U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office
Albuquerque, New Mexico

FINDING OF NO SIGNIFICANT IMPACT

Brantley and Avalon Reservoirs
Resource Management Plan Amendment
Eddy County, New Mexico

Manager, Environment Division — Date 3/9/11

Area Manager, Albuquerque, New Mexico — Date 3/9/11

FONSI Number: AAO-10-005

INTRODUCTION

This is the Finding of No Significant Impact (FONSI) of the United States Department of the Interior (USDI), Bureau of Reclamation (Reclamation) for the Brantley and Avalon Reservoirs Resource Management Plan Amendment (RMPA) project located in Eddy County, southeastern New Mexico. The RMPA is the subject of an Environmental Assessment (EA), dated February 2011, developed in compliance with the National Environmental Policy Act (NEPA) to specifically address future Federal mineral-leasing on Carlsbad Project Area lands. The EA, however, is not the final review upon which approval of all proposed mineral-leasing actions on Reclamation lands will be based. All future, site-specific actions will receive further environmental analysis that will be tiered from the EA and RMPA documents, as appropriate.

BACKGROUND

The RMPA amends Reclamation's 2003 Resource Management Plan (RMP) for Brantley and Avalon Reservoirs (Reclamation 2003). Reclamation has prepared an EA and subsequent RMPA to address future Federal leasable (e.g., oil, gas) minerals development on approximately 49,000 acres of Reclamation-administered lands in Eddy County, New Mexico. The lands encumbered by the EA and RMPA are part of Reclamation's Carlsbad Project, which is authorized under the Reclamation Act of June 17, 1902, and the Brantley Project Acts of 1972 (P.L. 92-514) and 1980 (P.L. 96-375). The Minerals Leasing Act of 1920, as amended, provides the Secretary of the Interior with authority to issue leases on lands where the mineral rights are held by the Federal government. This authority has been delegated to the USDI, Bureau of Land Management (BLM), a Cooperating Agency for preparation of the RMPA and EA documents. In recent years the BLM has experienced a tremendous increase in interest from oil and gas development companies for new lease nominations throughout Eddy County, including the Project Area. At present the BLM is deferring new lease nominations for oil and gas development within Reclamation-administered lands until the RMPA is completed. However, site-specific applications are being considered on a case-by-case basis. Applications for oil and gas drilling activities on existing lease areas are reviewed on the ground and approved if negative effects to natural and cultural resources can be avoided or mitigated. Since Reclamation's 2003 RMP did not evaluate the cumulative impacts of reasonably foreseeable future mineral leasing and development of Project Area resources, the purpose of the RMPA is to develop appropriate guidance that will allow Reclamation and BLM to make informed decisions about oil and gas leasing and development on Reclamation-administered lands in order to comply with existing guidelines and laws.

SUMMARY OF THE PREFERRED ALTERNATIVE

Federal mineral leasing and development may occur on lands where the surface is managed by Federal, State, Native American agencies, or private individuals. For minerals development on Reclamation lands within the Project Area, management objectives are defined in terms of the availability of land for leasing (i.e., closed or open to minerals leasing) and the management of lands that are open to leasing (i.e., with standard terms and conditions or with special leasing stipulations). Federal mineral lands and lands subject to Federal mineral leasing stipulations account for 43,745 acres, or 88 percent, of the Project Area. All Federal mineral lands and lands

subject to Federal mineral leasing stipulations within the Project Area are considered open for minerals leasing.

Lands open for minerals leasing may be open with no specific development restrictions defined in the original RMP or in the RMPA. However, these areas are subject to the ***Standard Lease Terms and Conditions*** as defined on the lease form. Or, lands open for leasing may be managed with constraints in the form of ***Special Lease Stipulations***, which are provisions that modify the standard lease rights and conditions included in a lease when environmental and planning analyses have demonstrated that additional and more stringent environmental protection is needed. The three types of special lease stipulations defined for the Project Area are (1) ***no surface occupancy***, (2) ***no storage facilities***, and (3) ***surface occupancy on a case-by-case basis***. A stipulation of no surface occupancy does not allow the surface of a given area to be occupied by oil and gas development facilities. A stipulation of no storage facilities does not allow storage facilities within a given area. A stipulation of surface occupancy on a case-by-case basis allows for a site-specific evaluation of proposed activities to determine the appropriateness of surface occupancy and storage facilities. Under certain conditions, Reclamation may grant waivers, exceptions, or modifications to lease stipulations as defined in Appendix A of the RMPA document and according to *Reclamation Manual Directives and Standards*.

