/Impact Topics: Non-native Invasive Plant Species	1	1
IT1900	Issues/Impact Topics: Park Management and Operations	1	1
GA1100	Impact Analysis: Cumulative Impacts	1	1

Code	Description	Pieces of Correspondence	Signatures
IT2500	Issues/Impact Topics: Setbacks for Resource Protection	1	1
AL1600	Alternatives: Other/New Alternatives, Alternative Elements, or Management Tools	1	1
IT1600	Issues/Impact Topics: Socioeconomics	1	1
IT1100	Issues/Impact Topics: Soils and Geology	1	1
PN7100	Purpose and Need: Purpose and Need for Taking Action	1	1
ON1100	Other NEPA Issues: Purpose and Need	2	6
ON1200	Other NEPA Issues: NEPA Process	1	1
RF1000	Suggested References/Documentation	1	1

INDEX BY ORGANIZATION TYPE

CONSERVATION/PRESERVATION

- Coalition to Protect America's National Parks - 22; AL1100 - Alternatives: Alternative Concept B - Proposed Rule. AL1200 - Alternatives: Alternative Concept C - Modified Proposed Rule. CC1550 - Public Notice Requirements. NS1000 - Non-Substantive: General Support

FEDERAL GOVERNMENT

- USEPA - 27; CC1000 - Consultation and Coordination: General Comments. IT1000 - Issues/Impact Topics: General Adequacy of the Analysis and Level of Detail. IT1300 - Issues/Impact Topics: Water Resources. IT1500 - Issues/Impact Topics: Air Quality. NS1000 - Non-Substantive: General Support

UNAFFILIATED INDIVIDUAL

- Beyond Oil and Coal - 3; NS1000 - Non-Substantive: General Support
- Citizen - 10; NS1000 - Non-Substantive: General Support
- Citizens' Advisory Commission on Federal Areas - 26; RC1050 - Rule Change: Rulemaking Process. RC1220 - Rule Change: Specific Elements and Management Tools: Requirement for Operations Permit
- Metropolitan State University - 21; CC1000 - Consultation and Coordination: General Comments. IT1000 - Issues/Impact Topics: General Adequacy of the Analysis and Level of Detail. MT1000 - Miscellaneous Topics: General Comments. NS1000 - Non-Substantive: General Support. ON1200 - Other NEPA Issues: NEPA Process
- Not Specified - 28; AE1000 - Data Accuracy - General Comments/Issues.
- AL1100 - Alternatives: Alternative Concept B - Proposed Rule. AL1130 - Alternative B Elements: "No Access" and/or Grandfathered Exempt Operations. AL1200 - Alternatives:

Alternative Concept C - Modified Proposed Rule. AL1600 - Alternatives: Other/New Alternatives, Alternative Elements, or Management Tools. CC1550 - Public Notice Requirements. GA1000 - Impact Analysis: Impact Analyses. GA1100 - Impact Analysis: Cumulative Impacts. IT1000 - Issues/Impact Topics: General Adequacy of the Analysis and Level of Detail. IT1100 - Issues/Impact Topics: Soils and Geology. IT1300 - Issues/Impact Topics: Water Resources. IT1400 - Issues/Impact Topics: Non-native Invasive Plant Species. IT1500 - Issues/Impact Topics: Air Quality. IT1600 - Issues/Impact Topics: Socioeconomics. IT1900 - Issues/Impact Topics: Park Management and Operations. IT2000 - Issues/Impact Topics: Climate change and greenhouse gases. IT2500 - Issues/Impact Topics: Setbacks for Resource Protection. IT2600 - Issues/Impact Topics: Mitigation Measures. MT1000 - Miscellaneous Topics: General Comments. NS1000 - Non-Substantive: General Support. NS1100 - Non-Substantive: General Opposition. PN7100 - Purpose and Need: Purpose and Need for Taking Action. RC1260 - Rule Change: Specific Elements and Management Tools: Liability Insurance during Transfer of Mineral Rights. RF1000 - Suggested References / Documentation


- Tennessee Citizens for Wilderness Planning - 23; NS1000 - Non-Substantive: General Support
- esierra club - 19; NS1000 - Non-Substantive: General Support
- N/A - 2; NS1000 - Non-Substantive: General Support. 4; NS1000 - Non-Substantive: General Support. 5; NS1000 - Non-Substantive: General Support. 6; NS1000 - Non-Substantive: General Support. 7; MT1000 - Miscellaneous Topics: General Comments. 8; NS1000 - Non-Substantive: General Support. 9; NS1000 - Non-Substantive: General Support. 11; MT1000 - Miscellaneous Topics: General Comments. 12; NS1000 - Non-Substantive: General Support. 13; NS1000 - Non-Substantive: General Support. 14; NS1000 - Non-Substantive: General Support. 15; MT1000 - Miscellaneous Topics: General Comments. 16; NS1000 - Non-Substantive: General Support. 18; NS1000 - Non-Substantive: General Support. 20; MT1000 - Miscellaneous Topics: General Comments. 24; MT1000 - Miscellaneous Topics: General Comments. 25; NS1000 - Non-Substantive: General Support

**ATTACHMENT 2: COPIES OF CORRESPONDENCE FROM
ALL ENTITIES, EXCLUDING THOSE RECEIVED FROM
UNAFFILIATED INDIVIDUALS**

PEPC Project ID: 28329, DocumentID: 59453

Correspondence: 27

Author Information

Keep Private: No
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Organization: US EPA  Official Rep.
Organization Type: F - Federal Government
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Correspondence Information

Status: Reviewed Park Correspondence Log:
Date Sent: Date Received: 12/28/2015
Number of Signatures: 1 Form Letter: No
Contains Request(s): No Type: Letter
Notes:

Correspondence Text

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the Environmental Protection Agency (EPA) has reviewed the U.S. National Park Service's (NPS) 2015 Draft Environmental Impact Statement (EIS) for the Revision of 9B Regulations Governing Non-Federal Oil and Gas Activities (CEQ No. 20150295).

The draft EIS evaluated the impacts of two alternatives, in addition to the no action alternative. The alternatives included the following elements: 1) eliminating two regulatory provisions that exempt 60% of the oil and gas operations in NPS units. All operators in NPS units would be required to comply with the 9B regulations; 2) eliminating the financial assurance (bonding) cap. Financial assurance would be equal to the reasonable estimated cost of site reclamation; 3) improving enforcement authority by incorporating existing NPS penalty provisions. Law enforcement staff would have authority to write citations for noncompliance with the regulations; 4) authorizing compensation to the federal government for new access on federal lands outside the boundary of an operator's mineral right; and 5) reformatting the regulations to make it easier to identify an operator's information requirements and operating standards that apply to each type of operation.

EPA appreciates the efforts of the NPS to revise the 9B oil and gas regulations that have been in effect for the last 36 years. EPA supports the selection of Alternative B as the Preferred Alternative. As a result of the revisions, grandfathered/exempt nonfederal oil and gas activities on NPS lands will be subject to the NPS's 98 oil and gas regulations; in addition all operations will be subject to Regulation 9B's existing standards. We appreciate the NPS' efforts to protect public health and safety by incorporating new requirements that will ensure that all non-federal oil and gas operations conducted in

national park units avoid or minimize adverse effects on natural and cultural resources, visitor use, and park infrastructure and management.

Based on our review of the draft EIS, we offer the following comments for consideration to be included in the final EIS:

- We recommend that the final EIS address the possibility of high concentrations of radioactive elements in any waste waters and associated solids or explain why no radioactive elements are expected. The draft EIS does not mention the possibility that the produced/flowback fluid may contain radioactive elements and that the radioactive elements may become concentrated in the fluid. However, geologic formations (especially black shales) that contain oil and gas deposits (and produced water) also contain naturally-occurring radionuclides, which are referred to as Naturally Occurring Radioactive Materials. Radionuclides, along with other minerals that are dissolved in the produced/flowback water, separate and settle out, forming various wastes at the surface such as in mineral scales inside pipes, sludges/sediments in the bottom of tanks, contaminated equipment or components, in spills to the surface, and produced waters. These wastes are classified as Technologically Enhanced Naturally Occurring Radioactive Material due to the extraction process which concentrates the naturally occurring radionuclides and exposes them to the surface environment and possible human contact.
- We recommend the final EIS discuss whether there is potential for induced seismicity due to underground injection of produced/flowback waters and what mitigations or management controls would be used to reduce or eliminate any problems or concerns. Induced seismicity is an increasing concern in regions of the United States where the produced fluids and wastewaters from oil and natural gas production activities are being injected into the subsurface through deep disposal wells.

Since additional NEPA analysis will be needed for any plans of operation associated with oil and gas activities, EPA recommends that the NPS:

- As appropriate use the "Memorandum of Understanding (MOU) Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the National Environmental Policy Act Process" which the EPA, U.S. Department of Agriculture and U.S. Department of Interior entered into on June 11, 2011. Based on this MOU, future projects implemented under the NPS' regulations may be subject to additional air quality analyses and project level mitigation. It may be appropriate to utilize the MOU's agency stakeholder process to share reasonably foreseeable development and emissions inventory information and to determine appropriate steps for the air quality analysis, such as quantitative air quality modeling.
- Disclose and consider the potential environmental effects of oil and gas development on air quality in the planning areas, and determine whether there is a need to revise management actions or develop stipulations to minimize the potential air quality impact of oil and gas development. This would include emissions of criteria air pollutants and hazardous air pollutants that can cause or contribute to human health impacts or impacts to Air Quality Related Values such as visibility, vegetation, water, fish and wildlife. We also recommend that you identify potential mitigation measures including control measures and design features such as equipment type and design requirements, emission standards or limitations, best management practices, dust suppression measures for unpaved roads and construction areas, add-on control technologies, and limitations on the density and/or pace of development.

- We also recommend that the NPS revise and update the information provided on page 187 of the draft EIS concerning the EPA's hydraulic fracturing drinking water study. Specifically, we suggest that the NPS review and consider using the more recent information provided in the EPA 's draft hydraulic fracturing drinking water assessment report (USEPA 2015). This assessment summarizes over 950 sources of data and information on the potential impacts of hydraulic fracturing on drinking water resources in the United States. The assessment is organized following the same hydraulic fracturing water cycle outlined in the progress report (USEPA 2012) cited in the draft EIS. The EPA also suggests that the NPS review and cite as appropriate the final reports and journal articles that have resulted from the EPA's hydraulic fracturing drinking water study. Specifically, we suggest the NPS take a look at the reports concerning: water acquisition for hydraulic fracturing in Pennsylvania and Colorado (USEPA 2015); chemicals used in hydraulic fracturing (USEPA 2015); well construction characteristics (USEPA 2015), and; spills of hydraulic fracturing fluids and flowback and produced water (USEPA 2015). The draft assessment, final EPA technical reports, and journal articles resulting from the EPA's study may be downloaded through the web site: www.epa.gov/hfstudy. Finally, the EPA suggests that the reference USEPA 2013c is not part of the hydraulic fracturing drinking water study and is inappropriately used in the context of the paragraph on page 187. Consider the use of EJSCREEN, the EPA's environmental justice screening and mapping tool that utilizes standard and nationally consistent data to highlight places that may have higher environmental burdens and vulnerable populations, when determining potential project-specific impacts to minority and low-income populations.

- Conduct appropriate greenhouse gas (GHG) and climate change analyses for subsequent project-specific operation actions. We recommend the use of the Council on Environmental Quality's December 2014 revised draft guidance for consideration of GHG emissions and climate change impacts in NEPA.

In addition, we recommend the final EIS include information related to the Endangered Species Act and National Historic Preservation Act consultation and coordination requirements in the appendix to final EIS.

In summary, the EPA believes the actions proposed under the draft EIS will result in reduced adverse impacts on resources. We have rated the proposed action a "LO" (Lack of Objections). A copy of the EPA's rating criteria is enclosed. If we can provide further explanation of our comments, I can be reached at 202-564-5400, or you can contact Julie Roemele of my staff at 202-564-5632.

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PEPC Project ID: 28329, DocumentID: 59453

Correspondence: 22

Author Information

Keep Private: No
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Correspondence Information

Status: Reviewed	Park Correspondence Log:
Date Sent: 12/13/2015	Date Received: 12/13/2015
Number of Signatures: 1	Form Letter: No
Contains Request(s): No	Type: Web Form
Notes:	

Correspondence Text

December 13, 2015

Edward O. Kassman, Jr.
Geologic Resources Division
National Park Service
P.O. Box 25287
Denver, Colorado 80225

Subject: Draft Environmental Impact Statement for the Revision of 9B Regulations
Governing Non-Federal Oil and Gas Activities

Dear Mr. Kassman:

I am writing to you on behalf of the Coalition to Protect Americas National Parks (Coalition), a non-profit organization comprised of over 1,100 members; most are former and retired National Park Service (NPS) employees. Collectively, we have over 30,000 years of experience working in and managing the America's national parks. The Coalition studies, educates, speaks, and acts for the preservation of Americas National Park System.

This letter submits comments on the National Park Service (NPS) Draft Environmental Impact Statement (DEIS) addressing the proposal to amend regulations governing the exercise of non-federal oil and gas rights and associated operations within NPS units. The DEIS describes the following three

Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

alternatives for regulatory provisions governing these non-federal oil and gas operations in parks: Alternative A - No Action (continuation of the current regulations); Alternative B - Proposed Rule; and Alternative C - Modified Proposed Rule. The DEIS also describes the environment that would be affected by the alternatives and evaluates the impacts of the three alternatives. Alternative B is the NPS Preferred Alternative, as well as the Environmentally Preferable Alternative.

Non-federal oil and gas rights exist in NPS units where the United States does not own the oil and gas interest. Currently there are over 530 operations to extract non-federal oil and gas occurring in 12 NPS units with continuing development expected. Another 30 NPS units have potential for future development of non-federal interests within park boundaries. The existing 9B regulations, promulgated in 1978, require an operator to obtain NPS approval of a proposed plan of operations before commencing oil and gas exploration, drilling, production, or reclamation in an NPS unit. The current regulations however contain two provisions that have had the effect of exempting over half of the operations in parks from NPS review and approval. These exempt operations include: 1) those that do not require access on, across, or through federally owned or controlled lands or waters (15% of total in-park operations); and 2) those grandfathered operations that were operating at the time the regulations became effective in January 1979 (45% of in-park operations). Many of these currently exempt operations are conducting operations in a manner that adversely impacts park resources, values, and visitor experience as well as posing hazards to human health and safety. The NPS Preferred Alternative would eliminate these exemptions and greatly facilitate the NPS ability to appropriately manage non-federal oil and gas activities.

The Coalition fully supports Alternative B, the NPS Preferred Alternative, as described in the DEIS. While the existing NPS rules have served reasonably well in addressing new oil and gas operations in parks, it is apparent that the original regulations resulted in significant regulatory gaps that need to be addressed for the agency to fully carry out its preservation mandate under the NPS Organic Act of 1916 (54 U.S.C. 100101 et seq.) and NPS Management Policies. The Preferred Alternative is needed to improve the agency's ability to protect park resources, values, and visitors from potential impacts associated with oil and gas operations located within NPS units, many of which are not currently subject to NPS requirements. The Preferred Alternative will: 1) strengthen the NPS's ability to fulfill its mission to protect park resources and visitor values, 2) provide equitable financial compensation and surety to protect the public's resources and taxpayer dollars, and 3) create and improve efficiencies in the regulatory requirements.

The NPS Preferred Alternative includes several important elements to improve effectiveness in protecting park resources and values and enhancing visitor experience and employee safety. Two particularly significant elements are: elimination of the regulatory provisions noted above regarding access across federal property and grandfathered operations; and elimination of the limit on financial assurance (bonding) that NPS may require from an operator.

Eliminating the exemptions regarding access and grandfathered operations is crucial because, under the current rules, the NPS cannot regulate 319 out of 534 non-federal oil and gas wells currently within the boundaries of parks due to these exemptions. Many of the unregulated operations are not following best management practices, resulting in degradation of park resources and values and potential safety hazards for park staff and visitors. At the time the current regulations were promulgated the NPS made a policy choice to exempt (grandfather) existing operations until expiration of their state and local permits, based on the theory that this would allow a phase-in of NPS regulations for these operations. Operations not requiring access on federal property were also exempted as this was expected to occur

Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

in limited circumstances. Like the grandfather exemption, this self-imposed access exemption is not specified in any statute, but was an exercise of the NPS discretion at the time the regulations were promulgated.

As is evident from the DEIS and the draft regulatory preamble and supporting analysis, NPS experience to date has shown that these exempted operations are often not following best management practices. These operations are causing unacceptable impacts to park resources and values and presenting visitor hazards that need to be managed by NPS to prevent additional risks and damages. The DEIS and supporting documents show that these unregulated oil and gas activities are currently impacting NPS resources in many ways including the following:

- " Twenty-six instances of surface contamination and water quality degradation from spills, storm water runoff, erosion, and sedimentation;
- " Forty-seven cases of groundwater contamination have been found from existing drilling mud pits, poorly constructed wells, pump jack leaks, operations and maintenance spills, and tank battery leaks;
- " Many sites cause air quality degradation from dust, natural gas flaring, hydrogen sulfide gas, and emissions from production operations and vehicles, and NPS inspections have documented 14 instances of notable odors emanating from the wellhead;
- " Increased human presence and noise from seismic operations, blasting, construction, drilling and production operations effect wildlife behavior, breeding, and habitat utilization, and negatively impact the visitor experience;
- " Adverse effects on sensitive and endangered species. NPS site inspections have documented 15 sites with sensitive species or habitat that could be affected by oil and gas operations;
- " Disturbance to archeological and cultural resources from blasting associated with seismic exploration and road/site preparation, maintenance activities, or by spills; and
- " Visitor and employee safety hazards from equipment, pressurized vessels and lines, presence of hydrogen sulfide gas, and leaking oil and gas that can create explosion and fire hazards. Through site inspections the NPS has documented 62 instances of visitor safety hazards.

A second critical improvement in the Preferred Alternative is elimination of the limit on financial assurance (bonding) that NPS may require to ensure that adequate funding is available for well plugging and site reclamation. Existing regulations limit the bond to \$200,000 per operator per park. Currently, in the case of an inadequate bond amount, the only NPS recourse is a civil suit to recover additional reclamation costs - a difficult, costly, and time consuming process. In cases where the operator is insolvent or cant be located the cost of well plugging and site reclamation fall on the NPS and American taxpayers.

NPS experience has shown this performance bond limit no longer represents the current costs of reclamation, particularly in cases where an operator has several wells in a park. For example, a foreign company that had an operating permit for 11 wells at Padre Island recently abandoned all operations and defaulted on its restoration obligations. While the NPS held a \$200,000 bond, the cost to plug wells and reclaim one 5-well site is estimated and \$350,000 alone. As more operations occur or as operators consolidate holdings in a park, the NPS will likely be faced with more situations where the current bonding limit is insufficient to properly reclaim sites where the operators fails to fulfill their obligations under an approved plan of operations. The preferred alternative would make the required bond amount equal to the estimated cost of reclamation for each operation, ensuring that future reclamation funds would be available.

Other noteworthy changes included in the NPS Preferred Alternative are:

- " Application of the NPS penalty provisions at 36 CFR 1.3 to address regulatory violations, which would provide a practical method of dealing with minor regulatory infractions that do not rise to the level of permit suspension or judicial intervention;
- " Clarification that an operations permit will be a special use permit allowing the NPS to recover costs associated with the permitting and operations monitoring process (9.40), and that the NPS may require the use of third-party monitors to oversee permitted operations (9.121), which will facilitate NPS monitoring of operations;
- " Incorporation of a new format for information requirements (9.80-9.90) and operating standards (9.110-9.118) that makes it easier for both the NPS and the operator to readily identify the standards that apply to particular operations;
- " Codifying a definition for technologically feasible, least damaging methods as the non-prescriptive general standard for all operations, and requiring such methods in all operations to protect park resources and values, visitor experiences, and NPS staff safety (9.110(c));
- " Provision for new information requirements and operating standards for well stimulation, including hydraulic fracturing (9.118(b)) that are modeled after the BLMs recently promulgated regulations, which will facilitate analysis and public involvement in these often contentious fracking proposals;
- " Addition of a new well-plugging provision (9.170) to address inactive and shut-in wells and ensure timely reclamation, which will eliminate long-standing inactive well sites that cause ongoing resources degradations and visitor safety hazards; and
- " Consolidation of existing regulatory provisions and elimination of redundant provisions.

One area in the NPS Preferred Alternative we would like to see clarified is the issue of public notice and participation. The DEIS states that the Preferred Alternative would eliminate the current local newspaper and Federal Register publication requirements and clarify that the notice required under NEPA is sufficient as public notice for oil and gas permit applications received by the NPS, and no additional notice would be needed. However, neither the proposed Public Participation (9.200) nor any other regulatory section addresses NEPA or other public notice requirements. While it may be the NPS intent that normal NEPA and other compliance processes will provide adequate public notice and participation opportunities, this needs to be clearly stated in the regulatory proposal. We suggest specific public notice requirements be inserted in the proposal at the sections where NPS determines a proposed application is complete and it will begin formal review (e.g., 9.101(a)(1), 9.105 (a)(2)). Such specific public notice will be important to ensure full public participation in NPS future oil and gas permitting.

As described in the DEIS, Alternative C is a modified version of the proposed rule. It includes all provisions described under Alternative B, plus the following three measures (shown below as bullets):

- " NPS jurisdiction would be expanded under the regulations to encompass surface and subsurface directional drilling operations outside the legislative boundary of the park. Thus, directional drilling operations would be treated the same as new operations located inside the park.

Comment: While expanded NPS jurisdiction as proposed under Alternative C may seem desirable to further regulate such directional drilling operations, we believe: 1) It would remove incentive to locate such operations outside the park; and 2) It would require a novel extension of NPS legal authority that would be highly controversial and difficult to achieve in the current political climate, and is unnecessary for effective management of the activity. As noted in the DEIS, if more operations chose

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to locate inside the park because of this change, direct effects to park resources and visitor experience are likely to increase as compared to the existing regulations or the proposed rule. For these reasons, we oppose this provision.

" A new provision would provide for regulatory exemptions for operations wholly on private land within a unit of the National Park System when NPS determines that it does not reasonably expect that operational requirements are needed to protect against a significant threat of damage to resources or visitor/employee health and safety.

Comment: It is not clear how this would be accomplished administratively, and it would still require the operator to submit information and NPS to analyze potential effects and likely NEPA compliance. This seems to add unnecessary regulatory confusion with no apparent benefits; and, if an operation were exempted, no bond would be obtained for the operation, creating a restoration problem in case of a future abandonment. For these reasons, we oppose this provision.

" Mineral owners and their lessees would be equally liable for all obligations to comply with the terms and conditions of an approved permit and any other applicable provisions. In other words, enforcement and penalties provisions would hold mineral owners and operators jointly and severally liable to comply with permit conditions.

Comment: The current regulations (and the Preferred Alternative) do not (would not) require the mineral owner to be involved. Under Alternative C, the new joint and several liability requirement could create an additional incentive for owners to ensure that their operators comply with the 9B regulations. Specific language is not given, but in practice this would make little difference to permitted operations if bond limits are removed as proposed and adequate bonds are obtained. However, it may provide an additional incentive for existing operations not currently regulated to come into compliance - the mineral owner is in it for the long term while some currently unregulated marginal operators may just walk away. We could support this Alternative C provision (and this provision alone) if it were included under Alternative B, the Preferred Alternative. However, we would be reluctant to support it if doing so would delay in completing the final rule.

In closing, while legislation and property law allow for the development of non-federal oil and gas rights in parks, the NPS has the legal authority and legal obligation to manage such development in a manner that is consistent with the NPS Organic Act and related NPS Management Policies. The NPS stated purpose of the proposed revisions to the 9B regulations is to protect public health and safety; improve understanding, application and effectiveness of the regulations for the NPS and for industry; and incorporate new requirements that will ensure that all non-federal oil and gas operations conducted in national park system units avoid or minimize, to the greatest possible extent, adverse effects on natural and cultural resources, visitor uses and experiences, park infrastructure and management. We believe that the NPS Preferred Alternative is fully consistent with these requirements and strongly support the proposal as written.

Sincerely,

Maureen Finnerty
Chair, Coalition to Protect Americas National Parks

Email: maureen_finnerty@protectnps.org

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Correspondence Text

Dear Mr. Kassman:

We are writing to provide the comments of Collier Resources Company LLP and affiliated persons and entities (collectively referred to as the "Colliers") on the National Park Service's ("NPS" or the "agency") October 26, 2015 Notice of Proposed Rulemaking regarding the regulations at 36 CFR Subpart 9B addressing mineral management and nonfederal oil and gas development (the "NPRM").

Overview of Comments

The Colliers support management of oil and gas activities in units of the National Park System to preserve the values of those units while allowing private property owners reasonable enjoyment of their mineral interests. In the Big Cypress National Preserve and Addition (referred to generally as the "Big Cypress" or "Preserve"), where the Colliers own most of the mineral interests, oil and gas activities have taken place for more than forty years with little adverse effect. There is no reason why the NPS cannot protect the natural features of places like the Big Cypress and also give private oil and gas owners full and timely access to their property.

The NPS is proposing a significant revision to the rules governing management of oil and gas activities, especially in the Big Cypress. The existing regulations found at 36 CFR Subpart 9B (the "9B Regulations") were issued in 1978. While those regulations apply nationwide, they were also specifically designed to meet the requirements of the Big Cypress National Preserve Establishment Act authorizing oil and gas activities in the original Preserve. See, e.g., 42 Fed. Reg. at 63058 (Dec. 14,

1977). When the Big Cypress National Preserve Addition was authorized in 1988, Congress provided that oil and gas activities there could be managed pursuant to agreements with the Colliers until such time that new regulations were promulgated. 16 U.S.C. 698m-4(e). Since that time, oil and gas activities in the Big Cypress Addition have been governed by the terms of the 1988 Agreement Governing the Exercise of Reserved Oil and Gas Rights of Collier Enterprises And Barron Collier Company, which is Appendix 6 to the Agreement Among the United States of America, Collier Enterprises, Collier Development Corporation, and Barron Collier Company (the "1988 Agreement "). In the NPRM, the NPS apparently is proposing to replace that entire legal regime with the new regulations.

As set forth below, the Colliers believe that the proposed rule should be improved and clarified in several respects. While it does not appear to be the NPS' intent, it is very important that any changes to the 9B Regulations not undermine the commitments made by the federal government to the Colliers years ago regarding Big Cypress.

I. History of Collier Oil and Gas Activities in the Big Cypress

The Colliers' focus is on Big Cypress, where they own most of the oil and gas interests. When the original Big Cypress National Preserve was created by Congress in 1974, the Colliers sold 77,000 acres of land within the Preserve's boundaries to the federal government. When Congress created the Big Cypress National Preserve Addition in 1988, it did so through a land exchange in which the Colliers gave the federal government 83,000 acres for the Addition and 25,000 acres for two nearby National Wildlife Refuges. In both instances, the Colliers retained their oil and gas rights when they transferred their lands in the Big Cypress to the federal government. The Colliers own the oil and gas rights beneath approximately 400,000 acres in the Big Cypress, making them perhaps the largest single private owner of oil and gas interests in the entire National Park System. The Colliers' right to explore and develop their retained oil and gas interests was specifically negotiated when the Colliers turned over their lands to the federal government.

Historically" there have been several proposed and/or implemented Plans of Operation in the Big Cypress. Oil and gas activities in the Big Cypress long predate the creation of that unit of the National Park System. There have been multiple seismic surveys in the Preserve, most recently in 1998 near Raccoon Point, and today there are multiple producing wells in Big Cypress (with tens of millions of barrels of reserves) which operate under approved Plans of Operation. Plans of Operation for those activities have been reviewed by the NPS under the existing 9B Regulations and/or the 1988 Agreement. The Colliers believe that experience with these Plans of Operation should inform the NPS's revisions to the 9B Regulations.

The most recent and relevant experience is the NPS review of the proposed Plan of Operations by Burnett Oil Co., Inc. ("Burnett"). Burnett proposes to conduct a three dimensional seismic survey pursuant to an agreement with the Colliers. This proposed Plan of Operations would use specially-designed off-road vehicles to generate sound energy in the ground using vibrating plates. Use of this technology avoids the need to detonate explosive charges to generate the sound energy, which is the traditional way to conduct a seismic survey. The operations would occur during the dry season when soils are dry, and would avoid any new construction or filling activities in the Preserve. In 1988, the NPS approved a similar seismic operation in the Big Cypress (which used explosive charges) based on a Finding of No Significant Impact, and confirmed through post-survey monitoring that there was no sign a few years later the survey had even taken place.

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Burnett first informally met with the NPS in the fall of 2013 about its intent to submit a Plan of Operations. The original survey proposed to cover 336 square miles. The Plan of Operations was formally submitted in January 2014, including a detailed analysis of environmental impacts. The NPS review of the Plan of Operations is still not complete, almost two years later. The agency took approximately 11 months to confirm Burnett's right to conduct operations (i.e., that Burnett has a contractual right with owners of the oil and gas interests), only ending that review in December 2014. The agency also has taken more than a year and a half to review the environmental impacts of the proposed survey. At the agency's request, Burnett submitted a draft Environmental Assessment in June 2014. NPS provided several rounds of comments on the Plan of Operation and Environmental Assessment in 2014, which mostly requested clarifications of certain provisions. Based on those comments, Burnett reduced the size of the survey by 75%, approximately 110 square miles. In September-December 2014, Burnett submitted a revised Plan of Operation and Environmental Assessment. It was not until mid-2015 that the NPS sent Burnett a letter stating that the Plan of Operations was complete.

The NPS published a notice in the Federal Register regarding the Plan of Operation in June 2015, seeking public comment. The NPS only made the Plan of Operation publicly available at that time, not the draft Environmental Assessment. Most public comments focused on potential environmental impacts, which were addressed in the Plan of Operations. The NPS extended the comment period on the Plan of Operations, which ultimately closed in September 2015. The NPS then issued an Environmental Assessment (revised yet again) for public comment in November 2014 and later extended that second comment period so that it will now close in January 2016. If the NPS approves the Plan of Operations in January 2016, then this entire process will have taken more than two years from the date when Burnett first informally approached the agency. The Colliers' believe that this experience should inform the NPS' revision of the 9B Regulations.

(a) Comments on Proposed Rule

The Colliers support regulation of oil and gas activities to protect units of the National Park System while allowing private access to reserved oil and gas rights. Consistent with that view, they recommend that the proposed new 9B Regulations be revised and/or clarified as follows.

-Relation of the Proposed Regulation to Other Rules Governing Oil and Gas Activities As an initial matter, the NPS should make clear the relationship between the proposed new regulations and existing rules governing oil and gas activities in units of the National Park System. The NPRM appears to be a comprehensive revision of all agency rules governing private oil and gas activities, which would replace all existing rules currently in force. For Big Cypress, the NPRM appears intended to replace all current rules and regulations governing oil and gas activities there, including the existing 9B Regulations (which govern operations in the original Preserve) and the 1988 Agreement (which governs operations in the Addition). Based on this, it is the Colliers' understanding that once the agency finalizes the proposed revisions, there will be no other binding agency rules which would govern oil and gas activities in the Big Cypress, only nonbinding guidance. The Colliers ask the agency to confirm that understanding as correct, and if it is not, then explain what other agency rules specifically addressing oil and gas activities would apply in the Big Cypress.

The Colliers also request that the NPS affirm that it will apply the proposed operating standards consistent with the operating standards found in the 1988 Agreement. Many of the operating standards in the proposed new regulations are similar to those in the 1988 Agreement, except that they are written

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in general terms and are not tailored to the specific local conditions of the Big Cypress. The Colliers agreed to exchange land with the NPS in 1988 based on a specific understanding of how the NPS would regulate their oil and gas activities. The NPS should continue to honor that understanding and apply the proposed new operating standards, to the extent there is ambiguity as they are applied to local conditions, in a way consistent with the 1988 Agreement.

B. Time Frames to Process Proposed Plans of Operation

The proposed new 9B Regulations appear to worsen the existing timelines for the NPS to act on proposed Plans of Operation, by extending the agency's review period without setting any deadlines to complete that review. This exacerbates the existing problem of the NPS taking years to review even simple Plans of Operation. The Colliers recommend that the proposed regulations be revised to include hard deadlines for when the review will be complete, so that private mineral owners and operators will not continue to be penalized by excessive agency delays.

The current 9B Regulations call for the NPS to act on proposed Plans of Operation within approximately 60-90 days. 36 CFR 9.37(b)(4). The NPRM would lengthen that time of review. Proposed new section 9.104(a) indicates that the NPS would take final action "within 180 days" for units other than Big Cypress, and new section 9.105 indicates that the NPS would act "within 90 days" for plans in the Big Cypress, but in both cases with exceptions discussed below.

Excessively long reviews are an unfortunate reality of the NPS review of Plans of Operation. For instance, agency review of the Burnett Plan of Operations has been ongoing for two years (it is still not complete), and that is a plan that involves no construction and requires no Environmental Impact Statement. The Colliers do not believe that such a long review period is an exception. We request that the NPS identify each of the Plans of Operation submitted to the agency over the past 15 years, identify the nature of the activities, and how long it took between the submission of the plan and a final NPS decision. Since the agency now is proposing to lengthen the review period in the NPRM, the Colliers assume this means that the agency plans to take more time, not less. If the NPS believes that review periods will be shorter under the proposed new regulations, then it would be very helpful if the agency were to explain why and outline what it anticipates the normal review procedure would be on Plans of Operation going forward.

The proposed new regulations are highly problematic in that they provide no real deadlines for the NPS to make final decisions on proposed Plans of Operation. First, the agency wide rule ties the 180-day review period to the date that "the NPS deems your application complete." 9.104(a)(I). This gives total discretion to the NPS to delay a decision, by simply delaying the date that the agency sends a letter stating that an application is complete. In the case of the Burnett Plan of Operations, for example, the NPS did not send such a letter to Burnett until well over a year after the plan was first submitted. While the proposed Big Cypress regulation, section 9.105, starts the clock from the point when a Plan of Operations is submitted, the generally-applicable regulation in section 9.104 leaves the door wide open for delay everywhere else in the National Park System.

Second, both the general rule at section 9.104(a)(2) and the Big Cypress rule at section 9.105(b)(2) allow the NPS to exceed the timeframes if the agency determines that "an additional period of time is required to ensure that we have ...complied with other applicable laws, executive orders, and regulations." The NPS itself is responsible for complying with other should continue to honor that understanding and apply the proposed new operating standards, to

the extent there is ambiguity as they are applied to local conditions, in a way consistent with the 1988 Agreement.

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Second, both the general rule at section 9.104(a)(2) and the Big Cypress rule at section 9.105(b)(2) allow the NPS to exceed the timeframes if the agency determines that "an additional period of time is required to ensure that we have ...complied with other applicable laws, executive orders, and regulations." The NPS itself is responsible for complying with other applicable laws in relation to its review of the Plan of Operations (with the possible exception of consultation under the Endangered Species Act). This provision gives the NPS complete discretion to miss the deadline when the agency does not complete its work to comply with other laws on a timely basis, through no fault of the applicant. It also gives the NPS discretion to miss the deadline when it seeks to engage in internal

procedures that lack the force of law, e.g., compliance with executive orders. That means that there are no real deadlines at all for the NPS to act.

The immoderate time frames for the NPS to review Plans of Operation cause significant financial harm to private owners of oil and gas interests. If owners cannot access their property for many months (or years) while the agency reviews proposed Plans of Operation, then they have effectively been denied use of their property during that time period. Moreover, there are substantial costs for operators associated with the plan review process, such as the cost for consultants and experts, and the inability to bring product to market when market conditions are favorable. These costs are magnified the longer the process continues. In the case of Big Cypress, there also are significant costs associated with delays in the mobilization of equipment necessary to conduct operations, because most equipment needs to be reserved and brought in from other states and delays in the permitting process may result in penalties from equipment owners. By comparison, the NPS suffers no costs through its own delays in this process.

