

FINAL
ENVIRONMENTAL ASSESSMENT

CAMEO Sport Shooting & Education Complex
Palisade, Colorado



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for

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CHAPTER 1: PROJECT SUMMARY, PURPOSE, & NEED

1.1 PROJECT SUMMARY

The proposed CAMEO Sport Shooting and Education Complex (CAMEO) is an adaptive re-use of abandoned industrial sites, once housing a coalmine and later a coal-fired power plant in eastern Mesa County in northwest Colorado (see Figure 1). The advanced public shooting complex will be located approximately three miles east of Palisade, Colorado. The Town of Palisade has purchased this property, which was previously owned by Xcel Energy and the Snowcap Coal Company, near the site of Xcel’s decommissioned power plant at Cameo.

Colorado Division of Parks and Wildlife (CPW) plans to develop a world-class, destination-type sport shooting and education complex at this site. This complex will be constructed in two parts and will include several types of outdoor ranges for public archery, rifle, pistol and shotgun shooting recreation, as well as an outdoor education building for other shooting-type education programs (see Table 1). The unique Colorado River canyon site where the CAMEO project will be located is easily accessed from Interstate 70. It will draw shooting sports enthusiasts from various locales in Colorado, adjacent states (Utah, Wyoming, Arizona, New Mexico, Nebraska, and Kansas) and beyond for recreational shooting, shooting competitions, and some law enforcement training.

CPW plans to use federal U.S. Fish and Wildlife (FWS) Wildlife Restoration Hunter Education Section 4c funds to plan, design, and later construct the majority of the CAMEO project. This is the federal action that has resulted in this Environmental Assessment (EA). CPW will construct this shooting range in two parts. Part One which includes Phase 1A and 1B will be constructed first (see Table 1 & 2 for details; Appendix A for maps). Part Two will be designed and constructed in the future.

The local community of Palisade is very much in favor of this project as are many local community groups and stakeholders in Grand Junction and the larger Mesa County area. Palisade has purchased the CAMEO property using a Colorado Department of Local Affairs grant and CPW has entered into a long-term perpetual lease of this property from Palisade.

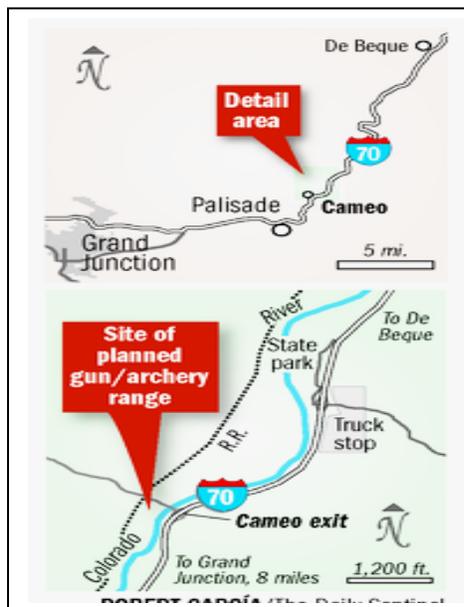


Figure 1. Proposed CAMEO Project Site



Table 1. Recreation Opportunities at the CAMEO Shooting Complex

PART ONE				
Phase	Type of Range	Disciplines	Distance (Yards)	# of Positions / Bays
1A	Public Range	All Purpose Range	40	40
		Pistol Range, Multipurpose	25/50	30
		Rifle Range	100	20
		Rifle Range	200	10
		Archery Range	60	16
	Special Event/Club Complex	Action Shooting/3-Gun/Cowboy	40	40
			50	72
1B	Shotgun	Sporting Clays Course		15
		Executive Course		8
PART TWO				
TBD	Shotgun	3 Combination Connection Trap & Skeet with 2 trap fields & a 5-stand overlay		
TBD	Archery Complex	Archery Field Course		14
TBD	Rifle	Long Range Rifle	600 / 1000	20
		Precision Rifle (up to 3 courses)		

Table 2. Additional Infrastructure planned for the CAMEO Shooting Complex.

Structure	Purpose / Description	Size
Range Administration Building*	General administration and office space for Range Manager, Assistant, and volunteers	6,900 sq. ft. <i>(first a modular will be used)</i>
Education Building	HE classes, meeting rooms for shooting clubs,	48,000 sq. ft.
Storage Buildings	Shooting range supplies (targets, etc.); 40 golf carts	
Berms	Safety and noise control	8'-12' tall on sides; 20' tall on end/back
Picnic Tables	Several at Phase 1a – a couple at each of the other range areas; to extend the recreation experience	
Parking Lots	150 identified spaces & outlying smaller parking areas	
Fencing	Safety protection around the main public pistol/rifle range & possibly around the sporting clays range	Est. 4,000 linear ft. of 6 ft vinyl coated chain link
Restrooms	2 to be located at the Main Phase 1a public ranges near the entrance	Double units @ 130 sq foot print each
Signage	Appropriate for insuring safety of range users	

The multi-use, world-class CAMEO Shooting Complex will be a controlled access and managed shooting destination-type recreational facility located on approximately 1,880 acres along Interstate I-70 just east of Grand Junction, CO. CPW will construct safety and noise berms as needed throughout the complex. Shelters will be provided at most, if not all, fire lines. A Best Management Practices lead management program developed by the Environmental Protection Agency (EPA) will be used to address and manage lead contamination issues that may arise from shooting activities at the proposed complex. CPW will hire a full-time on-site manager, assistant manager, and safety officer for the shooting range complex.

This project will not cause any known direct impacts to wildlife, vegetation, water, and cultural resources. CPW will provide conservation measures as recommended by the FWS Western Colorado Field Office (WCFO) to avoid, protect, and mitigate any potential impacts to the Colorado hookless cactus, a Federally-threatened species, which has been found to occur at the CAMEO site. CPW will utilize Best Management Practices and will provide mitigation measures for any potential noise or safety impacts.

1.2 PURPOSE

The purpose of this shooting complex is to provide a safe, easily accessible setting for public shooting recreation. Expected results and benefits will provide numerous and varied shooting opportunities for the public in an area where such opportunities are limited or not available. CAMEO will provide opportunities for marksmanship practice, live-fire exercises in hunter education classes, a safe place for hunters to sight in rifles and shoot clay targets before hunting season. CAMEO will include several pistol/rifle ranges; action shooting ranges (shooting complex and cowboy); shotgun ranges (sporting clays, trap & skeet fields); archery complex ranges; and other rifle ranges. The shooting complex will also include a combination meeting room/classroom for Hunter Education Classes and other events, vault toilets, and a retail shop for visitors. This shooting complex will likely be able to host other special events such as National Rifle Association (NRA) Women on Target, as well as various types of shooting competitions. It will extend shooting opportunities to 4-H and other civic groups and will allow some Law Enforcement use each month during low public use times.

1.3 NEED

CAMEO will help meet the ever growing need for clean, safe, and fun places to shoot for users from all over the region and the country. In addition to the recreational benefits, CPW hopes to use this facility to help meet its education and outreach goals and to inspire the next generation of outdoor enthusiasts.

Results of an initial CPW survey of public support for the proposed CAMEO project indicated that of 1000 local residents queried, over 95% of the respondents supported this new shooting sports complex in the Grand Valley (Appendix B). Several state, county, local government and non-governmental organizations have stated their support for this unique recreational resource. A list of who will use this range appears in Appendix C. CPW has completed an initial business plan that considers the feasibility of various shooting range components, site planning, and initial design studies for the proposed Cameo project (Vargas 2017).