Reclamation has decided to implement Alternative C, 2003 RMP with New Oil and Gas Leasing Stipulations and New Maximum Conservation Pool Elevation, as described in the EA. Alternative C modifies the existing management situation to respond to legislative policies, regulatory requirements, and/or *Reclamation Manual Directives and Standards* that otherwise are not currently included under the Existing (2003) Oil and Gas Leasing Stipulations (Appendix A in the EA). In addition, the maximum water surface elevation at Brantley Reservoir would be revised from 3,271 feet (997 meters) to 3,263 feet (995 meters), and a no surface occupancy special lease stipulation would be applied below that elevation.

Alternative C incorporates legislative and regulatory requirements and/or management objectives that currently are not included under existing management (i.e., Alternative A). The amount of land open to leasing with a special lease stipulation of no surface occupancy would decrease to 19,155 acres (7,752 hectares), or 39 percent of the Project Area as compared to Alternative A. The amount of land open to leasing with a special lease stipulation of no storage facilities would decrease to 6,486 acres (2,625 hectares), or 13 percent of the Project Area as compared to Alternative A. The amount of land that could be leased with standard lease terms and conditions would decrease to 10,324 acres (4,178 hectares), or 21 percent of the Project Area as compared to Alternative A. The amount of land designated for surface occupancy on a case-by-case basis, but with no wells allowed, would increase to 13,527 acres (5,474 hectares) or 27 percent of the Project Area compared to Alternatives A and B.

ENVIRONMENTAL IMPACTS

The following resources and socioeconomic factors were evaluated in detail in the EA for anticipated impacts from implementation of the RMPA: air quality, soils, cave and karst resources, water quality, vegetation, wildlife, fisheries, threatened endangered and other special status species, cultural resources, Indian trust assets, paleontological resources, social and economic values, environmental justice, recreation resources, rangeland and grazing, energy

minerals and other extractive resources, transportation and access, and visual resources. A summary of environmental impacts to these resources and factors resulting from implementation of the Preferred Alternative is provided below.

Air Quality

Direct impacts to air quality include exhaust emissions, chemical odors, and dust from motorized equipment used to construct access roads, well pads, and wells during construction and drilling phases. These direct impacts to air quality would be greatly reduced upon completion of the construction and drilling phases. Impacts to air quality would be affected indirectly by existing surface disturbances, which would create sources of fugitive dust, as well as exhaust emissions from heavy equipment and vehicles. These short-term effects would not be expected to be significantly adverse.

Soils

Direct impacts to soils resulting from oil and gas development and surface-use activities include removal of vegetation, exposure of the soil, mixing of soil horizons, soil compaction, loss of top soil productivity, and susceptibility of the soil to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with the possible exception of dust generated from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion, and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation of well sites, access roads, pipelines, and associated facilities. Contamination of soils from drilling and production wastes mixed into soils or spilled on the soil surfaces could cause a long-term reduction in site soil productivity. Some of these direct impacts can be reduced or avoided through proper design, construction, and maintenance, and through implementation of Best Management Practices (BMPs).

Cave and Karst Resources

The construction of roads, pipelines, well pads, and utilities can impact bedrock integrity and reroute, impede, focus, or erode natural surface drainage systems. Increased silting and sedimentation from construction can plug downstream sinkholes, caves, springs, and other components of aquifer recharge systems and result in adverse impacts to aquifer quality and cave environments. Any contaminants released into the environment during or after construction can impact aquifers and cave systems. A possibility exists for slow subsidence or sudden surface collapse during construction operations from the collapse of underlying cave passages and voids. This would cause associated safety hazards to the operator and the potential for increased environmental impact. Subsidence processes can be triggered by blasting, intense vibrations, rerouting of surface drainages, focusing of surface drainage, and general surface disturbance.