The Colliers recommend that the proposed regulation should be revised so that there are clear deadlines for the NPS to make decisions on Plans of Operation. An excellent structure for such a revised regulation could be taken from the process followed for consultation under the Endangered Species Act. Under Endangered Species Act regulations, formal consultation must conclude within 90 days after initiation. 50 CFR 402. 14(e). If the agencies need more time, they can extend the consultation period up to 60 days without the consent of any applicant, and more if the applicant agrees. The biological opinion is due 45 days after completion of consultation, for a total time period of 185 days (or more time, if the applicant agrees). This schedule which the NPS and wildlife agencies regularly meet throughout the country, is reasonable and provides a measure of certainty regarding timing to project applicants.

Applying this structure to the 98 regulations, the NPS should have 90 days to complete the review of the Plan of Operations. If it needs more time, then it could automatically extend its review another 60 days if it makes a written determination demonstrating that it needs more time, and then must make a decision 45 days after the completion of its review. These deadlines could be further extended with the agreement of the applicant. This would give the agency approximately 180 days if necessary - similar to the time frame stated in the NPRM -but would give applicants certainty that the process will be completed. This time frame also would allow the NPS time its review with consultation under the Endangered Species Act.

If the NPS does not revise the proposed new regulations to set actual deadlines (like the Endangered Species Act regulations), then it should revise its proposal so that private mineral owners and operators are not the only parties penalized for long reviews of Plans of Operation. If the NPS misses the deadlines in the regulations, there are no consequences to the agency. The only parties that are penalized are the private mineral owners and proposed operators, who do not have access to their property and who bear substantial permit-related costs. Outside groups opposed to the private exercise of oil and gas rights know this, and the Colliers believe that they seek to delay NPS review in order to prevent or limit the exercise of those rights.

The proposed rules should be revised to create incentives for a completion of plan review, rather than maintain existing incentives to delay that review. For example, the NPRM could be revised to create a presumption that if the NPS does not complete its review within the timelines, and the applicant is not at fault, then the Plan of Operations would be approved. Alternatively, the NPS could pay any costs

imposed on the applicant caused by the agency's delay past the original timelines, if those delays are caused primarily by actions of the agency or parties other than the applicant.

To be clear, the Colliers are not suggesting that the NPS should be required to approve any Plan of Operations that does not meet legal requirements. However, the Colliers do believe that if the NPS is going to approve or deny a Plan of Operation, then it should do so promptly and provide a basis for its decision. Immoderate delays in the NPS review process function like a denial for a period of time (because private mineral owners are deprived of the use of their property while the agency engages in the review), but avoid the need for the agency to justify the denial. The goal of the review procedures should be for the agency to make good decisions, not to take so long that the oil and gas owners and operators are impeded from accessing their privately owned property.

C. Determinations of the Right to Conduct Operations

The proposed regulation should be revised to improve the determination of an operator's right to conduct operations. Similar to the current 9B Regulations, the proposed regulation provides that an operator must provide "documentation demonstrating that you hold the right to operate inside of an NPS unit." 9.83(a). Under section 9.40, a "right to operate" is defined as a "deed, lease, memorandum of lease, designation of operator, assignment of right, or other documentation demonstrating that you hold a legal right to conduct the operations you are proposing within an NPS unit."

In the Collier's experience, the NPS determination of an operator's right to operate is problematic. The Burnett experience is instructive. In the early 2000s, the NPS considered purchasing all of the Colliers' oil and gas interests in the Big Cypress, and in the process, collected literally boxes of title documents demonstrating the Colliers' ownership. When Burnett submitted its Plan of Operations, it provided the NPS in February 2014 a memorandum of agreement with the Colliers indicating that it had a right to conduct a seismic survey on Collier owned oil and gas interests. While Burnett proposed to conduct a seismic survey of some non Collier oil and gas owners, from whom it was obtaining rights separately, the Collier interests make up the overwhelming majority of the Burnett survey area. In April 2014, the NPS's attorney informed Burnett that she did not believe that a memorandum agreement was sufficient, so Burnett submitted the actual agreement and other documents requested by the NPS. For several months thereafter, the agency attorney indicated that she was reviewing the materials and would get back to Burnett if she needed anything further. In approximately October 2014, the NPS lawyer indicated that she did not believe that the form of Burnett's agreement with the Colliers was sufficient to give Burnett the right to conduct operations. Even though the only parties to that agreement - - the Colliers and Burnett - - believed that their agreement was more than sufficient, they executed additional documents just to satisfy the NPS.

In October and November 2014, NPS also asked for documents relating to a few parcels of non-Collier oil and gas rights within the survey area. NPS took the position that if Burnett did not demonstrate its right to conduct operations in every portion of the survey area, then the NPS would not review the Plan of Operations for any portion of the survey area. In this case, Burnett had demonstrated that it had rights over almost the entire survey area based on its agreement with the Colliers, which meant that the NPS was delaying a finding of the right to conduct operations based on documentation for just a tiny fraction of the area. Burnett provided the information on those last parcels, and excluded from the survey those properties which it was still obtaining consent of oil and gas interest owners. In December 2014, NPS finally confirmed that Burnett had a right to conduct operations.

This experience indicates several ways that the determination of an operator's right to conduct operations should be improved. First, NPS should better define the type of information that operators should submit. Section 9.40 allows for the submission of a memorandum of lease," but the NPS deemed such a memorandum insufficient in the Burnett matter. (If the NPS intends this language to change its current practice, then we ask that the agency confirm that point.) Section 9.40 also allows for the submission of "other documentation" but does not specify what would be adequate. We recommend that the regulation make clear that if an operator presents some documentation of its right to access another person's oil and gas interests and if the operator and private mineral owners represent to the agency that they believe that those agreements between them give the operator a right to conduct operations between them, then the NPS should accept that representation as sufficient. Applicants should not have to submit documentation to the NPS that is in a form that the agency would require if it were a patty to the agreement itself.

Second, the NPS should clarify that its review of the Plan of Operation can proceed in parallel to its review of documentation demonstrating an applicant's right to conduct operations. The NPS current practice is not to even start reviewing a Plan of Operation's substantive provisions until the agency has determined the operator has a right to conduct operations. In the case of Burnett, that meant that the NPS waited almost a year to formally commence its review of the proposed seismic survey. So long as an applicant has provided some documentation showing its right to conduct operations (e.g., a memorandum of lease), then there is no reason why NPS lawyers cannot scrutinize the details while other NPS personnel review other aspects of the Plan of Operations. The process should run in parallel, not sequentially.

Third, the NPS should not require that an applicant demonstrate its right to conduct operations over every part of a proposed operations area, as a precondition for making its determination that the applicant has a right to conduct operations over any part of its survey area. Maps of oil and gas ownership interests resemble complex jigsaw puzzles with many tracts of different shapes and sizes. It is common for private oil and gas interests beneath units of the National Park System to be owned by multiple parties, often handed down generation to generation. Assembling permission from such multiple owners to conduct operations takes time, because operators often need to track down the heirs to owners listed in title records. So long as the operator obtains those rights before conducting the operations over a specific person's oil and gas interests; the rights of the owners are protected. The NPS should revise the proposed regulation to allow for conditional approval of operations in such areas subject to a later demonstration that right of access to a specific parcel has been acquired.

Fourth, the NPS should clarify that an operator need not demonstrate a private right to conduct oil and gas operations from mineral owners beneath surface access routes. If an operator proposes to conduct oil and gas operations over a specific property, then the NPS should require demonstration of a right to operate on those properties before those operations occur. However, if an operator needs to traverse some other area of the unit to access its operations area (i.e., if an operator's vehicles need to cross a certain area or use a road), the operator should not need to demonstrate a right to conduct operations from private mineral owners beneath the access route, because the operator would not be conducting oil and gas operations over that access route. This seems obvious to us, but NPS personnel have raised this question in the past.

Finally, the regulations should be revised to clarify that the NPS has no role in determining whether a Plan of Operation is sufficient under state or local law. Proposed new section 9.103(a)(3) provides that the Regional Director "must determine that your operations... [w]ill comply with all applicable Federal,

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State, and local laws and regulations." Most states require approval from a state agency to conduct oil and gas activities, and have their own permitting procedures. Before a person can conduct operations, that person must have all authorizations required by law, including permits from state agencies. It is reasonable for the NPS to require that an operator receive all necessary permits from state and local authorities under state and local Law before commencing operations. However, the NPS has no proper role or expertise interpreting and applying state or local law regarding an operator's entitlement for a state or local permit. The suggestion that the NPS is going to tell operators whether they meet state law, and tell state and local agencies whether operators meet those agencies rules, is contrary to principles of sound federalism. The regulation should be revised to state only that the Regional Director can condition approval of a Plan of Operations on the operator's compliance with all applicable Federal, State and local laws and regulations, so that an operator cannot conduct operations until it receives all required permits.

D. Procedures Related to Environmental Assessments

The proposed regulation should be revised to clarify and improve procedures related to Environmental Assessments. The proposed regulation acknowledges that the NPS will comply with the National Environmental Policy Act ("NEPA") in the review of Plans of Operation. 9.102(a). The first step in NEPA review of Plans of Operation is preparation of an Environmental Assessment. The NPS frequently requires operators to submit draft Environmental Assessments for the agency's review. The NPRM should be revised to acknowledge that the NPS may ask that an operator submit an Environmental Assessment for the agency's use in the review process.

The proposed regulation also should be revised to provide that a Plan of Operation itself can function as a draft Environmental Assessment. The proposed regulations require an applicant to submit all of the types of information that normally would be found in an Environmental Assessment, including information about the proposed action, 9.71; information about existing conditions, 9.84; information about mitigation measures, 9.85; and information about potential alternatives, 9.85(c)(2). There is no reason for the agency to ask an operator to submit a separate Environmental Assessment, when the Plan of Operations itself functions as one. That simply increases an applicant's expenses, with no corresponding improvement in the agency's decision-making process. In addition, to the extent that the NPS provides public notice and opportunity to comment on a Plan of Operations, that notice and comment period could also double as a public comment on the Environmental Assessment as well. In the case of the Burnett application, the NPS has had two separate public comment periods (one on the Plan of Operations itself, and one on the draft Environmental Assessment), both of which resulted in comments almost entirely focused on potential environmental impacts. There was no reason to conduct two separate public comment periods which essentially dealt with the same issues.

E. Mitigation and Reclamation Requirements

The mitigation and reclamation requirements should be clarified. The proposed regulation requires applicants to submit information about proposed "mitigation." 9.85(b). The proposed regulation also requires an applicant to conduct "reclamation." 9.116. The NPS has the ability to condition an approval under 9.104(b)(1), which presumably could include requiring mitigation and reclamation. The proposed regulations should define the terms "mitigation" and "reclamation." The terms could mean the same thing, or something different, and the NPS should be clear in this respect.

More importantly, the Colliers recommend that the proposed regulation expressly state that the NPS

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cannot require operators to engage in mitigation or reclamation activities that the agency does not require from other users or of itself based on its own activities. Oil and gas operators are just some of many different users of units of the National Park System. Many of the impacts caused by oil and gas operations are similar to impacts caused by other users or NPS personnel themselves. For instance, in the Big Cypress, the primary impacts associated with a seismic survey come from the use of off-road vehicles, e.g., soil and vegetation impacts. Other off-road vehicle users cause the same types of impacts, including NPS personnel using such vehicles in fire-fighting and other operations. The NPS should be even-handed in its regulation of all causes of impacts, and should not single out oil and gas operators for mitigation and reclamation requirements that are not imposed on others. The regulation should make clear that no mitigation or reclamation requirements can be imposed on oil and gas operators that are not also imposed on the NPS and other users for comparable activities.

F. Criteria for NPS Approval and Denial of Plans of Operation

The proposed regulation should have better and clearer criteria for the NPS to approve or disapprove a Plan of Operations. First, the proposed rule provides criteria upon which the Regional Director may approve a Plan of Operations, but does not contain criteria for the NPS to deny a Plan of Operations. Proposed new section 9.103(a) provides that "in order to approve your operations permit application, the Regional Director first must determine" that the application complies with the law and meets applicable operating standards. This section therefore creates minimum standards for the Regional Director to issue an approval. However, nowhere does it identify the basis on which the Regional Director can deny a Plan of Operations, and this provision could be read to suggest that the Regional Director could issue a denial even if the criteria for approval are met. The proposed regulation should be revised to state the criteria on which the NPS can deny an application.

Second, the proposed regulation should be revised to provide that the NPS must approve a Plan of Operations if the plan complies with law and meets all applicable operating standards. In the preamble to the proposed rule, the NPS indicates that is the intent behind the current 9B Regulations: "When the NPS Regional Director has determined that the proposal meets the requirements contained in the regulations ... the Regional Director will approve the plan." NPRM, 80 Fed. Reg. at 65573 (emphasis added). In addition, the 1988 Agreement between the Colliers and the NPS affirmatively provides that if the Colliers meet the operating standards, then the NPS shall approve a Plan of Operations. So that there is complete clarity on this point, the proposed regulations should expressly state that the NPS shall approve a Plan of Operations if the plan complies with existing law and applicable operating standards.

Third, the proposed rule should be revised to more accurately describe the authorities under which the NPS can approve a Plan of Operations. Proposed section 9.103(a)(1) provides that the Regional Director must determine that operations "will not impair park resources and values under the statute commonly known as the NPS Organic Act." While the NPS Organic Act may fully describe the NPS management standard for some units of the National Park System, e.g., 16 U.S.C. 410b (providing that Everglades National Park shall be managed pursuant to the NPS Organic Act), that is too simplistic a description of the management standard for other units. In particular, Congress provided that the Big Cypress National Preserve is to be managed pursuant to several statutory provisions, only one of which is the NPS Organic Act. See 16 U.S.C. 698i(a). In particular, Congress specifically provided that private oil and gas owners can make "reasonable use and enjoyment of privately owned oil and gas interests, and consistent with the purposes for which the Big Cypress National Preserve and the Addition were established." 16 U.S.C. 698m-4(a). The Colliers believe that

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by referring only to the non-impairment standard under the NPS Organic Act, the NPS is ignoring Congress' other requirements that may apply to specific units such as the Big Cypress. We recommend that section 9.103(a)(1) be revised to state, "Will meet Congressional requirements governing administration of the unit of the National Park System where the operations will be conducted." This would include the NPS Organic Act, but also include whatever unit-specific standards may also exist.

G. Operating Standards

The NPRM would establish a uniform set of operating standards for the entire National Park System. In order to do this, those standards need to be set with sufficient generality so that the NPS can tailor compliance to the specific conditions of different units. While the NPRM's operating standards generally offer that level of generality, there are some provisions of the proposed regulation that will be unworkable in some units of the National Park System such as the Big Cypress. We recommend that the proposed regulation be revised to include a general provision that would allow the agency to determine on a case-by-case basis that an operating standard need not apply to a specific operation, for instance by adding a new subsection to that effect in section 9.110.

One example of a "one size fits all" operating standard is section 9.112(a) of the proposed regulation, which provides that "ground-disturbing operations" cannot occur "within 500 feet of surface water, including an intermittent or ephemeral watercourse, or wetland." That provision may make sense in the desert Southwest. However, applied literally, such a condition would completely prohibit operations in places like Big Cypress and Everglades National Park, which are almost entirely made up of wetlands and other surface waters. (We note that the 1988 Agreement had a far more narrowly-drawn provision, paragraph B(7)(b)(4), which aimed to protect specific types of surface waters important in the Big Cypress. The proposed regulation would override this provision.) There is a sentence in that same section allowing a unit Superintendent to "increase or decrease this distance as needed to protect federally owned or administered lands, waters, or resources of NPS units, visitor uses or experiences, or visitor or employee health and safety." However, it does not solve the problem, because this language could be read to allow the Superintendent to change the setback only if necessary to protect the agency, visitors or employees (not oil and gas owners or operators), and implies that a Superintendent could not revise the setback as necessary to allow a Plan of Operations to move forward. Assuming that the agency did not intend such a result, we recommend that the first sentence of section 9.112(a) be revised by adding the phrase, "unless required by local conditions." (The revised sentence would read, "You must not conduct ground disturbing operations within 500 feet of surface water ...; or within 500 feet of any structure or facility used by the NPS for interpretation, public recreation, or administration, unless required by local conditions.")

There are other aspects of the proposed operating standards which appear problematic through lack of definition. Proposed section 9.112(a) would prohibit "ground disturbing operations" within 500 feet of any structure or facility used by the NPS for interpretation, public recreation, or administration." We assume that "ground disturbing activity" means construction of a building, filling for a road or pad, or something of that nature, but without explanation it conceivably could be misread to refer to operation of an off-road vehicle. In addition, the reference to "facility" indicates some manmade structure, but we could see that being misinterpreted to include primitive trails across the landscape. A similar criticism could be made of section 9.112(c), which provides that operations "must not cause measurable degradation of surface water ... beyond that of existing conditions." Although we assume that it is not the agency's intent, the Colliers could see some argue that this provision would prohibit the driving of an off-road vehicle across a puddle, if that act would muddy the water in the puddle for even a short

period of time (i.e., there would be turbidity that would be "measurable").

We assume that the NPS does not mean to prohibit most operations in units such as the Big Cypress based on language such as this. To avoid such interpretations of the operating standards, we recommend that the NPS add a subsection to section 9.110, that would state "NPS operating standards shall be construed to allow oil and gas operations using technologically feasible, least damaging methods, as applied to site-specific conditions."

H. Access Fees

The provisions related to access fees should be either revised or clarified to protect the Colliers' existing right of access to its oil and gas interests. The proposed regulation states that the NPS can charge an operator a fee if it uses "federally owned or administered lands or waters outside the scope of your oil and gas right..." 9.131(a). There is also a provision that "[f]ees under this section will not be charged for access within the scope of your oil and gas right or access to your mineral right that is otherwise provided for by law." 9.131(b).

As a general matter, it is not obvious to the Colliers how reasonable access over the property of the surface estate owner is not included in the ownership of subsurface oil and gas interests. While an oil and gas owner may need to pay for access over the property of third parties, that is not necessarily true for access over the property of the surface owner itself. The Colliers ask the NPS to provide a legal analysis of how it can charge oil and gas owners for access to those interests.

In the case of Big Cypress, when the Colliers conveyed their property interests to the NPS, they reserved both their oil and gas interests and access to those interests. The federal government and the Colliers conducted lengthy negotiations over the value of the Colliers' lands prior to agreeing on the price and terms, especially in relation to the Big Cypress Addition in 1988. The government acquired the Colliers' lands at a lower price than it otherwise would have incurred, because the Colliers retained the right to access their oil and gas interests. The Colliers would not have given the government their property if they did not think that they had retained full access to their property, or if they believed that the NPS would charge them at whim for access to their reserved right. This means that they retained a reasonable right of access to those oil and gas rights, under Florida law and the 1988 Agreement. If the NPS were to start charging the Colliers for "access" now, then that would amount to a unilateral renegotiation of the transfer agreements and a partial taking of the Colliers' oil and gas interests. To avoid any later confusion on this issue, the Colliers request that the NPS clarify that access for the Colliers is within the scope of their mineral right under section 9.131(b).

The Colliers also question the legal basis for the NPS to charge oil and gas operators more for access across government lands than it charges other parties which cross those same lands. The proposed regulation provides that the fee will be "based on the fair market value of the use of the lands for access." 9.131(a)(1). For more than a century, a guiding principle of the NPS has been to facilitate free and open access to the National Park System for all Americans. We are unaware that the NPS charges any other party for access to the public lands, other than minimal fees based on the costs incurred by the NPS. While access for most people is normally free (or nearly so), the NPRM would single out a single group of users for special fees that are not intended to just reimburse the government for the costs associated with that access. The effect of such fees would be to burden operators' exercise of a property right protected by the Fourth and Fifth Amendments. We ask that the NPS identify what other types of users it charges fees based on "fair market value," and the legal basis for it to single out a specific group of private property owners for such charges. We also recommend that the NPS limit any

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access fees to the amount and money necessary to offset costs incurred by the agency as a result of that access.

I. Fifth Amendment Takings

The NPRM states that the proposed regulations are not intended to result in a Fifth Amendment taking. See 80 Fed. Reg. at 65574, 65584. Furthermore, the notice states "NPS believes that implementation of the proposed rule is not likely to result in a taking of private property ." Id. at 65584. The Colliers have seen some argue that any regulation by the NPS based on the 9B Regulations by definition cannot result in a taking, based on similar language in the existing 9B Regulations. While it is clear that the NPS does not mean that, the Colliers ask that the NPS clarify that it seeks to avoid takings, and that these statements are not a determination by the NPS that application of the regulations could never result in a Fifth Amendment taking. The Colliers note that excessive permitting delays, in and of themselves, can give rise to temporary takings under the Fifth Amendment.

J. Financial Assurance

The proposed regulation should be modified to allow for consideration of the financial assurance required under state law in setting the amount of financial assurance required by the NPS. The proposed rule removes the cap on performance bonds, and allows the NPS to set the financial assurances based on how much it would cost a third-party contractor to complete reclamation. 9.141. The NPS should recognize that it is not the only agency that requires financial assurance for oil and gas activities in units of the National Park System. Most states require financial assurance as well as part of their permitting processes. For operations in the Big Cypress, the State of Florida requires an additional bond of \$200,000. So long as an operator has pledged sufficient financial assurance overall, related to reclamation requirements, it should not matter to which agency it has pledged those assurances.

In setting the amount of financial assurance required under the 9B Regulations, the NPS should incorporate into the calculation the amount of assurance pledged for state law purposes, and not require an assurance amount which is redundant with that pledged to the state. For example, if the total cost of reclamation by a third party would be \$500,000, and the state is requiring a \$200,000 reclamation bond, then the NPS should only require an additional \$300,000 financial assurance (\$500,000 - \$200,000) for the project. This would protect taxpayers in the event of a default, and would not require an operator to pledge financial assurance that is in excess of the required amount. There may be other ways to achieve the same end, but the goal should be to make the government whole, not to impose more financial burdens on operators. We ask that the agency revise the proposed regulation to allow for such a holistic approach toward financial assurance.

K. NPS Regulation of Private Property

The Colliers object to the NPS's regulation of activities outside of units of the National Park System. The proposed regulation would regulate surface operations outside the NPS unit. Section 9.70 of the proposed regulation would require operators with surface operations outside a unit, but with downhole activities within a unit, to submit information to the agency. If the agency were to determine that such operations pose "a significant threat of damage" to federal property, "NPS visitor uses or experiences," or other factors, then it would be allowed to fully regulate those offsite activities. 9.70. Under this standard, the actual borehole accessing the private oil and gas interests under the unit could have no effect on NPS interests, but the agency could seek to regulate the surface activities on nearby private

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property on grounds that some NPS visitors might object. Even if the NPS found no such impacts, the regulation nevertheless would give the NPS some regulatory authority over such offsite activities. See, e.g., 9.121(a) (authorizing NPS access to the surface operations under any circumstance even if they are located outside of the unit on private property).

The Colliers wish to make clear that they agree that surface activities outside of an NPS unit should not harm federal property. The Colliers always have operated their facilities in and around the Big Cypress so that they are good neighbors and minimize environmental impacts. In addition, to the extent that there is ever any actual physical harm to federal property from activities on a neighboring property, nothing in current law would prevent the NPS from bringing a nuisance action against an offsite private property owner. However, the way the proposed regulation is written, it would allow the NPS to assert full jurisdiction over outside activities based on subjective judgments that such activities damage "NPS visitor uses or experiences." Such language is written in such a broad way that it would allow the NPS to exercise power over any offsite activity that somebody might find objectionable.

Congress has not given the NPS general power to regulate land uses on property outside of NPS units. The NPRM seeks to exercise such power over oil and gas activities based on the mere presence of a bore hole passing hundreds or thousands of feet below the surface of an NPS unit. The Colliers object as a matter of principle because federal agencies should act only within the scope of their authorization from Congress. If the proposed regulation were revised to clarify that the NPS would only regulate such offsite activities if the borehole below the NPS unit caused that "significant threat of damage" - not the surface operations on private property outside of the NPS unit - then that would ameliorate the Colliers' concerns.

The Colliers also ask that the NPS clarify that it lacks jurisdiction to regulate activities on non-federal property within the boundaries of an NPS unit. There are many properties within NPS units that are owned in fee simple by nonfederal parties. While the NPS may have the authority to regulate access to those properties over NPS-owned land, the agency lacks authority to directly regulate activities on properties for which the agency lacks any property interest. The NPRM has broad statements about the NPS's authority to regulate non-federal interests within units of the National Park System, see 80 Fed. Reg. at 65573, but all of the cases cited in the notice appear to concern instances where there is a private right of access over federal property. See *United States v. Vogler*, 859 F.2d 638, 641-42 (9th Cir. 1988) (stating that the NPS can regulate use of rights of way over federal lands); *United States v. Garfield County*, 122 F. Supp. 2d 1201, 1218 (D. Utah 2000) (same); *Southern Utah Wilderness Alliance v. BLM*, 425 F.3d 735 (10th Cir. 2009) (same). Those cases do not address whether the NPS has authority to regulate private activities on property owned in fee simple by a private party, even if the property is located within the boundaries of a unit of the National Park System. The Colliers believe that the statements in the NPRM could be misconstrued to suggest that the NPS has general regulatory authority over activities on private inholdings, where the NPS has no ownership interest. This language should be clarified.


Thank you for considering the Colliers' comments on the NPRM. As they have for the past forty years, the Colliers will continue to be good neighbors and constructive partners to the NPS in the management of the Big Cypress.

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PEPC Project ID: 28329, DocumentID: 70221

Correspondence: 5

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Correspondence Text

Arctic Slope Regional Corporation ("ASRC") appreciates the opportunity to submit comments on the Proposed Rule published by the National Park Service ("NPS") on October 26, 2015. The NPS proposes to extend federal oil and gas permitting regulations to previously exempt Native-owned lands within the boundaries of federal conservation system units ("CSUs") in Alaska. 80 Fed. Reg. 65572, 65572-65573 (Oct. 26, 2015). There are millions of acres of Native Corporation lands potentially affected by this Proposed Rule, including ASRC's significant holdings on the oil rich North Slope of Alaska. There is no legal basis for such an unprecedented expansion of federal authority over ASRC's lands, and this proposed exercise of authority violates both federal statutory and constitutional law. In issuing the Proposed Rule, NPS expressly relied on a recent Ninth Circuit decision incorrectly interpreting Alaska National Interest Lands Conservation Act of 1980, ("ANILCA" or the "Act"), Pub. L. No. 96-487, 94 Stat. 2371 (codified at 16 U.S.C. § 3101 et seq.). The validity of the Ninth Circuit's decision is currently on appeal before the United States Supreme Court in *Sturgeon v. Frost*, No.14-1209, and at a minimum we ask for the NPS to await decision in that case before proceeding with its Proposed Rule. Oral argument is scheduled for January 20, 2016.

I. The Proposed Rule Greatly Impacts ASRC's Interests in its Own Lands.

Alaska's primary resource is its land. At 365.5 million acres, Alaska is more than twice as large as Texas. The federal government is the largest land owner in Alaska. The federal government's share is 222 million acres, over sixty percent of the land in the state. The State of Alaska is the second largest

land owner. The Alaska Statehood Act reserved the issue of aboriginal land claimed by Alaska's indigenous people. Congress passed the Alaska Native Claims Settlement Act ("ANCSA") in 1971, Pub. L. No. 92-203, 85 Stat. 688 (codified at 43 U.S.C. § 1601, et seq.), to address the "need for a fair and just settlement of all claims by Natives and Native groups of Alaska, based on aboriginal land claims." ANCSA § 2(a), 43 U.S.C. § 1601(a). ANCSA created twelve land-based regional corporations and more than 200 village corporations, and made Alaska's Native people shareholders in those corporations.

ANCSA §§ 7- 8, 43 U.S.C. §§ 1606-1607. The Native Corporations considered together are the third largest land owner in Alaska.

Over 120 million of Alaska's federally owned acres are protected within federal conservation system units, or CSUs. These include 15 national parks, preserves, and monuments managed by the National Park Service and 16 national wildlife refuges managed by the United States Fish and Wildlife Service. Most of these CSUs were created or expanded by ANILCA in 1980. By that time, however, the Native Corporations had not received the majority of the entitlement of the lands promised to them under ANCSA to ensure their economic security. Many of the lands previously conveyed to Native corporations, approximately eighteen million acres, fell within the boundaries of the newly created CSUs.

ASRC is one of twelve private, for-profit Alaska Native Regional Corporations formed in 1971 under ANCSA. Alaska's largest locally owned business, ASRC is owned by approximately 13,000 Iriupiat Eskimo shareholders. ASRC and its subsidiaries operate in thirty-six states and internationally, employing approximately 10,000 people and generating over \$2.5 billion in annual revenue.

ASRC holds title to nearly five million acres of land on Alaska's North Slope granted to it pursuant to ANCSA. Its shareholders live primarily in eight extremely remote arctic villages in one of the most isolated and challenging environments in the world. ASRC's land is located around its villages, in key locations for subsistence hunting and fishing, and in sites with high potential for oil, gas, and other development of subsurface resources. The land wealth held by ASRC benefits not only its own shareholders, but Alaska Native people statewide through the revenue sharing provisions of ANCSA. ANCSA § 7(i)-U), 43 U.S.C. § 1606(i)-(j).

More than 380,000 acres of ASRC's lands are "inholdings" situated within the Gates of the Arctic National Park, the Alaska Maritime National Wildlife Refuge, and the Arctic National Wildlife Refuge. Attached hereto are two maps showing ASRC's inholdings on the North Slope.

Gates of the Arctic National Park, which itself covers an area larger than Massachusetts, surrounds the Iriupiat village of Anaktuvuk Pass. ASRC owns almost 180,000 acres of land within Gates of the Arctic, including lands around the village itself as well as a separate parcel at Iltkillik Lake. ASRC's inholdings within Gates of the Arctic are four times the size of the District of Columbia and over twice the size of Utah's Arches National Park. These inholdings have value for natural gas development and tourism, in addition to their critical subsistence hunting and fishing uses.

Kaktovik, another ASRC village, is located within the 1002 area of the coastal plain of the Arctic National Wildlife Refuge ("ANWR"). At nearly two million acres, ANWR is twice as large as Maryland and Delaware combined. ASRC owns more than 100,000 acres of inholdings in ANWR, primarily around the coastal village of Kaktovik but also at Elusive Lake. The lands surrounding

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Kaktovik are used for village and subsistence purposes and have economic potential for oil and gas development.

The Alaska Maritime National Wildlife Refuge ("AMNWR") covers over two thousand islands, headlands, and other coastal features around Alaska's vast coastline. The two northernmost units of the refuge are located at Cape Thompson and Cape Lisburne, on the Chukchi Sea coast near the village of Point Hope. ASRC holds over 100,000 acres of inholdings in these two AMNWR units. Point Hope residents use these lands for subsistence, and they also have coal and other mineral resource potential.

To summarize, all of these CSUs were created or expanded by ANILCA. ASRC's lands, including its inholdings within federal CSU's, have high potential for oil and gas development, other mineral development, tourism, and other economic uses. These acres are also critically important to ASRC's shareholder communities for village use and subsistence fishing and hunting. Many ASRC shareholders reside in two villages located on its inholdings within CSUs.

II. ANILCA Limits NPS Authority Over ASRC's Lands.

Congress specifically intended the Native corporations to use their ANCSA lands largely for economic development benefiting the Native people of Alaska. See ANCSA § 8, 43 U.S.C. § 1607; *City of Saint Paul v. Evans*, 344 F.3d 1029, 1031 (9th Cir. 2003). Through ANILCA, Congress balanced the conservation interests of the federal government with the economic development and subsistence interests of ANCSA corporations like ASRC. Congress was clear that ANILCA was not intended to impede upon Native corporations' control of their own lands conveyed under ANCSA. The Proposed Rule violates Congress' directive in ANILCA limiting federal regulatory power over nonfederal lands. As outlined in ANILCA, NPS may exercise power over federal lands, but not over privately owned land, including lands owned by Native Corporations, even if located within the boundaries of a CSU.

The *Sturgeon* case currently pending before the United States Supreme Court involves a straightforward case of statutory interpretation. As ASRC and others argued to the Court, the Ninth Circuit's decision expanded federal regulatory authority over Native corporations' lands through a contorted misreading of the very provision in ANILCA meant to limit that authority. Section 103(c) confirmed that State, Native Corporation, and other private lands would not be subject to the federal regulations applicable to the federal conservation lands:

Only those lands within the boundaries of any conservation system unit which are public lands (as such term is defined in this Act) shall be deemed to be included as a portion of such unit. No lands which, before, on, or after December 2, 1980, are conveyed to the State, to any Native Corporation, or to any private party shall be subject to the regulations applicable solely to public lands within such units. If the State, a Native Corporation, or other owner desires to convey any such lands, the Secretary may acquire such lands in accordance with applicable law (including this Act), and any such lands shall become part of the unit, and be administered accordingly.

16 U.S.C. § 3103(c) (emphasis added). The definition of "public lands" under the statute further

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clarifies that CSUs include only "Federal lands," not State or Native Corporation lands. ANILCA § 102(3), 16 U.S.C. § 3102(3).

Congress included the word "solely" in section 103(c) to make clear that State and private inholdings are not exempt from federal statutes and regulations applicable to private and public lands everywhere. As ANILCA's legislative history makes clear, these include the Clean Air Act or the Clean Water Act and similar generally applicable legislation:

Federal laws and regulations of general applicability to both private and public lands, such as the Clean Air Act, the Water Pollution Control Act, U.S. Army Corps of Engineers wetland regulations and other Federal statutes of general applicability would be applicable to private or non-Federal public land in holdings within conservations [sic] system units, and to such lands adjacent to conservation system units, and thus are unaffected by the passage of the bill.

S. Rep. No. 96-413, at 303 (1979), reprinted in 1980 U.S.C.C.A.N. 5070, 5247. It does not include NPS's oil and gas regulations.

Court will reverse the Ninth Circuit's decision and appropriately interpret ANILCA to limit NPS regulatory authority.

III. The Proposed Rule Violates the United States Constitution.

I

Both the Proposed Rule and the Ninth Circuit decision upon which it relies violate the United States Constitution. Relying on section 103(c) of ANILCA, the NPS seeks to unconstitutionally extend broad federal regulatory authority over millions of acres of private lands without a source of authority for such regulation under either the Property Clause or the Commerce Clause.

The Property Clause is the source of broad regulatory power over federal lands, including conservation system units: "The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States." U.S. Const. art. IV, § 3, cl. 2. Under the Property Clause, "[t]he power over the public land thus entrusted to Congress is without limitations." *Kleppe v. New Mexico*, 426 U.S. 529, 539 (1976) (alteration in original). "Property Clause is a grant of power only over federal property"; it does not generally reach private land. *Id.* at 537-38. Some courts have held that the Property Clause supports limited regulation of non-federal lands to the extent necessary to protect the federal lands. 1 But no court has held that the Property Clause supports general regulation of large swaths of non-federal lands absent a showing that the specific regulation is necessary for the protection of federal lands.

The other possible source of power is the Commerce Clause. The Ninth Circuit ducked the constitutional problem by citing Congress's "pre-eminence authority" under the Commerce Clause to regulate "the flow of navigable waters," where John Sturgeon operated his hovercraft. *Sturgeon v. Masica*, 768 F.3d 1066, 1081 (9th Cir. 2014). But neither the Ninth Circuit decision nor NPS's Proposed Rule is limited to navigable waters. There simply is no source of constitutional power allowing NPS to regulate nonfederal lands, as it proposes to do in the Proposed Rule.