According to a recent National Shooting Sports Foundation report (NSSF 2016-17), hunting and target shooting contribute \$110 billion to the United States economy. In Colorado, approximately 259,000 people hunt each year according to the Congressional Sportsmen's Foundation. Colorado hunters spend approximately \$185 million on hunting equipment and \$221 million on trip-related expenses annually. This spending results in an approximate \$763 million ripple effect on Colorado's economy. Of note, these figures do not include the additional input into the state's economy from recreational shooters. CPW feels strongly that it must foster the 3Rs (hunter recruitment, retention, and reactivation) described by the Council to Advance Hunting and the Shooting Sports (CAHSS) to maintain and enhance hunting recreation in Colorado. The new public range opportunities will be very beneficial in providing hunter education (HE) courses and live-fire shooting experiences for HE students.

Wildlife officials estimate that shooting sports add \$27.8 billion dollars to the U.S. economy and sportsmen contribute \$2.9 billion every year for conservation, including \$4.95 billion in annual federal tax revenue (NSSF 2016-17). Palisade town officials agree that such a complex could be an economic boon for the town and for Grand Valley. Palisade currently struggles economically especially through the winter months each year since its economy is primarily based on agri-businesses (peach production and wineries). The proposed facility is estimated to attract 50,000 shooters a year, which will greatly increase visitation to this area (Vargas 2017).

CPW's goal is to improve shooting range recreation throughout Colorado. There is a great need to provide more safe public shooting ranges throughout the state. CPW Commission Policy was approved in 2013 to "foster the development of programs that encourage people to begin and continue to hunt." It also "placed a high priority on developing and maintaining facilities, infrastructure, and access to developed shooting ranges on State Wildlife Areas and Parks, as well as on private, local, county, state, and federal lands." Later in 2014, the Colorado State Legislature approved House Bill 14-1275 "to provide funding to purchase up to 2,000 acres of land in Mesa County to build a multi-use shooting facility." Soon thereafter, CPW began working with the Town of Palisade on the CAMEO project. Not only will CAMEO offer several different types of public shooting and educational opportunities, but it will also provide a location for large-scale national and international shooting competitions, providing a significant economic boost to local communities.

The area manager for community and local government affairs for Xcel Energy (previous CAMEO land owner) has said, *"The location will provide for a convenient, safe sport shooting and education complex. Additionally, we know this project will aid in the community's economic development efforts and we are thrilled to be a part of that as well."*

1.4 BACKGROUND

In 1899, a vein of coal was discovered in the De Beque Canyon along the Colorado River. This site would eventually become the Cameo mine and lead to the development of the company town of Cameo in northwest Colorado (Grand Junction Sentinel, 2010). The mine gradually expanded and changed ownership at different times over the years. At one point, there were as many as 30-40 homes in the town. In 1956, part of the land was sold to Public Service Co. (now Xcel Energy) for a power plant.

The community, the coal mine, and power plant that were once in this desert area near the Colorado River are now gone. What's still visible is a transformer station and covered piles of remediated coal ash.

The West Slope of Colorado, and specifically the Grand Valley area, has had a number of economic downturns in recent years. First, the national economic recession in 2004 resulted in the loss of jobs in many rural locations. Next, the Grand Valley and other nearby energy fields experienced significant reductions in energy exploration and development as companies moved their operations to easier and more profitable drilling and transportation locations around the country causing the loss of more jobs. In addition, the more recent downturn of the housing market in these same areas has left a depressed economy in most locations on the West Slope.

Hunting is a very important part of Colorado's economy and is a recreational tradition for many Coloradoans, especially on the West Slope and in the Grand Valley areas in Colorado. Colorado is also well-known for its deer and elk herds and many from around the country travel to Colorado each year for these unique hunting opportunities. Still, the number of licensed hunters has slowly declined in recent years. To address this decline and to support the increase in sport shooting, CPW continues to improve existing shooting ranges while looking for opportunities to develop new shooting ranges across the state.

Palisade and CPW recently partnered together to build CAMEO. Working with a variety of local and national experts, CPW engineers will design and build what will eventually be a one-of-a-kind, destination-type, world-class shooting sports facility in this part of the country.

CHAPTER 2: ALTERNATIVES

2.1 ALTERNATIVE 1 – PREFERRED ACTION

CPW prefers to develop a first class recreational public shooting and education facility at the proposed CAMEO project site. CAMEO will be a controlled access and managed facility. Part One (Phase 1A & 1B) has been fully designed and would be constructed first. Part Two has yet to be designed and will be constructed within the next couple of years. CAMEO will offer several types of shooting recreation opportunities including the following types of ranges (see Table 1).

Part One

Main Ranges (Phase 1A) – Public ranges (40, 25/50, 100, and 200 yards – 116 total positions), Archery range (60 yard – 16 positions), Special Event/Club complex (Action shooting/3-Gun/Cowboy – 112 positions).

Shotgun Range (Phase 1B) – Sporting clays course (15 positions) and Executive course (8 positions).

Other Shooting Range Amenities - Administration and education buildings, restrooms, pay station, storage facilities, parking lots, etc.

Part Two

Shotgun (3 combination Connection Trap & Skeet with 2 trap fields and a 5-stand overlay)

Archery Complex (Archery field course)

Rifle Range – Long range rifle (600/1,000 yards – 20 positions) and Precision Rifle (up to 3 courses)

Additional structures and infrastructure planned to support the shooting range recreation at CAMEO including: parking, check-in, restrooms, golf cart rentals, Hunter Education classrooms, storage, and picnic areas (see Table 2).

CAMEO will be constructed and managed using the most appropriate Best Management Practices (EPA, NRA). This will insure that all construction and future management activities carefully monitor and lower any lead and dust levels at CAMEO. All ranges at CAMEO will be designed and constructed in compliance with American Disabilities Act (ADA) standards.

The CAMEO location is easily accessed from Grand Junction (20 miles east) via Interstate 70 (CAMEO Exit); it is also 73 miles west from Glenwood Springs, 87 miles south from Meeker, 104 miles from Eagle, and 276 miles west from Denver. The property is owned by the nearby town of Palisade and is currently being leased by CPW. Additionally, the CAMEO location is in close proximity to the Island Acres section of the James M. Robb Colorado River State Park. The nearby state park will provide camping and other recreational opportunities.

The location of CAMEO in the De Beque Canyon and the presence of the Colorado River, a rocky mountain bighorn sheep herd, wild horses, and a variety of plant communities nearby provide unique opportunities for education, recreation, and outreach.

CAMEO will be an adaptive re-use of abandoned industrial sites that once housed a coalmine and a coal-fired power plant in eastern Mesa County. Previous development on the site means that some amenities like power, water, and roads are already developed on the site. Importantly, CAMEO will eliminate the current use of this area for informal recreational shooting and instead provide a safe, multi-use, world-class shooting complex at CAMEO.

The majority of the CAMEO project will offer several different types of shooting and educational opportunities (see details in Table 1). CAMEO will be designed and completed in two main parts. CPW has finalized designs for Part One - Phase 1A and 1B and plans to begin construction once the EA process is completed and Pittman-Robertson Wildlife Restoration Act grant funds have been obligated by the FWS. Part Two will be constructed soon thereafter as time and funding allow. Additional structures and infrastructure planned to support the shooting range recreation at the Complex are described in Table 2.

Details of all planned construction activities are provided in Table 3 (below) and Appendix D.

