RESULTS OF THE BIOLOGICAL SURVEY OF THE ROCA HONDA REUSE PIPELINE ROUTE

Prepared for

ROCA HONDA RESOURCES, LLC
4001 Office Court Drive, Suite 102
Santa Fe, New Mexico 87507

Prepared by

Jeremy McClain and Terri Thompson, Biologists

SWCA ENVIRONMENTAL CONSULTANTS
5647 Jefferson Street NE
Albuquerque, New Mexico 87109
(505) 254-1115

Project Number: 23088

June 2012

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a reconnaissance-level biological survey of approximately 84 acres along the proposed Roca Honda Reuse Pipeline Route located in McKinley County, New Mexico. The property has been proposed for the installation of a water pipeline by Roca Honda Resources, LLC, and is located to the east and north of the Roca Honda Mine Project (Figure 1). A field survey was conducted to evaluate the potential presence of special-status species, sensitive habitat, or other environmental issues that might create constraints on the development of the project and to determine the similarities, consistencies or lack thereof with the Roca Honda Mine project area as outlined in the Roca Honda Baseline Data Report (BDR) (Roca Honda Resources, LLC 2011).

This biological evaluation includes the following: 1) a description of existing environmental conditions at the site, 2) a comparison of the vegetation communities between this proposed project route and the Roca Honda Mine Property, 3) an evaluation of special-status plant and animal species and sensitive habitats that might potentially be present, 4) a summary of relevant state and federal regulations that may apply to the project, and 5) a discussion of anticipated regulatory and biological constraints to construction of the project.

METHODS

Prior to the field survey, U.S. Geological Survey (USGS) topographic maps and aerial photographs were reviewed to determine the location, elevation, and the potential habitat types within the project area. The project area was surveyed on April 12, 2012, by SWCA biologists Jeremy McClain and Terri Thompson.

A preliminary list of federal, state, and U.S. Forest Service (USFS) threatened, endangered, and sensitive species for McKinley County was created with data obtained from the New Mexico Department of Game and Fish (Biota Information System of New Mexico [BISON-M] 2012) and U.S. Fish and Wildlife Service (USFWS 2012) websites. The New Mexico Rare Plant Technical Council (NMRPTC 1999) website was also consulted for information on rare plants that could be present in the area. Based on this review of species and their habitat requirements, an evaluation was made of which species had the potential to occur in the project area. The complete species list and evaluation is included in Appendix A.

EXISTING CONDITIONS

The proposed reuse pipeline route occurs on both privately owned and USFS land in McKinley County. The surveyed portion begins approximately 3.2 km (2 miles) north of San Mateo, New Mexico, where it runs north and parallel to the west side of County Road 75, crosses the Leopoldo Diversion Dam and San Lucas Road, and ends near Laguna Polvadera (see Figure 1).

The topography of the area fluctuates between upland rolling hills, lowlands, and incised arroyos. Power lines follow along much of the proposed pipeline as it parallels County Road 75. The elevational range of the proposed route is approximately 2,130 m (6,990 feet) above sea level at the north end of the route near Laguna Polvadera and 2,225 m (7,300 feet) above sea level at the south end of the route near the USFS boundary. The project vicinity consists of USFS multi-use land and private grazed ranchland throughout the majority of the pipeline route.