III. Conclusion

The expansive view of NPS authority in the Proposed Rule is unprecedented. The NPS has never interpreted ANILCA to broadly grant the powers found by the Ninth Circuit or invoked by NPS in the Proposed Rule. The current NPS regulations themselves expressly state that they do not generally apply on "non-federally owned lands and waters or on Indian tribal trust lands located within National Park System boundaries." 36 C.F.R. § 1.2(b).

We are confident that the United States Supreme Court will reverse the Ninth Circuit's decision and appropriately interpret ANILCA to limit NPS regulatory authority. No action should be taken before the Supreme Court decides the Sturgeon case. But regardless of how the Supreme Court decides Sturgeon, there is no legitimate reason for the NPS to expand its federal regulatory authority to private lands owned by ASRC or other Native Corporations. ASRC and the other Native Corporations have the absolute right to control development on their own lands. Requiring ASRC to obtain federal permits from NPS to undertake oil and gas development on its own lands is unlawful, unprecedented, and defies common sense.


We strongly urge the NPS to reconsider expanding federal regulatory authority to nonfederal lands, as proposed in the Proposed Rule.

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PEPC Project ID: 28329, DocumentID: 70221

Correspondence: 10

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Correspondence Text

The following comments are submitted on behalf of Tennessee Citizens for Wilderness Planning (TCWP), a 49-year old statewide organization dedicated to achieving and perpetuating protection of natural lands and waters. TCWP was instrumental in achieving federally protected status, as units of the National Park System, for both the Big South Fork of the Cumberland and Obed Rivers and continues to work for implementation of the many facets of this protection.

The proposed regulations have special significance for these two units because of the very large number of oil & gas operations within their boundaries. Currently, 12 units of the National Park System, nationwide, contain 534 non-federal oil and gas operations. Of these, more than 300 are located in the Big South Fork National River and Recreation Area (BSFNRRA) and 7 in the nearby Obed Wild & Scenic River (OWSR)- well over one-half of the total number.

In the summer of 2012, the National Park Service (NPS) published an oil and gas management plan for these units under existing 9B regulations. The newly proposed rulemaking, which is for the entire National Park System, would improve these regulations so as to eliminate some bad existing loopholes and revise currently ineffective or inadequate provisions.

We strongly support all elements of the rulemaking that would achieve the following objectives:
- Eliminate two provisions that exempt approximately 60% of the total operations from compliance with existing 9B regulations. This includes 241 operations that are currently exempt from 9B regulations due to "grandfathered" status. Also included would be operations currently non-regulated due to the "access exemption."

- Revise the currently inadequate limit on the amount of financial assurance the NPS can require from operators, thus ensuring reclamation after the useful life of an operation has ended.
- Add a much-needed enforcement tool and update existing authority.

All of these objectives (and more) would be achieved by Alternative B, which NPS has proposed as the preferred one. TCWP, however, recommends choice of Alternative C, which adds important features that would significantly strengthen the regulations.

Among these are the following:

- The NPS jurisdiction would be expanded to encompass directional drilling from outside the park, a condition that pertains to oil and gas operations located in the OWSR.
- Operations located wholly on non-federal inholdings within park boundaries (of which there are several in the BSFNRRRA) would be addressed by a provision of the regulations.
- Not only mineral holders but their lessees would have to comply with all applicable provisions of the regulations.


We would like to express our great appreciation to the NPS for proposing important and well-thought-out revisions of the rules pertaining to non-federal oil and gas activities in units of the National Park System. The landscapes in the BSFNRRRA and OWSR - - two parks containing well over half of all such activities - - are beautiful, fragile, and blessed with great biological diversity. They are truly worth protecting.

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The State of Alaska reviewed the October 26, 2015 Federal Register Notice regarding the National Park Service's proposed rule "General Provisions and Non-Federal Oil and Gas Rights" (RIN 1024-AD78). The following comments represent the consolidated views of State agencies.

The proposed rule expands the National Park Service's (Service or NPS) authority to regulate previously exempt non-federal oil and gas activities, including activities on non-federal lands located within Alaska park units, which pursuant to the Alaska National Interest Lands Conservation Act (ANILCA) are explicitly not part of the park unit and cannot be regulated as such unless acquired by the Secretary in accordance with applicable law.¹ While the proposed rule appropriately acknowledges the Department of Interior (DOI) regulations at 43 CFR 36 that implement Title XI of ANILCA as the controlling regulatory authority that governs access within Alaska's park units, it at the same time fails to recognize the reasoning behind Alaska's long-held exemption from additional regulation under 36 CFR Part 9B and imposes new regulatory requirements that infringe on State and private inholder's rights under ANILCA Section 1110(b).

While issues associated with active oil and gas operations in national park units located outside Alaska appear to be the driving factor for the proposed revisions, by applying the rulemaking to the entire national park system, the Service is ignoring the very basis for the compromise provisions that led to the passage of ANILCA and the establishment of Alaska's park units. The proposed rule contains three fundamental flaws specific to park units within Alaska - 1) the NPS lacks authority to regulate oil and gas activities on State and private lands in Alaska, including Alaska Native corporation lands; 2) the

proposed rule overturns a long-held exemption that ANILCA implementing regulations at 36 CFR Part 13 and 43 CFR Part 36 both recognized; and 3) the proposed rule violates rights granted State and private inholders by ANILCA. These and other issues are addressed in greater detail below.

ANILCA Governs Access and Limits Discretionary Authority in Alaska Park Units.

In 1980, two years following promulgation of the original Part 9 regulations, ANILCA established more than 100 million acres of federal land in Alaska as new or expanded conservation system units (CSUs), including 51 million acres of park lands. Due to their vast size, most CSUs in Alaska contain or effectively surround numerous state and private inholdings, including lands owned by Alaska Native regional corporations pursuant to the Alaska Native Claims Settlement Act (ANCSA).

Congress incorporated Title XI of ANILCA specifically to ensure that Alaskans would retain their ability to develop the State's fledgling economy and infrastructure and assure inholders adequate and feasible access to their lands for economic and other purposes. Congress further ensured that nonfederal lands falling within these newly expanded park boundaries would not be treated as if they were federally-owned public lands. Therefore, ANILCA provides separate statutory authority, specific to Alaska, which pertains to oil and gas development on non-federal lands within the boundaries of national parks, and as a result, the original 36 CFR Part 9B regulations exempted Alaska from their application. The exemption should remain in effect.

Specifically, ANILCA Section 1101 specifies that ANILCA is the "single, comprehensive statutory authority" for approval of transportation and utility systems, including oil and gas development and distribution systems, in Alaska. ANILCA Section 1110(b) explicitly guarantees adequate and feasible access for inholders, including owners of subsurface rights underlying public lands, for exploration and development purposes. ANILCA Section 1111(a) guarantees temporary access across conservation system units for resource exploration and other temporary use by State or private owners.

ANILCA Section 103(c) specifically excludes State and private inholdings from Alaska CSUs, and prohibits the application of public lands regulation to them:

Only those lands within the boundaries of any conservation system unit which are public lands (as such term is defined in this Act) shall be deemed to be included as a portion of such unit. No lands which, before, on or after the date of enactment of this Act, are conveyed to the State, to any Native Corporation, or to any private party shall be subject to the regulations applicable solely to public lands within such units.

State and private inholdings are not part of Alaska national parks, even though such inholdings fall within park external boundaries. The mere fact that an inholding is surrounded by national park land provides insufficient legal justification to regulate activities occurring on the inholding.

Lastly, Section 1109 of ANILCA specifically preserves all valid existing rights of access:

"Nothing in this title shall be construed to adversely affect any valid existing right of access."

In 1981, the National Park Service promulgated ANILCA implementing regulations at 36 CFR 13.10 - 13.16, which recognized these important provisions, and explicitly exempted Alaska parks from 36 CFR Part 9B.

Section 13.15(d)(2) is an interpretive rule stating the Department's views that the regulations of 36 CFR Part 9B are no longer applicable in Alaska park areas. These regulations concerning the development of non-federal oil and gas rights in parks were premised on the land manager's discretion to restrict access. Section 1110(b) of ANILCA effectively removes this discretion from the land manager. Therefore, 36 CFR Part 9B does not apply to Alaska park areas. [46 FR 31845, Section by Section Analysis, Emphasis added]

The final regulation at 36 CFR 13.15 (d)(2) confirmed Alaska's exemption.

Non-Federal Oil and Gas Rights and 36 CFR Subpart 9B. Since Section 1110(b) of ANILCA guarantees adequate and feasible access to park area inholdings notwithstanding any other law, and since 36 CFR Subpart 9B was predicated on the park area Superintendent's discretion to restrict and condition such access, 36 CFR Subpart 9B is no longer applicable in Alaska park areas.

When the Department of Interior (DOI) adopted final Title XI regulations on September 4, 1986 (51 FR 31629), the National Park Service Alaska-specific regulations at 36 CFR 13.10 through 13.16 were repealed and the DOI regulations at 43 CFR Part 36 became the sole regulatory authority governing access to non-federal inholdings within CSUs in Alaska. This is confirmed in the Section-by-Section analysis for Section 36.10 Access to Inholdings.

Section 36.10(b) has been modified slightly to correct an error in drafting the proposed regulation. The change clarifies that this part is to address all access issues in CSUs, and it was incorrect to also refer to "other applicable law." [51 FR 31624, Emphasis added]

Proposed Rule Conflicts with ANILCA and Infringes on Inholder's Property Rights

The proposed rule understates the purpose of the regulatory changes, claiming that they are mere "update(s)" intended to improve their "effectiveness" and provide "clarity" (80 FR 65572). The proposed rule does not recognize that it is reversing Alaska's long-held exemption from the 9B regulations, nor explain how applying additional regulatory requirements to State and private inholdings, including access already governed by 43 CFR 36, remains consistent with ANILCA, the enabling legislation for all park units in Alaska. The proposed rule cites the 9th Circuit's decision in *Sturgeon v. Masica* as justification for applying the revised regulations to inholdings within Alaska park units, which is inappropriate for two reasons. First, that lawsuit is pending before the Supreme Court, making any reliance on the 9th Circuit decision premature. Second, the proposed regulations are not park management regulations, but are blanket extra-territorial regulation unsupported by the United States Constitution Property Clause.

In determining that the regulations are not a taking of property interest, the Federal Register Notice (Notice) indicates that, like the original 9B regulations (from which Alaska was exempt), the proposed regulations are intended to impose reasonable regulations on activities involving or affecting federally owned lands (80 FR 65574). The rulemaking also states the Service's intention to work with operators to provide "reasonable access" to their operations while protecting park resources and values so as not to violate the Fifth Amendment of the United States Constitution (80 FR 65575). However, the legal standard for determining whether a compensable taking has occurred is an objective one. The agency's intent has little bearing on the question.

Section 1110(b) of ANILCA provides a statutory right to cross federal lands to access State and private
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inholdings. Specifically, it requires the Secretary of Interior to grant inholders, including those "effectively surrounded" by park units, "rights of access as may be necessary to assure adequate and feasible access for economic and other purposes." These "rights" are subject to "reasonable regulations" to protect park resources and values, which pursuant to implementing regulations promulgated under 43 CFR Part 36, appropriately limit the scope and discretionary authority of land managers to impose requirements that would interfere with State and private inholder's rights to access and use their property.

In addition, the preamble to the final DOI Title XI regulations acknowledge that inholder rights of access are not limited to ingress and egress but also apply to "economic and other purposes:"

The term "adequate and feasible access" received a number of comments. Some agreed with the interpretation followed in the proposed rule which includes all forms of access without limitation within the scope of section 36.10. Others preferred the narrower definition found in the interim or present regulations of the NPS and FWS which guaranteed access but limited it to pedestrian or vehicular means of transportation, arguing that the proposed definition was too broad. Other commenters argued that the law was intended to provide for small scale personal use access only and not pipelines or transmission lines. We have reviewed these comments and determined that the proposed definition of adequate and feasible will be retained with minor modifications. The definition has been restructured into a single sentence.

The reason for retaining the definition as stated in the proposed rule is our conclusion that it reflects Congressional intent. First, we find no justification for distinguishing between small private routes and larger systems. The criteria for applicability within the state itself pertain to the type of inholding, not the type of system. Second, the statute clearly states that the access right is for "economic and other purposes;" not merely for ingress and egress. Third, the legislative history clearly states that the grant of access must be broadly construed:

The Committee understands that the common law guarantees owners of inholdings access to their land, and that rights of access might also be derived from other statutory provisions, including other provisions of this title, or from constitutional grants. This provision is intended to an independent grant supplementary to all other rights of access, and shall not be construed to limit or be limited by any right of access granted by the common law, other statutory provisions, or the Constitution. (emphasis supplied) H. Rept. No. 97, Part 1, 96th Congress, 1st Sess. 1979, 240; also, S. Rept. No. 413, 98th Congress, 1st Sess. 1979, 249. (51 FR 31624)

Alaska regional guidance confirms that adequate and feasible access is the goal, not regulation of the inholding, by explaining that the reason the application requests information about an inholder's land use objective is that it assists the Service with its determination of what would constitute adequate and feasible access, not for establishing regulatory requirements associated with activities occurring on the inholding itself.

Yet the proposed rule does exactly that by regulating activities occurring on State and private lands, including the authority to deny an authorization, which is contrary to the rights granted inholders pursuant to ANILCA Section 1110(b). While 43 CFR 36.10 allows for mitigation to address impacts to park resources and values and consideration of alternative routes, protection of "natural and other values" cannot be used to frustrate or deny inholders their rights under ANILCA to receive "adequate and feasible" access to their inholding. Even if there are significant impacts, an inholder must be

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granted the route and method of access requested if adequate and feasible access does not otherwise exist.⁶ That intent is confirmed in the preamble to the DOI Title XI regulations, which quotes Senate Report 96-413 from ANILCA's extensive legislative history.

The Committee adopted a standard providing for adequate and feasible access for economic and other purposes. The Committee believes that routes of access to inholdings should be practicable in an economic sense. Otherwise, an inholder could be denied any economic benefit resulting from land ownership. [Emphasis added]

In addition to financial assurance and liability coverage, the rulemaking proposes to supplement the regulatory authority in 43 CFR Part 36 and impose a "fee based on fair market value for access (e.g., roads or gatherings lines) across federal lands outside the scope of an operator's oil and gas right" (80 FR 65582). This is contrary to Alaska regional guidance for ANILCA Section 1110(b) access which clearly states "...the NPS does not charge fees and costs regarding the exercise of rights (not privileges) (NPS Reference Manual 53, C5-1 & C10-2), such as the ANILCA 1110(b) access right, to the extent allowable by law and regulations. Accordingly, the NPS will charge fees only for an access request that requires an EIS."⁷ In addition, the DOI Title XI regulations at 43 CFR 36.6 limits cost reimbursement to application processing, reasonable administrative costs, and the costs of EIS preparation.

The Notice also draws a parallel between the proposed rulemaking and the application of 36 CFR Part 9A in Alaska, stating that the new requirements for oil and gas activities are similar to those applied to mining operations. Unlike the existing subpart B oil and gas regulations, when the subpart A mining regulations were revised in 1988, the Alaska exemption was lifted on the basis that ANILCA did not amend the Mining in the Parks Act. Parallel justification does not exist for the subpart B oil and gas regulations. Further, the preamble to the revised subpart A mining regulations clarified "The 36 CFR Part 9, Subpart A regulations do not govern mineral activities in connection with Native Corporations-owned subsurface mineral rights established pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601, et seq.) Rather the 36 CFR Part 9 subpart A regulations govern mineral development in National Park System units in connection with mineral rights established under the Mining Law of 1872 (30 U.S.C. 28 et seq.)." 53 Fed. Reg. 25160 (July 5, 1988). The same logic applies to Native corporations that acquired their subsurface oil and gas rights pursuant to ANCSA, further justification for retaining the exemption for Alaska park units.

The claimed authority in this rulemaking to deny access to and use of an inholding and impose additional costs and requirements on State and private landowners, including fees for use of federal land to access inholdings, is contrary to the statutory rights granted in ANILCA Section 1110(b). Not only does the proposed regulation violate ANILCA's guaranteed rights of access, it contravenes the economic development promises to Alaska Natives in ANCSA. Application of the revised 9B regulations to Alaska thus may so interfere with Alaska inholders' ability to develop their lands that these regulations could, contrary to the assertion in the proposed rule, work a compensable taking.

Conclusion

The proposed rule correctly recognizes that DOI Title XI regulations at 43 CFR 36 address access issues in Alaska. However, it lacks sufficient legal justification to apply additional regulatory requirements under 36 CFR Part 9B, overturning the exemption rooted in ANILCA and its implementing regulations promulgated by both the NPS and DOI. Alaska-specific DOI regulations at 43 CFR 36 and other existing state and federal regulatory authorities that apply to oil and gas activities

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on all federal, state and private lands, such as the Clean Water Act, the Alaska Oil and Gas Conservation Act, the Fishway Act, and the Anadromous Fish Act, are already in place to protect park resources. These supplemental regulations are both unnecessary and unwarranted.

We therefore request the revised subpart B regulations continue to exempt Alaska park units from its application and recognize that Department of Interior Title XI regulations at 43 CFR 36 as the sole regulatory authority for oil and gas development activities on non-federal lands within park units in Alaska.

Thank you for the opportunity to comment.

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The Citizens' Advisory Commission on Federal Areas (CACFA; Commission) appreciates this opportunity to comment on the proposed amendments to existing regulations at 36 C.F.R. 9B affecting non-federal oil and gas operations located within National Park Service (NPS) units. Concerns identified in the Commission's February 28, 2011, letter to Sandy Hamilton regarding the December 2010 Notice of Intent to prepare a programmatic environmental impact statement were not addressed in the proposed rule and are incorporated here by reference.

The Commission again requests the existing exemption for units of the National Park System in Alaska remain in effect. A System-wide rulemaking effort cannot efficiently or comprehensively capture the unique Alaska context, particularly considering the large number of necessary state-specific deviations pursuant to the Alaska National Interest Lands Conservation Act (ANILCA). The proposed rule is actually a good example of this challenge, as a number of the proposed amendments and existing provisions implicate but fail to accommodate specific direction in ANILCA and Congressional intent for Alaska. The Alaska exemption was and is the appropriate solution, as regulations implementing ANILCA provide the NPS with ample authority to regulate operations consistent with the suite of legal obligations associated with Alaska parks.

In the alternative, the Commission strongly advises that rulemaking with respect to Alaska units be deferred pending the outcome of the appeal in *Sturgeon v. Frost*, currently before the U.S. Supreme Court. If the 2014 9th Circuit decision cited on 80 FED. REG. 65572, 65573 (Oct. 26, 2015) is overturned, remanded and/or substantively altered, the entire proposed rule will likely need to be revised and reissued for public comment. Exempting Alaska from this effort, however, will allow the

rulemaking to proceed regardless of the outcome of the appeal. Further, should additional regulations governing oil and gas operations in Alaska be warranted, those provisions would be significantly more effective as a component of the NPS' Alaska-specific regulations, enhancing both regulatory compliance and clarity for property owners and lessees.

Should the NPS instead opt to proceed with the rulemaking, as proposed, the Commission offers the following comments for consideration.

As provided in 36 C.F.R. §9.30(a), existing regulations only apply to "activities within any unit of the National Park System in the exercise of rights to oil and gas not owned by the United States where access is on, across or through federally owned or controlled lands or waters" and only "impose reasonable regulations on activities which involve and affect federally-owned lands" (emphasis added). The possibility of expanding application of the regulations through amendment was implied in the Advance Notice of Proposed Rulemaking, but only as a matter of revisiting the "exercise of the NPS's discretion." 74 FED. REG. 61596, 61598 (Nov. 25, 2009). No support was provided, or has been provided in the proposed rule, for the NPS' authority to regulate activities solely occurring on private lands, such as those "under privately owned lands just inside the boundary of a park unit, and for which access to those lands is solely maintained without crossing park owned or administered lands," *id.* at 61598, or for certain operations located outside park boundaries using directional drilling techniques.

The extent of the proposed rule is also confused by the fact the NPS purports to retain the existing clarification in the Part 9B regulations that it only relates to "activities that involve and affect federally-owned lands." 80 FED. REG. at 65574, quoting 36 C.F.R. §9.30(a). However, the proposed amendment at §9.30(c) eliminates the requirement an activity "involve" federal lands and instead provides that the regulations apply to "operations affecting federally owned or administered lands, waters, and resources of NPS units, visitor uses and experiences, and visitor and employee health and safety" (the Commission assumes "and" means "or" where appropriate, as provided elsewhere in the proposed rule). Actual use of federal lands provided a clear trigger in the existing 9B regulations for the NPS to lawfully assert or not assert jurisdiction. The proposed rule and associated documents fail to provide any support for expanding the regulations to govern operations which do not or may not involve using federally owned/managed resources.

Quotes from the 1916 NPS Organic Act on 80 FED. REG. at 65573 reference the authority to "regulate the use of the National Park System" and to promulgate regulations "necessary or proper for the use and management of System units." Although the NPS argues this "includes the authority to regulate the exercise of non-federal oil and gas rights within park boundaries," the statute only appears to support such authority if it relates to use of the unit itself. This would apply, then, only to activities requiring the use of park lands, such as activities governed by the existing 9B regulations. The statute does not support any regulation of activities solely occurring on private land, regardless of whether impacts to the park unit are possible or even likely, as the non-impairment standard can only be applied where the NPS has jurisdiction to regulate.

A cursory review of the cited judicial opinions also fails to confirm any authority to manage activities solely occurring on private land within or adjacent to park units. For example, the 5th Circuit opinion in *Dunn-McCampbell Royalty Interest v. National Park Service*, cited on 80 FED. REG. at 65573, relates to the right of ingress and egress for subsurface estate owners. In fact, although the NPS refers to this case as recognizing the "authority to promulgate the 9B regulations . . . as a valid exercise of NPS's Organic Act," *id.*, the 5th Circuit specifically noted "[t]hose regulations are not at issue here," *Dunn* Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

McCampbell, 630 F.3d 431, 434 (5th Cir. 2011). The court merely observed the area at issue was to be administered consistent with the NPS Organic Act, except as otherwise provided for under its enabling statute, see *id.* at 433, and the opinion only examines the enabling statute's exceptions to the Organic Act. The court does not review authorities under the Organic Act itself, and explicitly not regarding 9B regulations. The court does not even address whether the area-specific regulations which actually are at issue are a proper exercise of the NPS' authority under the Organic Act. See *id.* at 436 FN9.

Alaskans are very familiar with *U.S. v. Vogler*, 859 F.2d 638 (9th Cir. 1988), cited on 80 FED REG. at 65573 as supporting the NPS' "authority to regulate non-federal interests within units of the National Park System." As with the above case, this case is also an inholder access dispute, specifically regarding the non-permitted transport of large off-road vehicles via park trails in the Yukon-Charley Rivers National Preserve to be used in developing mining claims. Furthermore, the regulations at issue in this case relate to mining activity within National Park System areas, governed by a specific Congressional grant of authority in Pub. L. No. 94-429, §2, 90 Stat. 1342 (Sept. 28, 1976). That statute gave the NPS authority to regulate "all activities resulting from the exercise of valid existing mineral rights on patented or unpatented mining claims within any area of the National Park System." See also 16 U.S.C. §1902. This specific grant of authority does not evidence a general grant of authority to regulate any non-federal interest.

The other two cases cited to support the "authority to regulate non-federal interests within units of the National Park System" - *U.S. v. Garfield County*, 122 F. Supp. 2d 1201 (D. Utah 2000), and *Southern Utah Wilderness Alliance v. BLM*, 425 F.3d 735 (10th Cir. 2005) - are also about motorized access and rights-of-way across federally owned lands. In short, none of the cited statutory provisions or court opinions in any way support the NPS' claim of expanded authority to regulate oil and gas activities solely occurring on private land lacking any NPS-administered less than fee interest; yet, the proposed amendments to the existing 9B regulations do just that.

For example, existing regulations at 36 C.F.R. §9.32(e) already allow the NPS an opportunity to evaluate potential impact to park lands and resources from "directional drilling techniques which result in the drill hole crossing into the unit and passing under any land or water the surface of which is owned by the United States." Exemption is available where those operations "pose no significant threat of damage to park resources, both surface and subsurface." This exemption is critical to ensure the exercise of jurisdiction and oversight is appropriate. While the proposed rule mostly retains the threshold for obtaining an exemption, it is no longer a total exemption, and operations which never touch or involve federally owned surface estate are subjected to regulations and penalties. The proposed rule provides no statutory authority to make this change.

Also with respect to this change, considering the breadth of associated impacts to the states, private land owners, local governments and Native groups, the statements of findings pursuant to the Unfunded Mandates Reform Act and Federalism on 80 FED. REG. at 65584 and 65585, respectively, appear too narrow. Even though both findings describe the rule as addressing "use of national park lands," that is only true for certain aspects. For instance, should a land owner choose to survey, explore or develop its oil and gas resources, either within or adjacent to a park unit, it would be required to obtain a permit or in other ways submit to NPS jurisdiction and oversight, even if fully operating on private, Native, state or local government-owned lands. This highly significant change over the current regulatory scheme has not apparently received the thorough assessments required by 2 U.S.C. §1531 et seq. and Executive Order 13132.

The statement of findings under the Takings analysis is also overly narrow, stating that "[t]he proposed rule would continue to allow operators reasonable access across federally owned surface to develop non-federal mineral rights. No other private property is affected." 80 FED. REG. at 65585. While the Commission is not arguing that the NPS intends the rulemaking to result in a taking of private property interests, which is explicitly denied throughout the preamble and in the proposed rule, narrow statements like these belie the thorny reality of what the amended regulations actually accomplish.

The implications of the NPS' expanded assertion of jurisdiction beyond simply "access across federally owned surface" are also not sufficiently explored from a practical perspective. As just one example, the proposed rule notes financial assurances will be required to protect "the American taxpayers" from paying for reclamation where an operator "defaults on its obligations," and that the amount will be "commensurate with the cost of restoring the federally owned surface estate." 80 Fed. Reg. at 65582, 65584. The proposed regulations do not explain how the NPS will calculate potential damage to federally owned resources where an operation is limited to non-federal land. Also, for operators employing directional drilling techniques, the regulations require proof of a "legal right to operate in an NPS unit." Id. at 65585. How would an operator demonstrate this if, for instance, passing underneath federal surface estate is merely a choice in lieu of having infrastructure within external park boundaries? These and many other rippling ramifications from the inherent complexity in a System-wide rule on an entire industry were avoided by the limited application of the existing 9B regulations. The NPS cannot simply expand that application without exploring those ramifications in detail in the proposed rule.

Regarding regulation of activities which do "involve and affect federally owned lands," since the preamble and the proposed regulation at §9.130(b) note access in Alaska will be governed by regulations at 43 C.F.R. Part 36, the Commission assumes this refers to all access-related issues. There is some conflicting language on this point in the preamble, however, which also notes "the regulations at 43 CFR part 36, which implements §1110(b)." 80 FED. REG. at 65582. Further, the proposed regulation at §9.130 is entitled "May I cross Federal property to reach the boundary of my oil and gas right?" and other proposed regulations (e.g., application review, access fees) do not appear to contemplate an exemption or cross-reference for Alaska.

Access in Alaska park units is governed by the "single comprehensive statutory authority for the approval or disapproval of applications," 16 U.S.C. §3161, Congress provided in ANILCA. As such, ANILCA §1110(b) and all other provisions for transportation and utility systems require deference to ANILCA and Alaska-specific regulations. For example, it is unclear whether the provisions regarding temporary access permits will be imposed in Alaska. Temporary access needs not covered by ANILCA §1110 are addressed in §1111 (43 C.F.R. §36.12).

Fees for Alaskan inholders (or compensatory mitigation in lieu of payment) would not be appropriate considering the right to adequate and feasible access guaranteed under ANILCA §1110(b). Moreover, the Advance Notice of Proposed Rulemaking implicated that the fee would not apply to access for operators with "a right to reasonably use the federally owned surface estate" and alluded to examples of access fees as appropriate "where the operator has no pre-existing right to cross Federal lands." 74 FED. REG. at 61599. ANILCA provided a right of access across federally owned surface estate in Alaska park units, including for roads, pipelines, utility lines and other related facilities for economic or other purposes. As such, and consistent with NPS' proposed justification, provisions for charging access fees should not apply in Alaska.

Regarding the elimination of existing regulations at 36 C.F.R. §9.30(b) and (c), the NPS notes these will be included in "guidance materials" to be developed following the final rule. 80 FED. REG. at 65576. The Commission would like to request the guidance be issued for public review and comment prior to finalization. In particular, while information in §9.30(b) simply redirects to other provisions in certain instances, both the regulated public and the NPS would benefit from a meaningful review opportunity of any substantive revision to the information in §9.30(c).

Assuming the NPS has permitting authority, some of the informational requirements listed are also required by the State of Alaska under its permitting authority (e.g., water usage, wastewater discharge, cultural resources, spill control, emissions control technology). The NPS even requires numerous operating and reclamation standards, including the use of "technologically feasible, least damaging methods," regardless of what the State requires. See 80 FED. REG. at 65580-83 and proposed §9.30(a). The Commission questions whether the NPS has the expertise necessary to fully evaluate these aspects of the operation, most especially to question alternatives or compliance with state requirements. To avoid significant duplication of effort, and undue interference with state management authorities, please clarify to what extent a state permit, either in progress or issued, may satisfy the NPS' requirements and interest in these operational details.


Thank you for this opportunity to comment on the proposed rulemaking. Should you have any questions or require more information or clarification, please do not hesitate to inquire.

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Dear Mr. Kassman:

On October 26, 2015 the National Park Service ("NPS") issued a proposed rule entitled "General Provisions and Non-Federal Oil and Gas Rights; Proposed Rule" (80 Fed. Reg. 65571, the "Proposed Rule"). This Proposed Rule would modify service-wide regulations governing the exercise of non-federal oil and gas rights on NPS units, under 36 CFR part 9, subpart B (9B regulations). API, the Independent Petroleum Association of America, Western Energy Alliance, and the American Exploration & Production Council ("the Associations") join in submitting these comments to the proposed rule.

The API is a national trade association representing over 640 member companies involved in all aspects of the oil and natural gas industry. API's members include producers, refiners, suppliers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry. API member companies are leaders of a technology-driven industry that supplies most of America's energy, supports more than 9.8 million jobs and 8 percent of the U.S. economy, and since 2000, has invested nearly \$2 trillion in U.S. capital projects to advance all forms of energy, including alternatives.

The Independent Petroleum Association of America represents thousands of independent oil and natural gas explorers and producers, as well as the service and supply industries that support their efforts. Independent producers drill roughly 95 percent of American oil and natural gas wells, and produce about 54 percent of American oil and more than 85 percent of American natural gas.

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The Western Energy Alliance represents over 450 companies engaged in all aspects of environmentally responsible exploration and production of oil and natural gas in the West. Alliance members are independents, the majority of which are small businesses with an average of fifteen employees.

The American Exploration & Production Council ("AXPC") is a national trade association representing 31 of the largest US independent natural gas and crude oil exploration and production companies - Leaders in finding and developing secure energy supplies throughout North America. Our members are "independent" in the sense that they do not have

petroleum refining or retail marketing operations and therefore are not "fully integrated". The mission of AXPC is to work constructively for sound energy development and for environmental and related public policies that encourage responsible exploration, development and production of natural gas and crude oil to meet consumer needs and fuel our nation's economy.

The Associations ask that the National Park Service ("NPS") carefully consider the concerns discussed in this letter. The imposition of additional regulations on non-federal oil and gas development within the National Park System is unnecessary, and will only result in duplicative layers of regulatory oversight. We believe that the record shows that the present 9B regulations have equipped the NPS to carry out its responsibilities under 54 U.S.C. § 100101 in a manner that achieves a balance between the purposes for which units in the National Park System are managed with the valid existing rights of a modest number of owners of mineral rights under surface lands within National Park System units. Under those regulations, an operator must obtain NPS approval of a proposed plan of operations before commencing non-federal oil and gas operations in an NPS unit. 36 C.F.R. § 9.32(b). Among other things, the plan of operations must show that the operator is exercising a bona fide property right to non-federal oil and gas in an NPS unit and provide detailed information on the proposed operation, how access to the site of operations will be achieved, mitigation measures planned, reasonable alternatives to what the operator proposes, a description of foreseeable environmental impacts from the proposed operations, and a performance bond. Id. § 9.36(a).

This information is supplemented by information the operator is required to submit to appropriate agencies of the state within which the operation is being planned. See 36 C.F.R. § 9.36(a)(15). This combination of regulation and oversight is acknowledged by NPS in its notice, where NPS states that it coordinates and consults with state and other federal agencies. In publishing this proposed rule, NPS indicates that additional regulation is necessary because state oil and gas commissions have a different mission, suggesting that they do not adequately address environmental concerns. This contention is incorrect. In each of the states in which the Federal Register notice identifies NPS units within which oil and gas operations occur the states in question have adopted regulations that protect the environment through extensive rules governing those operations. These rules address a variety of issues, such as drilling, development, and production activities; setbacks; ground water protection measures; financial assurance requirements; spill reporting; and reclamation requirements. Furthermore, NPS' existing regulations likewise provide NPS or the operator to request to supplement and modify the plan if there is a change in circumstances, 36 C.F.R. § 9.40, and authorize NPS to enforce the approved plan, with the power to suspend operations or to revoke approval for cause 36 C.F.R. § 9.51 - actions that are subject to an appeal, 36 C.F.R. § 9.49.

The notice of the proposed rule identifies some 534 nonfederal oil and gas operations across units of the National Park System. The Associations acknowledge the importance of the National Park System and

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that NPS has a responsibility "to conserve the scenery, natural and historic objects, and wild life in the System units." 54 U.S.C. § 100101. Enabling statutes passed by Congress for the establishment of particular units however may contain language that prevent the Secretary of the Interior from acquiring rights to oil and gas without the consent of the owner, or without first determining that uses arising from the mineral estate would be detrimental to the purposes for which the unit in question was established.

Regulation of oil and gas operations within NPS units also confronts the well-established principle of common law that when an individual owns the minerals of a parcel but not the

surface, the mineral rights owner is entitled to reasonable use of the surface to recover the minerals. As the National Park System has expanded over the years from lands retained by the federal government in the West to include units created through the acquisition of surface lands from private interests, there are many instances where mineral interests are retained by private owners or were previously severed from the surface estates acquired. This is reflected in the non-federal oil and gas operations noted in the notice of the proposed rule, most of which occur in states such as Texas, the southeast or the Ohio Valley, where establishment of NPS units followed settlement and the private ownership and use of both surface and mineral estates by many decades or more. Private inholdings are found within the majority of NPS units, even in those carved out of federal lands in the West, commonly where mining claims were patented within the boundaries of a NPS unit established subsequent to the initial prospecting and patenting. In lands capable of oil or natural gas production, a similar sequence obtains, that of a NPS unit established after severance of the mineral estate and establishment of oil or natural gas production from that estate. In these situations mineral estate owner's reasonable use of the surface to recover the minerals is a legal right that must be balanced with all interests involved.

A number of states have established a doctrine of "reasonable use", and the Colorado case of *Gerrity Oil & Gas Corp. v. Mangess*, 946 P.2d 913, 926-28 (Colo. 1997), provides a useful exposition of this doctrine:

[s]evered mineral rights lack value unless they can be developed. For this reason, the owner of a severed mineral estate or lessee is privileged to access the surface and "use that portion of the surface estate that is reasonably necessary to develop the severed mineral interest." *Notch Mountain Corp. v. Elliott*, 898 P.2d 550, 556 (Colo. 1995); see also *Rocky Mountain Fuel Co. v. Heflin*, 148 Colo. 415, 422, 366 P.2d 577, 580 (1961) (the severed mineral owner's right of access includes the "rights of ingress, egress, exploration, and surface usage as are reasonably necessary to the successful exploitation of [the mineral] interest."). The right to use the surface as is reasonably necessary, known as the rule of reasonable surface use, does not include the right to destroy, interfere with or damage the surface owner's correlative rights to the surface.