Table 3. CAMEO Construction Details

Construction Activities	Description	Specifications
Cross slopes for Ranges and Parking Areas	Graded moderately northwest to southeast at 2% to accommodate ADA activity across project area	Grading plan will consist of cuts up to 15' and fill areas up to 11'; will drain to retention ponds
Parking Lot Area	150 identified spaces with smaller, general parking lot areas for special events	Constructed of recycled asphalt (CDOT); drainage will continue to be directly to nearby channel
Impervious Areas	Shooting lane concrete pads, 2 group picnic areas, a modular building concrete pad, a storage building, and 2 vault toilets	Approximately 22,000 sq. ft.; current impervious is 0% and final will be approximately 2%
Disturbed Areas	Ranges, access roads, building sites, etc	Approximately 1,017,676 sq. ft.
2 Retention/Detention Ponds	<ol style="list-style-type: none"> 1) Retention pond to maintain water quality of Phase 1A ranges near entrance 2) Detention pond to maintain water quality of other ranges on south side of the project site 	<ol style="list-style-type: none"> 1) Capacity will be increased from 2 acre-ft to 7.7 acre-ft (greater than 100 yr. estimated runoff event) 2) Capacity will be increased from 3 acre-ft to 6.5 acre-ft (greater than 100 yr. estimated runoff event)
Lead Reclamation Plan	Based on the health and safety of the shooters. Amount of lead shot buildup will be regularly monitored & reclaimed when necessary	Water quality control measures used to monitoring proper pH levels of the soil and the ponds. Vegetation will be planted that are NOT food sources for local avian species.
Vault Toilets	2 to be located at the Main Phase 1a Public Range near the entrance	Double units @ 130 sq ft foot print each.
Stormwater Control / Retention Ponds	SWMP from the State will be required of contractor chosen	Contractor will likely use erosion control BMPs such as ponds, silt fences, straw waddles, and other standard techniques
Potential Toxic Runoff	Previous industrial uses of the project site could create toxic runoff events during construction	Rare Earth is under contract to insure no such events occur during project site construction activities; no cutting will be allowed in old spray pond locations, only fill can be placed within the limits of the ponds.

Other support facilities will include: 1) Pro Shop with a pay station and check-in for facility use and sale of ammunition, arrows, support supplies; restrooms; a waiting area; video demonstration area; and an office for staff; and 2) Indoor Classrooms that provide the educational component of the facility for a wide variety of the public and also some law enforcement classes.

The range complex will likely be used to some extent by hunter education instructors, NRA instructors, military personnel, school district staff, and many others. Local law enforcement will be able to use the range each month during low public use times.

The facility will be designed with a maximum 2% slope to accommodate access for all shooters and comply with ADA standards throughout the facility. All ranges will also be designed to have a 1-2% cross slope so that drainage collects along one side and is directed off the range. All range runoff (not including parking areas) will be directed to retention/detention structures which will be sized to capture up to 5-year runoff events. This runoff will be tested regularly to assure the soil pH levels are within the pH 6-8 recommended range to prevent leaching or transporting of the lead off site. Lead reclamation will be completed approximately every two years depending on actual use of the ranges. The main public ranges, however, may require more frequent reclamation. The Software Designed Zone (the area of concern regarding shot fall zones behind and within a 5 degree cone from firing line) does not place rounds within any structures, private property, or roadways.

Noise/safety berms will be constructed around all of the main handgun and rifle ranges. These will generally be approximately 20' wide, 8' tall, and of various lengths depending on the range. Due to the proposed orientation of the ranges and the existing topography of the CAMEO site, no baffling has been planned at this time. Fencing will be constructed around ranges to restrict access to users.

CPW recognizes the challenges of rehabilitation and re-use of this industrial site. It also acknowledges the critical industrial infrastructure that will remain on this site and in this area. A prime design consideration for this facility will be the protection of all utility infrastructure remaining in this area. CPW also recognizes Xcel Energy's need to maintain ownership of certain portions of the CAMEO project area (remaining Xcel Power Plant & operable substation). Coincidentally, the use of this area as a professionally managed and maintained shooting range will provide added security for the remaining Xcel infrastructure at the site. CPW benefits from the previous development on the site because amenities such as power, water, and roads are currently in place.

In 2016, CPW hired Rare Earth Science to complete an analysis of potential environmental and engineering concerns related to the remaining industrial sites at the CAMEO project area (see Table 3 and Appendix E). Some Snowcap and Xcel industrial sites are still located at CAMEO and are in various stages of reclamation and bond-release. CPW has designed and located all ranges at CAMEO based on this risk assessment and guidance to avoid any interactions with areas that exhibit environmental or engineering concerns. These concerns are listed below in Table 4.

Table 4. Remaining Snowcap and Xcel Industrial Sites at CAMEO.

Industrial Site	Description & Map ID #s	Acreage	Environmental Concern	Environmental Action
Snowcap Coal Mine	A.1 Bulk of Reclaimed Areas	88	Limited - 2 large coal-refuse disposal areas (88 acre) already capped and reclaimed	Approximately 12.2 acres remain to be bond-release ; off limits for the time being
	A.2 Remaining Bond-Release Areas	12.2		
Xcel-Retained Parcels	B.1 Concrete Mine Portal	.02	Has environmental covenant for contaminated concrete foundation near portal	Area will be avoided
	B.2 Coal Un-loading Area	6.7	Has environmental covenant for residual coal in the area; elevated lead & arsenic in soil samples	Area will be avoided
	B.3 Drainage Facilities	2.4	Has environmental covenant for storm water channel & detention pond associated with 35 acre Ash Disposal Facility with 30-year post-closure monitoring obligation with CDPHE	Area will be avoided
	B.4 Former Power Plant Area	12.93	Xcel has retained this area which includes an operable electrical substation	Area will be avoided
Other Former Xcel – Occupied Areas	C.1 Coal Pile	3.5	Limited – Coal excavated, closure standards met	None
	C.2 Detention Pond	.3	Limited – Coal excavated, closure standards met	None
	C.3 Retention Pond	.05	Limited – Coal excavated, closure standards met	None
	C.4 Spray Pond	.78	Closure standards met – some coal ash left in place	Phase II ESA required
	C.5 Coal Pile Runoff Pond	.08	Previously excavated – currently encompassed by ADF storm water detention pond	Area will be avoided

Former Solar Array Area	D.1 Former Solar Array	6.3	Down-gradient from Xcel power plant and coal-unloading area; subject to environmental covenant	Phase II ESA to install groundwater monitoring wells
Old Coal-Ash Piles	Coal-Ash Pile No. 1	Unknown	Residual coal ash/waste dumped on the ground surface or used in embankments on site	Phase II ESA required to sample & analyze to determine if formal disposal is required
	Coal-Ash Pile No. 2			

CPW plans to construct Part One ranges in Snowcap bond-release areas. Part Two ranges will be constructed in portions of the project area that have not been previously disturbed by industrial activities. CPW will restrict access at CAMEO to any other prior industrial site listed above that lists either an avoidance action or a Phase II EPA requirement.

The proposed educational facility will be used for a wide variety of citizen and law enforcement purposes. Hunter education instructors, NRA instructors, military personnel, school district staff, and 4-H, Boy Scouts, and many others could possibly utilize this facility on an incidental basis. Although this facility will primarily be used for instruction on hunting and shooting sports, the facility could also be used for instruction in environmental education and other forms of outdoor living/recreation. Local law enforcement will be able to use the range each month during low public use times. See Appendix C for a list of all possible users of this range.

CPW has begun to reach out to partners and affected parties and, as the project progresses, will continue to work with the many interested parties to continue to build support for the project to reduce or eliminate any potential conflicts if they arise. A public opinion survey completed by CPW for the Cameo Shooting Complex project indicated that out of 1000 residents queried, over 95% of the respondents supported this new shooting sports complex in Grand Valley.

2.2 ALTERNATIVE 2 – NO ACTION

With no action, informal recreational shooting would continue to occur in the CAMEO area, raising safety issues from unintended targets to uncontrolled shooting and shooting-related debris and trash left at various locations. It is unknown if lead would become a concern due to continued unsupervised, informal shooting activities at CAMEO; but if shooters congregated in certain areas it may become a concern. The main effect would be a continuation of public dissatisfaction at not having a safe, public, outdoor location for multiple types of shooting recreation. Another similar opportunity would need to

be discovered that could be located at this abandoned industrial site and could offer the same recreational and economic benefits.