Blasting fractures in bedrock can serve as direct conduits for transfer of contaminants into cave and groundwater systems. Blasting also creates an expanded volume of rock rubble that cannot be reclaimed to natural contours, soil condition, or native vegetative condition. As such, surface and subsurface disruptions from blasting procedures can lead to permanent changes in vegetation, rainfall percolation, silting/erosion factors, aquifer recharge, and freshwater quality

and can increase the risk of contaminant migration from drilling/production facilities built atop the blast area.

During drilling, previously unknown cave and karst features could be encountered. If a void is encountered while drilling and a loss of circulation occurs, lost drilling fluids can directly contaminate groundwater recharge areas, aquifers, and groundwater quality. Drilling operations can also lead to sudden collapse of underground voids. Cementing operations may plug or alter groundwater flow, potentially reducing the water quantity at springs and water wells. Inadequate subsurface cementing, casing, and cave/aquifer protection measures can lead to the migration of oil, gas, drilling fluids, and produced saltwater into cave systems and freshwater aquifers.

Production facilities such as tank batteries, pump-jacks, compressors, transfer stations, and pipeage may fail and allow contaminants to enter caves and freshwater systems. Down hole casing and cementing failures can allow migration of fluids and/or gas between formations and aquifers. Facilities may also be subject to slow subsidence or sudden collapse of the underlying bedrock.

Water Quality

Potential direct impacts that could occur from oil and gas development and surface-use activities include increased surface water runoff and off-site sedimentation brought about by soil disturbance. These impacts include increased salt loading and water quality impairment of surface waters, channel morphology changes from road and pipeline crossings, and contamination of surface waters by produced water. The magnitude of these impacts to water quality would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activities would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts to water quality would likely be greatest shortly after the start of construction activities and would likely decrease in time from natural stabilization and reclamation efforts. Construction activities would occur over a relatively short period; therefore, the majority of the disturbance would be intense but short lived.

Petroleum products and other chemicals that are accidentally spilled could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and groundwater quality.

Vegetation

Direct negative impacts to vegetation include the loss of plant cover from energy exploration and development activities. These impacts can be minimized or negated by proper design of well pads and access roads, and implementation of appropriate reclamation techniques.

Beneficial impacts would generally be accomplished through restoration of existing disturbed areas that is designed to facilitate the growth of desired plant community populations. This would result in an improved water cycle, reduced erosion potential, and better habitat for wildlife

and livestock use. Short-term negative impacts to livestock use within the Project Area would include taking a portion of the allotment out of use while oil and gas development activities occur, and until vegetation is allowed to recover in disturbed areas.

Wildlife

Oil and gas development would initially result in the direct loss of wildlife habitat. These activities would cause direct disturbance and/or displacement of ground-dwelling animals, disturbance and loss of habitat structures such as shrubs with nests, habitat loss through erosion, and changes in food and cover relationships caused by vegetative change and increased erosion. Animal species composition and densities could change within and adjacent to any mineral development activity. Changes in the animal community and habitat structure change in plant species composition and density would persist until habitat within the development areas is restored to near pre-disturbance conditions. However, re-vegetation of disturbed sites is typically very slow in this arid part of the United States.

The indirect disturbance associated with human activities to wildlife species for non-producing wells (approximately 60 acres or 24 hectares) would be short-term, not extending beyond the 1 to 3 months required to complete the drilling pad/road and would largely disappear after abandonment and reclamation. However, if oil and gas reserves were discovered, the indirect wildlife disturbance would continue long term around the drilling pads, along the roads, and pipelines.

A further effect on wildlife populations could be increased disturbance as a result of access by industry personnel and by the public at large using oil and gas development roads. This access would increase the overall disturbance within the Project Area and potentially create additional effects including shooting, poaching, collisions with vehicles, and accidental release of pollutants. Wildlife abundance and diversity would be expected to decrease.