In a severed mineral situation at common law, neither the surface owner nor the severed mineral rights holder has any absolute right to exclude the other from the surface, which may create tension between competing surface uses. In the case of NPS units, this tension, or potential tension is acknowledged, and has been addressed by the 9B regulations. In this situation of potential conflict, the 9B regulations have facilitated advance planning through the process for approval of plans of operations and the posting of bonds along with assurance of compliance with other relevant federal, state, and in some circumstances even local regulations. This approach has enabled regulated operations on private minerals to result in only minimal or temporary disruption to resources on the NPS units, to prevent unnecessary environmental contamination, and to mitigate other adverse effects as well as reclamation.

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In a context of valid and pre-existing mineral rights these measures achieve a balance between uses and purposes. It is a balance equivalent to that reached in contexts unrelated to mineral rights, such as the passage of public highways or utility rights-of-way through unit boundaries, or commercial activities validly conducted on private inholdings.

The activities arising from ownership and use of valid existing mineral rights on NPS units that are described in the proposed rule are activities that can and have been managed effectively under 9B regulations and appropriate other federal, state or local regulations and 4

permits. This does not mean that impacts to the surface can and occasionally do occur, but just as is the case with operations and impacts from operations on non-federal surface, an array of remedies is available under the existing suite of laws and regulations to address, mitigate and remedy the impacts. While NPS has presented information in the notice of the proposed rule of the occurrence of certain incidents attributable to oil and gas operations, NPS has not provided information to indicate that problems are systematic or that existing regulatory schemes of which the 9B regulations are an important part are failing either the National Park System or the public.

Overly burdensome restrictions on the rights of leaseholders to access or otherwise develop mineral rights could also constitute an unconstitutional taking of private property rights. See, e.g., *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104, 104 (1978). Oil and gas leases confer property rights. NPS may subsequently impose reasonable conditions on such rights but cannot render development economically infeasible. If NPS renders operations on existing leases uneconomic, those lessees may have takings claims against the United States for significant compensation. While the proposed rule states that these regulations are not intended to result in takings, they may do just that, despite what NPS may intend.

In addition to these comments, the Associations urge that any decision document arising from this rulemaking effort make clear that NPS does not seek and will not attempt to regulate oil and gas operations that fall outside the boundaries of NPS units. The proposed rule would establish an exemption process for oil and gas rights that are accessed from a surface location outside a park boundary, but this process presumes that NPS has authority to regulate operations on these locations in the first instance. Such regulation, however, would exceed NPS's responsibility for conservation within the National Park System.

To conclude, the 9B regulations have functioned effectively to achieve a regulatory balance between the objectives for which NPS units have been established, and the valid existing mineral rights and derivative uses that may be found within the boundaries of those units. The regulations authorize a process that emphasizes planning, consultation, preparedness, financial assurance, and mitigation, and equip responsible NPS personnel with the tools to assure that these outcomes are recognized by operators and achievable in practice. The Associations believe that it is imperative that any modifications to 9B regulations continue to be informed by the principles under which 9B regulations have been administered to maintain a balance for the future between the rights and interests recognized at law and present in situations of mineral inholdings within NPS unit boundaries,


Thank you for considering these comments.

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PEPC Project ID: 28329, DocumentID: 70221

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Correspondence Text

The Texas Oil & Gas Association ("TXOGA") is a non-profit corporation representing the interests of the oil and gas industry in the State of Texas. Founded in 1919, TXOGA is the largest and oldest petroleum organization in Texas, representing more than 5,000 members. The membership of TXOGA produces in excess of 90 percent of Texas's crude oil and natural gas, operates nearly 100 percent of the state's refining capacity, and is responsible for the vast majority of the state's pipelines. In 2014, the oil and gas industry employed 429,000 Texans, providing wages and salaries of over \$52 billion in Texas alone. In addition, large associated capital investments by the oil and gas industry generate significant secondary economic benefits for Texas. TXOGA member companies produce a quarter of the nation's oil, a third of its natural gas, and account for one-fourth of the country's refining capacity.

TXOGA appreciates the opportunity to provide initial comments on the National Park Service ("NPS") proposed revisions to 36 CFR Parts 1 and 9 governing the exercise of non-federal oil and gas rights in NPS units. At the present time, the proposed rule will apply to 12 NPS units including four in Texas at Alibates Flint Quarries National Monument, Big Thicket National Preserve, Lake Meredith National Recreation Area and Padre Island National Seashore, so Texas oil and gas operators will be directly impacted by the proposed rule revisions. Furthermore, NPS indicates that an additional 30 units could be effected in the future based on the presence of split estates, exploration and production occurring on adjacent or nearby lands, and likely future increases in energy prices. With Texas' vast oil and gas resources and 16 NPS parks/facilities, it is quite possible that the proposal will have an even more significant impact on our member companies in the future.

Our members suggest that the Service withdraw the proposal and disclose the additional 30 units that

the NPS anticipates will be impacted so the public and stakeholders are aware of the true magnitude of the rulemaking.

Should the Service decide not to withdraw the proposal, we ask that the NPS disclose the additional 30 units and extend the comment deadline by 90-days to allow for comprehensive review, analysis and comment development.


Again, thank you for the opportunity to comment on this important matter. Please contact mruckel@txoga.org or 512-478-6631 should you have any questions.

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PEPC Project ID: 28329, DocumentID: 70221

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Dear Mr. Kassman:

Thank you for the opportunity to provide comments on the proposed updates to the regulations governing nonfederal oil and gas development within the boundaries of units of the National Park System, currently located at 36 CFR Part 9, Subpart B (hereinafter 9B Rules). The undersigned organizations - National Parks Conservation Association (NPCA), Natural Resources Defense Council (NRDC), Sierra Club, The Wilderness Society, Park Rangers for Our Lands, and Ohio Environmental Council (EOC) - support the greatest possible level of protection for the National Park System, and we appreciate the National Park Services strong acknowledgment of the need to revise these outdated rules.

Unlike other federal land agencies, the National Park Service (NPS) does not manage for multiple uses on parklands. Instead, the NPS has been mandated through the 1916 National Park Service Organic Act to conserve the scenery and the natural and historic objects and the wildlife therein&by such means as will leave them unimpaired for the enjoyment of future generations. Oil and gas activities directly conflict with the National Park Services mandate and therefore, cannot take place in a National Park System unit unless there are valid existing rights to be considered.

We recognize that in some instances the NPS could not acquire the oil and gas mineral rights located beneath NPS units, resulting in a split estate, where the federal government owns the surface estate and another entity - individual, nonprofit organization, corporation, state or local government - owns the underlying mineral rights. In the National Park System there are currently 12 units with active oil and

gas operations, totaling 534 total operations. Another 30 units have the potential for future development of non-federal oil and gas rights.

The surge in domestic drilling, spurred by advancements in hydraulic fracturing and directional drilling during the last decade, has made clear the need for an update to the 9B Rules in place since 1978. Current rules are lacking in a number of key areas, and are simply not adequate to protect national parks against increased drilling pressure, and are inconsistent with the goals of the park system as provided in the NPS Organic Act. As of September 2013, 293 of the 534 (55%) oil and gas operations within the boundaries of national park units are exempted from regulation due to loopholes in the current 9B rules.³ Weak and outdated bonding requirements also expose taxpayers to potentially millions of dollars of clean-up costs. The NPS lacks the rules to enforce compliance with regulations and plans of operations, putting park resources at risk.

As the NPS acknowledges, oil and gas activities may adversely impact NPS units in a number of ways, including:

- Surface water quality degradation from spills, storm water runoff, erosion, and sedimentation;
- Soil and ground water contamination from existing drilling mud pits, poorly constructed wells, spills, and leaks;
- Air quality degradation from dust, natural gas flaring, hydrogen sulfide gas, and emissions from production operations and vehicles;
- Increased noise from seismic operations, blasting, construction, oil and gas drilling and production operations;
- Noise and human presence effects on wildlife behavior, breeding, and habitat utilization;
- Disruption of wildlife migration routes;
- Adverse effects on sensitive and endangered species;
- Viewshed intrusion by roads, traffic, drilling equipment, production equipment, pipelines, etc.;
- Night sky intrusion from artificial lighting and gas flares;
- Disturbance to archeological and cultural resources from blasting associated with seismic exploration and road/site preparation, maintenance activities, or by spills; and,
- Visitor safety hazards from equipment, pressurized vessels and lines, presence of hydrogen sulfide gas, and leaking oil and gas that can create explosion and fire hazards.

Updated 9B Rules are badly needed, and we urge their adoption as quickly as possible. These updated regulations can provide the necessary means to ensure that visitors and park resources are protected and preserved into the NPS second century.

I. NPS Authority to Regulate Non-Federal Oil and Gas

NPS should use its existing legal authority under the Property Clause (Art. IV, Section 3, Cl. 2) and the Commerce Clause (Art. I, Section 8, Cl. 3) of the United States Constitution, and Sections 1 and 3 of NPS Organic Act (54 U.S.C. 100101), to ensure that all oil and gas activities on NPS lands are conducted responsibly through implementation of the 9B Rules. We agree with the intention of the NPS that these rules not result in the taking of a property interest, but rather to impose reasonable regulations on activities that involve and affect federally owned lands.

The NPS Organic Act directs NPS to promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for

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the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. The Organic Act also gives NPS the authority to promulgate regulations necessary or proper for the use and management of System units, which includes the authority to regulate non-federal oil and gas rights within park boundaries.

The Park Services authority to regulate non-federal oil and gas rights within park boundaries has been recognized as a valid exercise of the NPS Organic Act by the U.S. District Court and the Fifth Circuit Court of Appeals in a case contesting the application of the regulations at Padre Island National Seashore. See *Dunn-McCampbell Royalty Interest v. National Park Service*, 964 F. Supp. 1125 (S.D. Tex. 1995), and *Dunn-McCampbell Royalty Interest v. National Park Service*, 630 F.3d 431 (5th Cir. 2011). Other courts have also consistently recognized NPS authority to regulate non-federal interests within units of the National Park System. See, e.g., *United States v. Vogler*, 859 F.2d 638 (9th Cir. 1988), cert. denied, 488 U.S. 1006 (1989); *United States v. Garfield County*, 122 F. Supp. 2d 1201 (D. Utah 2000). See also *Southern Utah Wilderness Alliance v. Bureau of Land Management*, 425 F. 3d 735, 746-47 (10th Cir. 2005). Thus, the United States need not own the mineral interest beneath a park unit to regulate rights associated with that interest that may affect the federally owned surface.

II. Comments on Specific Updated Provisions

a. Inclusion of Previously-Exempt Operations

As stated above, over half (55%) oil and gas activities within national park boundaries are exempted from the very regulations developed to ensure the protection of park resources. No Federal Access operations are those to which access is solely maintained without crossing park owned or administered lands, and as of September 2013 made up 15 per cent (78 of 534) of the total operations within park boundaries. Grandfathered operations are those covered by a valid state permit in existence at the time the regulations became effective. A full 40 per cent (215 of 534) of the operations within park boundaries fall within this exemption.

Removing the exemptions for No Federal Access and Grandfathered wells is of critical importance. For example, exempted operators do not provide financial assurances, such as performance bonds to the NPS to provide financial assurances for clean-up and plugging of wells. This is extremely important in the event operators fail to complete these corrective actions. For example, a number of exempt operators failed to complete the actions in the Big South Fork National River and Recreation Area (NRRA), in the 1970s and 1980s, leaving behind uncapped wells inside the park boundary. According to the NPS:

These abandoned wells pose environmental risks and public safety threats, including resource damage from the release of contaminants as deteriorating pressure control equipment fails; subsurface contamination of groundwater absent proper well plugging; personal injury and property damage from spontaneous release of pressurized and highly flammable well fluids; and continued disturbance from unreclaimed oil and gas development. Some wells are located in areas easily accessible by hunters and others who visit the park, creating health and safety hazards for these users.

NPS acknowledges that exempted No Federal Access and Grandfathered operations are adversely impacting resources and values, human health and safety, and visitor use and experience at Big South Fork NRRA and the Obed Wild and Scenic River. Of the 152 oil and gas operations active in those parks as of September 2013, none of them were subject to the 9B rules.

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Of the twelve NPS units with active oil and gas operations within their boundaries, nine of them have at least one exempted operation. These parks include:

- Aztec Ruins National Monument (1 grandfathered, 4 total);
- Big Thicket National Preserve (2 no federal access, 39 total);
- Big South Fork NRRRA (98 grandfathered, 54 no federal access, 152 total);
- Cuyahoga Valley National Park (66 grandfathered, 21 no federal access, 90 total);
- Cumberland Gap National Historical Park (2 grandfathered, 2 total);
- Gauley River National Recreation Area (28 grandfathered, 28 total);
- Lake Meredith National Recreation Area (41 grandfathered, 174 total);
- New River Gorge National River (1 grandfathered, 1 total);
- Obed Wild and Scenic River (4 grandfathered, 1 no federal access, 5 total)

We strongly support the NPS proposal to remove the exemptions for Grandfathered and No Federal Access wells, and to bring all currently-exempt wells into compliance with the 9B Rules. Full compliance of oil and gas operations with the updated 9B Rules within park units is critical for the future unimpaired protection of park resources.

b. Removing the Performance Bond Cap

Current 9B Rules require an operator to put forth a performance bond, or other acceptable method of financial assurance, for all types and phases of non-federal oil and gas operations in park units. The financial assurance requirement ensures that in the event an operator becomes insolvent or defaults on its obligations under an approved plan of operations, adequate funds will be available for reclamation. Existing rules limit the performance bond amount to \$200,000 per operator, per NPS unit. Therefore, if one operator has multiple wells in an NPS unit, the NPS can only require up to \$200,000 financial assurance from that operator for the reclamation of all of the wells.

While \$200,000 may have been adequate for reclamation activities in 1978, it is woefully inadequate to assure that all reclamation costs are covered today. Existing 9B rules require, at a minimum, rehabilitation of the area of operations to a condition which would not & adversely affect, injure, or damage federally-owned lands or waters. Restoration costs vary widely based on a number of environmental and technical factors, anywhere from \$10,000 to more than \$200,000 per well. This does not even begin to take into account the costs of remediating a major accident, such as a blow-out or spill, which are not uncommon in the oil and gas industry. Financial assurances should completely cover the full potential costs of clean-up and remediation to ensure full operator liability from the date of injury until full reclamation is complete.

Big South Fork National River and Recreation Area contains more than 150 active oil wells and reclamation costs for a well average \$13,000 to \$38,000. Actual plugging costs average between \$3,000 and \$8,000. Total costs could therefore range from \$2.4 million to \$6.9 million to reclaim and plug 150 wells. However, the costs may be significantly higher in other park units. For example, the costs associated with reclamation could include the restoration of impacts to wetland communities and long-term maintenance and monitoring resulting from oil exploration in the Big Cypress National Preserve. Actual costs to plug and reclaim abandoned oil and gas wells in wetter landscapes, like those found along the coasts of Texas and Louisiana, and including well pad and road leveling, revegetation, and other restoration activities, are estimated by the National Park Service to cost as much as \$215,000 per well to implement.

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The current bonding cap of a total of \$200,000 per operator per park unit no longer represents the current actual costs of reclamation. Under the current 9B rules, taxpayers would be liable to fund the costs of reclamation in excess of the \$200,000 bonding cap. The current bonding cap puts national park financial and environmental resources at risk. Therefore, we strongly support the current bonding cap removal in the final NPS rules and support its replacement with financial assurances equal to the actual estimated cost of reclamation.

c. Added Fee for Privileged Access Across Federal Lands

In an effort to protect park resources and the experience of park visitors, current 9B Rules permit the NPS to assess a fee for the use of NPS-administered roads by commercial vehicles. However, NPS does not currently require a fee for operators to cross federal lands on roads or with natural gas gathering lines, to access oil and gas rights, which has created privileged access. Approximately 75 operations within five park units have allowed such privileged access for new construction.

Perhaps the most egregious example of uncompensated privileged access has occurred at Big Cypress National Preserve, where an 11-mile long private oil and gas road was constructed across federal land to access an operators private oil and gas lease. The NPS reports that the road directly impacts over 45 acres of the preserve and causes indirect effects on over 3000 acres. We therefore strongly support the inclusion of a fee for privileged access across federal lands.

The Federal Register notice seeks further input on the privileged access fee, asking whether an operator could undertake compensatory mitigation in lieu of payment. We support NPS authorization of an operator to undertake proportional compensatory mitigation in lieu of payment for privileged access, so long as the NPS determines that the mitigation for privileged access is in addition to and independent of the mitigation and clean-up responsibilities already required for the oil and gas operation, and that enforceable standards and agreements are in place to ensure the success and value of the mitigation.

d. Enhanced Enforcement Compliance Tools

We strongly support the proposed provision in the proposed 9B rules authorizing NPS law enforcement personnel to issue citations for operator violations of 9B rules. Minor acts of non-compliance are widespread among oil and gas operations within park boundaries, but the NPS does not currently have a practical means to address minor non-compliance. The NPS current enforcement tools are limited to suspending operations or revoking an approved plan of operations, which can be resource intensive and do not allow for quick response to address minor, but impactful, violations. Permitting the NPS to issue citations for minor acts of non-compliance will help protect park resources by fixing small problems before they can get worse and accumulate across the landscape. In addition, the NPS must institute strict inspection and enforcement protocols, including the assessment of penalties for all acts of non-compliance.

e. Accessing Oil and Gas Rights From a Surface Location Outside the Park Boundary

Currently, operators may obtain an exemption from the 9B rules if they access mineral rights beneath federal lands by directionally drilling from a point located outside of the park boundary. According to the NPS, this exemption is available if operations pose no significant threat of damage to NPS resources, both surface and subsurface, resulting from surface subsidence, fracture of geological

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formations with resultant fresh water aquifer contamination, or natural gas escape.

The NPS justifies this exemption by claiming that operations outside park boundaries have fewer impacts on parks than operations inside. In general, we agree that if there would be no surface disturbance within a park, it would be preferable for operators to access their subsurface mineral rights from outside of park boundaries. However, such authorization must be considered with extreme caution on a case-by-case basis and in accordance with the National Environmental Policy Act (NEPA). Further, case-by-case review should also consider the extent to which impacts to protected resources outside the park might occur.

However, a reduced threat to park resources remains a threat to park resources. An operation located outside of park boundaries, but adjacent to a park, could still have significant impacts on air and water quality, soil and vegetation, soundscapes, viewsheds, night skies, visitor experience, public health and safety, wildlife habitat, and other resources in the park unit. Directional drilling from a further distance outside a park may also result in more intensive drilling and hydraulic fracturing of longer boreholes, involving overall greater freshwater depletion, truck traffic, chemical storage and usage, surface disturbance, air pollution including greenhouse gas emissions, and noise compared to a shorter distance.

Therefore, the 9B rule revisions provide for NPS review of operations that propose to access subsurface park unit resources from outside park boundaries for a significant threat of damage. This review should be done in full compliance with NEPA, which requires federal agencies to prepare an EIS for all major Federal actions significantly affecting the quality of the human environment. If NPS were to complete the NEPA process and make a finding of no significant impact of such an operation, the operator should still be required to comply with the general terms and conditions and prohibitions and penalties sections of the proposed 9B rules, and should be subject to requirements for adequate financial assurance and bonding. This should provide the NPS with the information it needs to protect its resources, while retaining incentive for operators to locate their facilities outside of park unit boundaries.

NPS must also recognize in the revised 9B rules that significant damage can occur from surface activities outside park boundaries. Therefore, we also support proposed 9.70, which expands the 9B rules to address damage to not only land, waters and physical resources, but also to visitor experiences and visitor and employee health or safety, recognizing these are also important impacts that should be avoided.

f. The NPS Should Consider Expanding the 9B Rules to Govern Other Non-Federal Mineral Rights such as Sand, Gravel, and Coal

The legal authorities that require the NPS to regulate oil and gas activities within the boundaries of national park units also provide the necessary authority to regulate other nonfederal minerals such as sand, gravel, and coal. As is the case with oil and gas, the extraction of sand, gravel, and coal can seriously harm and potentially impair park resources. Therefore, NPS should also require operators to submit a plan of operation and a performance bond, for activities involving the extraction of sand, gravel, and coal within park units.

g. The NPS Should Include Stipulations to Protect Wildlife and Other Resources.

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Many species that utilize habitat in NPS units are migratory and may depend upon a park area only at certain times of the year for breeding, nesting, feeding and other critical times of a species life. To protect these species and habitat to the greatest extent practicable, the new 9B rules should require park managers to identify these habitats and implement seasonal closures and other time limitations on oil and gas related activities as dictated by the requirements of the species utilizing park units.

h. The Rule Should Require the Use of Best Management Practices.

The proposed revised 9B rules must be fully protective, and therefore, must require standard best management practices, thousands of which are available from various sources, to protect human health and the environment from the risks of oil and gas exploration and production activities. If flexibility is desired, the burden should be on the operator to demonstrate, by clear and convincing scientific evidence, that its proposed plan of operations would have the least technologically feasible and damaging impacts on park resources. At a minimum, the revised 9B rules should include the following readily achievable and enforceable standards:

- Require a minimum half-mile setback of all operations from perennial and intermittent waters, wetlands, and riparian areas;
- Identify and map areas of special environmental significance and any special seasonal or temporal sensitivity within the proposed operation areas;
- Complete a historical and cultural resource assessment to identify protected resources that must be preserved and avoided; Do not permit the use of open pits for water, waste, or drilling or fracking fluid storage or disposal at any time;
- Require air quality controls that use the most technologically feasible measures to capture all air emissions including greenhouse gasses, toxic air pollutants, and other pollutants.

i. NPS Should Consider Buying Out or Trading Out Nonfederal Mineral Rights

The rules should require that before approving a plan of operations, NPS always consider the alternative of buying out, or trading out, privately owned mineral rights as part of its obligation to protect park resources to the greatest extent practicable. Doing so is required by NEPA's mandate to analyze all reasonable alternatives to a proposed action. Trading or buying the mineral rights is entirely consistent with and fully satisfies the dual purpose of recognizing and honoring mineral rights while protecting the values for which a park was created.

Some park units already contemplate the buyout of nonfederal mineral rights. The General Management Plan for Big Cypress National Preserve directs the NPS to seek funds from Congress in the event that a denial of a plan of operations is viewed as a potential taking of property.²⁴ Further, in a case involving Colorado's Baca National Wildlife Refuge, a federal court in Colorado held that the U.S. Fish and Wildlife Service (USFWS) - which, like the NPS, manages federal protected lands with some privately-held mineral rights - violated NEPA by not considering a buy-out option. As a result, the court enjoined the USFWS from taking or approving any action that would change the status quo in the refuge. An analysis of the buy-out alternative must include an objective appraisal of the value of the mineral rights. Such analysis educates both the public and decisionmakers about more protective alternatives to a proposal with impacts to important environmental values.

III. Comments on the Draft Environmental Impact Statement (DEIS)

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The DEIS for the proposed 9B Rule revisions present three options: Alternative A, which is a No Action alternative that would keep current rules in place; Alternative B, which is the Preferred Alternative; and Alternative C, which includes all the proposed changes of the Preferred Alternative B, plus coverage for directional drilling activities outside of park boundaries, an added provision for regulation of wholly non-federal lands within a park, and added liability for mineral owners.

As stated above, updated 9B rules are badly needed to protect national parks in a new era of oil and gas drilling. Therefore, the No Action Alternative A is unsupportable. Of the remaining options, we support Alternative B, the Preferred Alternative, with slight modifications. Specific provisions of Alternative C should also be considered as further described below.

1. Under both Alternatives B and C, the NPS proposed 9B rule revisions would encompass surface and subsurface directional drilling operations located outside of the legislative boundary of park units. Thus, directional drilling operations would be treated the same as new operations within park units. However, Alternative B provides for an exemption from some provisions of the 9B rules under certain conditions.

We acknowledge that there may be value in incentivizing operators to locate their operations outside of park boundaries. Under Alternative B, the NPS retains the right to approve a proposed project to determine whether it poses significant damage to NPS resources through accessing oil and gas resources from a location outside of the NPS boundary. Such a review must be conducted under NEPA, and in the event the NPS were to complete the NEPA process and make a finding of no significant impact of such an operation, granted the operator must still be required to comply with the proposed 9B rules.

2. Under Alternative C, the NPS would create a new provision that addresses operations located wholly on non-federally owned lands within a unit of the national park system. This provision would require an operator to submit enough information to allow the NPS to fully analyze potential impacts on federally owned or administered lands or waters, resources, or visitor health and safety.

We and the NPS recognize that activities located both outside of park boundaries and operations located on wholly non-federal lands within park boundaries, may still adversely impact park resources. We also recognize the administrative and jurisdictional difficulties may arise from the regulation of operators with private surface and subsurface rights. However, NPS is still legally obligated to protect park resources under existing authorities. We therefore support this provision in Alternative C, as it provides the information and security necessary to protect park resources.

1. Also under Alternative C, mineral owners and lessees would be equally liable for all obligations to comply with the terms and conditions of an approved permit, and any other applicable provision under the proposed 9B rule revisions that accrue while they hold their interests.

We recognize that operators must provide adequate financial assurances for the plugging of wells and the reclamation of well sites. The Preferred Alternative B seeks to achieve this assurance by requiring operators to post performance bonds in an amount equal to the actual costs of reclamation. Alternative C holds the mineral owners liable in addition to the operators, which provides a second level of protection. Joint and several liability of both the operator and owner proposed under Alternative C would provide the strongest and most enforceable guarantee of reclamation, and to create additional

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incentive for owners to ensure that operators comply with the proposed revised 9B regulations and any permit conditions.

IV. Conclusion


We strongly support the NPS effort to revise and update the existing 9B Rules, and are hopeful that these new regulations will be finalized and implemented as quickly as possible. These updates are badly needed to protect national park resources and values, including important wildlife and their habitats, cultural resources, and recreational and visitor experiences. We look forward to working with the NPS on finalizing strong oil and gas regulations to ensure that our national parks are adequately protected and preserved for future generations.

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PEPC Project ID: 28329, DocumentID: 70221

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Correspondence Text

The State of Utah appreciates the opportunity to comment on the National Park Service (NPS) proposed rule and Draft Environmental Impact Statement (EIS) on the revision of the 9B regulations governing non-federal oil and gas development (9B Regulations) within the boundaries of units of the national park system. The State favors a balanced approach to economic growth and quality of life, with outdoor recreation and tourism contributing to the economy alongside energy development. The State recognizes that the current 9B Regulations of the NPS are 36 years old, and an update to such regulations is not unreasonable. However, the State finds the proposed rules for hydraulic fracturing premature due to ongoing litigation and the tripling of the permitting review period to be wholly burdensome for industry.

National Parks in Utah provide some of the best outdoor recreation activities and surreal scenery landscapes in Utah. As the national parks offer hiking, river rafting, biking, picnicking, walking, mule riding, exploring and stargazing, local Utah businesses also benefit from these recreational opportunities. The State similarly supports the environmentally responsible extraction of energy and other minerals from the earth. While oil and gas operations have not been identified on non-federal mineral interests within park units in Utah, oil and gas development near park units has been identified in Utah, and the respective severance tax for wells near such park units was also identified. The proposed revision to the NPS 9B Regulations is important to the State because the proposed 9B Regulations would also apply to a new or expanded national park, national monument, or recreation area, if such were to occur. In addition, the State respects NPS's statement in the preamble, explaining that NPS will continue to work with operators to ensure they have reasonable access to their operations

and that park resources and values are protected without resulting in a taking in violation of the Fifth Amendment of the United States Constitution.

The State is concerned by the proposed Section 9.118(b) that establishes standards for well stimulation, including standards that address hydraulic fracturing operations, which the NPS acknowledge are as consistent as possible to the recently promulgated BLM regulations. The State of Utah intervened in a lawsuit challenging the BLMs hydraulic fracturing operations standards. On September 30, 2015, Judge Skavdahl granted the petitioners motion for preliminary injunction. Therefore, the BLM is preliminarily enjoined from enforcing the final rule. As such, it is inappropriate and premature for NPS to implement new hydraulic fracturing standards consistent with the BLM until resolution occurs in the federal district court case on such proposed BLM regulations.

The proposed 180 day timeframe for oil and gas permits is completely unacceptable. The proposed change to Section 9.104 would lengthen the timeframe for the NPS to reach a final decision on a future oil and gas permit application, from 60 days to 180 days, plus allowances for an extension if the NPS determines that it needs more time. Six months for a permit decision by the NPS is an exorbitant length of time that creates unnecessary delays in industry operations. In contrast, DOGM approved 71% of the state and fee well applications within 60 days in third quarter 2015. The proposed extension of permitting time by NPS is completely in opposition to Executive Order 13563 which directs federal agencies to improve regulatory review. The current application period of 60 days should be maintained to provide the energy industry with predictability and reasonable application timeframe.


Thank you for the opportunity to comment on this proposed action. Please direct any written questions regarding this correspondence to the Public Lands Policy Coordinating Office at the address below.

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PEPC Project ID: 28329, DocumentID: 70221

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Thank you for providing Doyon, Limited ("Doyon") the opportunity to submit the following comments in response to the Proposed Rule published by the National Park Service ("NPS") on October 26, 2015 with regard to the development of revised regulations governing non-federal oil and gas development within the boundaries of units of the National Park System. General Provisions and Non-Federal Oil and Gas Rights, 80 Fed. Reg. 65,572 (Oct 26, 2015).

I. Introduction

Doyon is one of the thirteen Native regional corporations established by Congress under the terms of the Alaska Native Claims Settlement Act ("ANCSA"), Pub. L. No. 92-203, 85 Stat. 688 (1971), as amended. Headquartered in Fairbanks, Doyon is the largest private landowner in Alaska, with a land entitlement under ANCSA of more than 12.5 million acres. Our lands extend from the Brooks Range on the north to the Alaska Range on the south. The Alaska-Canada border forms the eastern border and the western portion almost reaches the Norton Sound.

Doyon's mission is to promote the economic and social well-being of our present and future shareholders, to strengthen their Native way of life, and to protect and enhance our land and resources. In furtherance of this mission, Doyon currently is pursuing several minerals and oil and gas exploration projects in Interior Alaska. If successful, these projects will provide substantial benefits to Doyon and its shareholders, and, by providing new employment opportunities and helping alleviate the energy

crisis in Interior Alaska, to all Alaskans.

Doyon's comments on the Proposed Rule focus specifically on two areas of concern. First, as expressed in our comments in response to the advance notice of proposed rulemaking, Doyon continues to have significant concerns regarding the applicability of this rulemaking effort to non-federal oil and gas development within National Park System units in Alaska. The use and development of lands and resources in Alaska that are within or near federal lands-including non-federal oil and gas development-is subject to a unique statutory regime established under ANCSA and the Alaska National Interest Lands Conservation Act of 1980 ("ANILCA"), Pub. L. No. 96-487, 94 Stat 2371 (1980), as amended. This regime is complex, interrelated, and designed to fulfill the Native American relations, economic, and environmental purposes of both of these Acts.

Second, Doyon has significant concerns with the NPS's failure to consult with Alaska Native Corporations ("AN Cs") on the development of the Proposed Rule. The NPS's apparent determination that consultation with AN Cs was not required, despite their obvious and demonstrated direct interest in this rulemaking, is both perplexing and inconsistent with the approach taken by NPS's sister agency, the U.S. Fish and Wildlife Service ("USFWS"), in the development of its rules governing nonfederal oil and gas development on lands and waters of the National Wildlife Refuge System.

II. Comments

A. Non-federal oil and gas development activities on private lands in Alaska should not be subject to the 9B regulations.

Doyon believes that NPS regulation of oil and gas development activities on private lands in Alaska is contrary to ANILCA section 103(c) and otherwise unsupported by statutory authority. Doyon further believes that, until the *Sturgeon v. Frost* case is conclusively resolved and the proper meaning and application of ANILCA section 103(c) thereby determined, it is premature for NPS to make representations regarding the non-applicability of that provision and inappropriate for NPS to move forward with a rulemaking that may be determined to be based upon an unlawful interpretation thereof.

On January 22, 2010, Doyon submitted comments on NPS's November 25, 2009 Advance Notice of Proposed Rulemaking ("ANPR"), focusing on the applicability of this rulemaking effort to non-federal oil and gas development within national parks in Alaska. In those comments, Doyon explained that:

The use and development of lands and resources in Alaska that are within or near federal lands-including non-federal oil and gas development-is subject to a unique statutory regime established under ANCSA and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), Pub. L. No. 96-487, 94 Stat. 2371 (1980), as amended. This regime is complex, interrelated, and designed to fulfill the Native American relations, economic, and environmental purposes of both of these Acts.

The ANPR did not at all address activities in Alaska or the existence of these unique authorities, and nothing in the ANPR suggested that any proposed rule would apply to activities in Alaska. Accordingly, in its comments, Doyon stated its presumption that "NPS is undertaking this rulemaking effort with the recognition that the specific, unique statutory provisions enacted by Congress under ANILCA will apply to nonfederal oil and gas development activities in Alaska in lieu of the otherwise

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generally-applicable 9B regulations," and urged "NPS to clarify that this is indeed the case in any proposed rulemaking."

In its comments, Doyon explained, among other things, that, "Access to inholdings in National Park System units in Alaska for oil and gas development and other purposes are properly governed by the unique, exclusive, and specific provisions established by Congress in ANILCA, rather than under the NPS's generally applicable 98 regulations." Doyon therefore appreciates NPS's "[c]larification that access to oil and gas properties in Alaska is controlled by 43 CFR part 36, which implements provisions of the Alaska National Interest Lands Conservation Act" and its inclusion of proposed section 9.130(b), which would explicitly recognize that, "In NPS units in Alaska, regulations and standards at 43 CFR part 36 govern access to an operator's oil and gas right." This provision should, however, cite not only the ANILCA regulations, but also the ANILCA statutory provisions governing access that those regulations implement, i.e., 16 U.S.C. §§ 3101, et seq. Moreover, the final rule should be explicit that, as a result of ANILCA's overriding authority, the provisions of the revised 98 regulations governing access, including the provisions in proposed sections 9.131 and 9.132, do not apply to access to inholdings in Alaska.

Yet, while Doyon appreciates NPS's recognition of ANILCA's role in governing access, Doyon remains enormously concerned that NPS nonetheless apparently intends to subject oil and gas development activities on private Alaska Native Corporation-owned lands in Alaska to these regulatory requirements. NPS must make clear that these activities are not subject to the 98 regulations.

In enacting ANILCA, Congress intended that non-federal land within conservation system units ("CSUs") in Alaska, including National Parks, would remain available for development. In setting forth the very purposes of the statute, section 101(d) of ANILCA expressly recognizes the balance struck between resource protection and development:

This Act provides sufficient protection for the national interest in the scenic, natural, cultural and environmental values on the public lands in Alaska, and at the same time provides adequate opportunity for satisfaction of the economic and social needs of the State of Alaska and its people; accordingly, the designation and disposition of the public lands in Alaska pursuant to this Act are found to represent a proper balance between the preservation of national conservation system units and those public lands necessary and appropriate for intensive use and disposition .. "ANCSA's legislative history makes clear that Congress contemplated that land granted under ANCSA would be put primarily to three uses--village expansion, subsistence, and capital for economic development. See H.R. Rep. 92-523 at 5, 1971 U.S.C.C.A.N. at 2195. Of these potential uses, Congress clearly expected economic development would be the most significant " Koniag, Inc. v. Koncor Forest Resource, 39 F.3d 991, 996-97 (9th Cir. 1994). At the same time it created and expanded National Park System units and other CSUs in ANILCA, Congress recognized that regulating the private lands that the ANCSA corporations had selected prior to ANILCA and been conveyed as if they were part of CSUs would be incompatible with the economic development activities that Congress contemplated in ANCSA for the benefit of Alaska Natives. Accordingly, Congress included in ANILCA section 103(c), 16 U.S.C. § 3103(c), in order to make clear that the location of ANCSA lands within the boundaries of a CSU would not "restrict use of such lands by the owning Corporations," 125 Cong. Rec. 9905 (1979), or make them "subject to any of the laws or regulations that pertain to U.S. public lands" or "controlled by any of the public land laws of the United States," id. at 11158 (emphasis added). Thus, section 103(c) makes clear (I) that private

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lands within the boundaries of a CSU are not public lands and not part of the CSU; (2) that such lands are not subject to regulation and administration under the public land laws applicable to public lands in CSUs; and (3) that, only upon conveyance of such private lands by an Alaska Native Corporation to the United States would those lands become part of the unit and subject to regulation and administration as part of the unit. 16 U.S.C. § 3103(c).