CPW has been working to find such a suitable location for a large public shooting recreation complex for several years. Some of the main CPW efforts involved the FWS National Rocky Mountain Arsenal Refuge (Montbello, CO), the Lowry Superfund Landfill Site (Aurora, CO), and other Adams County locations in the Denver Metro Area. Of course, any of these locations would have provided a great public shooting complex for the Front Range. However, after much discussion an agreement could not be reached between the stakeholders and local landowners for any of these projects to proceed. After this effort, CPW began looking for a viable location for a large public shooting sports complex on the West Slope and the Grand Junction area offered the most benefits for additional public shooting recreation opportunities.

CHAPTER 3: AFFECTED ENVIRONMENT

3.1 LOCATION, CURRENT MANAGEMENT, & USE

The CAMEO Shooting Complex is located near the western border of Colorado, 250 miles west of Denver, in Mesa County. The County, one of the sixty-four counties in Colorado, encompasses 3,309 square miles, of which approximately 72 percent is publicly owned and is controlled primarily by the U.S. Forest Service and the Bureau of Land Management. Mesa County, which is frequently referred to as the Grand Valley, is the fourth-largest county by area in Colorado (Wikipedia). The City of Grand Junction is the county seat and is the largest city in western Colorado. The Grand Junction area serves as the banking center, health care service provider, and retail trade center for a large geographical area in western Colorado and eastern Utah. Retail sales have been important to the economy for decades (e.g., gasoline, and hunting and fishing related sales) and uranium mining-related activities have been significant.

The Xcel power plant was built in 1957 using uranium mill tailings in foundations and walls. Xcel closed the power plant in 2011 due to inefficiency as Colorado began phasing out coal-fired power plants, which generate 64 percent of electricity in the state. The Colorado Department of Public Health and Environment (CDPHE) later approved Xcel's cleanup of coal ash, on the condition that the company fix a coal chute and cover a coal ash landfill by December 2017. State mining regulators say they are in the process of approving Snowcap Coal's full reclamation of most of the previous coal mine land for the complex. There are a few portions within the CAMEO project area where revegetation is still required and will need to be approved by the Colorado Division of Reclamation, Mining and Safety (see Table 3 above).

In 2014, Xcel removed and relocated 2,000 cubic yards of uranium material at their CAMEO site to a U.S. Department of Energy disposal facility. State and Xcel officials will continue to monitor uranium tailings and uranium encased in concrete for public health threats.

Since the project area was previously utilized as an underground coalmine and, later as a power plant, amenities including power, water, and roads are already developed at this site. As pointed out

previously, some industrial infrastructure (the Xcel Power Plant and an electrical substation) remains within the CAMEO project site and will be in place for the foreseeable future.

Unsupervised informal shooting currently occurs on the project area. A canal runs along the east border of the project area, as does the Riverfront Trail Expansion, and railroad tracks. To the east the Colorado River flows southwest into the Grand Valley.

3.2 SOCIO-ECONOMIC RESOURCES

From the time settlers arrived in the 1880s until the 1960s, three of the main economic activities in the region were farming, fruit growing, and cattle ranching. Mesa County's moderate year-round temperatures and lower humidity combine with a system of irrigation canals that divert water from the Colorado River to create ideal growing conditions for agri-business products. For example, the climate in nearby Palisade provides for a 182-day growing season with an average 78 percent sunshine throughout the year.

Education and healthcare have been important to the economy of the area, especially since the 1950s, with the rise of Colorado Mesa University and St. Mary's Hospital as leading employers in these fields. The city and the surrounding Grand Valley became prosperous in the 1970s and early 1980s largely because of the effects of oil shale development. Currently, the energy industries have been depressed in the Grand Valley area causing a significant economic downturn in this area.

As of the census of 2010, there were 146,723 people, 58,095 households, and 38,593 families residing in Mesa County. The average household size was 2.47 and the average family size was 2.94. There were 62,644 housing units. The population density was 44.1 people per square mile (17.23.1/km²). The median age was 38 years. The median income for a household in the county was \$35,864, and the median income for a family was \$43,009. At the 2010 census, the population of Palisade was 2,692.

3.3 PHYSICAL ENVIRONMENT

The CAMEO lease access boundary for the shooting range is approximately 1800 acres in size and is located in T10S, R98W, Sections 27, 28, 33, and 34; and T11S, R98W, Sections 3 and 4.

The Grand Valley area displays a semi-arid climate, almost grading into an arid type. Grand Junction sits in a large area of high desert lands in Western Colorado (Best Places.com). Winters are cold and dry with a January mean temperature of 27.4 °F (-2.6 °C). Due to its location *west* of the Rockies, Grand Junction does not receive as much influence from the Chinook winds as locations in Colorado east of the Front Range, yet it does receive protection from the Arctic masses that can settle to the east of the Rockies. Snowfall is low compared to the rest of the state, averaging 19.1 inches (49 cm) per season. The area receives little precipitation year-round, averaging 8.5-9.5 inches (239.3 mm) with no significant seasonal spikes. Seasonal patterns of precipitation in the Coal Creek watershed are believed to closely reflect those measured at the closest National Weather Service site 15 miles downstream in Grand Junction (Appendix F).

Sunshine hours are abundant, even in winter, and are 73 percent of the possible total. The comfort index in Mesa County, which is based on humidity during the hot months, is a 66 out of 100. Palisade's climate is relatively mild by Colorado standards, as well. The town sees 14 inches of snow each year and 10 inches of average precipitation.

3.3.1 Landscape

Generally, the landscape of Mesa County has many unique features as it is located in a river valley surrounded by contrasting natural landmarks such as the Colorado National Monument to the west and the Grand Mesa National Forest to the East. The CAMEO site is located within the De Beque Canyon where the Colorado River enters the Grand Valley from the east. The steep, high rock faces of the Book Cliffs overlying the Roan Cliffs delineate the canyon.

3.3.2 Geology

Undifferentiated Mesaverde Outcrop (USGS, 2000) characterizes the geology at CAMEO. The Mesa Verde Group forms the Roan Cliffs, which overlie the Book Cliffs that border the CAMEO site to the west and north. These cliffs form a 200-foot thick sequence of sandstone and mudstone that were deposited near ancient seacoasts during the Late Cretaceous Period. After deep water of the Mancos Formation receded, the shallower water environments of the Mesa Verde Group were deposited. The repeating sequences of mud and sand show the changing water depth and changing coastlines of the Western Interior Seaway during this period. The Mesa Verde Group is the last rock unit in the Grand Valley to be deposited during the "Age of Dinosaurs." Many different types of Quaternary alluvial deposits are found below the Mesaverde outcrops and above the Colorado River in this area. The Roan Cliffs are formed from the Eocene Green River formation of sandstones and siltstones (34-56 million years ago), while the Book Cliffs are comprised of older Paleocene shales of the Wasatch formation (56-66 million years ago).

3.3.3 Soils

The project site has a naturally high rate of erosion. Freeze-thaw cycles are most pronounced on south-facing slopes. Soil development is very limited due to the low precipitation that is typical of this area. Infiltration rates are low and runoff high. Fires are fairly infrequent and not an important ecological process.

The project site is characterized broadly by the Persayo-Badland-Chipeta soil association (USDA, Soil Conservation Service, 1978; Appendix G). Soils in this association are shallow, gently sloping to steep, well-drained silty clay and silt loam soils that formed in residuum from shale and in rolling to very steep badlands. Badland consists of gypniferous shale that contains layers of sandstone outcrop along canyon walls; this produces a large amount of sediment. The landscape is rough and broken and has rolling hills that are separated by many narrow valley or gullies. Chipeta and Persayo soils formed in material weathered from shale on uplands; these soils are moderately alkaline. Soils within an association ordinarily vary in slope, depth, stoniness, drainage, and other characteristics that may affect their management.

3.3.4 Topography

Probably the most striking feature of the CAMEO project site is the great variation in relief (Appendix H). The site is located on depositional benches and tables below the steep walls of the De Beque Canyon. Mount Lincoln is well-known landmark in this area. These areas are mostly characterized by steeply rolling terrain with intermittent flat areas and rocky outcrops and cliffs. The Coal Creek watershed, in which the CAMEO Project is located, ranges from 4,770 feet at the mouth of Coal Creek at the Colorado River to a height of approximately 7,120 feet to the northwest (Figure 2). The lower part of the project area is located in a 100 year floodplain just above the Colorado River.