Impacts from typical geophysical exploration, oil and gas drilling, and fluid minerals operations would continue to displace wildlife from the area of disturbance during active operations. Mobile wildlife species would return once operations were complete and disturbed areas were reclaimed. Creation of new roads from repeated vehicular travel during oil and gas exploration and development, and possible continued use by the public for recreation purposes, may reduce the area of undisturbed wildlife habitat. Increased disturbance and human access could directly impact important habitat features such as nesting areas.

Fisheries

Potential impacts to fish habitat quality could result from contaminants (e.g., drilling fluids, engine oils, produced natural gas liquids, oil and/or oil products) entering water bodies during flood events, through groundwater, and in the event that an accidental spill is not properly contained and cleaned up. The potential contamination of water resources resulting from oil and gas exploration activities is likely to reduce the quality of fish habitat, which in turn could impact reproduction success and recruitment of fish species. Although standard oil and gas lease stipulations include implementing actions that would contain drilling fluids and waste, the potential exists for accidental spills to enter adjacent water bodies and affect fish habitat.

However, the inclusion of special lease stipulations under Alternative C that are designed to protect water quality and other resources would offer greater protection to riparian and shoreline vegetation, water resources, and ultimately fish habitat. Fish habitat in Brantley and Avalon Reservoirs and along sections of the Pecos River within the Project Area would benefit from the inclusion of a 660 horizontal feet (200 horizontal meters) buffer of surface occupancy on a case-by-case basis area from the normal high-water line of all streams, rivers, and arroyos. No wells would be allowed within this buffer and construction of access roads and pipelines will be restricted in high-value riparian and sensitive areas along streams, rivers, and arroyos. This stipulation is valuable for the prevention and/or reduction of potential contamination that could influence fish habitat quality. These buffer areas would provide extra measures of protection against high-water runoff that could inundate structures located at or below this elevation and would also provide opportunities for the lessee to recapture or contain escaped materials before they reach the water.

Threatened, Endangered, and Other Special Status Species

Any new disturbances would incrementally add to the current habitat fragmentation effect resulting from existing roads, and past oil and gas activities. Direct and indirect impacts to threatened or endangered species or their habitat would be similar to those described under the wildlife section. Special lease stipulations under Alternative C would preclude Surface Occupancy within Critical or Occupied habitat for threatened and endangered species, and would provide for seasonal restrictions in important wildlife habitat areas. This stipulation would prevent the development of oil and gas wells within habitat occupied by threatened or endangered species.

Cultural Resources

Oil and gas development, and the associated well pad construction, drilling operations, pipeline installations, and road construction, is a common cause of surface disturbance that could affect cultural resources. The more surface disturbance that occurs, the greater likelihood there is for direct negative effects to cultural resources. The movement and loss of artifacts because of soil erosion is an indirect negative impact associated with surface-disturbing activities. It is also likely that accidental damage from construction activities destroys buried cultural resources, even though nothing is visible during surface inventories.

Cultural resource inventories would continue to be required for all proposed surface-disturbing activities, including oil and gas development activities, within the Project Area. Any lands identified for development will need to follow Section 106 National Historic Preservation Act and the New Mexico State Cultural Properties Act processes before work begins. This includes all Federal mineral estates within the Project Area and future leases on lands conveyed to the Carlsbad Irrigation District in 2001. Regulations for the Protection of Historic Properties (36 CFR Part 800) defines the process for demonstrating such consideration through consultation with the State Historic Preservation Office, the Federal Advisory Council on Historic Preservation, and other interested parties.

The BLM and Reclamation will continue to work with the National Park Service in regard to any proposed mineral leasing and development within the Carlsbad Irrigation District National Historic Landmark (NHL). Reclamation, SHPO and the Archaeological Council will develop a programmatic agreement for the McMillian Dam and Reservoir area in the NHL. This area of the NHL includes approximately 1500 acres of Reclamation lands with special lease stipulations of surface occupancy on a case by case basis and no storage facilities. The Avalon Dam and Reservoir area would remain in a no surface occupancy zone. All historic properties included in the CID NHL will continue to be subject to Federal statute under the National Historic Preservation Act and the New Mexico State Cultural Properties Act, as appropriate.