While we recognize the holding of the U.S. Court of Appeals for the Ninth Circuit currently before the U.S. Supreme Court in *Sturgeon v. Frost*, we note that in its brief opposing certiorari, the United States sought to narrow the significance of the Ninth

Circuit's decision to the enforceability of NPS regulations on navigable waters (the actual matter in dispute) and to reassure the Court that the Ninth Circuit's holding would not broadly authorize regulation of ANC-owned lands within the boundaries of CSUs, that to do so would require a dramatic shift in policy "under the application of stringent criteria that the NPS has almost never invoked," and that the Native amici simply "misunderstand[] both the NPS's regulations and the decision below." Yet, in the Proposed Rule, released only months after submittal of this brief, NPS states:

We also note that because these regulations are generally applicable to NPS units nationwide and to nonfederal interests in those units, they are not "applicable solely to public lands within [units established under ANILCA]," and thus are not affected by section 103(c) of ANILCA. See *Sturgeon v. Masica*, 768 F.3d 1066, 1077-78 (9th Cir. 2014).

80 Fed. Reg. at 65573. The implication is that, despite the representations and assurances of the United States in its brief before the Supreme Court, NPS intends to subject activities on Alaska Native Corporation-owned lands within the boundaries of National Park System units in Alaska to the revised 9B regulations.

Despite section 103(c) of ANILCA, under proposed section 9.30(b), the revised 9B regulations are proposed to apply to "all operators conducting non-federal oil or gas operations on lands or waters within an NPS unit, regardless of the ownership or jurisdictional status of those lands or waters." 80 Fed. Reg. at 65591 (emphasis added). Oil and gas activities on Alaska Native Corporation-owned lands within the boundaries of National Park System units in Alaska, however, are properly governed by the unique, exclusive, and specific provisions established by Congress in ANILCA, rather than under the NPS's generally applicable 98 regulations. The mere fact that an Alaska Native Corporation's inholding is surrounded by National Park land provides an insufficient legal basis for regulation of activities conducted on the inholding under these regulations.

This is particularly the case in the absence of any specific overriding statutory authority authorizing the NPS to issue regulations governing oil and gas activities on such nonpublic lands. See, e.g., Brief for the Respondents at 48, 54, *Sturgeon v. Frost*, No. 14-

1209 (U.S. Dec. 16, 2015) (asserting that a statutory provision requiring issuance of regulations addressing operation of solid waste disposal sites "within the boundary of any System unit," currently codified at 54 U.S.C. § 100903, provides authority for applying such regulations to non-federal lands).

The rights of Alaska Native Corporations to develop oil and gas resources on their lands are very different from the typical non-federal oil and gas rights contemplated and intended to be governed by the 98 regulations. Indeed, the Proposed Rule states:

Non-federal oil and gas rights exist within NPS units in situations where the United States does not own the oil and gas interest, either because:

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- The United States acquired the property from a grantor that did not own the oil and gas interest; or
- The United States acquired the property from a grantor that reserved the oil and gas interest from the conveyance.

80 Fed. Reg. at 65573-74. In fact, neither situation reflects the rights of Alaska Native Corporations to develop their oil and gas resources on their private lands located within the exterior boundaries of National Park System units. Instead, Alaska Native Corporations received these lands in fee, and thus the right to develop the resources thereon, as part of ANCSA's settlement of Alaska Native aboriginal land claims. The economic development of these lands by Native Corporations for the benefit of their Native shareholders was a core purpose underlying this historic settlement, and the Native Corporations made many of their land selections during the 1970s based specifically on development potential. It was only later in 1980 that ANILCA placed about 105 million acres of federal land into new or expanded CSUs, surrounding approximately 18 million acres of Alaska Native Corporation land. In so doing, Congress recognized strict limits on the NPS 's jurisdiction in order to preserve its important national policy goals in enacting ANCSA and conveying lands to Alaska Native Corporations for the benefit of their shareholders. As discussed above, in ANILCA §101(d), Congress stated it had struck a "proper balance" between conservation and development goals.

Doyon alone owns more than 383,000 acres of lands within the exterior boundaries of National Park System units in Alaska. As but one example, Doyon owns approximately 206,000 acres (320 square miles) of ANCSA lands in the Kandik Basin area of the Yukon-Charley Rivers National Preserve that Doyon selected because of its potential for the discovery of oil and gas. Doyon selected and was conveyed this land before enactment of ANILCA, which established the National Preserve as a unit of the National Park System. 16 U.S.C. § 410hh(10).

Since shortly after the enactment of ANILCA, NPS has recognized the inapplicability of the 9B regulations to National Park System units in Alaska. In June 1981, NPS issued a final rule providing interim guidance on public uses of National Park System units in Alaska, including units established by ANILCA. National Park System Units in Alaska, 46 Fed. Reg. 31836 (1981). Section 13.15(d)(2) of the regulations provided:

Non-Federal Oil and Gas Rights and 36 CFR Subpart 9B. Since section 1110(b) of ANILCA guarantees adequate and feasible access to park area inholdings notwithstanding any other law, and since 36 CFR Subpart 9B was predicated on the park area Superintendent's discretion to restrict and condition such access, 36 CFR Subpart 9B is no /anger applicable in Alaska park areas.

46 Fed. Reg. at 31857 (emphasis added). As the preamble of the rule further explained:

Section 13.15(d)(2) is an interpretive rule stating the Department's view that the regulations of 36 CFR Part 98 are no longer applicable in Alaska park areas. These regulations concerning the development of non-federal oil and gas rights in parks were premised on the land manager's discretion to restrict access. Section 1110(b) of ANILCA effectively removes this discretion from the land manager. Therefore, 36 CFR Part 98 does not apply to Alaska park areas.

46 Fed. Reg. at 31845; see also 46 Fed. Reg. at 31853-54 (identifying Part 98 as one of the "superseded regulations for Alaska park areas").

In September 1986, the Department of the Interior issued a final rule implementing Title XI of Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

ANILCA. Transportation and Utility Systems in and Across, and Access Into, Conservation System Units In Alaska, 51 Fed. Reg. 31619 (1986). The final rule removed 36 C.F.R. §§ 13.10 through 13.16, and made 43 C.F.R. Part 36 the sole regulatory authority "to address all access issues in CSUs." 51 Fed. Reg. at 31624. The 1986 rule did not in any way suggest any change in the NPS's prior interpretation that Part 9B does not apply to Alaska park areas.

The Proposed Rule provides no clear and supportable justification for changing the NPS's interpretation with regard to the non-applicability of the Part 9B regulations to private lands located within the boundaries of National Park Service units in Alaska. The Proposed Rule proposes to eliminate the existing regulation's requirement of "access on, across, or through federally owned or controlled lands or waters," and to make the 9B regulations applicable to "all operators conducting non-federal oil or gas operations on lands or waters within an NPS unit, regardless of the ownership or jurisdictional status of those lands or waters." However, the preamble to the Proposed Rule takes an improperly expansive view of NPS's authority to regulate private activities on private lands- -in which the United States holds no interest whatsoever-within the boundaries of National Park System units. And, the NPS's efforts to regulate non-federal oil and gas development under section 9B in Alaska must yield to the comprehensive regulatory regime of ANILCA.

Notably, contrary to statements in the Proposed Rule, the ANILCA regulations governing access to non-federal property do not contemplate the filing of a plan of operations for oil and gas development-related activity. The Proposed Rule asserts that 43 C.F.R. Part 36, which implements section 1110(b) of ANILCA, "gives operators the option to file for such access as part of their plans of operations, but they also may use a SF 299 as provided in the 43 CFR part 36 regulations. This is similar to the process applicable to mining claims under those regulations and the NPS regulations at 36 CFR part 9, subpart A." 80 Fed. Reg. at 65573. The applicable ANILCA regulation, however, discusses plans of operations only in the context of mining claims, not oil and gas development. Specifically, 43 C.F.R. § 36.10, governing access to inholdings, states:

Applications for a right-of-way permit for access to an inholding shall be filed with the appropriate Federal agency on a SF 299. Mining claimants who have acquired their rights under the General Mining Law of 1872 may file their request for access as a part of their plan of operations. The appropriate Federal agency may require the mining claimant applicant to file a SF 299, if in its discretion, it determines that more complete information is needed.

43 C.F.R. § 36.10(c).

Doyon also notes that the Proposed Rule uses "in an NPS unit," "within National Park Service units," "within the boundary of an NPS unit," and similar phrases intermittently and inconsistently throughout the rule. This contributes to a substantial lack of clarity, particularly with regard to the extent of the agency's intent to regulate activities occurring on private lands that are not part of a National Park System unit but are geographically located within the exterior boundaries of an NPS.

For instance, as noted above, proposed section 9.30(b) states that "This subpart applies to all operators conducting non-federal oil or gas operations on lands or waters within an NPS unit, regardless of the ownership or jurisdictional status of those lands or waters." 80 Fed. Reg. at 65591 (emphasis added). Proposed section 9.31(a) states that "This subpart applies to you if you are an operator who conducts or proposes to conduct non-federal oil or gas operations." Id. Proposed section 9.40 would define

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"operator" to mean "any person or entity, agent, assignee, designee, lessee, or representative thereof who is conducting operations or proposing to exercise non-federal oil and gas rights within the boundaries of an NPS unit." 80 Fed. Reg. at 65592 (emphasis added). "Operations" would be defined to mean "all existing and proposed functions, work, and activities in connection with the exercise of oil or gas rights not owned by the United States and located or occurring within an NPS unit." Id. (emphasis added). "NPS unit" would be defined by reference to the definition of National Park System (Park Area)" in 36 C.F.R. § 1.4(a), i.e., "any area of land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational, or other purposes." 36 C.F.R. § 1.4(a); 80 Fed. Reg. at 65592. According to the preamble to the Proposed Rule, "Proposed§ 9.31(a) applies these regulations to all nonfederal oil and gas operations within the boundary of an NPS unit." 80 Fed. Reg. at 65575 (emphasis added). Further, "Proposed§ 9.32(a) would clarify that an operator must have either a temporary access permit or an operations permit before conducting either reconnaissance surveys or operations in an NPS unit." Id. (emphasis added). Proposed section 9.32 would require that, in order to conduct operations, "You must demonstrate that you have the right to operate in order to conduct activities within an NPS unit." 80 Fed. Reg. at 65591 (emphasis added). Proposed section 9.80 states that, "Except as otherwise provided [in] §§ 9.70 through 9.73, an operator proposing to conduct operations within the boundary of an NPS unit must submit an application for an operations permit to the Superintendent." 80 Fed. Reg. at 65594 (emphasis added). "Operations permit" would be defined to mean "an NPS special use permit authorizing an operator to conduct operations in an NPS unit." 80 Fed. Reg. at 65592 (emphasis added).

As ANILCA section 103(c) makes clear, lands that are privately-owned (surface and subsurface) but are within the exterior boundaries of a National Park System unit are not part of a National Park System unit, and therefore are not properly characterized as being "in an NPS unit." The provisions of ANILCA § 103 (c) are critical to the question of NPS jurisdiction over AN CSA and other private lands. Therefore, to the extent that NPS intends to regulate activities on such lands, NPS should be absolutely clear about the scope of, and legal basis for, such regulation. Proposed section 9.110(a), for example, states that the operating standards "apply only to operations that occur within a park unit, including downhole activities, and do not apply to surface activities located outside a park unit." 80 Fed. Reg. at 65597. It would seem unfathomable for NPS to assert authority to impose the proposed operating standards for general facility design and management, hydrology, safety, lighting and visual, noise reduction, reclamation and protection, and other operating standards, as well as the proposed general terms and conditions, monitoring and reporting, and other regulatory requirements to activities undertaken on private ANCSA lands simply because those lands are geographically located within the exterior boundaries of a National Park System unit.

B. NPS has, to date, failed to meet its obligations to consult with Alaska Native Corporations on the development of the revised regulations

To date in this planning process, NPS has failed to meet its obligations under applicable statutory authority, executive orders, and departmental policies to consult with Alaska Native Corporations on the development of the revised regulations. In the Proposed Rule's discussion of "Consultation With Indian Tribes (Executive Order 13175 and Department Policy)," NPS states that "We have evaluated this rule under the Department's consultation policy and under the criteria in Executive Order 13175 and have determined that it has no substantial direct effects on federally recognized Indian tribes and that consultation under the Department's tribal consultation policy is not required." 80 Fed. Reg. at 65585. NPS continues to state that "Nonetheless,

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NPS has consulted with all federal tribes traditionally associated with Category 1 parks, which have current oil and gas operations, and Category 2 parks, which do not have active operations, but have potential for future operations." Id. This discussion does not even so much as mention consultation with Alaska Native Corporations. The implication is either that NPS has similarly determined that the Proposed Rule has no substantial direct effects on Alaska Native Corporations, or that NPS has entirely ignored the existence of its obligations to consult with Alaska Native Corporations. The first implication is simply wrong. The second is grossly concerning.

In Executive Order ("EO") 13175, Consultation and Coordination with Indian Tribal Governments, President Clinton required federal agencies to implement an effective process to ensure meaningful and timely consultation with tribes during the development of policies or projects that may have tribal implications. Such consultation is intended to assure meaningful tribal participation in planning and decision making processes for actions with the potential to affect tribal interests. Although EO 13175 itself applies specifically to federally-recognized tribal governments, pursuant to Pub. L. 108-199, 118 Stat. 452, as amended by Pub. L. 108-447, 118 Stat. 3267, Congress specifically extended these obligations to Alaska Native Corporations, requiring the Office of Management and Budget ("OMB") and all Federal agencies to "consult with Alaska Native corporations on the same basis as Indian tribes under Executive Order No. 13175."

In November 2009, President Obama signed a Memorandum for the Heads of Executive Departments and Agencies on Tribal Consultation, in which he emphasized his commitment to "regular and meaningful consultation and collaboration with tribal officials in policy decisions that have tribal implications including, as an initial step, through complete and consistent implementation of Executive Order 13175." Following from this Memorandum, in July 2010, the Director of the Office of Management and Budget issued a Memorandum for the Heads of Executive Departments and Agencies, and Independent Regulatory Agencies on Guidance for Implementing E.O. 13175, "Consultation and Coordination with Indian Tribal Governments," in order to "help Federal agencies to comply with their obligations to provide meaningful consultation and collaboration" and "to promote greater openness in government." This guidance specifically recognized that "OMB and all Federal agencies "are required to "consult with Alaska Native corporations on the same basis as Indian tribes under Executive Order No. 13175."

In accordance with these mandates and guidance, in August 2012, the Department of the Interior issued its Policy on Consultation with ANCSA Corporations. In this Policy, the Department purported to "recognize[] and respect[] the distinct, unique, and individual cultural traditions and values of Alaska Native peoples and the statutory relationship between ANCSA Corporations and the Federal Government." Department of the Interior Policy on Consultation with Alaska Native Claims Settlement Act (ANCSA) Corporations, Department of the Interior, Aug. 2012, p. 2 ("ANCSA Consultation Policy"). Thus, the Policy states that, "[w]hen taking Departmental Action that has a substantial direct effect on ANCSA Corporations, the Department will initiate consultation with ANCSA Corporations." Id., pp. 1-2. This commitment is reiterated in the Department's Manual, which similarly states that, "When taking Departmental action that has a substantial and direct effect on ANCSA Corporations, DOI will initiate consultation with ANCSA Corporations." 512 DM 4, section 4.6; see also 512 DM, section 4.1 (explaining that the Departmental Manual "expands and clarifies DOI's policy on consultation with Indian Tribes and Alaska Native Claims Settlement Act of 1971 (ANCSA) Corporations and acknowledges the provisions for conducting consultation in compliance with Executive Order (EO) 13175 (Consultation and Coordination with Indian Tribal Governments), applicable statutes, and administrative actions"). In recognition that "Federal consultation conducted in Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

a meaningful and good-faith manner further facilitates effective Department operations and governance practices," the ANCSA Consultation Policy further commits that the Department will "identify consulting parties early in the planning process and provide a meaningful opportunity for ANCSA Corporations to participate in the consultation policy." ANCSA Consultation Policy, pp. 2-3.

NPS's failure to consult with Alaska Native Corporations on the development of the Proposed Rule is clearly contrary to these consultation obligations. DOI's ANCSA Consultation Policy defines "Departmental Action with ANCSA Corporation Implications" to include:

Any Departmental regulation, rulemaking, policy, guidance, legislative proposal, grant funding formula changes, or operational activity that may have a substantial direct effect on an ANCSA Corporation, including:

1. Any activity that may substantially affect ANCSA Corporation land, water areas, or resources;
2. Any activity that may impact the ability of an ANCSA Corporation to participate in Departmental programs for which it qualifies.

ANCSA Consultation Policy, p. 3. There is no question that, as proposed by NPS, the revised regulations constitute such an action.

As discussed above, Doyon, as is the case with other Alaska Native Corporations, selected and was conveyed lands that now are located within the boundaries of National Park System units. These lands were, in many cases, selected prior to the enactment of ANILCA for their mineral or other resource development potential. Based upon the following statement in the Proposed Rule, NPS apparently contemplates that Doyon's activities to develop its oil and gas resources on these private lands would be subject to the revised regulations developed through this rulemaking process:

We also note that because these regulations are generally applicable to NPS units nationwide and to nonfederal interests in those units, they are not "applicable solely to public lands within [units established under ANILCA]," and thus are not affected by section 103(c) of ANILCA. See *Sturgeon v. Masica*, 768 F.3d 1066, 1077-78 (9th Cir. 2014).

80 Fed. Reg. at 65573.

In the Proposed Rule, NPS specifically acknowledged the potential interest of Alaska Native Corporations: "Non-federal oil and gas interests can be held by ... corporations, including Alaska Native corporations " 80 Fed. Reg. at 65574. And, in fact, as the Proposed Rule acknowledges, Doyon and at least one other Alaska Native Corporation submitted comments reflecting this interest in response to the Advance Notice of Proposed Rulemaking. 80 Fed. Reg. at 65574.

To the extent that Doyon and other Alaska Native Corporations own lands within the boundaries of National Park System units in Alaska with oil and gas potential, and to the extent that NPS intends to apply these regulations to oil and gas activities on those lands, then it is clear that this rulemaking effort and the associated regulations could directly and "substantially affect ANCSA Corporation land, water areas, or resources." It should then be equally clear that Executive Order 13175, the statutory provisions directing consultation with Alaska Native Corporations, DOI's ANCSA Consultation Policy, and the Consultation Guidelines of the Department's Tribal Consultation Policy that are incorporated by reference therein, require NPS to consult with Doyon and other affected Alaska

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Native Corporations on this rulemaking-and to have done so as early as possible in the process.

It should be noted that NPS's approach toward consultation with Alaska Native Corporations differs starkly from the approach of its sister agency, the U.S. Fish and Wildlife Service ("USFWS"), with regard to USFWS's efforts to update its regulations governing the management of non-federal oil and gas development on National Wildlife Refuge System lands. On December 11, 2015, USFWS issued a letter to ANCSA Corporation Leaders expressing interest in hearing from them "to discuss the possible changes we are considering" and inviting them to schedule consultation. The letter further recognized, "Your input and guidance are important to this process, and we are committed to creating opportunities for meaningful and respectful consultation between ANCSA Corporation leadership and Service officials." It is deeply concerning that NPS apparently believes differently and does not share this commitment.

Doyon cannot overstate the importance of NPS's obligation to consult with the Alaska Native Corporations regarding this matter under Executive Order 13175, as specifically extended to the Alaska Native corporations by Congress. It is absolutely critical that Alaska Native Corporations be provided the opportunity to meaningfully participate in the development and implementation of policies that could impact our ability to fulfill the purposes for which we were established under ANCSA (and which were recognized and preserved under ANILCA) and to protect and advance the economic, social, and cultural interests of our shareholders. Consultation is particularly important here, given (a) how fundamentally the Proposed Rule could affect Alaska Native Corporations; (b) that applying the 9B regulations to non-federal land would be an abrupt and radical shift in how NPS has interpreted ANILCA; and (c) that this abrupt and radical shift is proffered in a single sentence in the preamble to a lengthy and detailed proposed rule.

III. Conclusion

Two years after the NPS issued its existing 9B regulations, Congress enacted ANILCA to protect Alaska's natural resources and ensure economic development opportunities for Alaska Natives and other private landowners in the State. ANILCA included specific provisions to guarantee that such landowners would have reasonable access to inholdings and to clarify that such inholdings would not be part of CS Us or administered as if they were part of CSUs, so that they could make economic and other use of their property. These provisions, as implemented through DOI's existing regulations at 43 C.F.R. Part 36, provide the governing authority for the regulation of non-federal oil and gas development in Alaska. The 9B regulations and this rulemaking effort are outside the scope of authority granted by ANILCA and therefore are inapplicable to activities in Alaska.

Unfortunately, NPS's failure to consult with Alaska Native Corporations on this rulemaking on a timely basis, in accordance with its obligations, has deprived Alaska Native Corporations the opportunity to provide meaningful input and guidance with regard to addressing these critically important issues.

Doyon continues to urge the NPS to explicitly recognize the inapplicability of the regulations and this rulemaking effort to non-federal oil and gas development in Alaska's National Parks. Moreover, NPS must fully comply with its obligation to engage the Alaska Native Corporations in a timely, respectful, and meaningful consultation process.

Thank you for your consideration of these comments.


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PEPC Project ID: 28329, DocumentID: 70221

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Correspondence Text

I am writing to you on behalf of the Coalition to Protect Americas National Parks (Coalition), a non-profit organization comprised of over 1,100 members; most are former and retired National Park Service (NPS) employees. Collectively, we have over 30,000 years of experience working in and managing the America's national parks. The Coalition studies, educates, speaks, and acts for the preservation of Americas National Park System.

The purpose of this letter is to submit comments on the NPS proposal to amend its regulations governing the exercise of non-federal oil and gas rights and associated operations within NPS units. The proposed rule would update the existing regulations at 36 CFR Part 9, Subpart B (9B regulations), which govern the exercise of non-federal oil and gas rights in NPS units. The proposed revisions are needed to improve the agency's ability to protect park resources, values, and visitors from potential impacts associated with oil and gas operations located within NPS units, many of which are not currently subject to NPS requirements. The proposal would also update the format to improve clarity and make the regulations consistent with existing policies and practices, and simplify application and compliance for oil and gas operators and NPS staff.

Presently, non-federal oil and gas rights exist in NPS units where the United States does not own the oil and gas interest. Such non-federal ownership interests occur: (1) where the United States does not own a specific tract or parcel of land, including the oil and gas mineral estate beneath such land; (2) when the United States acquired the specific tract or parcel of land, the seller reserved the rights to the oil and gas estate; or (3) the estate was already severed when the United States acquired the surface estate and the mineral rights remain with the previous owner. These non-federal oil and gas ownership interests

can be held by individuals, nonprofit organizations, corporations, or state and local governments. Currently there are over 530 operations to extract non-federal oil and gas occurring in 12 NPS units with continuing development expected. Another 30 NPS units have potential for future development of non-federal interests within park boundaries.

The existing 9B regulations, promulgated by the NPS in 1978, apply to exploration and development activities associated with non-federal oil and gas rights located inside NPS unit boundaries. Where applicable, these regulations require an operator to obtain NPS approval of a proposed plan of operations before commencing oil and gas exploration, drilling, production, or reclamation activities in an NPS unit. The current regulations however contain two provisions that have had the effect of exempting over half of the operations in parks from NPS review and approval. These exempt operations include: 1) those that do not require access on, across, or through federally owned or controlled lands (15% of total in-park operations); and 2) those grandfathered operations that were operating at the time the regulations became effective in January 1979 (45% of in-park operations). Many of these currently exempt operations are conducting operations in a manner that adversely impacts park resources, values, and visitor experience as well as posing hazards to visitor safety. The NPS proposed revisions would eliminate these exemptions and greatly facilitate the NPS ability to appropriately manage non-federal oil and gas activities.

NPS Authority to Regulate Non-Federal Oil and Gas

The NPS has authority to promulgate these regulations pursuant to the statute commonly known as the Organic Act (54 U.S.C. 100101 et seq.) as well as other statutes governing the administration of the National Park System. In the NPS Organic Act, Congress directs NPS to promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. The Organic Act also gives NPS the authority to promulgate regulations necessary or proper for the use and management of System units. (54 U.S.C. 100751). This includes the authority to regulate the exercise of non-federal oil and gas rights within park boundaries for the purpose of protecting the resources and values administered by the NPS.

In addition, the enabling legislation for several NPS units contains specific provisions authorizing the regulation of non-federal oil and gas rights, which are noted in the authority section of the proposed rule. For example, a unique provision exists under the Big Cypress National Preserve Addition Act of 1988, which authorizes rules and regulations governing exploration, development, and production of non-Federal interests in oil and gas located within the boundaries of the Preserve and the Addition, and that such rules and regulations may be made by appropriate amendment to or in substitution of the 9B regulations.

As noted in the preamble, the U.S. District Court and the Fifth Circuit Court of Appeals recognized the NPS authority to promulgate the existing 9B regulations in a case contesting the application of the regulations at Padre Island National Seashore. See *Dunn-McCampbell Royalty Interest v. National Park Service*, 964 F. Supp. 1125 (S.D. Tex. 1995), and *Dunn-McCampbell Royalty Interest v. National Park Service*, 630 F.3d 431 (5th Cir. 2011). Other courts have also consistently recognized NPS's authority to regulate non-federal interests within units of the National Park System. See, e.g., *United States v. Vogler*, 859 F.2d 638 (9th Cir. 1988), cert. denied, 488 U.S. 1006 (1989); *United States v. Garfield*

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County, 122 F. Supp. 2d 1201 (D. Utah 2000). See also *Southern Utah Wilderness Alliance v. Bureau of Land Management*, 425 F. 3d 735, 746-47 (10th Cir. 2005).

Key Proposed Regulatory Revisions

The NPS proposed regulations include several important elements to improve their effectiveness in protecting park resources and values and enhancing visitor experience and safety. First is the elimination of the two regulatory provisions noted above regarding access across federal property and grandfathered operations, which exempt approximately 60% of the oil and gas operations located within the boundaries of NPS units. Under the current rules, the NPS cannot regulate 319 out of 534 non-federal oil and gas wells currently within the authorized boundaries of parks due to these exemptions. As a result, many unregulated operations are not following best management practices, resulting in degradation of park resources and values and potential safety hazards for park visitors.

Second is elimination of the limit on financial assurance (bonding) that NPS may require to ensure that adequate funding is available for well plugging and site reclamation. Current regulations limit the bond to \$200,000 per operator per park. Experience has shown this performance bond limit no longer represents the current costs of reclamation, particularly in cases where an operator has several wells in a park. For example, a foreign company that had an operating permit for 11 wells at Padre Island recently abandoned all operations and essentially disappeared. While the NPS held a \$200,000 bond, the cost to plug wells and reclaim one site with 5 wells is estimated and \$350,000 alone. As more operations occur or as operators consolidate holdings in a park, the NPS will likely be faced with more situations where the current limit is insufficient to properly reclaim sites where the operators fails to fulfill their obligations under an approved plan of operations. Under existing rules, recovery of reclamation expenses exceeding the bond requires NPS to undertake costly and time consuming civil litigation to recover costs, if a viable mineral operator can be located. The proposed revision in Section 9.141 would make the required bond amount equal to the estimated cost of reclamation for each operation, ensuring that future reclamation funds would be available, and removing this potential burden from the NPS and American taxpayers.

Other noteworthy changes included in the NPS proposed 9B revisions are:

- Application of the NPS penalty provisions at 36 CFR 1.3 to address regulatory violations, which would provide a practical method of dealing with minor regulatory infractions that do not rise to the level of permit suspension or judicial intervention;
- Clarification that an operations permit will be a special use permit allowing the NPS to recover costs associated with the permitting and operations monitoring process (Sec. 9.40), and that the NPS may require the use of third-party monitors to oversee permitted operations (Sec. 9.121), which will facilitate NPS monitoring of operations;
- Incorporation of a new format for information requirements (Sec. 9.80-9.90) and operating standards (sec. 9.110-9.118) that makes it easier for both the NPS and the operator to readily identify the standards that apply to particular operations;
- Codifying a definition for technologically feasible, least damaging methods as the non-prescriptive general standard for all operations, and requiring such methods in all operations to protect park resources and values, visitor experiences, and NPS staff safety (Sec. 9.110(c));
- Provision for new information requirements and operating standards for well stimulation, including hydraulic fracturing (Sec. 9.118(b)) that are modeled after the BLMs recently promulgated regulations, which will facilitate analysis and public involvement in these often contentious fracking proposals;

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- Addition of a new well-plugging provision (Sec 9.170) to address inactive and shut-in wells and ensure timely reclamation, which will eliminate long-standing inactive well sites that cause ongoing resources degradations and visitor safety hazards; and
- Consolidation of existing regulatory provisions and elimination of redundant provisions.

The Coalition fully supports the NPS proposed revisions to the 9B regulations. While the existing rules have served reasonably well in addressing new oil and gas operations in parks, it is apparent that the original regulations resulted in significant regulatory gaps that need to be addressed for the agency to fully carry out its preservation mandate under the NPS Organic Act of 1916 (54 U.S.C. 100101 et seq.), and NPS Management Policies. The proposed regulatory revisions are necessary to: 1) strengthen the NPSs ability to fulfill its mission to protect park resources and visitor values, 2) provide equitable financial compensation and surety to protect the publics resources and taxpayer dollars, and 3) create and improve efficiencies in the regulatory requirements.

Especially important are the proposed revisions to eliminate the exemptions regarding access across federal lands and grandfathered operations. At the time the current regulations were promulgated the NPS made a policy choice to exempt (grandfather) existing operations until expiration of their state and local permits, based on the theory that this would allow a phase-in of NPS regulations for these operations. Operations not requiring access on federal property were also exempted as this was expected to occur in limited circumstances. Like the grandfather exemption, this access exemption is not specified in any statute, but was an exercise of the NPS discretion at the time the regulations were promulgated.

As is evident from the preamble and the supporting analysis, experience to date has shown that these exempted operations are often not following best management practices and are causing unacceptable impacts to park resources and values. These exempted operations are causing adverse resource effects and presenting visitor hazards and need to be managed by NPS to prevent additional risks and damages. The proposal and supporting documents show that these unregulated oil and gas activities are currently impacting NPS resources in many ways including the following:

- NPS has documented 26 instances of surface contamination and water quality degradation from spills, storm water runoff, erosion, and sedimentation;
- Forty-seven cases of oil and ground water contamination have been found from existing drilling mud pits, poorly constructed wells, pump jack leaks, operations and maintenance spills, and tank battery leaks;
- Many sites cause air quality degradation from dust, natural gas flaring, hydrogen sulfide gas, and emissions from production operations and vehicles, and NPS inspections have documented 14 instances of notable odors emanating from the wellhead;
- Increased human presence and noise from seismic operations, blasting, construction, drilling and production operations effect wildlife behavior, breeding, and habitat utilization, and negatively impact the visitor experience;
- Adverse effects on sensitive and endangered species. NPS site inspections have documented 15 sites with sensitive species or habitat;
- Disturbance to archeological and cultural resources from blasting associated with seismic exploration and road/site preparation, maintenance activities, or by spills; and
- Visitor safety hazards from equipment, pressurized vessels and lines, presence of hydrogen sulfide gas, and leaking oil and gas that can create explosion and fire hazards. Through site inspections the NPS has documented 62 instances of visitor safety hazards.

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Another critical improvement is the NPS proposal to eliminate the current bonding (financial assurances) limit of \$200,000 per operator per unit. Currently, in the case of an inadequate bond amount, the only NPS recourse is a civil suit to recover additional reclamation costs - a difficult, costly, and time consuming process. In cases where the operator is insolvent or cant be located the cost of well plugging and site reclamation fall on the NPS and American taxpayers.

One area we would like to see clarified is the issue of public notice and participation. The preamble states that the proposed regulations will eliminate the existing requirements to publish notice of potential operations and replace them with a more efficient public involvement and review process. However, neither the proposed Public Participation (Sec. 9.200) nor any other regulatory section addresses public notice requirements. As noted in the preamble, the current regulations require the Superintendent to publish notice in a local paper upon a request to conduct operations and to publish notice in the Federal Register upon receipt of a plan of operations. While it may be the NPS intent that normal NEPA and other compliance processes will provide adequate public notice and participation opportunities, this needs to be clearly stated in the regulatory proposal. We suggest specific public notice requirements be inserted in the proposal at the sections where NPS determines a proposed application is complete and it will begin formal review (e.g., Sec. 9.101(a)(1), Sec. 9.105 (a)(2)). Such specific public notice will be important to ensure full public participation in NPS future oil and gas permitting.

As proposed, with the elimination of exemptions and clarification of process, the revised 9B regulations will allow the NPS to achieve the following objectives:

- All non-federal oil and gas operations conducted within the authorized boundaries of park units will be managed to ensure the use of technologically feasible least damaging methods to prevent or to minimize damage to national park system resources, visitor values, and management objectives.
- Updated operating standards will reflect new technologies, operational methods, and current scientific and technological findings to result in operations least damaging to park resources and values.
- Health and safety hazards associated with non-federal oil and gas operations will be managed to protect park staff and visitors.
- Adequate financial assurance will be provided by non-federal operators to ensure that park resources and values are protected and all oil and gas operation sites are properly reclaimed.
- Appropriate penalty authority will be available to provide a practical and effective means for dealing with minor acts of noncompliance or unauthorized operations in parks.
- An incentive will be retained for operators to directionally drill from surface locations outside parks, which minimizes effects on park resources while still maintaining the ability of the NPS to protect park resources and values to the fullest extent practical.
- Reorganized and clarified regulations will be more understandable to operators, the public, and NPS staff, helping to provide reasonable and timely processing of applications and permits.

In closing, while legislation and property law allow for the development of non-federal oil and gas rights in some units of the National Park System, the NPS has a legal obligation to manage such development in a manner that is consistent with the NPS Organic Act and related NPS Management Policies. The NPS stated purpose of the proposed revisions to the 9B regulations is to protect public health and safety; improve understanding, application and effectiveness of the regulations for the NPS and for industry; and incorporate new requirements that will ensure that all non-federal oil and gas operations conducted in national park system units avoid or minimize, to the greatest possible extent, adverse effects on natural and cultural resources, visitor uses and experiences, park infrastructure and

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management. We believe that the proposed rule is fully consistent with these requirements and strongly support the proposed rule as written.

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PEPC Project ID: 28329, DocumentID: 70221

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Correspondence Text

I am an Associate Professor and Program Director for Environmental & Occupational Health Sciences at the CUNY School of Public Health, Hunter College campus. I am also an attorney with thirty years experience in environmental and natural resources laws and an author of 17 books on environmental and natural resource policy.

I enthusiastically support the NPS proposal to overhaul the 9B regulations. National parks are among the great resources enjoyed by the American people. Changes are greatly needed. The 9B rules were created in 1978 and both the drilling technology and the scientific understanding of the environmental and health impact from oil and gas drilling have changed. The proposed rules are good for national park users, good for park maintenance, good for ecosystem preservation and good for the public health.