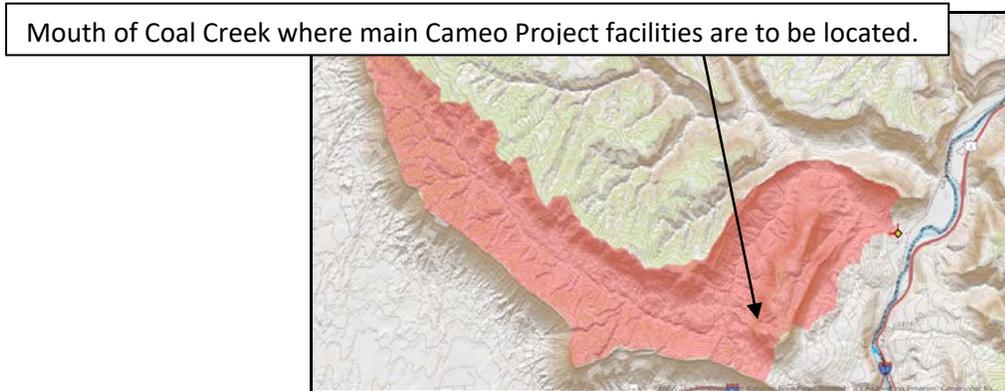


Figure 2. Coal Creek Watershed

3.3.5 Water and Wetland Resources

Climate and geology are the main drivers for determining the baseline water resource environment where the CAMEO project will be implemented. The total Coal Creek watershed area is 12.9 square miles and drains a complex network of dissected canyons, draining rims of the Book Cliffs and overlying Roan Cliffs. These existing geological formations provide the sharp relief evident throughout the drainage, but also are subject to mass wasting and regular erosion from rainfall, freeze/thaw cycles, and dry ravel through normal precipitation and wind-related weathering. Slopes throughout the watershed that are not bedrock dominated, including within the Cameo site, reflect quaternary erosional processes and are a mix of coarse material (to boulder size) and fines; swales reflect depositional sites for eroded cliff materials that are further dissected by gullies that cut colluvial sediments and drain water and sediment toward Coal Creek.

The Book Cliffs and Roan Cliffs were formed in ancestral lake or seabed environments. Both are comprised of fine-grained materials high in dissolved salts, and the eroded material is easily transported via stormflow into the drainage network within the Coal Creek drainage. As such, when extreme precipitation events result in flowing water in Coal Creek, the dissolved and suspended loads are extremely high and the resulting flow in Coal Creek is more adequately characterized as a slurry of combined water and mud.

3.3.5.1 Surface and Groundwater Water Quantity

As previously described, evaporation far exceeds precipitation and because the entire Coal Creek drainage has a similar heat and rainfall regime, Coal Creek is considered a dry wash and flows only in response to fairly extreme rain events and occasionally in response to snowmelt from higher elevations in the watershed (Figure 3). Annual peak flows would be expected to occur either through occasional “rain on snow” events in late winter or early spring or through high-intensity precipitation occurring during monsoonal events in mid to late summer. There are no perennial streams within the drainage and no springs were observed on the Cameo Project site during field inventories. The general character of Coal Creek reflects a non-perennial desert wash without characteristic riparian vegetation, soil development, or hydrology that would reflect jurisdictional waters (i.e., tributaries – streams that have a bed, a bank, and an ordinary high water mark that flow into a traditionally navigable water or adjacent wetland and other open waters such as ponds that are next to a jurisdictional water).



Figure 3. Photos of Coal Creek taken from road crossing/ culvert located approximately 1/2 mile from the mouth, looking upstream (left) and downstream (right).

No water right filings exist within the drainage which reflects a lack of reliable water supplies within the basin. A well permit search indicated that three wells had been drilled by the prior owner in the upland project areas to depths of or slightly deeper than one hundred feet. None yielded water and all were drilled as monitoring/ sampling holes related to coal mining, power production, and stockpiling of inert mining materials. One well located just east of the Cameo Project location (Permit No. 31742-F) was drilled by the predecessor into Colorado River alluvium to a depth of 42 feet and yielded 75 gallons per minute. The well was used as a backup water supply for cooling. The well log for this well indicates that shallow groundwater connected to the Colorado River could occur at the far eastern/downstream fringes of the Cameo site where alluvial and colluvial deposits generated from Coal Creek overlie alluvial deposits connected to groundwater emanating from the Colorado River.

Locally on the Cameo Project site, there are drainage ditches that route storm water from the base of

hillslopes north of the proposed main range area into Coal Creek before it reaches the Colorado River (Figure 4). These ditches appear to flow only in response to high intensity rainfall events and deliver water and sediments directly into Coal Creek.



Figure 4. Main area of proposed small bore pistol and rifle range. Drainage swales upslope and behind the developed/ graded area route water around main range area.



Figures 5 and 6. Storm water drainage ditches routing water towards Coal Creek, located below terrace in background of the lower picture.

To the south of the proposed main Part One range area and access road is a constructed stone channel called the “Ash Disposal Facility Surface Water Diversion Channel” (ADF Channel) that routes water draining the Ash Disposal Facility over large clasts into a detention basin estimated to hold approximately 5 acre-feet of potential runoff (Figures 5 and 6), just west of the Government Highline Canal. Site inspection of this channel and the detention basin showed no evidence of surface water runoff reaching the basin, but these facilities were designed to mitigate the potential for runoff from the ash disposal facility to reach the river. The ADF Channel (Figure 7) is owned by Xcel Energy and retains an environmental covenant related to mine closure and reclamation. Though the ADF Channel and detention pond is located within the Cameo Project site, this site will continue to be managed by Xcel Energy and will not be disturbed by project activities.



**Figure 7. Ash Disposal Facility
Surface Water Diversion
Channel (left) and detention
basin (bottom)**



3.3.5.2 Surface Water Quality

As noted in the prior section, surface water from the site is confined to ephemeral flows in Coal Creek or surface runoff (sheet flow, gullies, constructed storm water swales) during high intensity rainfall events. Surface water would be expected to contain high concentrations of sediment draining shale, sandstone, and mudstone parent materials that comprise the Book Cliffs and Roan Cliffs. Concentrations of dissolved solids would be expected to be relatively high due to the marine and sea-based derivation of parent formations that comprise the Coal Creek drainage.

Water quality in the receiving waters of the Colorado River also reflects its position low in the drainage. Unlike Coal Creek however, the Colorado River shows an inverse relation between dissolved solids (as indicated by electrical conductivity) and discharge (Appendix I). Though turbidity (suspended solids and bed load) increases as discharge increases, the concentration of dissolved salts in the river tends to decrease as flows increase, suggesting that parent materials that drain into the Colorado River are fairly soluble. At low flows, dissolved salts can become an issue for water providers that divert directly from the Colorado River.

3.3.5.3. Groundwater Quality

As noted above, there were no wells on the CAMEO project site that reached the water table, despite being drilled to depths of 100 feet or more. Thus, groundwater quality is an unknown, but is not expected to be a resource of concern for the CAMEO project.

3.3.5.4. Wetland and Riparian Resources

Also as noted above, there were no springs, seeps, or other sources of live perennial or near-perennial water on the Cameo project site; no wetlands were identified during site inventories. Coal Creek is noted as a riparian resource on the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) due to its important function routing storm water and occasional snowmelt runoff from a fairly large desert watershed to the Colorado River. Site inspection revealed no vegetative, soil, or hydrologic characteristics within or adjacent to Coal Creek that would define this drainage as a wetland under current Clean Water Act jurisdictional determination guidelines; though, there is a clearly defined high water mark within the Coal Creek channel margin. Though not a jurisdictional feature, the important drainage function provided by Coal Creek in this area is noteworthy and recognized by the project proponents.