Reclamation has received no indications of traditional cultural properties or sacred sites from the Native American tribes and pueblos consulted. Therefore, the assumption is the Project Area contains none of these properties. Cultural resource inventory surveys would continue to be required for surface-disturbing activities, such as oil and gas development activities. Eligible and potentially eligible sites would continue to be protected from damage or archaeologically treated to mitigate damage. Buffer areas of 100 feet (31 meters) or more would be established from the edges of sites to protect cultural resources unless Reclamation determines that circumstances justify a reduced buffer area.

Indian Trust Assets

Because there are no known ITAs within the Project Area, there would be no effects to ITAs under Alternative C.

Paleontological Resources

Land uses requiring surface disturbance can impact paleontological resources. The more disturbance that occurs, the greater the likelihood there is for negative effects. Federal law would continue to be in effect for protecting paleontological resources. No paleontological sites have been documented and no exposed, fossil-bearing geologic strata are known to occur. Therefore, Alternative C would have no impact on known paleontological sites, fossil localities, or fossil-bearing geologic strata. However, the chance of impacting unknown paleontological resources would increase as surface disturbance increases.

Social and Economic Values

Because the development of existing oil and gas leases would continue, revenues, employment, and income generated by this activity would continue at or close to current levels for the foreseeable future. Costs associated with the development requirements (e.g., plans of development, designing road networks, reclamation activities) would be borne by the lease holder under these alternatives. More intensive development planning, however, could lead to reduced development costs. Larger factors such as market prices would have more impact on the economic viability of leases and wells than the existing or proposed development stipulations.

Offering new oil and gas leases by the BLM has no direct connection to employment or income levels in the local economy because new leases do not guarantee well development. Changes in employment and personal income in the oil and gas industry is more directly connected to

market prices and not the availability of Federal minerals for lease. Increasing new oil and gas leasing by the BLM would not produce much economic benefit. Unleased tracts within the Project Area are more likely the result of a lack of interest and no evidence of payable petroleum zones. Additionally, some existing oil and gas leases remain undeveloped.

While still an important component of the local economy, employment in the petroleum industry has decreased in relation to total employment over the past 30 years, although personal income from jobs in the oil and gas industry has increased. The per capita income for all jobs in the vicinity in general trails the New Mexico average. However, the average weekly wages for those employed in the local oil and gas industry is nearly double the statewide average for all jobs.

Because the Project Area represents such a minor proportion of the overall regional oil and gas development industry in this part of New Mexico, it is not possible to accurately estimate specific economic impacts. Moreover, proposed oil and gas well developments that cannot locate within the Project Area because of the lack of area remaining for leasing and development are likely to find sufficient opportunities on surrounding Federal lands.

It is more difficult to quantitatively measure social impacts. In the social context of communities in the vicinity of the Project Area, changes would likely be minor and relatively unnoticed under Alternative C. However, individuals and families with interests in oil and gas development would be affected in particular localities. For these individuals and families, the most noticeable impact would likely be reduced personal income, reduced operations flexibility, and an increase in personal stress through increased operational restrictions.

Environmental Justice

There are no areas that meet the definitions of low-income areas or that contain minority populations. Therefore, none of the alternatives analyzed in this document would place a disproportionate share of negative environmental consequences on low-income or minority populations.

Recreation Resources

Recreation would continue within the Project Area much as it does today. Recreational users would continue to engage in wildlife viewing, boating, swimming, hunting, fishing, hiking, and camping. Oil and gas development activities would continue and are not expected to have any measurable impacts on recreational activities. However, affects such as those from noise, wildlife displacement, and visual resource impacts are likely to result in reduced satisfaction on the part of recreationists using the Project Area lands that are subject to energy development. Existing and future oil and gas development restrictions would remain in place to protect developed recreational areas and facilities.

To the extent that active oil and gas well construction requires a temporary closure in site-specific areas, some recreational users may be forced to relocate to other portions of the Project Area during these development activities. Depending upon the final location of wells and their associated infrastructure, it is possible that some recreational users would be temporarily or permanently displaced from specific undeveloped recreational areas.