Revising the 9b regulations so regulations for oil and gas drilling are consistent across all federally owned and operated land is an important and sensible step. NPS is correct that it has the authority and needs to: (1) raise bond and financial assurance requirements; (2) create protocols that bring exempt operations within the 9B regulations; (3) create access and user fees that reflect fair use; (4) allow administrative fines to be assessed for minor violations and (5) update technical safety standards.

Revising financial assurances and bonding requirements to reflect the current economy and the actual drilling practices is critical to the maintenance of park resources. Bond limits were set in 1978 at \$200,000 per park. The present value of the current bond limit is about \$800,000, considering inflation. NPS is correct that the most protective practice is to set bonds based on projected costs to remedy spills

and complete operational closure.

Amending access and user fees is also needed to cover the costs for wear and tear on park roads and resources. The fees should cover not just cost of any needed road improvement but the cost of road maintenance as well.

Changing the 9B rules to allow NPS to issue administrative penalties for minor permits or legal violations is imperative to ensure preservation of national park resources. NPS should not need to show severe harm before taking action. When drilling occurs in national parks, NPS must be able to take action well before significant or lasting damage to the park.

Exempt operations should be brought within the 9B process. The grandfather provisions were never intended to last in perpetuity. The purpose of the grandfather clause was to prevent undue surprise on entities not previously covered by the then--new 9B regulations. Since the 9B rules have been in place for thirty--seven years, that rationale no longer applies. Moreover, when the access exemption was created by NPS, nobody expected directional drilling. While locating well pads outside a park and allowing directional drilling will mitigate certain impacts, it is important that NPS evaluate all impacts (including the so--called "connected actions") and set guidelines to ensure the oil and gas operation are done in a manner that conserves park resources.

Finally, NPS is correct in amending the 9B regulations to ensure that drilling in park units both meet modern safety standards and are built in a manner such that the wells or associated piping and equipment do not damage park resources or the environment after the well is closed and the operations cease.

In addition, NPS should revise well permitting standards to include a baseline assessment of environmental conditions before construction and operations commence. Establishing a baseline is consistent with NEPA protocol, and would help determine when and if detrimental environmental events arise. The amended 9B rules should also require that a map of both surface and subsurface operations be recorded in land records of exactly where the boreholes and piping are located to preclude later operators from causing environmental harm by hitting current or closed wells. While the NPS proposal contemplates mapping of surface operations, also including subsurface mapping will reduce future drilling accidents and help NPS plan and supervise operations to ensure the continued safety of casing and other protective measures.

Attached with this letter are an article I published in the Huffington Post and a draft law review article that goes into greater detail on the subject of the need for revisions to 9b regulations.


Thank you for the opportunity to comment of the proposed 9B regulations. Please contact me at eg86@hunter.cuny.edu if you have any questions or require additional information.

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PEPC Project ID: 28329, DocumentID: 70221

Correspondence: 3

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Correspondence Text

Dear Sir or Ma'am:

This is Chad Hutchison on behalf of Alaska State Senators John Coghill (District B) and Cathy Giessel (District N). Generally, both Senator Coghill and Senator Giessel object to any efforts by the National Park Service ("NPS" or "Service") that may violate the express language in ANILCA and/or impede future oil and gas development of nonfederal inholdings in Alaska NPS units.

After review of the proposed rule, this passage garnered particular interest:

"For NPS units in Alaska that were established under the Alaska National Interest Lands Conservation Act ('ANILCA'), access to nonfederal property is governed by the regulations at 43 CFR part 36, which implement section 1110(b) of ANILCA. This regulation gives operators the option to file for such access as part of their plans of operations, but they also may use a SF 299 as provided in the 43 CFR part 36 regulations. This is similar to the process applicable to mining claims under those regulations and the NPS regulations at 36 CFR part 9, subpart A. We also note that because these regulations are generally applicable to NPS units nationwide and to nonfederal interests in those units, they are not 'applicable solely to public lands within [units established under ANILCA],' and thus are not affected by section 103(c) of ANILCA. See *Sturgeon v. Masica*, 768 F.3d 1066, 107778 (9th Cir. 2014)."

Many fear, that *Sturgeon v. Masica*, (a case that has been accepted to the U.S. Supreme Court for review and, at least minimally, presents a risk of being overturned) is being used to hastily justify the

Service overriding express Congressional approved language in ANILCA.

ANILCA, Section 103(c) states:

"(c) Only those lands within the boundaries of any conservation system unit which are public lands (as such term is defined in this Act) shall be deemed to be included as a portion of such unit. No lands which, before, on, or after the date of enactment of this Act, are conveyed to the State, to any Native Corporation, or to any private party shall be subject to the regulations applicable solely to public lands within such units. If the State, a Native Corporation, or other owner desires to convey any such lands, the Secretary may acquire such lands in accordance with applicable law (including this Act), and any such lands shall become part of the unit, and be administered accordingly. See Pub. L. 96487."

The key provision is that "[n]o lands which, before, on, or after the date of enactment of this Act, are conveyed to the State, to any Native Corporation, or to any private party shall be subject to the regulations applicable solely to public lands within such units."

Alaskans reject the notion that the proposed rule (and it's "nationwide justification," pursuant to the lower court's Sturgeon decision) can be used to override ANILCA. Alaska's lands have always been "a special category" unlike anything in the rest of the United States. This is proven by the existence of the Alaska Native Claims Settlement Act ("ANCSA") and, subsequently, ANILCA.

During the passage of ANILCA (once it became clear that there was political momentum to "lock up" large portions of Alaska's lands), the Alaska federal delegation specifically fought to at least ensure inholder rights (meaning that they would not be subject to regulations applicable solely to public lands). That fight culminated with the express language of Section 103(c).

The proposed rule seeks to change that, and appears to rely on the Sturgeon matter (a case lacking finality) to do it.

Recommendation:


To the extent possible, the Service's proposed rulemaking process should be abandoned, or alternatively, placed on hold until at least a final U.S. Supreme Court decision is reached in Mr. Sturgeon's case.

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PEPC Project ID: 28329, DocumentID: 70221

Correspondence: 19

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Correspondence Text

The Center for Biological Diversity (Center) and Kentucky Heartwood write to submit the following comments on the National Park Services (Service or NPS) proposed rule to update its 9B regulations governing non-federal oil and gas development on Park Service lands. These comments are submitted on behalf of the Center, Kentucky Heartwood, and our organizations members.

The Center is a non-profit environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center also works to reduce greenhouse gas emissions to protect biological diversity, our environment, and public health. The Center has over 850,000 members and activists, including those who have visited many of the national parks in which non-federal oil and gas rights could be developed.

The Centers members enjoy the national parks for recreational, scientific, educational, and other pursuits and intend to continue to do so in the future, and are particularly interested in protecting the many native, imperiled, and sensitive species and their habitats that may be affected by the proposed rule.

Kentucky Heartwood works to protect and restore the integrity, stability, and beauty of Kentucky's native forests and biotic communities through research, education, advocacy, and non-violent intervention, with an emphasis on our public lands. Our members regularly use and enjoy national park lands in Kentucky, including Big South Fork National River and Recreation Area, Cumberland Gap National Historic Park, and Mammoth Cave National Park, all which are affected by the proposed revisions to the 9B Regulations. Current and potential oil and gas development in these national park

units affects our members' ability to fully utilize these publiclands for their full range recreational, aesthetic, scientific, and other non-extractive uses.

We strongly supports the Services goal to reduce oil and gas drilling within the NPS units and tighten regulations governing non-federal oil and gas activities. Many of the proposed changes to the 9B regulations would fill regulatory gaps in the existing rules and significantly reduce the impacts of oil and gas operations on NPS lands. These changes include removing exemptions for grandfathered operations and operations that do not require access over NPS lands, increasing the financial assurance limits on operators, and allowing the Service to charge operators for privileged access over federal lands or roads to access oil and gas rights.

The proposed rule, however, falls far short in ensuring that the Service fulfills its mandate to manage park resources in such a way that will leave them unimpaired for the enjoyment of future generations. First, the proposed Alternative B, 9B regulations allow the Service to exempt certain directional drilling operations outside the park boundary from permitting requirements without adequate assurance that exempt operations will adhere to proposed plans and mitigation measures. Relatedly, the EIS fails to acknowledge the significant impacts of such exempt operations that would escape enforceable requirements, as well as the impacts of shifting drilling from inside to outside the park and increasing directional drilling overall.

Second, the proposed rule must ban hydraulic fracturing or fracking and other unconventional drilling and stimulation techniques, given the significant potential for fracking to degrade and impair park resources. In the alternative, the Service should prohibit these activities until such time as it can be shown with certainty that they are completely safe for public health, the environment, and National Park System trust resources. Rather than prioritizing accommodation of oil and gas operators access to their non-federal oil and gas rights, the Service must rigorously observe its non-impairment mandate and apply the strictest rules that it can to non-federal fossil fuel development affecting the lands that it administers. Fracking poses significant risks to water resources, air quality, climate change, wildlife, and seismicity. The EIS fails to study a no fracking alternative and these significant risks. To the extent that this failure results from the Services belief that a fracking ban or moratorium would violate property rights, this assumption is incorrect. The Service has ample authority to ensure that non-federal oil and gas activities on its lands do not undermine the conservation of park resources and compliance with its non-impairment duty. Reasonable regulation of the means of exploiting a mineral right is in no way a per se taking.

Third, the Services proposal to allow operators to withhold disclosure of fracking chemicals is contrary to the Services statutory duties. NPS cannot make an informed decision regarding the risks posed by a proposed fracking operation unless and until it knows the chemicals used and in what quantities. A regulatory agency without knowledge of the risks involved does not constitute oversight in any meaningful way. Allowing the inherently dangerous practice to continue without such basic information violates the Services duty under the NPS Organic Act to conserve the scenery, natural and historic objects, and wildlife in National Park units in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

Finally, the Services proposed rule must include other measures to ensure that fracking operations do not impair park resources, including specific performance standards for all operations, baseline water

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quality monitoring requirements, and stipulations to protect wildlife.

I. The Service Should Not Exempt Any Proposed Drilling Operations From Permit Requirements

The EIS considers merely two alternatives besides the No Action alternative, but neither meets the proposed actions purpose and need to protect public health and safety or minimize, to the greatest possible extent, adverse effects on natural and cultural resources, visitor uses and experiences, park infrastructure and management. See DEIS at i (emphasis added). Both alternatives are fundamentally flawed in exempting certain operations from permit requirements.

The preferred alternative, Alternative B, would subject all operations utilizing the surface on park boundaries to 9B, including grandfathered operations, to be covered under 9B, which is a significant improvement over existing regulations. The proposed rule, however, would continue to exempt proposed directional drilling operations that access minerals within a park boundary from a surface location outside the park boundaries (directional drilling exemption). Such operations would only be subject to 9B if the Service determines that permit requirements are needed to protect against a significant threat of damage to:

- (a) Federally owned or administered lands, waters, or resources within NPS units;
- (b) NPS visitor uses or experiences; or
- (c) Visitor or employee health or safety.

9.70(a)-(c).

While an exemption is not allowed for operations that present a significant threat of damage to public safety and park resources, the Service may not always get it right. This is especially so if the exemption applications are not subjected to public review under NEPA. At minimum, the Service should require the preparation of an Environmental Assessment for each exemption application, and these requests should be tracked in a central database on NPS's website. More importantly, enforceable permit requirements, are necessary to keep operators in check. Without permit requirements, the Service has little recourse in the event an exempt operation causes damage to park resources-the very reason why the Service is acting to remove existing exemptions for grandfathered and other operations.

Operations exempted under this provision are only subject to: general terms and conditions in 9.120 through 9.122, the prohibitions and penalties in 9.180 through 9.182, and the requirements in [section 9.73]. None of these provisions require financial assurance to ensure taxpayers are not stuck with the bill for cleanup or reclamation costs. General terms and conditions only cover administrative, monitoring, and reporting requirements. The only mechanism to penalize exempt bad actors under 9.180 through 9.182 would be enforcement of Federal, State, or local laws, or very limited provisions of 9B. While exempt operators could potentially be held liable for failure to notify the NPS within 30 days if [their] method of operations or the environmental conditions of [their] operation change, 9.180(a)(1), 9.73(a),

no provision holds operators liable for actually deviating from their proposed operation, or requires operators to seek approval of modifications before they occur. This provision also fails to account for new information that may change the Service's evaluation of risks. While 9.73(c) allows the Service to withdraw an exemption and compel an operator to obtain a permit once it becomes aware of a potential for a significant threat of damage, application of this requirement after the fact could be too little too late if damages to park resources have already occurred. See, e.g., 80 Fed. Reg. at 65574 (discusses an example where eventually bringing an exempt operation under regulation could not mitigate

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damage&already done to Aztec Ruins National Monument resources).

In addition, it is unclear whether the directional drilling exemption extends to subsurface operations within park boundaries. Compare 9.73 (noting exempt operations only subject to limited 9B provisions) with 9.70 (Your downhole activities inside an NPS unit are subject to these regulations.) and 80 Fed. Reg. at 65578 (Under these regulations, regulatory authority over these operations continues to begin at the subsurface point where the proposed operation (borehole) crosses the park boundary and enters federally owned or controlled lands or water, and applies to all infrastructure and activities within the NPS unit.) The proposed rule must clearly state that permitting and regulation of subsurface operations underlying park surface is required, even where connected surface operations outside the park unit are exempt.

The Services rationale for permitting directional drilling exemptions is that it expects operators to choose to conduct surface operations outside Park boundaries and access minerals via directional drilling if an exemption remains available. Purportedly, compared to Alternative C, which would subject all directional drilling from outside the park boundary to permitting requirements, Alternative B would result in less operations within the park and less impacts to park resources. Assuming that simply shifting drilling to right outside the Park boundary is environmentally superior (which is highly questionable, based on the Services environmental analysis so far, see section II below), the Service could accomplish the same objective by requiring instead of incentivizing all surface operations to be located outside the park boundary, where access to the targeted minerals is still technologically feasible. See DEIS at 190 (noting Services ability to require staging areas [for seismic exploration]&to be located outside the park to prevent any spills from reaching park resources). Better yet, the Park Service should require siting of surface operations and drilling where they would cause the least possible harm and avoid any sensitive resources. The EIS, however, fails to consider these alternatives.

While Alternative C would subject all directional drilling from outside the park boundary to permitting requirements (both surface and subsurface operations), it also falls short. Alternative C would allow exemptions for operations on inholdings from permitting requirements if the Service does not reasonably expect 'that operational requirements are needed to protect against a significant threat of damage to federally owned, administered, or controlled lands, waters or resources of the unit, or park visitor and employee health and safety. DEIS at 45. It is unclear whether this exemption applies only to existing operations or new operations as well. For many of the same reasons already discussed above, operations on inholdings should neither be allowed exemptions from an operations permit.

Neither Alternative B nor Alternative C meets the proposed rulemakings purpose and need to minimize adverse effects to the greatest extent possible. Each could result in potentially significant impacts to Park resources if directional drilling outside the Park boundary or drilling on inholdings, respectively, is allowed without enforceable permit requirements or safeguards to prevent damage to Park resources, or hold exempt operators accountable for any damage they may cause. See, e.g., DEIS at 194 (describing impacts of insufficient financial assurance under no-action alternative). The EIS performs no analysis of these significant effects of exempting operations and fails to address their mitigation. See, e.g., DEIS 193, 199. The EIS also fails to study an alternative that would allow no exemptions for operations accessing any nonfederal minerals underlying federal land, which would allow a meaningful comparison between allowing exemptions and not allowing them. The Service must revise and recirculate the EIS and study the impacts of exempting operations.

II. The Service Cannot Simply Assume that Shifting Drilling from Inside the Park to Outside the Park

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is Environmentally Superior.

The EIS utterly fails to study the impacts of increased directional drilling from outside the park under Alternative B. More directional drilling outside the park could result in more intensive drilling of longer boreholes, involving overall greater freshwater depletion, surface disturbance, air pollution, greenhouse gas emissions, and noise compared to a scenario where drilling outside the park is not encouraged. DEIS A-5 (Directional drilling may require a larger- sized rig and additional support facilities that may lead to larger pad sizes.). The EIS neglects to acknowledge any of these effects in its comparison of Alternatives B and C, and as a result it does not study mitigation that would reduce these effects. Furthermore, the DEIS fails to address the commonsense relationship between well development immediately outside the park and downstream, downwind, and downslope effects to resources within the park. If increased cumulative impacts on park resources or neighboring communities would result, the Service should develop mitigation offsets that would compensate for these effects.

According to the Final Environmental Impact Statement for the Revised Land and Resource Management Plan for the George Washington National Forest, horizontal drilling requires much greater surface disturbance and water depletion (just for drilling alone) than vertical wells, as shown in the table below. Increased surface disturbance could result in greater erosion and surface runoff, vegetation clearing, and air pollution. Further, greater construction needs and water requirements could result in greater use of drilling rigs and other equipment with combustion-engines, as well as increased traffic to and from the well site. These activities in turn would result in more air pollution, greenhouse gases, and noise. All of these impacts could degrade wildlife habitat and impact neighboring communities. Further, because these operations could be exempt from permitting requirements, they may not be subject to enforceable mitigation requirements to ensure that these impacts are offset or avoided.

Horizontal drilling also tends to result in greater well failure, and may be more prone to casing vent flow and/or gas migration away from the wellhead. Such leaks could contaminate groundwater resources, including drinking water. Methane leaks could also result in increased greenhouse gas emissions, but climate-change related impacts were improperly eliminated from study in the EIS entirely.

III. The Park Service Should Prohibit Fracking of All Non-Federal Minerals.

The National Park Service Organic Act (Organic Act) prohibits any actions that impairs park resources, unless directly and specifically provided by Congress. 54 U.S.C. 100101(a), (b)(2). Pursuant to this mandate, the Service has the duty and the authority to ban dangerous hydraulic fracturing techniques that could be used on or around Park Service lands and affect park resources. The proposed rule must be amended to include a provision to this effect. Further, the EIS is deficient in that it fails to consider an alternative that would prohibit fracking on or affecting Park Service lands.

A. The Service Has Broad Powers Under the Organic Act to Protect Park Resources and Ban Fracking

The Service has broad power to regulate oil and gas activities affecting its lands to carry out its conservation and nonimpairment mandate. This power is derived from the Property Clause of the U.S. Constitution, which entrusts Congress with power over the public land & without limitations. *Kleppe v. New Mexico*, 426 U.S. 529, 539 (1976); U.S. Const. art. VI, sec. 3, cl. 2 (Congress shall have power to make all needful Rules and Regulations respecting the...Property belonging to the United States).

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Congress exercise of such powers reaches to activities occurring both on or off public land, which affects federal land, *Duncan Energy Co.*

v. U.S. Forest Serv., 50 F.3d 584 (8th Cir. 1995) (citing *Kleppe*, 426 U.S. at 539), and is paramount where conflicting state laws exist. *Kleppe*, 426 at 546.

Through the Organic Act, Congress, in turn, delegated the Service with broad powers to manage and protect Park Service lands, consistent with the Services mission. Specifically, the Organic Act directs the Service to: promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. 54 U.S.C. 100101(a). Accordingly, the Service shall prescribe such regulations as the Secretary considers necessary or proper for the use and management of the System units.

54 U.S.C. 100751(a). This power and responsibility necessarily includes regulation over all mineral development activities that affect Park Service lands. It includes the duty to prevent mineral development activities that would impair park resources, notwithstanding conflicting state laws that would otherwise permit them. See *Kleppe*, 426 U.S. at 546.

B. Fracking Undermines the Services Conservation Mission and Impairs Park Resources

Fracking has scarred grasslands in the North Dakota Bakken region, industrialized rural western Pennsylvania, and threatened the peace and safety of communities all over Texas, New Mexico, and Colorado. While these harms are unacceptable wherever they occur, fracking has no place in our national parks, the crown jewels of our public lands. Fracking threatens to impair numerous park resources, including watersheds, air quality, scenic vistas, wildlife, and recreational opportunities. The following sections detail frackings numerous harms.

1. The Dangers of Hydraulic Fracturing and Horizontal Drilling

Hydraulic fracturing, a dangerous practice in which operators inject toxic fluid underground under extreme pressure to release oil and gas, has greatly increased industry interest in developing tightly held oil and gas deposits. The first aspect of this technique is the hydraulic fracturing of the rock. When the rock is fractured, the resulting cracks in the rock serve as passages through which gas and liquids can flow, increasing the permeability of the fractured area. To fracture the rock, the well operator injects hydraulic fracturing fluid at tremendous pressure. The composition of fracturing fluid has changed over time. Halliburton developed the practice of injecting fluids into wells under high pressure in the late 1940s; however, companies now use permutations of slick-water fracturing fluid developed in the mid-1990s. The main ingredient in modern fracturing fluid (or frack fluid) is generally water, although liquefied petroleum has also been used as a base fluid for modern fracking. The second ingredient is a proppant, typically sand, that becomes wedged in the fractures and holds them open so that passages remain after pressure is relieved. In addition to the base fluid and proppant, a mixture of chemicals are used, for purposes such as increasing the viscosity of the fluid, keeping proppants suspended, impeding bacterial growth or mineral deposition.

Frack fluid is hazardous to human health, although industrys resistance to disclosing the full list of ingredients formulation of frack fluid makes it difficult for the public to know exactly how dangerous. A congressional report sampling incomplete industry self-reports found that [t]he oil and gas service

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companies used hydraulic fracturing products containing 29 chemicals that are (1) known or possible human carcinogens, (2) regulated under the Safe Drinking Water Act for their risks to human health, or (3) listed as hazardous air pollutants under the Clean Air Act. Recently published scientific papers also describe the harmfulness of the chemicals often in fracking fluid. One study reviewed a list of 944 fracking fluid products containing 632 chemicals, 353 of which could be identified with Chemical Abstract Service numbers. The study concluded that more than 75 percent of the chemicals could affect the skin, eyes, and other sensory organs, and the respiratory and gastrointestinal systems; approximately 40 to 50 percent could affect the brain/nervous system, immune and cardiovascular systems, and the kidneys; 37 percent could affect the endocrine system; and 25 percent could cause cancer and mutations. Another study reviewed exposures to fracking chemicals and noted that trimethylbenzenes are among the largest contributors to non-cancer threats for people living within a half mile of a well, while benzene is the largest contributor to cumulative cancer risk for people, regardless of the distance from the wells.

The impacts associated with the fracking-induced oil and gas development boom has caused some jurisdictions to place a moratorium or ban on fracking. For instance, in 2011 France became the first country to ban the practice. In May, Vermont became the first state to ban fracking. Vermont's governor called the ban a big deal and stated that the bill will ensure that we do not inject chemicals into groundwater in a desperate pursuit for energy. New York State halted fracking within its borders in 2008, continued the moratorium in 2014 and banned the practice in 2015, after a seven-year review concluded that fracking posed risks to land, water, natural resources and public health. Also, New Jersey's legislature recently passed a bill that would prevent fracking waste, like toxic wastewater and drill cuttings, from entering its borders, and Pennsylvania, ground zero for the fracking debate, has banned natural-gas exploration across a swath of suburban Philadelphia Numerous cities and communities, like Buffalo, Pittsburgh, Raleigh, Woodstock, and Morgantown have banned fracking.

Separate from hydraulic fracturing, the second technological development underlying the recent shale boom is the use of horizontal drilling. Shale oil and shale gas formations are typically located far below the surface, and as such, the cost of drilling a vertical well to access the layer is high. The shale formation itself is typically a thin layer; however, such that a vertical well only provides access to a small volume of shale-the cylinder of permeability surrounding the well bore. Although hydraulic fracturing increases the radius of this cylinder of shale, this effect is often itself insufficient to allow profitable extraction of shale resources. Horizontal drilling solves this economic problem: by drilling sideways along the shale formation once it is reached, a company can extract resources from a much higher volume of shale for the same amount of drilling through the overburden, drastically increasing the fraction of total well length that passes through producing zones. The practice of combining horizontal drilling with hydraulic fracturing was developed in the early 1990s.

A third technological development is the use of multi-stage fracking. In the 1990s industry began drilling longer and longer horizontal well segments. The difficulty of hydraulic fracturing increases with the length of the well bore to be fractured, however, both because longer well segments are more likely to pass through varied conditions in the rock and because it becomes difficult to create the high pressures required in a larger volume. In 2002 industry began to address these problems by employing multi-stage fracking. In multi-stage fracking, the operator treats only part of the wellbore at a time, typically 300 to 500 feet. Each stage may require 300,000 to 600,000 gallons of water, and consequently, a frack job that is two or more stages can contaminate and pump into the ground over a million gallons of water. In discussing water budgets for fracking operations, the Draft Assessment of

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the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources: Executive Summary states at ES-9:

The national median volume of water used per hydraulically fractured well is approximately 1.5 million gal (5.7 million L), according to the EPA's analysis of FracFocus disclosures. This estimate likely represents a wide variety of fractured well types, including vertical wells that generally use much less water per well than horizontal wells. Thus, published estimates for horizontal shale gas wells are typically higher (e.g., approximately 4 million gallons (Vengosh et al., 2014)).

There is also wide variation within and among states and basins in the median water volumes used per well, from more than 5 million gal (19 million L) in Arkansas, Louisiana and West Virginia to less than 1 million gal (3.8 million L) in California, New Mexico, and Utah, among others. This variation results from several factors, including well length, formation geology, and fracturing fluid formulation.

The above report further addresses flowback, or produced waters, stating at ES-16 that:

The amount of produced water varies, but typically averages 10% to 25% of injected volumes, depending upon the amount of time since fracturing and the particular well (see Figure ES-3a). However, there are exceptions to this, such as in the Barnett Shale in Texas where the total volume of produced water can equal or exceed the injected volume of hydraulic fracturing fluid (see Figure ES-3b).

Flow rates are generally high initially, and then decrease over time throughout oil or gas production. Because a typical fracking operation includes several wells per well pad, the site specific water use can be upwards of 15,000,000 gallons per site and produce nearly 4,000,000 gallons of polluted wastewater which must be stored and disposed of. These water-use impacts and associated risks are substantially greater than those posed by conventional oil and gas production, or even hydraulic fracturing limited to vertical wells.

Notwithstanding the grave impacts that these practices have on the environment, this new combination of multi-stage slickwater hydraulic fracturing and horizontal drilling (hereinafter fracking) has made it possible to profitably extract oil and gas from formations that only a few years ago were generally viewed as uneconomical to develop. The effect of hydraulic fracturing on the oil and gas markets has been tremendous, with many reports documenting the boom in domestic energy production. A recent congressional report notes that [a]s a result of hydraulic fracturing and advances in horizontal drilling technology, natural gas production in 2010 reached the highest level in decades. A 2011 U.S. EIA report notes how recently these changes have occurred, stating that only in the past 5 years has shale gas been recognized as a 'game changer for the U.S. natural gas market. With respect to oil, the EIA notes that oil production has been increasing, with the production of shale oil resources pushing levels even higher over the next decade:

Domestic crude oil production has increased over the past few years, reversing a decline that began in 1986. U.S. crude oil production increased from 5.0 million barrels per day in 2008 to 5.5 million barrels per day in 2010. Over the next 10 years, continued development of tight oil, in combination with the ongoing development of offshore resources in the Gulf of Mexico, pushes domestic crude oil production higher.

Thus, it is evident that fracking, including fracking with the most recent techniques that have been associated with serious adverse impacts in other areas of the country, is poised to expand; it is further

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evident that the oil and gas industry is still exploring new locations to develop, and the nation has not yet seen the full extent of frackings impact on oil and gas development and production.

In large part through the use of fracking, the oil and gas sector is now producing huge amounts of oil and gas throughout the United States, rapidly transforming the domestic energy outlook. Fracking is occurring in the absence of any adequate federal or state oversight. The current informational and regulatory void on the state level makes it even more critical that the Service perform its legal obligations to review, analyze, disclose, and avoid and mitigate the impacts of allowing fracking of non-federal oil and gas on its lands.

2. Fracking Poses Significant Risks to Water Resources.

Oil and gas activities pose significant danger to water resources. This includes harms that are common to oil and gas operations in general, and damages fracking in particular can cause. While much remains to be learned about fracking, it is clear that the practice poses serious threats to water resources. Across the U.S., in states where fracking or other types of unconventional oil and gas recovery has occurred, surface water and groundwater have been contaminated. Recent studies have concluded that water contamination attributed to unconventional oil and gas activity has occurred in several states, including Colorado, Wyoming, Texas, Pennsylvania, Ohio, and West Virginia.

a. Surface Water Contamination

Surface waters can be contaminated in many ways from unconventional well stimulation. In addition to storm water runoff, surface water contamination may also occur from chemical and waste transport, chemical storage leaks, and breaches in pit liners. The spilling or leaking of fracking fluids, flowback, or produced water is a serious problem. Harmful chemicals present in these fluids can include volatile organic compounds (VOCs), such as benzene, toluene, xylenes, and acetone. As much as 25 percent of fracking chemicals are carcinogens, and flowback can even be radioactive. As described below, contaminated surface water can result in many adverse effects to wildlife, agriculture, and human health and safety. It may make waters unsafe for drinking, fishing, swimming and other activities, and may be infeasible to restore the original water quality once surface water is contaminated. The Service should consider this analysis in the EIS.

i. Chemical and Waste Transport

Massive volumes of chemicals and wastewater used or produced in oil and gas operations have the potential to contaminate local watersheds. Between 2,600 to 18,000 gallons of chemicals are injected per hydraulically fracked well depending on the number of chemicals injected. Onshore oil and gas operations in the United States create about 56 million barrels of produced water per day. Texas, for instance, produced 260 billion gallons of wastewater in 2012. California wells produced roughly 3 billion barrels of wastewater in 2011, which is about 15 times the amount of oil the state produced. Approximately 2 billion gallons of wastewater are produced by oil and gas production per year in Colorado. This waste can reach fresh water aquifers and drinking water.

Produced waters that fracking operations force to the surface from deep underground can contain high levels of total dissolved solids, salts, metals, and naturally occurring radioactive materials. Flowback waters (i.e., fracturing fluids that return to the surface) may also contain similar constituents along with fracturing fluid additives such as surfactants and hydrocarbons. Given the massive volumes of chemicals and wastewater produced and their potentially harmful constituents, the potential for

environmental disaster is real.

Fluids must be transported to and/or from the well, which presents opportunities for spills. Unconventional well stimulation relies on numerous trucks to transport chemicals to the site as well as collect and carry disposal fluid from the site to processing facilities. A U.S. Government Accountability Office (GAO) study found that up to 1,365 truck loads can be required just for the drilling and fracturing of a single well pad while the New York Department of Conservation estimated the number of heavy truck trips to be about 3,950 per horizontal well (including unloaded and loaded trucks). Accidents during transit may cause leaks and spills that result in the transported chemicals and fluids reaching surface waters. Chemicals and waste transported by pipeline can also leak or spill. There are also multiple reports of truckers dumping waste uncontained into the environment.

The EIS should evaluate how often accidents can be expected to occur, and the effect of chemical and fluid spills. Such analysis should also include identification of the particular harms faced by communities near oil and gas fields. The EIS must include specific mitigation measures and alternatives based on a cumulative impacts assessment, and the particular vulnerabilities of environmental justice communities in both urban and rural settings.

ii. On-site Chemical Storage and Processing

Thousands of gallons of chemicals can be potentially stored on-site and used during hydraulic fracturing and other unconventional well stimulation activities. These chemicals can be susceptible to accidental spills and leaks. Natural occurrences such as storms and earthquakes may cause accidents, as can negligent operator practices.

Surface pits, in which wastewater is often dumped, are a major source of pollution. In California, a farmer was awarded \$8.5 million in damages after his almond trees died when he irrigated them with well water that had been contaminated by nearby oil and gas operations. The contamination was traced to unlined pits where one of California's largest oil and gas producers for decades dumped billions of gallons of wastewater that slowly leached pollutants into nearby groundwater. Also, New Mexico data shows 743 instances of all types of oil and gas operations polluting groundwater - the source of drinking water for 90 percent of the states residents. Underground waste injection wells are another major threat. This is of particular concern because the U.S. EPA has found that California's Class II underground injection well program to be insufficiently protective of groundwater resources.

Some sites may also use on-site wastewater treatment facilities. Improper use or maintenance of the processing equipment used for these facilities may result in discharges of contaminants. Other spill causes include equipment failure (most commonly, blowout preventer failure, corrosion and failed valves) and failure of container integrity. Spills can result from accidents, negligence, or intentional dumping.

The EIS should examine and quantify the risks to human health and the environment associated with on-site chemical and wastewater storage, including risks from natural events and negligent operator practices. Again, such analysis must also include an analysis of potential impacts faced by environmental justice communities in both rural and urban settings.

b. Groundwater Contamination

Studies have reported many instances around the country of groundwater contamination due to surface spills of oil and gas wastewater, including fracking flowback. Fracking and other unconventional

techniques likewise pose inherent risks to groundwater due to releases below the surface, and these risks must be properly evaluated. Once groundwater is contaminated, it is very difficult, if not impossible, to restore the original quality of the water. As a result, in communities that rely on groundwater drinking water supplies, groundwater contamination can deprive communities of usable drinking water. Such long-term contamination necessitates the costly importation of drinking water supplies.

Groundwater contamination can occur in a number of ways, and the contamination may persist for many years. Poorly constructed or abandoned wells are recognized as one of the most likely ways by which contaminants may reach groundwater. Faulty well construction, cementing, or casing, as well as the injection of fracking waste underground, can all lead to leaks. Improper well construction and surface spills are cited as a confirmed or potential cause of groundwater contamination in numerous incidents at locations across the U.S. including but not limited to Colorado, Wyoming, Pennsylvania, Ohio, West Virginia, and Texas. These sorts of problems at the well are not uncommon. Dr. Ingraffea of Cornell has noted an 8.9 percent failure rate for wells in the Marcellus Shale. Also, the Draft EPA Investigation of Ground Water Contamination near Pavillion, Wyoming, found that chemicals found in samples of groundwater were from fracked wells. These results have been confirmed with follow-up analyses. Moreover, another study based on modeling found that active transport of fracking fluid from a fracked well to an aquifer could occur in less than 10 years.

Mechanical integrity, which refers to an absence of leakage pathways through the casing and cement, can degrade over time, eventually leading to mechanical integrity failures that may impact groundwater. Older wells that may not have been designed to withstand the stresses of hydraulic fracturing but which are reused for this purpose are especially vulnerable.

Current federal rules do not ensure well integrity. The well casing can potentially fail over time and potentially create pathways for contaminants to reach groundwater. Well casing failure can occur due to improper or negligent construction. The EIS should study the rates of well casing failures over time and evaluate the likelihood that well casing failures can lead to groundwater contamination.

Also, fluids may contaminate groundwater by migrating through newly created or natural fractures. . Many unconventional techniques intentionally fracture the formation to increase the flow of gas or oil. New cracks and fissures can allow the additives or naturally occurring elements such as natural gas to migrate to groundwater. [T]he increased deployment of hydraulic fracturing associated with oil and gas production activities, including techniques such as horizontal drilling and multi-well pads, may increase the likelihood that these pathways could develop, which, in turn, could lead to increased opportunities for impacts on drinking water sources. Fluids can also migrate through pre-existing and natural faults and fractures that may become pathways once the fracking or other method has been used.

A well in which stimulation operations are being conducted may also communicate with nearby wells, which may lead to groundwater contamination, particularly if the nearby wells are improperly constructed or abandoned. Nearby active and abandoned wells provide additional pathways for contamination. In the last 150 years, as many as 12 million holes have been drilled across the United States in search of oil and gas, many of which are old and decaying, or are in unknown locations. Fracking can contaminate water resources by intersecting one of those wells. For instance, one study found at least nineteen instances of fluid communication in British Columbia and Western Alberta.

According to the EPA, evidence of any fracturing-related fluid migration affecting a drinking water

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resources&could take years to discover. The EIS must consider long-term studies on the potential for fluid migration through newly created subsurface pathways. Fluid migration is of particular concern when oil and gas operations are close to drinking water supplies.