3.3.6 Air Quality

Since it is in a rural location, there are no air quality concerns, nor should the ranges cause any to arise. Seventy-three percent of days (or 269 days) each year has an Air Quality Index (AQI) in the “Good Range” (Mesa Co. Environmental Health Statistics). This rating takes into account data related to ground-level ozone, particulate matter pollution, carbon monoxide, sulfide dioxide, and nitrogen dioxide (AirNow, EPA).

In addition to the AQI, the EPA publishes data about particulate matter (PM) pollution, a component of the AQI calculation. PM pollution refers to solid and liquid particles found in the air (less than 2.5 mm in size). These fine particles often form in the air at industrial sites and by vehicles. On average, Mesa County experienced 0.8% of days per year exceeding the maximum PM2.5 concentration for every year it reported data between 1999-2014.

3.4 BIOLOGICAL ENVIRONMENT

3.4.1 Vegetation

The CAMEO project area can be broadly characterized as a desert shrub type of habitat (Appendix J). Large disturbed areas occur near the CAMEO entrance by the Colorado River; these areas have been significantly disturbed in the past from various mining and other energy development activities. Most of these areas were seeded during reclamation efforts after the earlier disturbances; the existing shrubs in these areas are now mature for the most part and appear to be at least 8-10 years old. Common shrubs found in these areas primarily include Saltbush (*Atriplex* spp.), Winterfat (*Halogeton* sp.), Greasewood (*Sarcobatus* sp.), Sagebrush (*Artemisia* sp.), and Large rabbitbrush (*Chrysothamnus* sp.).

A more natural and fairly undisturbed type of vegetation mosaic occurs above these disturbed and reclaimed areas on the southern portions of the project area. This area is characterized by steeply rolling terrain interspersed with relatively flat stretches. The flat stretches are characterized by nearly pure bunch grass vegetation to bunch grass vegetation interspersed with varying amounts of Sagebrush, Winterfat, and Greasewood. These shrubs typically continue up into the hillslopes of the steeply rolling terrain where primarily Juniper trees occur with occasional pinyon pine trees.

The following Colorado Natural Heritage Program (CNHP) Ecological Systems likely occur across the undisturbed portions of the CAMEO site: 1) Colorado Plateau Mixed Bedrock Canyon & Tableland; 2) Inter-Mountain Basins Greasewood Flat; 3) Inter-Mountain Basins Mixed Salt Desert Scrub; and 4) Colorado Plateau Pinyon-Juniper Woodland. Overview, characteristic species, and environment details about each of these ecological systems are provided in Appendix K.

3.4.2 **Wildlife**

Appendix L identifies big game species and other wildlife species noted in CPW's State Wildlife Action Plan (CPW 2015) that have been confirmed or are likely to occur on or near the property proposed for the Cameo Shooting Complex. Six key species, Peregrine Falcon, Golden Eagle, Yellow-billed Cuckoo, Southwestern Willow Flycatcher, Mexican Spotted Owl, and bighorn sheep, were selected for further discussion. All six have been confirmed using this area from prior survey work conducted by CPW and are addressed below in more detail (Appendix M).

Peregrine Falcon: Peregrine falcons are included in the State Wildlife Action Plan as a Tier 2 species of greatest conservation need. Peregrine falcons have used several historic eyrie sites several hundred feet above the De Beque Canyon valley floor along the south and east face of Mt. Lincoln at CAMEO as recent as 2006, and in the cliffs below the topographic point labeled "6100" as recent as 2003 (Rossi 2015) due north of CAMEO. Post-delisting surveys conducted in the spring and early summer of 2009, 2012, and 2015 did not confirm an active eyrie in the area, although they were observed flying in this area. The substantial vertical separation between the proposed Cameo facilities and the earlier eyrie sites would also reduce potential disturbance should the eyrie sites become active in the future. High occupancy rates of monitored nests in Colorado suggest that this species is recovering from historic crashes noted in the late 1960's (Rossi 2015).

Golden Eagle: Golden eagles are included in the State Wildlife Action Plan as a Tier 1 species of greatest conservation need. Golden eagles have used two historic nest sites near Cameo, one on the bench below Mount Lincoln's southeast face and one due north of CAMEO. The two nests were originally located by USFWS surveys along the Book Cliffs. CPW first checked their status in 1999 with activity not determined. Surveys conducted in May and June of 2011 did not find golden eagles present. Consequently, the status of the two golden eagle nests has been inactive or undetermined since the early 1980's. No golden eagle nest sites are currently known to be active in the immediate vicinity of the CAMEO site. Nest site abandonment may have begun many years ago, as an active nest has not been found in the previous 5 years.

Yellow-billed Cuckoo: CPW does not have evidence that this species occupies the CAMEO site. Critical habitat unit 55 includes approximately 25 miles of the Colorado River in the Grand Valley, extending from Palisade (just upstream of the Highway 6 crossing of the Colorado River) downstream through the city of Grand Junction. The Cameo site is approximately 3 miles upstream of proposed critical habitat. The FWS has recently located some limited potential habitat for the cuckoo at the far northeast corner of the project area. This site, however, is significantly impacted by nearby recreation, industry, I-70, and train traffic and so has very limited real potential as cuckoo habitat.

Yellow-billed Cuckoos are secretive and difficult to survey. Survey efforts have also been inconsistent. However, only 28 sightings have been recorded in Mesa County in the 20 years between 1995 and 2015. With the exception of three sightings in the Plateau Creek drainage, all of the sightings have been west of Palisade. The closest sighting to the Cameo site occurred on the Tillie Bishop State Wildlife Area immediately downstream of Palisade in 2014. This location is approximately 4.1 straight-line miles downstream of the Cameo site.

In summary, the potential for impacts from the CAMEO project on Yellow-billed Cuckoo seems very slight for the following reasons:

- the species is not known to occupy the site per CPW surveys,
- its occurrence in the state is limited,
- the closest known occurrence is approximately 4+ miles from the site,
- the site is located approximately 3+ miles from proposed critical habitat,
- preferred habitat (12 acres multi-storied woody riparian) at the site is limited and of poor suitability, *and*
- riparian vegetation disturbance will not occur and most facilities are located away from riparian areas.
- Some limited riparian habitat on the edge of the project area is significantly impacted by local activities.

Southwestern Willow Flycatcher: Southwestern Willow Flycatchers are often mentioned as occurring with Yellow-billed Cuckoos. While historically considered to occur in the Grand Valley, the subspecies separation line for Southwestern Willow Flycatchers was moved south a number of years ago. Only southwestern Colorado is now believed to be within potential range for the subspecies. The subspecies does not occur at the Cameo site.

Mexican Spotted Owl: Mexican Spotted Owls are not known to occur on the CAMEO site. The canyons above the CAMEO site are mostly open, south-facing slopes that have limited vegetation, consisting principally of scrubby juniper-dominated woodlands and generally lacking the mixed conifers or Douglas fir that typify Mexican Spotted Owl habitat. This project is outside critical habitat for this species.

Bighorn Sheep: Although a hunted big game species, bighorn sheep are also included in the State Wildlife Action Plan as a Tier 2 species of greatest conservation need. Rocky mountain bighorn sheep

were reintroduced to the area around the CAMEO site beginning in 2003. The herd, known as Main Canyon (Data Analysis Unit S-75), numbers approximately 50 individuals and ranges throughout Main and Coal Creek Canyons in the project area and north to Horseshoe Canyon. Colorado's Bighorn Sheep Management Plan (George et al. 2009) further divides bighorn sheep populations into management tiers (not to be confused with the Wildlife Action Plan tier above) of descending priority based on the size of the population and whether it is native or introduced. Primary core (Tier 1) herds are native herds with >100 sheep. Secondary core (Tier 2) herds are those of >75 sheep that are either native or result from translocations. As an introduced herd of approximately 50 sheep, the Main Coal Creek Canyon herd does not qualify for inclusion in either of the CPW priority sheep management tiers. Therefore, CPW has placed a "low priority" on the management of this small herd.