Rangeland and Grazing

In general, livestock use levels within the Project Area are expected to continue into the future at current levels. There would be no change to current livestock grazing management practices. All grazing allotments are on lands that have been leased for Federal minerals exploration and development. Modifications to existing grazing permits/leases would be made based on proposed oil and gas development activities that may remove forage on specific allotments because of surface disturbance activities. If determined necessary, allotment specific AUMs would be reduced to reflect the revised forage base.

Energy, Minerals, and Other Extractive Resources

Decisions to open lands to leasing represents Reclamation's determination, based on the information available at the time, that it is appropriate to allow development consistent with the terms of the lease, laws, regulations, and orders, and subject to reasonable conditions of approval. The assumptions for surface disturbance from access roads, drill pads, pipelines, power lines, and seismic activity are detailed in Section 2.6 of the EA. Some of the estimates used reflect values for exploration and development in newly leased areas. Much of the Project Area is within or near well-developed fields. Exploration and development of resources in well-developed areas reduces the distance required for roads, pipelines, and power lines. Therefore, the actual amount of ground disturbance of the 20-year planning horizon may be less.

Reclamation and BLM have the authority to control the density and location of surface-disturbing activities affecting public land and those activities associated with Federal mineral exploration and development. Reclamation and BLM have the authority to designate areas as closed or open to oil and gas leasing, attach a NSO stipulation to leases, and attach other conditions of approval (COA) that are included in approved applications for permit to drill (APDs). Reclamation and BLM can also attach other conditions of surface use (CSU) stipulations such as requirements for wildlife surveys or plans of development (PODs). Use of these designations, stipulations, or COAs provides effective tools for development of mineral resources and management of the accompanying surface disturbance. Conditions of Approval are tools to be used in the effort to return areas that have had surface disturbance (such as drill pads and roads) to natural conditions. For a description of the COAs, see Appendix A in the RMPA document. Implementation of COAs would reduce initial surface disturbance (direct impacts) and increase opportunities for reclamation success.

Transportation and Access

Implementation would have no effect on transportation and access. Existing designated roads would continue to be managed and maintained by the appropriate responsible entity. Designated roads, as well as unmanaged and unmaintained roads, would continue to be used for oil and gas development activities, as well as other appropriate uses. Unmanaged and unmaintained roads would continue to be closed and reclaimed according to provisions described in the existing (2003) RMP. As appropriate, proposed oil and gas development activities in the vicinity of proposed road closures would include reclamation of those unmanaged and unmaintained roads identified in the existing RMP.

Visual Resources

This project will cause some short term and long term visual impacts to the natural landscape. Short term impacts occur during construction operations and prior to interim reclamation. These include the presence of construction equipment and vehicle traffic. Interim reclamation will be conducted where possible within 6 months after construction by recontouring and revegetating.

Long term impacts are visible to the casual observer through the life of the well. These include the visual evidence of storage tanks, piping, pump jacks, well pads, and roads which cause visible contrast to form, line, color, and texture within the characteristic landscape. Removal of vegetation by road and drill pad construction exposes bare soil lighter in color and smoother in texture than the surrounding vegetation. The surfacing of these areas with caliche materials causes further contrasts to the characteristic landscape. These contrasts will be visible to visitors in the vicinity of the facilities.

After final abandonment and reclamation, the pad, road, and associated infrastructure will be removed, reclaimed, recontoured, and revegetated to eliminate visual impacts. Short and long term impacts are minimized by best management practices such as color selection, reducing cut and fill, screening facilities with natural features and vegetation, interim reclamation, and contouring roads along natural changes in elevation.

CONCLUSION

Based on the analysis presented in the EA, Reclamation finds that there would be no significant impacts associated with implementation of the preferred alternative (Alternative C). Reclamation makes this Finding of No Significant Impact (FONSI) pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.) and the Council on Environmental Quality implementing regulations (40 CFR 1500). Reclamation has determined that the proposed action does not constitute a major Federal action that would significantly affect the human environment. Therefore, no environmental impact statement would be prepared for this proposal.