Groundwater contamination can also occur when fracking fluid or wastewater can also spills at the surface. For instance, mechanical failure or operator error during the fracking process has caused leaks from tanks, valves, and pipes. At the surface, pits or tanks can leak fracking fluid or waste.

Unfiltered drinking water supplies, such as drinking water wells, are especially at risk because they have no readily available means of removing contaminants from the water. Even water wells with filtration systems are not designed to handle the kind of contaminants that result from unconventional oil and gas extraction. In some areas hydraulic fracturing may occur at shallower depths or within the same formation as drinking water resources, resulting in direct aquifer contamination. The EIS must disclose where the potential for such drilling exists.

Setbacks may not be adequate to protect groundwater from potential fracking fluid contamination. A recent study by the University of Colorado at Boulder suggests that setbacks of even up to 300-feet may not prevent contamination of drinking water resources. The study found that 15 organic compounds found in hydraulic fracturing fluids may be of concern as groundwater contaminants based on their toxicity, mobility, persistence in the environment, and frequency of use. These chemicals could have 10 percent or more of their initial concentrations remaining at a transport distance of 300 feet, the average setback distance in the U.S. The effectiveness and feasibility of any proposed setbacks must be evaluated.

c. Contamination from disposal of drilling and fracking wastes

Disposal of wastes from oil and gas operations can also lead to contamination of water resources. Potential sources of contamination include:

- leaching from landfills that receive drilling and fracking solid wastes;
 - spreading of drilling and fracking wastes over large areas of land;
 - wastewaters discharged from treatment facilities without advanced total dissolved solids removal processes, or inadequate capacity to remove radioactive material removal; and
- breaches in pits or underground disposal wells.

The EIS must evaluate the potential for contamination from each of these disposal methods.

d. More Intensive Oil and Gas Development Will Increase Storm Water Runoff

Oil and gas operations require land clearance for access roads, pipelines, well pads, drilling equipment, chemical storage, and waste disposal pits. As a result, new oil and gas development will cause short-term disturbance as well as long-term disturbance within the park system. While undisturbed land can retain greater amounts of water through plants and pervious soil, land that has been disturbed or developed may be unable to retain as much water, thereby increasing the volume of runoff. The area of land that is able to retain water will be significantly decreased if unconventional oil and gas extraction methods are permitted to expand.

Water from precipitation and snowmelt can serve as an avenue through which contaminants travel from an operation site to sensitive areas, including population centers. Contaminated water runoff may seep into residential areas, polluting streets, sidewalks, soil, and vegetation in urban areas, adversely

affecting human health. Thus, not only do these oil and gas activities create pollution, they create greater conduits for storm water runoff to carry those pollutants from the operation site, into areas in which significant harm can be caused.

Rapid runoff, even without contaminants, can harm the environment by changing water flow patterns and causing erosion, habitat loss, and flooding. Greater runoff volumes may also increase the amount of sediment that is carried to lakes and streams, affecting the turbidity and chemical content of surface waters. Because a National Pollutant Discharge Elimination System permit is not required for oil and gas operations, it is particularly important that the impact of runoff is considered as part of the NEPA process.

d. Water Depletion

Some unconventional extraction techniques, most notably fracking, require the use of tremendous amounts of freshwater. Typically between 2 and 5.6 million gallons of water are required to frack each well. Such high levels of water use are unsustainable, especially in arid areas. Water used in large quantities may lead to several kinds of harmful environmental impacts. The extraction of water for fracking can, for example, lower the water table, affect biodiversity, harm local ecosystems, and reduce water available to communities.

Withdrawal of large quantities of freshwater from streams and other surface waters will undoubtedly have an impact on the environment. Withdrawing water from streams will decrease the supply for downstream users, such as farmers or municipalities. Rising demand from oil and gas operators has already led to increased competition for water between farmers and oil and gas operators. With the prolonged drought, some farmers in New Mexico have been forced to sell their water out of the aquifer to the booming oil and gas industry. Reductions in stream flows may also lead to downstream water quality problems by diminishing the water bodies capacity for dilution and degradation of pollutants. The EIS must examine these issues.

Furthermore, withdrawing large quantities of water from subsurface waters to supply oil and gas production will likely deplete and harm aquifers. Removing water from surface water or directly from underground sources of water faster than the rate that aquifers can be replenished will lower the volume of water available for other uses. Depletion can also lead to compaction of the rock formation serving as an aquifer, after which the original level of water volume can never be restored. Depleted aquifer water resources may also adversely affect agriculture, species habitat and ecosystems, and human health.

The freshwater in the area therefore would be greatly affected by the increased demand for water if fracking and other unconventional oil and gas extraction are permitted. A no- fracking alternative would preserve scarce water resources and keep critical sources of drinking water in the NPS park units safe and clean. The EIS must analyze where water will be sourced, how much, and the effects on water sources under different alternatives. All of these effects must be analyzed in the context of increasing water scarcity in New Mexico due to climate change, drought, and increasing population growth.

e. Oil and Gas Developments Harm Aquatic Life and Habitat

When streams and other surface waters are depleted, the habitat for countless plants and animals will be harmed, and the depletion places tremendous pressure on species that depend on having a constant and ample stream of water. Physical habitats such as banks, pools, runs, and glides (low gradient river sections) are important yet susceptible to disturbance with changing stream flows. Altering the volume

of water can also change the waters temperature and oxygen content, harming some species that require a certain level of oxygenated water. Decreasing the volume of streamflow and stream channels by diverting water to fracking would have a negative impact on the environment.

The physical equipment itself that is designed to intake and divert water may also pose a threat to certain wildlife. If not properly designed, such equipment and intake points may be a risk to wildlife.

f. Harm to Wetlands

Oil and gas development, and particularly the practice of fracking, pose an immense threat to water resources. High volume removal of surface or groundwater can result in damage to wetlands, which rely on ample water supplies to maintain the fragile dynamics of a wetland habitat. Damage can also occur from spills of chemicals or wastewater, filling operations, and sediment runoff. Many plant and animal species depend on wetland habitats, and even small changes can lead to significant impacts. Wetlands provide a variety of eco-service functions, including water purification, protection from floods, and functioning as carbon sinks. The ecological importance of wetlands is unquestionable, and their full protection is paramount. The EIS must analyze these potential impacts to wetlands, and the related, potential indirect impacts that may stem from such impacts.

3. Fracking operations harm air quality

Oil and gas operations emit numerous air pollutants, including volatile organic compounds (VOCs), NO_x, particulate matter, hydrogen sulfide, and methane. Fracking operations are particularly harmful, emitting especially large amounts of pollution, including air toxic air pollutants. Permitting fracking and other well stimulation techniques will greatly increase the release of harmful air emissions. Banning fracking would prevent degradation of local air quality, respiratory illnesses, premature deaths, hospital visits, as well as missed school and work days.

a. Types of Air Emissions

Unconventional oil and gas operations emit large amounts of toxic air pollutants, also referred to as Hazardous Air Pollutants, which are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. The reporting requirements recently implemented by the California South Coast Air Quality Management District (SCAQMD) have shown that at least 44 chemicals known to be air toxics have been used in fracking and other types of unconventional oil and gas recovery in California. Through the implementation of these new reporting requirements, it is now known that operators have been using several types of air toxics in California, including crystalline silica, methanol, hydrochloric acid, hydrofluoric acid, 2-butoxyethanol, ethyl glycol monobutyl ether, xylene, amorphous silica fume, aluminum oxide, acrylic polymer, acetophenone, and ethylbenzene. Many of these chemicals also appear on the U.S. EPA's list of hazardous air pollutants. EPA has also identified six criteria air pollutants that must be regulated under the National Ambient Air Quality Standards (NAAQS) due to their potential to cause primary and secondary health effects. Concentrations of these pollutants—ozone, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide and lead—will likely increase in regions where unconventional oil and gas recovery techniques are permitted.

VOCs, from car and truck engines as well as the drilling and completion stages of oil and gas production, make up about 3.5 percent of the gases emitted by oil or gas operations. The VOCs emitted include the BTEX compounds - benzene, toluene, ethyl benzene, and xylene - which are listed as Hazardous Air Pollutants. There is substantial evidence showing the grave harm from these pollutants. Recent studies and reports confirm the pervasive and extensive amount of VOCs emitted by

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unconventional oil and gas extraction. In particular, a study covering sites near oil and gas wells in five different states found that concentrations of eight volatile chemicals, including benzene, formaldehyde and hydrogen sulfide, exceeded risk-based comparison values under several operational circumstances. Another study determined that vehicle traffic and engine exhaust were likely the sources of intermittently high dust and benzene concentrations observed near well pads. Recent studies have found that oil and gas operations are likely responsible for elevated levels of hydrocarbons such as benzene downwind of the Denver-Julesburg Fossil Fuel Basin, north of Denver. Another study found that oil and gas operations in this area emit approximately 55% of the VOCs in northeastern Colorado. VOCs can form ground-level (tropospheric) ozone when combined with nitrogen oxides (NO_x), from compressor engines, turbines, other engines used in drilling, and flaring, and sunlight. This reaction can diminish visibility and air quality and harm vegetation. Tropospheric ozone can also be caused by methane, which is leaked and vented at various stages of unconventional oil and gas development, as it interacts with nitrogen oxides and sunlight. In addition to its role as a greenhouse gas, methane contributes to increased concentrations of ground-level ozone, the primary component of smog, because it is an ozone precursor. Methane's effect on ozone concentrations can be substantial. One paper modeled reductions in various anthropogenic ozone precursor emissions and found that [r]educing anthropogenic CH₄ emissions by 50% nearly halves the incidence of U.S. high-O₃ events Like methane, VOCs and NO_x are also ozone precursors; therefore, many regions around the country with substantial oil and gas operations are now suffering from extreme ozone levels due to heavy emissions of these pollutants. Ozone can result in serious health conditions, including heart and lung disease and mortality. A recent study of ozone pollution in the Uintah Basin of northeastern Utah, a rural area that experiences hazardous tropospheric ozone concentrations, found that oil and gas operations were responsible for 98 to 99 percent of VOCs and 57 to 61 percent of NO_x emitted from sources within the Basin considered in the study's inventory.

Oil and gas operations can also emit hydrogen sulfide. The hydrogen sulfide is contained in the natural gas and makes that gas sour. Hydrogen sulfide may be emitted during all stages of operation, including exploration, extraction, treatment and storage, transportation, and refining. Long-term exposure to hydrogen sulfide is linked to respiratory infections, eye, nose, and throat irritation, breathlessness, nausea, dizziness, confusion, and headaches.

The oil and gas industry is also a major source of particulate matter. The heavy equipment regularly used in the industry burns diesel fuel, generating fine particulate matter that is especially harmful. Vehicles traveling on unpaved roads also kick up fugitive dust, which is particulate matter. Further, both NO_x and VOCs, which as discussed above are heavily emitted by the oil and gas industry, are also particulate matter precursors. Some of the health effects associated with particulate matter exposure are premature mortality, increased hospital admissions and development of chronic respiratory disease.

Fracking results in additional air pollution that can create a severe threat to human health. One analysis found that 37 percent of the chemicals found at fracked gas wells were volatile, and that of those volatile chemicals, 81 percent can harm the brain and nervous system, 71 percent can harm the cardiovascular system and blood, and 66 percent can harm the kidneys. Also, California's South Coast Air Quality Management District has identified three areas of dangerous and unregulated air emissions from fracking: (1) the mixing of the fracking chemicals; (2) the use of the silica, or sand, as a proppant, which causes the deadly disease silicosis; and (3) the storage of fracking fluid once it comes back to the surface. Preparation of the fluids used for well completion often involves onsite mixing of gravel or proppants with fluid, a process which potentially results in major amounts of particulate matter emissions. Further, these proppants often include silica sand, which increases the risk of lung disease and silicosis when inhaled. Finally, as flowback returns to

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the surface and is deposited in pits or tanks that are open to the atmosphere, there is the potential for organic compounds and toxic air pollutants to be emitted, which are harmful to human health as described above.

The EIS should study the potential for oil and gas operations sites in the park system to emit such air toxics and any other pollutants that may pose a risk to human health. The EIS should rely on the most up-to-date information regarding the contribution of oil and gas operations to VOC and air toxics levels.

b. Sources of Air Emissions

Harmful air pollutants are emitted during every stage of unconventional oil and gas recovery, including drilling, completion, well stimulation, production, and disposal. Drilling and casing the wellbore require substantial power from large equipment. The engines used typically run on diesel fuel, which emits particularly harmful types of air pollutants when burned.

Similarly, high-powered pump engines are used in the fracturing and completion phase. This too can amount in large volumes of air pollution. Flaring, venting, and fugitive emissions of gas are also a potential source of air emissions. Gas flaring and venting can occur in both oil and gas recovery processes when underground gas rises to the surface and is not captured as part of production. Fugitive emissions can occur at every stage of extraction and production, often leading to high volumes of gas being released into the air. Methane emissions from oil and gas production is as much as 270 percent greater than previously estimated by calculation. Recent studies show that emissions from pneumatic valves (which control routine operations at the well pad by venting methane during normal operation) and fugitive emissions are higher than EPA estimates. Evaporation from pits can also contribute to air pollution. Pits that store drilling waste, produced water, and other waste fluid may be exposed to the open air. Chemicals mixed with the wastewater-including the additives used to make fracking fluids, as well as volatile hydrocarbons, such as benzene and toluene, brought to the surface with the waste-can escape into the air through evaporation. Some pits are equipped with pumps that spray effluents into the air to hasten the evaporation process. Even where waste fluid is stored in so-called closed loop storage tanks, fugitive emissions can escape from tanks.

As mentioned above, increased truck traffic will lead to more air emissions. Trucks capable of transporting large volumes of chemicals and waste fluid typically use large engines that run on diesel fuel. Air pollutants from truck engines will be emitted not only at the well site, but also along truck routes to and from the site.

c. Impact of Increased Air Pollution

The potential harms resulting from increased exposure to the dangerous air pollutants described above are serious and wide ranging. The negative effects of criteria pollutants are well documented and are summarized by the U.S. EPA's website:

Nitrogen oxides (NO_x) react with ammonia, moisture, and other compounds to form small particles. These small particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. NO and volatile organic compounds react in the presence of heat and sunlight to form ozone.

Particulate matter (PM) - especially fine particles - contains microscopic solids or liquid droplets that

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are so small that they can get deep into the lungs and cause serious health problems. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including: premature death in people with heart or lung disease, increased mortality, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing. Sulfur Dioxide (SO₂) - has been shown to cause an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. Studies also show a connection between short-term exposure and increased visits to emergency departments and hospital admissions for respiratory illnesses, particularly in at-risk populations including children, the elderly, and asthmatics. Carbon Monoxide (CO) can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. At extremely high levels, CO can cause death. Exposure to CO can reduce the oxygen-carrying capacity of the blood.

People with several types of heart disease already have a reduced capacity for pumping oxygenated blood to the heart, which can cause them to experience myocardial ischemia (reduced oxygen to the heart), often accompanied by chest pain (angina), when exercising or under increased stress. For these people, short-term CO exposure further affects their body's already compromised ability to respond to the increased oxygen demands of exercise or exertion. Ozone (O₃) can trigger or worsen asthma and other respiratory ailments. Ground level ozone can have harmful effects on sensitive vegetation and ecosystems. Ozone may also lead to loss of species diversity and changes to habitat quality, water cycles, and nutrient cycles.

Air toxics and hazardous air pollutants, by definition, can result in harm to human health and safety. The full extent of the health effects of exposure is still far from being complete, but already there are numerous studies that have found these chemicals to have serious health consequences for humans exposed to even minimal amounts. The range of illnesses that can result are summarized in a study by Dr. Theo Colburn, which charts which chemicals have been shown to be linked to certain illnesses. Natural gas drilling operations result in the emissions of numerous non-methane hydrocarbons (NMHCs) that have been linked to numerous adverse health effects. A recent study that analyzed air samples taken during drilling operations near natural gas wells and residential areas in Garfield County, detected 57 chemicals between July 2010 and October 2011, including 44 with reported health effects. For example:

Thirty-five chemicals were found to affect the brain/nervous system, 33 the liver/metabolism, and 30 the endocrine system, which includes reproductive and developmental effects. The categories with the next highest numbers of effects were the immune system (28), cardiovascular/blood (27), and the sensory and respiratory systems (25 each). Eight chemicals had health effects in all 12 categories. There were also several chemicals for which no health effect data could be found.

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The study found extremely high levels of methylene chloride, which may be used as cleaning solvents to remove waxy paraffin that is commonly deposited by raw natural gas in the region. These deposits solidify at ambient temperatures and build up on equipment. While none of the detected chemicals exceeded governmental safety thresholds of exposure, the study noted that such thresholds are typically based on "exposure of a grown man encountering relatively high concentrations of a chemical over a brief time period, for example, during occupational exposure." Consequently, such thresholds may not apply to individuals experiencing "chronic, sporadic, low-level exposure," including sensitive populations such as children, the elderly, and pregnant women. For example, the study detected polycyclic aromatic hydrocarbon (PAH) levels that could be of "clinical significance," as recent studies have linked low levels of exposure to lower mental development in children who were prenatally exposed. In addition, government safety standards do not take into account "the kinds of effects found from low-level exposure to endocrine disrupting chemicals..., which can be particularly harmful during prenatal development and childhood.

The EIS should incorporate a literature review of the harmful effects of each of these chemicals known to be used in fracking and other unconventional oil and gas extraction methods. Without knowing the effects of each chemical, the EIS cannot accurately project the true impact of unconventional oil and gas extraction.

d. Air Modeling

The Service should use air modeling to understand what areas and communities will most likely be

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affected by air pollution. It is crucial to gather independent data rather than relying on industry estimates, which may be inaccurate or biased. Wind and weather patterns, and atmospheric chemistry, determine the fate and transport of air pollution over a region, over time. The EIS should be informed by air modeling to show where the air pollution will flow.

4. Fracking worsens the problem of climate change.

Expansion of fossil fuel production from fracking will substantially increase the volume of greenhouse gases emitted into the atmosphere and jeopardize the environment and the health and well being of future generations. The Service's non-impairment mandate requires the Service to limit the climate change effects of its actions. Banning fracking would potentially lock away millions of tons of greenhouse gas pollution and limit the destructive effects of these practices.

In order to avoid catastrophic climate change, the Service must reduce, rather than increase, greenhouse gas emissions. This requires halting all new fracking on Park Service lands, which would be a responsible step towards slowing the effects of climate change. The internationally agreed-on target for avoiding dangerous climate change and its disastrous consequences is limiting average global temperature rise caused by greenhouse gas pollution to two degrees Celsius (2°C), or 3.6 degrees Fahrenheit. Climate experts have estimated that the world can emit 1,000 gigatons of carbon dioxide (1,000 GtCO₂ or 1 trillion tons of CO₂) after 2010 to have a reasonable chance of staying below 2°C of warming. Given uncertainties, coupled with the dire predictions of climate change impacts, a more conservative carbon budget would be more prudent. Nonetheless, using this budget, the IPCC has found that proven fossil fuel reserves amount to four to seven times more than what we can afford to burn, to have only a likely chance of staying within the 2°C target. In short, the vast majority of proven reserves must be kept in the ground for preserving a livable planet. Minimizing new fossil fuel production is critical. Opening up new areas to extraction and allowing more fracking, on the other hand, runs completely counter to slowing the effects of climate change.

The Service cannot ignore the mounting evidence proving that oil and gas operations are a major cause of climate change. This is due to emissions from the operations themselves, and emissions from the combustion of the oil and gas produced. Every step of the lifecycle process for development of these resources results in significant carbon emissions, including but not limited to:

End-user oil and gas combustion emissions. The combustion of extracted oil, gas, and coal will add vast amounts of carbon dioxide to the atmosphere, further heating the climate and moving the Earth closer to catastrophic and irreversible climate change.

Though much of the oil is used as gasoline to fuel the transportation sector, the produced oil may also be used in other types of products. The EIS should study all end-uses as contributors to climate change. Combustion in the distribution of product. To the extent that distribution of raw and end-use products will rely on rail or trucks, the combustion of gasoline or diesel to transport these products will emit significant greenhouse gas emissions.

Emissions from Refineries and Production. Oil and gas must undergo intensive refinery and production processes before the product is ready for consumption. Refineries and their auxiliary activities constitute a significant source of emissions.

Vented emissions. Oil and gas wells and coal mining operations may vent gas that flows to the surface at times where the gas cannot otherwise be captured and sold. Vented gas is a significant source of

greenhouse gas emissions and can also pose a safety hazard.

Combustion during construction and extraction operations. Operators rely on both mobile and stationary sources of power to construct and run their sites. The engines of drilling or excavation equipment, pumps, trucks, conveyors, and other types of equipment burn large amounts of fuel to operate. Carbon dioxide, methane, and nitrous oxide (another potent greenhouse gas) are emitted from oxidized fuel during the combustion process. Engines emit greenhouse gases during all stages of oil and gas recovery, including drilling rig mobilization, site preparation and demobilization, completion rig mobilization and demobilization, well drilling, well completion (including fracking and other unconventional extraction techniques), and well production. Transportation of equipment and chemicals to and from the site is an integral part of the production process and contributes to greenhouse gas emissions. Gas flaring is another important source of carbon dioxide emissions.

Fugitive emissions. Potent greenhouse gases can leak as fugitive emissions at many different points in the production process, especially in the production of gas wells. Recent studies suggest that previous estimates significantly underestimate leakage rates. Natural gas emissions are generally about 84 percent methane. Methane is a potent greenhouse gas that contributes substantially to global climate change. Its global warming potential is approximately 34 times that of carbon dioxide over a 100 year time frame and at least 86 times that of carbon dioxide over a 20 year time frame. Oil and gas operations release large amounts of methane. While the exact amount is not clear, EPA has estimated that "oil and gas systems are the largest human-made source of methane emissions and account for 37 percent of methane emissions in the United States and is expected to be one of the most rapidly growing sources of anthropogenic methane emissions in the coming decades." That proportion is based on an estimated calculation of methane emissions, rather than measured actual emissions, which indicate that methane emissions may be much greater in volume than calculated. For natural gas operations, production generates the largest amount; however, these emissions occur in all sectors of the natural gas industry, from drilling and production, to processing, transmission, and distribution. Fracked wells leak an especially large amount of methane, with some evidence indicating that the leakage rate is so high that shale gas is worse for the climate than coal. In fact, a research team associated with the National Oceanic and Atmospheric Administration recently reported that preliminary results from a field study in the Uinta Basin of Utah suggest that the field leaked methane at an eye-popping rate of nine percent of total production. For the oil industry, emissions result "primarily from field production operations...,oil storage tanks, and production-related equipment...." Emissions are released as planned, during normal operations and unexpectedly due to leaks and system upsets. Significant sources of emissions include well venting and flaring, pneumatic devices, dehydrators and pumps, and compressors. The EIS must consider a no fracking ban and its climate-change benefits against the impacts of allowing new fracking, and address the following:

a. Sources of Greenhouse Gases

In performing a full analysis of climate impacts, the Service must consider all potential sources of greenhouse gas emissions (e.g. greenhouse gas emissions generated by transporting large amounts of water for fracking). The Service should also perform a full analysis of all gas emissions that contribute to climate change, including methane and carbon dioxide. The EIS should calculate the amount of greenhouse gas that will result on an annual basis from (1) each of the fossil fuels that can be developed within each Park Service unit, (2) each of the well stimulation or other extraction methods that can be used, including, but not limited to, fracking, acidization, acid fracking, and gravel packing, and (3) cumulative greenhouse gas emissions expected over the long term (expressed in global warming potential of each greenhouse pollutant as

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well as CO equivalent), including emissions throughout the entire fossil fuel lifecycle discussed above.

b. Effects of Climate Change

In addition to quantifying the total emissions that would result from allowing fracking, an EIS should consider the environmental impacts of these emissions, resulting from climate disruption's ecological and social effects. Release of greenhouse gases (from extraction, leakage, and downstream combustion) is not merely a reasonably foreseeable consequence of fracking extraction, it is the necessary and intended consequence. CEQ and the courts have repeatedly cautioned federal agencies that they cannot ignore either climate change generally, or the combustion impacts of fossil fuel extraction in particular. Although cost-benefit analysis is not necessarily the ideal or exclusive method for assessing contributions to an adverse effect as enormous, uncertain, and potentially catastrophic as climate change, the Service does have tools available to provide one approximation of external costs and has previously performed a "social cost of carbon" analysis in prior environmental reviews. A BLM internal memo identifies one available analytical tool: "For federal agencies the authoritative estimates of [social cost of carbon] are provided by the 2013 technical report of the Interagency Working Group on Social Cost of Carbon, which was convened by the Council of Economic Advisers and the Office of Management and Budget." As explained in that report:

The purpose of the "social cost of carbon" (SCC) estimates presented here is to allow agencies to incorporate the social benefits of reducing carbon dioxide (CO₂) emissions into cost-benefit analyses of regulatory actions that impact cumulative global emissions. The SCC is an estimate of the monetized damages associated with an incremental increase in carbon emissions in a given year. It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change.

Development of unconventional wells could exact extraordinary financial costs to communities and future generations, setting aside the immeasurable loss of irreplaceable, natural values that can never be recovered. The EIS must provide an accounting of these potential costs in addition to the social cost of carbon.

Development of non-federal oil and gas resources will fuel climate disruption and undercut the needed transition to a clean energy economy. A no-fracking alternative is, therefore, not only reasonable but also imperative. The Service would be remiss to continue permitting oil and gas development when it has never stepped back and taken a hard look at this problem at the appropriate scale. Before allowing more oil and gas extraction, the Service must: (1) comprehensively analyze the total greenhouse gas emissions which result from past, present, and potential future fossil fuel permitting and all other activities on its lands, (2) consider their cumulative significance in the context of global climate change, carbon budgets, and other greenhouse gas pollution sources outside the park system, and (3) formulate measures that avoid or limit their climate change effects. By continuing oil and gas permitting, including fracking operations, in the absence of any overall plan addressing climate change the Service is effectively burying its head in the sand.

5. Impacts to Sensitive Species and Wildlife

The expansion of oil and gas development activities will harm wildlife through habitat destruction and fragmentation, stress and displacement caused by development-related activities (e.g., construction and operation activities, truck traffic, noise and light pollution), surface water depletion leading to low stream flows, water and air contamination, introduction of invasive species, and climate change. These

harms can result in negative health effects and population declines. Studies and reports of observed impacts to wildlife from unconventional oil and gas extraction activities are summarized in the Center's "Review of Impacts of Oil and Gas Exploration and Development on Wildlife," submitted herewith. Because the allowance of destructive oil and gas extraction runs contrary the Service's mandate to conserve wildlife a no- fracking alternative minimizing industrial development and its harmful effects on wildlife must be considered.

a. Habitat Loss

Oil and gas development creates a network of well pads, roads, pipelines, and other infrastructure that lead to direct habitat loss and fragmentation, as well as displacement of wildlife from these areas due to increased human disturbance. Habitat loss occurs as a result of a reduction in the total area of the habitat, the decrease of the interior-to-edge ratio, isolation of one habitat fragment from another, breaking up of one habitat into several smaller patches of habitat, and decreasing the average size of a habitat patch. New research has revealed the extent of this habitat loss. For example, in the western United States, the amount of high-quality habitat for the pronghorn has shrunk drastically due to oil and gas development.

The indirect effects from unconventional oil and gas development can often be far greater than the direct disturbances to habitat. The impacts from the well site--including noise, light, and pollution--extend beyond the borders of the operation site and will consequently render even greater areas uninhabitable for some wildlife. Species dependent on having an "interior" habitat will lose their habitat as operation sites or other infrastructure fragment previously buffered and secluded areas. These and other indirect effects can be far greater than the direct disturbances to land. In the Marcellus shale of Pennsylvania, for instance, research shows that 8.8 acres of forest on average are cleared for each drilling pad along with associated infrastructure, but after accounting for ecological edge effects, each drilling station actually affected 30 acres of forest.

While individual well sites may cause some disturbance and destruction, the cumulative impacts of oil and gas production using unconventional methods must receive attention as well. While the actual well pads may only occupy a small proportion of a particular habitat, their impact can be much greater when their aggregate impact is considered. As discussed above, interior habitats will be destroyed by removing the buffer between the interior habitat and the operation site.

b. Water Depletion

Water depletion also affects species whose habitats are far removed from the actual well site. Because of the high volume of water required for even a single well that uses unconventional extraction methods, the cumulative water depletion has a significant impact on species that rely on water sources that serve to supply oil and gas operations. In addition, water depletion adversely impacts water temperature and chemistry, as well as amplifies the effects of harmful pollutants on wildlife that would otherwise be diluted without the depletion.

Hydraulic fracturing and horizontal drilling require water volumes that far exceed the amounts used in conventional natural gas development. The Service must take into account the much higher fresh water requirements of these practices.

c. Contamination from Wastewater Causing Harm and Mortality

Accidental spills or intentional dumping of wastewater contaminate surface water and cause large-scale harm to wildlife. Numerous incidents of wastewater contamination from pipelines, equipment blowouts, and truck accidents have been reported, and have resulted in kills of fish, aquatic invertebrates, and trees and shrubs, as well as negative health effects for wildlife and domestic animals. Contamination incidents that have occurred actually demonstrate that wildlife harm from contamination is a real, not just theoretical, impact that must be considered. In 2013, a company admitted to dumping wastewater from fracking operations into the Acorn Fork Creek in Kentucky, causing a massive fish kill. Among the species harmed was the blackside dace, a threatened minnow species. An analysis of water quality of Acorn Creek and fish tissues taken shortly after the incident was exposed showed the fish displayed general signs of stress and had a higher rate of gill lesions, than fish in areas not affected by the dumping. The discharge of fracking wastewater into the Susquehanna River in Pennsylvania is suspected to be the cause of fish abnormalities, including high rates of spots, lesions, and intersex. In West Virginia, the permitted application of hydrofracturing fluid to an area of mixed hardwood forest caused extensive tree mortality and a 50-fold increase in surface soil concentrations of sodium and chloride.

In addition, open air pits that store waste fluid pose risks for wildlife that may come into contact with the chemicals stored in the pits. Already, there have been several documented cases of animal mortality resulting from contact with pits. A field inspection of open pits in Wyoming found 269 bird carcasses, the likely cause of death being exposure to toxic chemicals stored in the open pits. Open pits can also serve as breeding grounds for mosquitoes, which serve as a vector for West Nile virus, a threat to humans and animals alike. In Wyoming, an increase of ponds led to an increase of West Nile virus among greater sage-grouse populations. Recently, new information has come to light that operators in California have been dumping wastewater into hundreds of unpermitted open pits. The EIS must take into account the impact of any existing pits that are grandfathered under the proposed regulations.

d. Invasive Species

Invasive species may be introduced through a variety of pathways that would be increasingly common if oil and gas activity is allowed to expand. Machinery, equipment, and trucks moved from site to site can carry invasive plant species to new areas. In addition, materials such as crushed stone or gravel transported to the site from other locations may serve as a conduit for invasive species to migrate to the well site or other areas en route.

Aquatic invasive species may also spread more easily given the large amounts of freshwater that must be transported to accommodate new drilling and extraction techniques. These species may be inadvertently introduced to new habitats when water is discharged at the surface. Alternatively, hoses, trucks, tanks, and other water use equipment may function as conduits for aquatic invasive species to access new habitats.

e. Climate Change

Anthropogenic climate change poses a significant threat to biodiversity. Climate disruption is already causing changes in distribution, phenology, physiology, genetics, species interactions, ecosystem services, demographic rates, and population viability: many animals and plants are moving poleward and upward in elevation, shifting their timing of breeding and migration, and experiencing population declines and extinctions. Because climate change is occurring at an unprecedented pace with multiple synergistic impacts, climate change is predicted to significantly increase extinction risk for many

species. The IPCC concludes that it is extremely likely that climate change at or above 4°C will result in substantial special extinction. Other studies have predicted similarly severe losses: 15-37 percent of the world's plants and animals committed to extinction by 2050 under a mid-level emissions scenario ; the extinction of 10 to 14 percent of species by 2100 if climate change continues unabated. Another recent study predicts the loss of more than half of the present climatic range for 58 percent of plants and 35 percent of animals by the 2080s under the current emissions pathway, in a sample of 48,786 species. Because expansion of oil and gas production in the areas subject to fracking will substantially increase the emissions of greenhouse gases, this activity will further contribute to the harms from climate change to wildlife and ecosystems.

f. Population-level Impacts

Oil and gas development has been linked to population-level impacts on wildlife, including lower reproductive success of sage grouse and declines in the abundance of songbirds and aquatic species. For example, young greater-sage grouse avoided mating near infrastructure of natural-gas fields, and those that were reared near infrastructure had lower annual survival rates and were less successful at establishing breeding territories compared to those reared away from infrastructure. In Wyoming, an increasing density of wells was associated with decreased numbers of Brewer's sparrows, sage sparrows, and vesper sparrows. In the Fayetteville Shale of central Arkansas, the proportional abundance of sensitive aquatic taxa, including darters, was negatively correlated with gas well density. The EIS must consider the population-level impacts that oil and gas development may have on wildlife in non-federal oil and gas areas that may be developed.

g. Endangered, Threatened, and Sensitive Species

The Service must use the existing readily available data to identify which sensitive species that are of critical concern with regards to the lands included in, or in immediate proximity to, the areas in which fracking operations could be conducted. The EIS must discuss any impacts to such species.

In addition, under section 7(a)(1) of the Endangered Species Act (ESA), the Service has an obligation to "utilize their authorities in furtherance of the purposes of [the ESA]" as it relates to fracking and conservation of species:

The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this chapter. All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 1533 of this title.

16 U.S.C. § 1536(a)(1). This "clear statutory directive" not only requires the Service to ensure that the 9B regulations avoid adverse impacts to listed species but that it adopt "substantive conservation programs for [listed] species." See *Sierra Club v. Glickman*, 156 F.3d 606, 617, 618 (5th Cir. 1998). The proposed rule must address how listed species will be conserved in areas impacted by fracking and other oil and gas activities.

h. Metrics

The Service should conduct a full assessment of the direct and indirect impacts of unconventional oil and gas development activities on wildlife and ecosystems through a suite of comprehensive studies on

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all species and ecosystems that could be affected. The studies should be particularly detailed for federally and state listed species, federal and state candidates for listing, and state species of special concern. The studies should address the following impacts:

(1) habitat loss, degradation, and fragmentation, including edge effects; (2) water depletion; (3) air and water contamination; (4) introduction of invasive species; (5) climate change impacts; (6) health and behavioral effects such as increased stress and changes in life history behaviors; (7) changes in demographic rates such as reproductive success and survival; and (8) potential for population-level impacts such as declines and extirpations. These studies should consider these harms individually and cumulatively.

6. Unconventional Extraction Techniques and Underground Wastewater Disposal Pose Seismic Risks

If fracking is allowed to continue in the NPS units, increased unconventional oil and gas extraction and underground waste injection will increase the risk of induced seismicity. Induced seismic events could damage or destroy property and cause injuries or even death, especially in a state where earthquakes are rare and communities are typically not prepared for them. A no-fracking alternative would minimize these risks, while continued unconventional well development would increase them.