Since the sheep were released in Main Canyon, CPW has closely monitored movement and range using both radio telemetry and GPS collars. Species activity maps were updated in July 2014 for this area using the most recent data available at the time. Since 2014, GPS collar data have dramatically improved information about habitat use by this herd and CPW staff anticipates incorporating these valuable data into the Species Activity Map data set at the next regularly scheduled 4-year map revision interval. The area proposed for the CAMEO project site is currently mapped as bighorn sheep overall, summer, and winter ranges for this small herd. Portions of the area are mapped as winter concentration areas and severe winter range. This herd occasionally uses cliff areas near and adjacent to the project area. The Cameo site is also within approximately 100 meters of a mapped bighorn sheep production area (Rossi 2015).

In summary, the potential for impacts from the CAMEO site development on rocky mountain bighorn sheep seems very slight given the sufficient similar habitat that is available nearby for the bighorn sheep herd.

3.4.3 Federal Threatened and Endangered Species

A list of federally protected species that could occur at the CAMEO site are provided in Appendix N. No federally protected mammals, birds, fish, or insects have been found to occur or have critical habitat at the CAMEO project site (see Appendix L and Appendix M). Threatened and Endangered (T&E) plant survey results identified numerous individuals of Colorado hookless cactus (*Sclerocactus glauca*) located within the CAMEO project area (Appendix O; WestWater 2017a & b). A Biological Assessment was prepared for this threatened plant species and through informal consultation a determination by the Western Colorado Field Office (WCFC 2017) that a determination of "May effect, but not likely to adversely affect" applies to this T&E concern (Appendix P).

3.4.5. Species of Concern

See Appendix L for a list of all species of concern that could occur at CAMEO. These species are addressed in the Colorado State Wildlife Action Plan (SWAP 2015).

3.5 CULTURAL /HISTORICAL RESOURCES

Class I and Class III Cultural Resource Surveys were conducted on the CAMEO Shooting Range Complex area. Some cultural resource surveys had been completed earlier; however, the Colorado Historical Society requires cultural data that is no more than 10 years old. The State Historical Preservation Office (SHPO) has been consulted and reported, “no effect should occur when construction activities are completed” at the CAMEO site (Appendix Q). CPW has also sent out tribal consultation letters to four different tribes that have some jurisdiction in the project area; no response has occurred to date. If historic/archaeological resources are encountered during construction or operation of the range complex, all operations will cease, and the SHPO will be consulted before any work or operation continues.

3.6 NOISE

A baseline noise study was completed at CAMEO in 2017 (Appendix R). The Table Top Sound Model was used to establish baseline conditions for the CAMEO site. This model is based on sound transmission theory and accounts for sites that are characterized by valleys and ridges that capture, bounce, and redirect sound in unknown directions.

Colorado law specifies noise restrictions for sport shooting ranges (Section 25-12-109 C.R.S.). Colorado Revised Statutes Section 25-12-103 declares that noise produced at levels below the following stated values are permissible: ZONE Maximum Sound Level - Residential 55- 50dB; Commercial 60-55dB; Light industrial 70-65dB, and Industrial 80-75. All firearm noise levels tested at the project area were at or below the maximum sound levels allowed by state law.

3.7 SAFETY

CPW will follow all Best Management Practices (EPA 2003) to assure the safety of recreational users of the ranges. Side berms at each handgun and rifle range will be 8-12’ high and the back berm will be 20’ high. CPW will construct fences on the east and west side of Part One - Phase 1A main range area to restrict access behind this area. A fence will also be constructed on the west side of Part One - Phase 1B. All future ranges built during Part Two of the project will also include fencing to restrict access and to insure the safety of range users. All ranges at CAMEO will be ADA compliant.

CPW will use recycled asphalt to cover the surface of all access roads and parking lots to provide safe access especially during inclement weather to recreational users. CPW will regularly monitor lead levels in the soil and water runoff in the retention ponds. If lead levels are high CPW will use appropriate materials to reduce these levels at the range. CPW will also work to regularly remove lead shot at the various ranges.

Three full-time CPW range staff will be hired to manage all shooting range activities: a Range Manager, an Assistant Manager; and a Safety Officer. CPW will also recruit local volunteers to increase management presence at CAMEO.

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

4.1 LOCATION, CURRENT MANAGEMENT, & USE

Preferred Action - The CAMEO site is an adaptive re-use of abandoned industrial sites. A net positive impact is anticipated. Positive impacts will include new outdoor recreation opportunities and increased economic benefits in this area. This project will provide shooting opportunities for the public in a safe outdoor recreation community and setting. Users will be able to improve marksmanship, sight in before hunting season, participate in hunter education classes, and practice live fire at CAMEO. The minimal amount of surface disturbance planned by CPW to construct the various ranges at the shooting complex lends itself very well to the planned avoidance of certain industrial waste that still exists in the area. The spaced range sites allow CPW to retain much of the natural terrain and vegetative features that characterize this area. The Geological Survey has also approved this light, low impact use for this site where there has been landslide events in the past associated with the steep cliff face characteristic of the Book Cliffs (Appendix S).

With the precautions being taken by CPW at the main public shooting ranges located near the entrance, no impacts are anticipated to the canal, trail, railroad tracks, or the Colorado River.

No Action – The abandoned industrial sites will remain at CAMEO. It will continue to be used for unsafe and unregulated, informal recreational shooting in the future. In addition, it appears that future use consideration will be limited to low impact projects.

4.2 SOCIOECONOMICS

Preferred Action - The economy of nearby towns of Palisade and Grand Junction, as well as the Grand Valley itself, will undoubtedly benefit from this world-class, destination-type shooting and education complex. The increased visitation to these local areas will result in a more diversified, year-round source of revenue for their economies.

No Action – The local economies will not realize anticipated economic benefit.

4.3 PHYSICAL ENVIRONMENT

4.3.1 Landscape

Preferred Action - The proposed shooting complex will slightly alter the current landscape of the CAMEO Shooting Complex area. The project will impact relatively little of the 1880-acre project area with actual ranges. The access road up to the Part Two portion of the project area will be re-routed to provide safer access to the more remote ranges being planned. The re-routing will actually be helpful in avoiding the Threatened Colorado hookless cactus individuals found in this area.

No Action - The landscape will remain the same.

4.3.2 **Geology**

Preferred Action - The proposed shooting complex will not have any impact on the geology of the area. The geology of the area will not be impacted while the proposed project is constructed.

No Action – Geology will remain the same.

4.3.3 **Soils**

Preferred Action - The proposed shooting complex should not have any impact on the soils of the area. CPW will employ Best Management Practices and carefully monitor any lead build up at the ranges on a regular basis.

No Action – Soils will remain undisturbed and no impacts to the soils will occur other than those caused by natural precipitation events.

4.3.4 **Topography**

Preferred Action - CPW will not alter the topography significantly to develop the CAMEO Shooting Complex because it plans to retain the current natural terrain as much as possible to assure that the shooting complex remains as a very unique environmental setting for outdoor recreation.

No Action – Topography will remain the same.

4.3.5 **Water Resources**

Preferred Action - The proposed shooting complex should not have any impact on the water (surface and ground water) and wetland resources of the area due to the locations and designs of the planned range complex. CPW will construct water retention ponds to be able to regularly monitor and control any water with high levels of lead on the site.

No Action - Surface and ground water quality and quantity will remain the same.

4.3.6 **Air Quality**

Preferred Action - CPW will create high levels of dust at the shooting complex area during the construction phases of development. The construction contractor will monitor and reduce any dust levels of concern. Once construction is completed the proposed shooting range activities should not cause any significant changes in air quality in the area. All exposed and graded dirt access roads and parking lots will be covered with recycled asphalt to reduce dust levels and to assure good access to the various ranges during inclement weather conditions. Other than potential dust during the construction phase, the project should not create any changes to current air quality conditions in this area.

No Action – The air quality will remain the same.

4.3.7 **Cumulative Effects**

Preferred Action – Soils and topography will be slightly altered or disturbed at the construction site. This will cause a change in the drainage in the more immediate area near the actual range areas. The ranges will be constructed so that all water will drain into the runoff retention ponds. Since Best Management Practices will be used (EPA 2003 and NRA 2012), no negative effects are expected.

No Action – No changes in the physical environment will take place

4.4 BIOLOGICAL ENVIRONMENT

4.41 **Vegetation**

Preferred Action - The proposed shooting complex will not have any significant impact on the vegetation in the project area. CPW will control any noxious weed invasions caused by construction activities. Still, CPW will endeavor to disturb the natural vegetation as little as possible to retain the natural conditions of the area.

No Action – The vegetation will remain the same.

4.4.2 **Wildlife**

Preferred Action - The proposed shooting complex should not have any significant impact on the wildlife in the area. There is adequate habitat for the existing bighorn sheep herd to move into if impacted by shooting range activities at the complex. CPW does not feel there is any reasonable concern regarding Peregrine falcon and Golden eagle earlier use and potential future use of the shooting complex area.

Displacement of bighorn sheep by human activity has been documented, particularly by mining, walking with dogs, and specific winter activities (George et al 2009); however, little is known about the impacts to bighorn sheep by shooting ranges. Sheep typically habituate to consistent and predictable disturbance as long as suitable forage, water, and escape terrain are accessible. Suitable habitat (including forage, water, and escape terrain) is abundantly available in this area. Also, shooting range activities may be reduced between November 1 and April 15 each year, which should result in reduced impacts to bighorn sheep winter range and possible production areas. Also, shooting range users will not be allowed to visit on foot or by vehicle any of these areas at any time. Best Management Practice recommendations developed by CPW are and will principally be used for areas of heavy industrial development to avoid or minimize impacts to bighorn sheep and other wildlife.

No Action – The wildlife in the vicinity of the CAMEO project will remain the same.

4.4.3 Federal Threatened & Endangered Species

Preferred Action - CPW has worked closely with the FWS Western Colorado Field Office (WCFO) regarding the 134 Colorado hookless cactus (CHC) individuals found on the CAMEO project area. CPW prepared the necessary Biological Assessment for WCFO and then entered into informal consultation with them regarding the cacti population at CAMEO. WCFO has determined that the CAMEO project “may effect, but not likely to adversely affect” CHC that occur on the project area (Appendix P). Per the results of the informal consultation, CPW will provide several different types of conservation measures to protect and/or mitigate potential impacts to the CHC found to occur on south-facing rocky toe slopes of the rocky cliffs located just north of Phase 1a of the Complex. The following measures will be employed to accomplish this: 1) use of fences to restrict access to certain areas; 2) use of natural items to hide and protect potential impacts from wayward rifle shots; 3) monitoring of the existing CHC population up to twice annually; and 4) possible transplanting of individuals that may be directly impacted by future shooting range development activities. CPW will also begin consultation regarding the possible occurrence of CHC in Part Two of the CAMEO project when range designs have been finalized for this portion of CAMEO. Any additional protections of CHC in the project area will be added as an Addendum to the initial Biological Assessment. This project will not impact any other federally-listed species which could occur at the project area.

No Action – The existing population of CHC will not be impacted by range activities; the population will remain the same.

4.4.4 Species of Concern

Preferred Action – The CAMEO project should have no effect on any species of concern in the area.

No Action – Species of concern will remain the same.

4.4.5 Cumulative Effects

Preferred Action – Although, the CAMEO Shooting Complex may displace bighorn sheep, negative impacts are not expected due to the sufficient amount of similar habitat available in and adjacent to the project area. CPW will employ many different types of conservation measures to protect the population of CHC on the project area; monitoring will be conducted to assure the status of the population is not impacted by the range activities over time.

No Action – No cumulative effects anticipated.

4.5 CULTURAL/HISTORICAL RESOURCES

Preferred Action – Colorado SHPO has determined a “no effect” regarding the potential impacts from the CAMEO project (Appendix Q). If historic/archaeological resources are encountered during construction or operation of the range complex, all operations will cease, and the SHPO will be consulted before any work or operation can continue.

No Action – The cultural/historical resources will remain the same. Since the Class I & III Cultural Resource surveys have now been completed for this area, there is now more data regarding this site.

4.6 NOISE

Preferred Action – Current noise levels are low at the CAMEO site. Noise levels will increase with the project construction temporarily. Actual shooting recreation at CAMEO will likely increase noise levels, especially during high use periods at CAMEO. Noise levels will not pose a threat to human health (hearing impairment) of those living nearby. Most of the shooting activity will occur at the main handgun and rifle ranges located at Phase 1a near the CAMEO entrance. Noise levels will be muffled at each of the firing lanes at this range area by high 8’ x 20’ soil berms surrounding each lane. This will not only provide a safer shooting experience, but will also greatly reduce the travel of shooting sound waves.

No Action – Noise levels will remain unchanged.

4.7 SAFETY

Preferred Action - CPW will have at least two full-time staff on-site at all times. CPW will also have many volunteers to help the permanent staff with daily activities. Each of the firing lines will be bordered on both sides with eight to twelve foot tall soil berms and on the back/ends with twenty foot tall berms to provide a safe shooting experience to users at each firing line. The shotgun range will follow industry standards regarding the location of shooting positions. All shooting range visitors will need to check in first at the entrance. Strict rules will be employed to assure the range users act in a responsible manner at all times while at CAMEO.

The Colorado Geological Society (Appendix S) has determined that this type of low impact development is best for this location near the Book/Roan Cliffs.

No Action - This area will continue to be used for unsafe and unregulated, informal recreational shooting in the future.

CHAPTER 5: COORDINATION & CONSULTATION (Personnel & Agencies Consulted)

Apache Tribe of Oklahoma – Anardarko, OK

BLM - Grand Junction Field Office
Century Link (CAMEO communications & wireless)
Colorado Department of Transportation
Colorado Historical Society, State Historical Preservation Office (Section 106 Review)
CPW Northwest Region Senior Terrestrial Biologist (Brad Petch)
CPW Northwest Region Water Resources Specialist (David Graff)
CPW Federal Aid Coordinator (Paula Nicholas)
CPW GIS Specialist (Michelle Flenner)
CPW OIT Communications (Deon Kuhl)
Fort Belknap Indian Community of the Fort Belknap Reservation of Montana – Harlem, MT
Grand Junction Chamber of Commerce
Mesa County Board of County Commissioners
Metcalf Archaeology Consultants (Melissa Elkins)
Navajo Nation – Window Rock, AZ
Palisade Tourism Advisory Board
Snowcap Coal Mine Company, Colorado
Town of Palisade, Colorado
US FWS Western Colorado Field Office (Aimee Crittendon) – ESA Review, Biological Assessment
Ute Mountain Tribe of the Ute Mountain Reservation, CO, NM, & UT – Towaoc, CO
Westwater Engineering (Leah Weckworth) – T&E Plant Survey at CAMEO
Xcel Energy Company, Colorado

CHAPTER 6: PUBLIC INVOLVEMENT

The Mesa County Board of County Commissioners held a Planning Commission Hearing regarding the proposed CAMEO Shooting Sport Complex project on September 15, 2016. Approximately, 40 public citizens attended at this meeting. The Planning Commission approved the CAMEO project. In 2013, a public opinion survey completed by CPW for the Cameo Shooting Complex project indicated that out of 1000 residents queried, over 95% of the respondents were supportive of this new shooting sports complex in Grand Valley (Appendix B). Several state, county, local governments, as well as several non-governmental organizations have also stated their support for this recreational resource.

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CHAPTER 8: APPENDICES