Research has shown that in regions of the central and eastern United States where unconventional oil and gas development has proliferated in recent years, earthquake activity has increased dramatically. More than 300 earthquakes with magnitude (M) ≥ 3 occurred between 2010 through 2012, compared with an average of 21 per year between 1967 and 2000. Moreover, although earthquakes with magnitude (M) ≥ 5.0 are very uncommon east of the Rocky Mountains, the number per year recorded in the midcontinent increased 11-fold between 2008 and 2011, compared to 1976 to 2007. Mid-continent states experiencing elevated levels of seismic activity include Arkansas, Colorado, New Mexico, Ohio, Oklahoma, Texas, and Virginia. Research has linked much of the increased earthquake activity and several of the largest earthquakes in the U.S. midcontinent in recent years to the disposal of wastewater into deep injection wells, which is well-established to pose a significant seismic risk. Much of the fracking wastewater is a byproduct of oil and gas production and is routinely disposed of by injection into wells specifically designed and approved for this purpose. The injected fluids push stable faults past their tipping points, and thereby induce earthquakes. In 2015, a study published in *Science* found that, the unprecedented increase in earthquakes in the U.S. mid- continent began in 2009 has been caused solely by the instability caused by fluid injection wells associated with fracking waste disposal. To put an exclamation point on this finding, a 4.7 magnitude earthquake struck northern Oklahoma that was felt in 7 additional states, leading the Oklahoma Geological Survey to reiterate the connection between disposal wells and earthquakes and to shut down the most high risk wells. Earthquakes at magnitudes (M) that are felt ($M3$ and $M4$) or destructive ($M4$ and $M5$) have been attributed to wastewater injection wells in at least five states - Arkansas, Colorado, Ohio, Oklahoma, and Texas. The largest of these was a $M5.7$ earthquake in Prague, Oklahoma, which was the biggest in the state's history, destroying 14 homes and injuring two people. Other large earthquakes attributed to wastewater injection include an $M5.3$ in Colorado, $M4.9$ in Texas, $M4.7$ in Arkansas, and $M3.9$ in Ohio.

The proliferation of unconventional oil and gas development, including increases in extraction and injection, will increase earthquake risk in areas susceptible to induced seismicity. Accordingly, the EIS must fully assess the risk of induced seismicity caused by all unconventional oil and gas extraction and injection activities, including wastewater injection wells.

The analysis should assess the following issues based on guidance from the scientific literature, the National Research Council, and the Department of Energy :

- (1) whether existing oil and gas wells and wastewater injection wells in the area covered by the RMP have induced seismic activity, using earthquake catalogs (which provide an inventory of earthquakes of differing magnitudes) and fluid extraction and injection data collected by industry;
- (2) the region's fault environment by identifying and characterizing all faults in these areas based on sources including but not limited to the USGS Quaternary Fault and Fold database and the most recent Colorado Geological Survey Fault Activity Map GIS layer. In its analysis, the Service should assess its ability to identify all faults in these areas, including strike-slip faults and deep faults that can be difficult to detect;
- (3) the background seismicity of oil- and gas-bearing lands including the history of earthquake size and frequency, fault structure (including orientation of faults), seismicity rates, failure mechanisms, and state of stress of faults;
- (4) the geology of oil- and gas-bearing lands including pore pressure, formation permeability, and hydrological connectivity to deeper faults;
- (5) the hazards to human communities and infrastructure from induced seismic activity; and
- (6) the current state of knowledge on important questions related to the risk and hazards of induced seismicity from oil and gas development activities, including:
 - (a) how the distance from a well to a fault affects seismic risk (i.e., locating wells in close proximity to faults can increase the risk of inducing earthquakes);
 - (b) how fluid injection and extraction volumes, rates, and pressures affect seismic risk;
 - (c) how the density of wells affects seismic risk (i.e., a greater density of wells affects a greater volume of the subsurface and potentially contacts more areas of a single fault or a greater number of faults);
 - (d) the time period following the initiation of injection or extraction activities over which earthquakes can be induced (i.e., studies indicate that induced seismicity often occurs within months of initiation of extraction or injection although there are cases demonstrating multi-year delays);
 - (e) how stopping extraction or injection activities affects induced seismicity (i.e., can induced seismicity be turned off by stopping extraction and injection and over what period, since studies indicate that there are often delays--sometimes more than a year--between the termination of extraction and injection activities and the cessation of induced earthquake activity);
 - (f) the largest earthquake that could be induced by unconventional oil and gas development activities in areas covered by the RMP, including earthquakes caused by wastewater injection; and
 - (g) whether active and abandoned wells are safe from damage from earthquake activity over the short and long-term.

C. Mineral Rights Are Not Absolute Property Rights

The Service's EIS and proposed rulemaking notice suggest incorrectly that non-federal mineral owners whose minerals are within the park boundary have an absolute right to extract their minerals, including via fracking. See 80 Fed. Reg. 65575 (Service has "never, in the more than 35 years of applying this subpart, denied prospective operators access to exercise their non- federal oil and gas rights. We will continue to work with operators to ensure they have reasonable access to their operations and that park resources and values are protected without resulting in a taking...."); DEIS at 73 (noting rulemaking's "objective of providing owners and operators of private oil and gas rights reasonable access for exploration, production, maintenance, and surface reclamation"). Rather than starting from a premise that all operators should be accommodated, the Service's first priority should be to limit harmful and dangerous oil and gas

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activities that impair park resources, such as fracking. Mineral owners' bundle of rights do not include the right to cause unreasonable harm to park resources, and the Service is well within its statutory rights to strictly regulate means of mineral extraction, including prohibiting use of extraction techniques not proven safe.

It is a long-standing and uniform principle of oil and gas law that the right of the mineral interest to cause harm to surface interests is limited, and alternative means of surface access must be weighed against the harm to the surface owner. Mineral owners do not have an absolute right to conduct hydraulic fracturing operations on Park Service lands. The Service's statutory authority and regulations require it to "impose reasonable regulations on activities which involve and affect federally-owned surface lands. It is an eminently reasonable exercise of this authority to decline authorization for hydraulic fracturing and other unconventional stimulation techniques on Park Service lands until such time as those techniques can be proven to be safe to the health, environment, and Park resources. Nor are mineral owners owed compensation for the value of their mineral rights if they are denied the ability to drill or frack as part of reasonable regulation of surface activities. More likely than not, in the vast majority of cases, a moratorium on fracking to protect health, the environment, and park resources could not result in a regulatory taking warranting compensation to the owner. See, e.g., *City of Houston. v. Trail Enters.*, 377 S.W.3d 873 (Tex. App. 2012) (rejecting taking claim against drilling ban near lake).

Because, as detailed above, hydraulic fracturing and other unconventional extraction techniques pose significant and insufficiently understood risks to public health, the environment, and National Park System values and resources, the Park Service has both the authority and the duty to exclude such methods from the National Park System. In the unlikely event that a mineral owner may succeed in a claim for compensation for the value of his or her minerals, the Service could craft a limited exception for the operation conditioned on strict mitigation offset and monitoring requirements, buy out the owner's mineral rights, or pay court-ordered compensation. This approach of restricting fracking to the maximum extent possible is mandated by the Service's duty to "conserve the scenery, natural and historic objects, and wild life in the system units and to provide for [their] enjoyment...in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." At the very least, the Service should prohibit fracking and other unconventional well stimulation techniques until their complete safety to the Parks' trust resources can be proven.

1. In Most Cases, a Fracking Ban Would Not Result in a Categorical Taking under Lucas

Mineral owners seeking to prove that a prohibition on fracking has effected a taking of their property would bear a "heavy burden" in proving this claim. *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 493 (1987). Regulation of fracking on mineral rights underlying Park System land would plainly not be a confiscation of the mineral right or per se taking, but rather an exercise of the Government's dual authority as surface owner and sovereign. Under such circumstances, the threshold questions for determining which test applies are: (1) whether the regulated activity is permissible in the first place under "background principles" of property or nuisance law, and (2) whether the regulation "deprives land of all economically beneficial use." *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1027 (1992) (emphasis added).

Engaging in oil and gas operations that would constitute a common law nuisance or destroy public trust resources are not protected property rights in the first place.

If the regulation does not result in a "complete elimination of value" or a "total loss," then the Court's

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multi-factor balancing test formulated in *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 applies. *Lucas*, 505 U.S. at 1019-1020 n.8. Otherwise, the categorical rule under *Lucas* applies: A statute that "wholly eliminate[s] the value" of land qualifies as a taking unless the regulated activity is already proscribed under "background principles" of state property or nuisance laws. See *id.* at 1027, 1029. The Takings Clause prohibits appropriation of property or total elimination of value; it does not guarantee property owners freedom from all regulation, nor the most profitable of all possible means of realizing value. See *Keystone Bituminous Coal Ass'n*, 480 U.S. at 496-97.

In determining whether the owner's fee simple title value has been wholly eliminated, the court looks to the value of the "parcel as a whole." *Tahoe-Sierra Pres. Council v. Tahoe Reg'l Planning Agency*, 535 U.S. 302, 331 (2002); *Penn Central Trans. Co. v. New York City*, 438 U.S. 104, 131 (1978) ("Taking" jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated."). In other words, the economic impact of a regulation is measured against the value of the whole parcel, including the surface and mineral estate. See *Keystone Bituminous Coal Ass'n v. DeBenedictis*, 480 U.S. 470, 501 (1987) (restriction on removing coal from "support estate" (coal left in place to prevent subsidence) was not a taking, despite support estate being a separate property right under state law); see also *Andrus v. Allard*, 444 U.S. 51, 65-66 (1979) ("[T]he denial of one traditional property right does not always amount to a taking. At least where an owner possesses a full bundle of property rights, the destruction of one strand of the bundle is not a taking, because the aggregate must be viewed in its entirety."). Thus, a moratorium on fracking until its safety is proven would not deprive inholding operators who owned both surface and mineral rights the entire use of their property, where other surface uses of the parcel were still available.

The Supreme Court has not addressed what is the proper "denominator" or "full bundle of property rights" when split estate or severed mineral rights are at issue. The one federal court that has squarely addressed this issue has found that the "whole parcel" consists of exactly that- - both the severed mineral interests and the surface rights despite the split ownership. See *Mid Gulf v. Bishop*, 792 F. Supp. 1205, 1214 (D. Kan. 1992) (value of oil and gas leaseholder's interest not considered separately from value of surface). Such an approach avoids defeat of the state's regulatory power where it would otherwise exist if the surface and mineral rights were unsevered. A property owner should not be able to avoid regulation of mineral extraction activities by splitting the estate. See *Pa. Coal Co. v. Mahon*, 260 U.S. 393, 419 (1922) (Brandeis, J., dissenting) ("The rights of an owner as against the public are not increased by dividing the interests in his property into surface and subsoil. The sum of the rights in the parties can not be greater than the rights in the whole.").

Even if the "whole parcel" consists of just the severed mineral rights, where the owner retains some ability to develop minerals, the regulation does not deny the owner of "all economically beneficial use" of these rights. See *Machipongo Land & Coal Co. v. Dep't of Env'tl. Prot.*, 569 Pa. 3, 35, 799 A.2d 751, 769-70 (2002) (no categorical taking under *Lucas*, in part, because restriction on coal extraction did not affect owner's ability to develop gas); cf. *Tarrant Cty. Water Control & Improvement Dist. No. One v. Haupt, Inc.*, 854 S.W.2d 909, 913 (Tex. 1993) (no taking where alternative means to develop minerals available while accommodating surface owner's use). In the case of a fracking moratorium, an owner would not be denied all economically beneficial use where it could develop or had developed minerals without fracking. Thus, that a particular technique for exploiting the mineral estate could not be utilized--e.g., shale gas fracking--would not necessarily result in a taking.

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2. Even Where Lucas Applies, the Service May Impose Restrictions Arising Under Property or Nuisance Law.

In the rare instance where an owner is deprived of all beneficial use of his or her property, compensation to the owner would still not be required if the challenged property restrictions are rooted in (1) background principles of the States law of property; or (2) nuisance [law] already placed upon land ownership. See *Lucas*, 505 U.S. at 1029. This is because such 'background principles may place pre-existing limitations on the property owners title. *Air Pegasus of D.C., Inc. v. United States*, 424 F.3d 1206, 1211 (Fed. Cir. 2005) (citing *Lucas*, 505 U.S. at 1028-29). Where federal property is concerned, background principles of federal property law also operate to restrict these activities. Cf. *id.*, 424 F.3d at 1218 (finding claimant lacked private property right in the navigable air space of the U.S. under 'background principles of long-standing federal property law).

Background principles under property law include the state and federal public trust doctrines, which could prohibit activities that pollute groundwater and surface waters or otherwise interfere with uses protected by the public trust. See, e.g., *New Mexico v. GE*, 467 F.3d 1223, 1243 (10th Cir. 2006) (New Mexico public trust doctrine protects groundwater resources from contamination); *Esplanade Properties, LLC v. City of Seattle*, 307 F.3d 978, 986-87 (9th Cir. 2002) (public trust doctrine operated to restrict development on shoreline near public park that would have interfered with public recreational uses, and thus claimants development plans never constituted a legally permissible use); *Aztec Minerals Corp. v. Romer*, 940 P.2d 1025, 1031-32 (Colo. App. 1996) (right to pollute or contaminate streams or property is not part of the bundle of rights that are commonly characterized as

property); Machipongo Land and Coal Co., 569 Pa at 40-42 (causing water pollution prohibited by statute or principles of publicnuisance is not a compensable property right); State v. Sour Mountain Realty, Inc., 276 A.D.2d 8, 16 (N.Y.A.D. 2000) (taking does not occur when government exercises its police power to protect public trust in wild animals). The courts have recognized that, in the case of National Park System lands, trust and statutory responsibilities are indistinguishable.

State laws governing environmental protection may also operate to restrict an owners allowable activities in exploiting a property right. See Rith Energy, Inc. v. United States, 44 Fed. Cl. 108, 115 (1999) (denial of permit due to high probability of acid mine drainage into aquifer was exercise of regulatory authority indistinguishable in purpose and result from which plaintiff was always subject under state nuisance law embodied in Tennessee's water quality control statute); see also Palazzolo v. Rhode Island, 503 U.S. 606, 629 (2001) (remanding for determination of when a legislative enactment can be deemed a background principle of state law). As described above, fracking presents serious risks to drinking water and surface water, due to the intentional creation of underground fractures through which methane and fracking chemicals may migrate to neighboring aquifers or the surface. Fracking and horizontal drilling also pose higher risks of well failure than conventional wells. Further, increased use, storage, and transport of millions of gallons of fracking chemicals, produced water, and other wastewaters results in a significant risk of spills and leaks that could contaminate water resources.

State nuisance law may also protect against the many disturbances associated with fracking operations, including groundwater and surface contamination, air pollution, increased vehicle traffic, noise, lighting, risk of accidents, and invasive vegetation. Generally, public nuisance claims are brought to abate an activity which significantly interferes with the public health, the public safety, the public peace, the public comfort or the public convenience. See Restatement 2d of Torts, 821B (2nd ed. 1979); see, e.g., Flo-Sun, Inc. v. Kirk, 783 So. 2d 1029, 1036 (Fla. 2001) (public nuisance under Florida law is any annoyance to the community or harm to public health). These state laws are not limited to abating those activities traditionally considered nuisances. Changed circumstances or new knowledge may make what was previously permissible no longer so. Lucas, 505 U.S. at 1031. Ample information, including new knowledge about the induced seismicity and other public health risks of fracking operations, see section III.B above, warrant deeming fracking operations on sensitive parklands a public nuisance under both state and federal common law. The Service is well-equipped to make extensive findings to this effect in support of a fracking ban.

3. Owners Also Bear a Heavy Burden for Proving a Taking Under Penn Central.

A determination that a regulation results in anything less than a 'complete elimination of value or a 'total loss would require application of the Penn Central test. See Tahoe-Sierra Pres. Council, 535 U.S. at 330 (citing Lucas, 505 U.S. at 1019-1020, n. 8). This test involves balancing a complex of factors, including [1] the regulation's economic effect on the landowner, [2] the extent to which the regulation interferes with reasonable investment-backed expectations, and [3] the character of the government action. Palazzolo v. Rhode Island, 533 U.S. 606, 617 (2001) (citing Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978)).

While this test is essentially [an] ad-hoc, factual inquiry, and there is no set formula determining when a taking has occurred, Penn Central, 438 U.S. at 124, all of these factors would most likely weigh in the Services favor in any given scenario. First, with respect to the economic effect on the landowner, the Supreme Court has generally required a near-total reduction in value to find a taking. See, e.g., Agins, 447 U.S. 255, 65 L. Ed. 2d 106, 100 S. Ct. 2138 (no taking with an eighty-five percent reduction in Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329

value); *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365, 71 L. Ed. 303, 47 S. Ct. 114 (1926) (no taking with a seventy-five percent reduction in value); *Hadacheck v. Sebastian*, 239 U.S. 394, 60 L. Ed. 348, 36 S. Ct. 143 (1915) (no taking with a 92.5% diminution in value). But the baseline value of a mineral right is necessarily determined in the first place by the limits placed on surface disruption by surface owners rights, nuisance law, and the governments police power. See *Animas Valley Sand & Gravel v. Bd. of Cty. Comm'Rs*, 38 P.3d 59, 66 (Colo. 2001) (requiring assessment of reduction in value attributable to challenged plan rather than to the accumulated state and federal regulations of the past several decades).

Second, a court must weigh the extent to which the regulation would interfere with distinct investment-backed expectations. This includes assessing the reasonableness of the investors expectations, in light of the existing regulatory regime at the time of the acquisition of title to property, but this factor is not dispositive. See *Palazzolo*, 533 U.S. at 633-34 (O'Connor, J., concurring). An owner, moreover, does not establish reasonable expectations by simply showing that he or she heretofore had believed [the property] was available for development. *Penn Central*, 438 U.S. at 130.

Several factors bear on the reasonableness of owners investment-backed expectations.

As an initial matter, because high volume fracking is a relatively new technique, which operators did not begin using until about a decade ago, the vast majority of property owners likely acquired mineral rights underlying Park Service lands before the fracking boom, or before this new technology emerged. They therefore likely never expected to produce oil or gas from shale at the time of acquiring their property or that fracking would be a permissible use. With respect to these owners, a fracking moratorium could not interfere with expectations that never existed to begin with. Moreover, regardless of when the owner actually acquired title, if the technology did not exist at the time that a parcels mineral interests were severed from surface rights, there is no reason for an owner to believe that title to the mineral estate conveyed the right to frack. This is especially given the greater surface disturbance and other disturbances and risks associated with fracking compared to conventional oil and gas. See section II above; cf, *United States v. Stearns Coal and Lumber Co.*, 816 F.2d 279 (6th Cir. 1987) (examining parties intent at time of mineral severance to determine whether mineral owner was allowed to strip mine). In any case, shale oil and gas production from any particular location is inherently speculative such that owners could almost never reasonably expect to fully develop a given area.

In addition, the Service itself has wide latitude to regulate activities on its lands as described above and to ensure that park resources are not impaired by mineral extraction activities. It has long regulated oil and gas operations under the 9B regulations and under management plans for various park units. See, e.g., *Dunn-McCampbell Royalty Interest, Inc. v. National Park Serv.*, 630 F.3d 431, 434 (5th Cir. 2011) (noting various restrictions under Padre Island Seashore oil and gas management plan). While fracking is currently allowed in some states, it is a relatively new technique that has sparked significant controversy and moratoria to protect public health. Regulators are still catching up to fully understand the risks of fracking and have come under mounting public pressure to tighten restrictions since its use first became widespread. Operators could not reasonably expect that regulatory conditions would remain static in light of this controversy and evolving efforts to address these risks, including through bans. Further, because many of the risks and activities associated with fracking may create a public nuisance, operators could not reasonably expect to have unfettered rights to conduct fracking operations, especially on or near public recreational lands within the National Park system.

Finally, the character of the governmental action factor would weigh against finding a taking. See *Penn Correspondences - Revision of 9B Regulations Governing Nonfederal Oil and Gas Activities - PEPC ID: 28329*

Central, 438 U.S. at 124. A fracking ban would be intended to conserve park resources and protect public health and safety-a legitimate government purpose that would certainly be served by a ban.

4. The Services Proposed Rule Can Account for Takings

While a fracking moratorium is likely to withstand takings challenges, to account for the rare case that it may not, the Service may take steps to avoid takings where disallowing an operation is legally infeasible. First, it could include a provision that would allow buy-out of minerals where a potential taking should be avoided. Second, it should include a provision that provides an exception for fracking operations in limited cases where all other alternatives are infeasible and the operation can be proven not to impair park resources. In such cases, fracking operations should only be allowed subject to strict mitigation and monitoring requirements (including baseline water quality monitoring, see section V below). Mitigation measures should also include requirements to offset any impacts to park resources. The Service should also include a severability provision to ensure that a fracking moratorium could remain on the books, in the event that a claimant establishes a taking in a particular case. Because the Taking Clause does not prohibit valid regulation, only requires compensation if that regulation eliminates entirely a property right, that provision could require the Service to pay court-ordered compensation to a claimant consistent with its constitutional obligation, while preserving the validity of the fracking ban.

IV. The Proposed Secrecy for Well Stimulation Chemicals Is Unacceptable, Unlawful and Based on Another Agency's Misunderstanding of its Rulemaking Powers

Proposed revision to 9.122 would require operators who undertake fracking on NPS units to disclose to the Service certain information, including a description of the base fluid and each additive in the hydraulic fracturing fluid, including the trade name, supplier, purpose, ingredients, Chemical Abstract Service Number (CAS), maximum ingredient concentration in additive (percent by mass), and maximum ingredient concentration in hydraulic fracturing fluid (percent by mass). Given the appropriately high level of public concern about the health and environmental impacts of fracking chemicals, this proposed amendment is an important one.

Indeed, in its own comments on the draft BLM rule on hydraulic fracturing, the NPS stated that it is supportive of requirements to disclose chemicals used in hydraulic fracturing, and concluded that [f]ull disclosure of chemicals used in the hydraulic fracturing treatment after its completion is appropriate, because disclosure obligations would permit the NPS to better assess potential direct, indirect and cumulative impacts to park resources, and provide comments on proposals for nearby oil and gas exploration and development activities that involve fracturing. Knowledge of what chemicals are used in fracturing operations would also permit the NPS to more cost effectively monitor for any contamination and or harm to park resources, and aid in identifying suitable mitigation measures to reduce impacts and better protect park resources.

However, proposed revisions to 9.200 completely undermine the important information-gathering mechanism set out in 9.122. Section 9.200 allows operators to refuse to disclose information about fracking operations, including the identity of fracking chemicals used. Operators may avoid disclosure obligations simply by submitting nothing more than an affidavit in support of their claim that the information is confidential and the Service would have no power to disclose the information to the public if the operator were to provide it. Operators will almost certainly use this loophole to keep chemical identification and concentrations from the agency, effectively rendering meaningless the requirement to submit such data to FracFocus and/or the Service. This change to the regulations is ill-

advised, unworkable, and unlawful.

The proposed revisions now allow an operator to withhold pertinent information regarding the chemical identities and concentrations used on and in national parks from the very agency charged with managing and protecting those lands. Instead, the operator may submit an affidavit claiming that withholding the information is appropriate under some other law. With no requirement for the Service to independently verify trade secret claims, operators have an incentive to make overbroad claims to protect information that should otherwise be made available to the agency and to the public.

Allowing operators to withhold from the Service information that the operator asserts is confidential also makes adequate baseline testing considerably more onerous, if not impossible. Parties that wish to test groundwater before hydraulic fracturing commences will not know what chemicals to test for. Doctors treating patients will be less able to properly diagnose a patient without access to a list of chemicals that the patient may have been exposed to.

Scientific and public health research is also greatly hindered when information relating to chemical use is kept hidden. The Service will lose the ability to study, track, and disclose aggregate data on the effects of fracking by allowing operators to withhold this information. This is especially troubling given that the Service has a duty under NEPA and CEQ regulations to analyze the cumulative environmental impacts of a particular action. A fully informed evaluation of the cumulative impacts of well stimulation and enhanced oil recovery on Park Service lands requires gathering and aggregating information. Without it, the Service cannot conceivably base its decisions on an adequate analysis of the risks associated with oil and gas activities.

Another problem is that the proposed exception on provision of information to the Service is that it places recordkeeping duties in the hands of the operators. The proposed rule requires operators to retain records of withheld information for a mere 7 years after completion of fracking operations on Park Service lands. Considering that well failure can occur at any time over the life of the well, and that failures may not become apparent until after the life of a well, this short period of time that records must be retained is wholly inadequate to preserve pertinent information about the chemicals used in fracking operations. The rule also fails to deal with the prospect of companies who withhold information dissolving, which will likely result in the loss of withheld information.

Insofar as information is withheld on the basis that it is a trade secret, the social costs of allowing pertinent information to remain secret increase over time and vastly outweigh any private interest in the proprietary value of the trade secret. Thus, secrecy adds an unacceptable increased burden on society and hinders the proper management of the risks posed by enhanced oil recovery techniques.

A. The Service Cannot Comply with NEPA Requirements without Access to Pertinent Information about Chemicals and Well Integrity

NEPA and the implementing regulations by the Council on Environmental Quality require that federal agencies assess the environmental impacts of their proposed actions and inform their decisionmaking. The Service simply cannot comply with NEPA without knowing the identity of chemicals injected into the ground, the quantities and concentrations of those chemicals, and the chemical composition of the flowback fluid.

The Service falls far short of explaining how NEPA, which requires a full assessment of the

environmental risks issuing permits to operators, can be satisfied with incomplete knowledge of what chemicals are being used. NEPA requires that an agency assess the nature and extent of the action's environmental effects. According to the proposed rule, [d]uring formal review under proposed 9.102 the NPS evaluates whether the proposed operation meets the NPS approval standards (9.103) and conducts its compliance responsibilities under applicable federal statutes (e.g. National Environmental Policy Act (NEPA...[.])).] The Service does not explain how the agency can possibly understand and assess the nature, extent, and appropriate mitigation of the environmental risks when it does not know the actual chemicals being used. Moreover, as stated above, the Service will be left unable to fully assess the cumulative impacts of its permitting actions on NPS units. As described below, the aggregate effect on air, water, and the climate are serious concerns that require an in-depth assessment.

B. The Service Should Not Follow the BLMs Regulations Insofar as They Provide Exceptions to Requirements to Disclose Information About Hydraulic Fracturing Chemicals

The Service touts that the proposed regulations would largely follow the Bureau of Land Management's (BLM) regime for information submission, but those regulations are based on a misunderstanding of BLM's power to require disclosure of information. The federal Trade Secrets Act, which BLM interprets as a restriction on disclosing chemical information to the public, does not in fact place such restrictions on an agency. The Trade Secret Act only prohibits disclosure of trade secrets to [the] extent not authorized by law. BLM has the authority to create regulations that permit disclosure of information that would otherwise be considered a trade secret. Given BLM's duty to prevent unnecessary and undue degradation of public lands and to protect federal and Indian resources, the collection and disclosure of crucial information is well within the contemplation of the grant of legislative authority under the Federal Land Policy and Management Act (FLPMA). In fact, BLM has the obligation to collect such information and make it publicly available to comply with the FLPMA. Likewise, the collection and disclosure of this information is not only well within the contemplation of the Service's authority under the Organic Act, but is required by the Service's non-impairment mandate.

The federal Mineral Leasing Act provides additional legislative authorization for BLM to require the disclosure of information pertaining to chemicals. The MLA grants authority to BLM to prescribe necessary and proper rules and regulations and to do any and all things necessary to carry out and accomplish the purposes of this Act. Among other delegated powers, the MLA also explicitly authorizes BLM to (1) require statements, representations, or reports, (2) revoke any permit that does not satisfy permit conditions, (3) penalize circumvention of the MLA, and (4) inspect, audit, or investigate lessees. As these examples illustrate, requiring the full disclosure of chemical information is but one of many tools available to BLM to regulate oil and gas operations and is well within the authority granted to BLM.

In its final rule, BLM concluded that none of these rulemaking powers are sufficient for BLM to promulgate a regulation that would require operators to provide information about trade secrets and then disclose that information. In reaching this conclusion, BLM relied on *Chrysler Corp. v. Brown*, 441 U.S. 281 (U.S. 1979). However, BLM misinterprets the relevant portions of *Chrysler*. BLM asserts that the decision stands for the principle that, in order to overcome the prohibition in 1905 of the Trade Secrets Act, [t]he rule must be based on a statutory grant of authority allowing the agency to disclose privileged information, and that BLM has no power to make such a disclosure because its authorizing statutes do not expressly authorize regulations requiring disclosure of privileged information, is a misreading of that case. To the contrary, the Supreme Court held that it is not necessary that a grant of legislative authority to a federal agency by Congress [] be specific before regulations

promulgated pursuant to it can be binding on courts in a manner akin to statutes. What is important is that the reviewing court reasonably be able to conclude that the grant of authority contemplates the regulations issued.

Ultimately, the Court in *Chrysler* found that the regulations in question did not overcome 1905 because they did not have the binding effect of law. Unlike BLMs rules, the regulations at issue in *Chrysler* were made pursuant to a purported grant of authority by an Executive Order. The Executive Order spoke of regulations necessary and appropriate to achieve the purposes of the Executive Order, which sought to avoid procurement from corporations that were discriminatory employers. However, the source of authority for the Executive Order was unclear, which meant the regulations made pursuant to the Executive Order were invalid. The Court observed, however, that if the Executive Order had a more identifiable legislative basis, we might agree with the respondents that this compatibility [between the purpose of the Executive Order being to combat discrimination in employment, and the disclosure policy designed to further this purpose,] gives the disclosure regulations the necessary legislative force.

That is, *Chrysler* does not stand for the principal that an express grant of legislative authority is necessary to make regulations requiring disclosure of confidential information. Rather, a court must be able to conclude that the grant of authority to make regulations contemplates regulations requiring disclosure, or that there is compatibility between the purpose of the grant of authority and the regulations requiring disclosure.

Finally, in preparing its hydraulic fracturing regulations, BLM failed to provide any justification as to why, even if the Trade Secrets Act prohibits BLM staff from disclosing confidential information to the public, BLM should therefore refuse to collect such information at all. As set out above, such an approach denies the agency important data sources that may be aggregated and publicly disclosed, or that may be used for BLMs internal purposes.

C. The NPS Has the Power to Require Disclosure of Fracking Chemicals in All Circumstances

Given that BLMs regulations allow operators to avoid disclosure of fracking chemicals only because BLM misunderstands the scope of its power to require disclosure, and that providing operators with such a loophole is generally undesirable, the Service should not follow BLMs hydraulic fracturing regulations in this respect. Rather, the Service should consider its statutory power under the Organic Act and require disclosure to fulfill its non-impairment mandate.

The Service asserts that its authority to promulgate the revised 9B regulations is the statute commonly known as the NPS Organic Act (54 U.S.C. 100101 et seq.) as well as other statutes governing the administration of the National Park System. That Act directs the NPS to promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. Pursuant to 54

U.S.C. 100571, the Service has authority to promulgate regulations "necessary or proper for the use and management of System units. This authority includes the authority to regulate the exercise of nonfederal oil and gas rights within park boundaries for the purpose of protecting the resources and values administered by the NPS. As the proposed rule identifies, additional enabling legislation grants the Service authority to regulate the exercise of non-federal oil and gas rights in specific NPS units.

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Given that the chemicals used in fracking may pose risks to the land, air, surface and subterranean waters, and wildlife in National Park units, a regulation requiring disclosure of the use of all such chemicals is consistent with the Services power to promulgate regulations which will conserve those elements. A regulation providing that such information be made available to the public is likewise consistent with the purpose for which the Service may make regulations, in that it allows those for whom the National Park units are conserved to be informed about the use of chemicals on National Park units, thereby allowing those persons to ensure the ongoing conservation of the National Park units for future generations.

D. The Disclosure Obligations Should Apply to All Well Stimulation Operations

The same considerations that justify requiring disclosure of chemicals used in fracking operations justify requiring disclosure used in all forms of well stimulation. Although many of the provisions of the proposed rule apply to well stimulation, which is defined to include (and is therefore presumptively broader than merely) fracking, the disclosure obligations contained in 9.122 apply only to hydraulic fracturing operations. This provision should be broadened to require disclosure of chemicals used in all well stimulation operations. .

V. Other Measures Are Needed to Ensure Fracking Operations Do Not Impair Park Resources

A. The Service Should Require Specific Performance Standards for Non-Federal Oil and Gas Operations

Instead of establishing specific, prescriptive performance standards for proposed oil and gas operations, the proposed rule establishes non-prescriptive standards (technologically feasible, least damaging methods), on the mistaken assumption that the Service has limited ability to prescribe standards for non-federal oil and gas operations. While a flexible, non-prescriptive approach would allow the agency to incorporate updated technological standards as they improve, there is also a risk that recommended standards would not be incorporated where necessary or that agency staff would fail to objectively apply non-prescriptive criteria. The default should rather be specific, prescriptive standards with limited exceptions allowed according to objective, well-defined criteria.

At a minimum, the rules should include these readily achievable and straightforwardly enforceable standards:

1. A minimum two-mile setback of all operations from perennial and intermittent waters, wetlands, and riparian areas.
2. No use of open pits for water, waste, or drilling or fracking fluid storage or disposal at any time. Nets, fences, and warning devices are not an adequate substitute for fully closed systems within national parks.
3. A blanket prohibition on the use of trucks for delivery or removal of water, fracking fluids, produced water, condensate, waste, or other liquids. Truck traffic, human disturbance, spills and leaks, and erosion associated with the high levels of truck traffic used in many oil and gas operations pose a substantial threat to our natural resources and wildlife habitat and populations. In order to drill within a park, operators should be required to develop a liquids management plan as part of the Plan of Operations that deals with liquid transport through pipeline and/or gathering systems co-located with (preferably existing) roads.

4. Requiring air quality controls that use the maximum available technology to capture all air emissions including greenhouse gas emissions, toxic air pollutants, and other pollutants.

B. The Service Should Require Baseline Groundwater Testing before Approving Hydraulic Fracturing

Baseline testing of groundwater is a commonsense requirement that should apply to all well stimulation and enhanced oil and gas recovery operations. An all-too-common obstacle in assessing the extent of specific fracking operations is the unavailability of baseline water quality data. Previous and ongoing studies of communities affected by fracking have been criticized due to a lack of baseline data. Operators point to a lack of baseline data to attempt to deny that contamination has occurred, or if it has, that it is the result of fracking operations. The NPS should include baseline groundwater quality testing as a prerequisite to issuing a permit.

Furthermore, water quality data should be made publicly available.

C. Stipulations for Wildlife Are Necessary

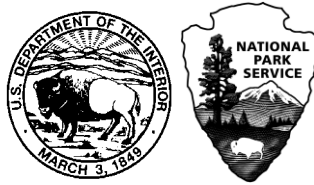
Many species that utilize habitat in NPS units are migratory and may depend upon a park area only at certain times of the year for breeding, nesting, feeding and other critical times of a species life. To protect these species and habitat to the greatest extent practicable, the new 9B rules should require park managers to identify these habitats and implement seasonal closures and other time limitations on oil and gas related activities as dictated by the requirements of the species utilizing park units.

Thank you for considering our comments on the Services proposed 9B regulations and the draft EIS for the proposed rule. We look forward to reviewing the Services response to our comments and a revised rule and EIS. If you have any questions concerning these comments, please do not hesitate to contact us at the contact information below.

[Footnote 1] Elsewhere, the DEIS repeatedly refers to the exemption criteria as requiring "no effect on the federal interest." See, e.g., DEIS at 168, 182. "No effect on the federal interest" is a much higher bar than "no significant threat of damage to federally owned, administered, or controlled lands, waters or resources of the unit, or park visitor and employee health and safety." If "no effect on the federal interest" is a shorthand reference to the latter, it is misleading. The DEIS must clearly define the alternatives at issue, or else a meaningful comparison between them is not possible.

[Footnote 2] The EIS notes that "[t]his provision would address existing operations that are located wholly on non-federally owned or administered lands within a unit," but it is unclear whether it is intended to only apply to existing operations. If this exemption applies to new operations, it is unclear why the Service would allow such an exemption, except to skew the comparison of alternatives in favor of Alternative B. Under Alternative C, operators would unsurprisingly be more likely to conduct operations from inholdings even where it provided no other advantage over drilling from outside-if such operations could be exempted from permitting requirements, while outside drilling could not.

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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