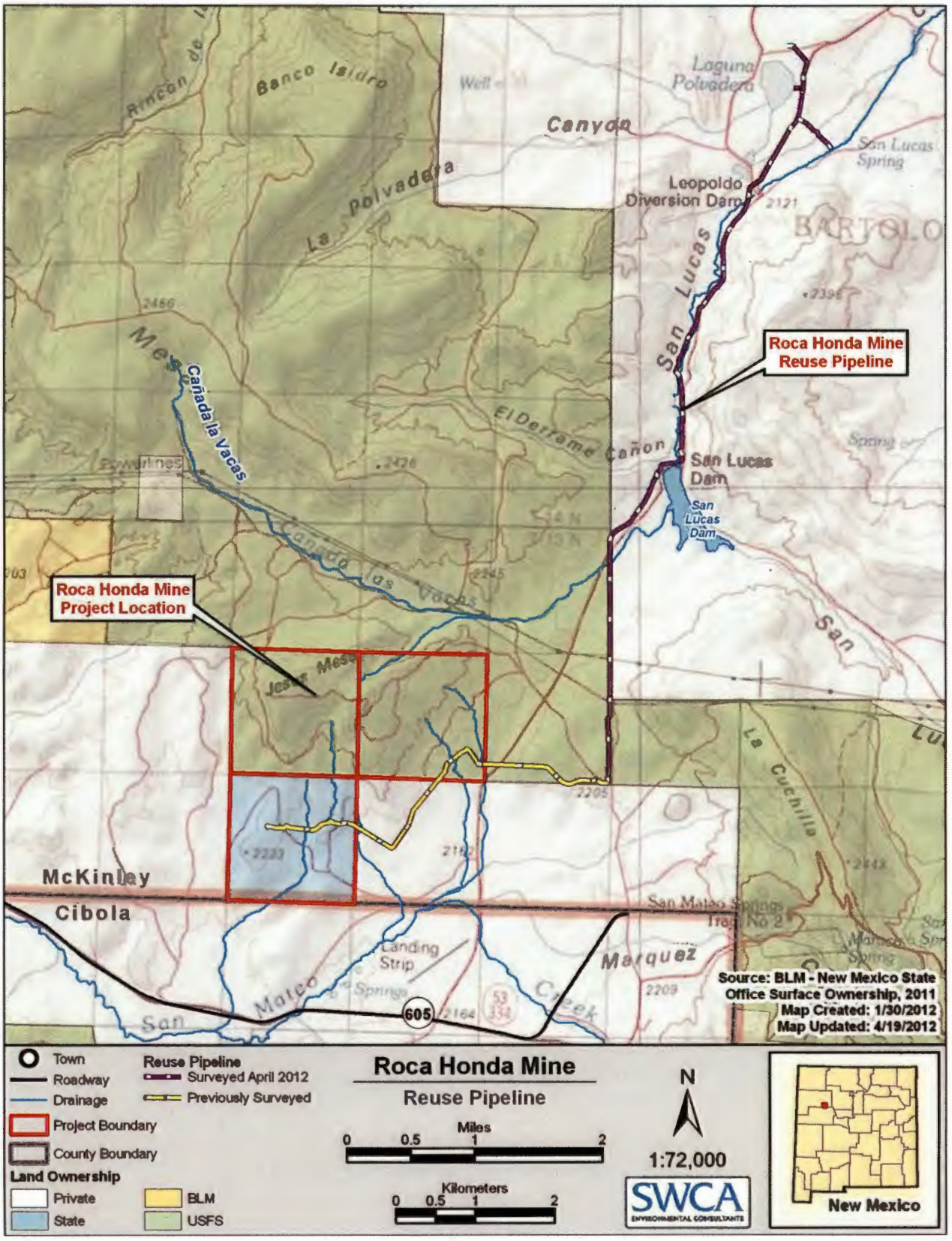

Figure 1. Location map

SOILS

The soils within the project area are composed of seven different soil types from the Soil Survey Geographic Database (SSURGO) and the State Soil Geographic Database (STATSGO) (Natural Resources Conservation Service 1994, 2006). The soil types and descriptions, acreage, and approximate coverage of the survey area are listed in Table 1.

Table 1. Soils Present within the Survey Area

Map Unit Symbol	Map Unit Name	Acres (ha) in Survey Area	Approx. % of Survey Area	Slope Percent	Drainage Class
205	Penistaja-Tinero complex*	2.3 (0.9)	2.7%	0%–10%	Well drained
220	Hagerwest-Bond fine sandy loams*	7.7 (3.1)	9.1%	1%–8%	Well drained
230	Sparank-San Mateo-Zia complex*	29.4 (11.9)	35.0%	0%–3%	Well drained
240	Breadsprings and Nahodish soils*	18.0 (7.3)	21.4%	0%–2%	Well drained
270	Alesna-Rock Outcrop complex*	6.9 (2.8)	8.2%	15%–55%	Well drained
290	Rock Outcrop-Westmion-Skyvillage complex*	0.2 (0.08)	0.2%	30%–80%	Well drained
305	Celavar-Atarque complex*	11.4 (4.6)	13.6%	1%–8%	Well drained
LEBE	Ustic Torriorthents, mixed, (calcareous) mesic, shallow†	4.0 (1.6)	4.8%	N/A	Well drained
JCHA	Lithic Haplustalfs, loamy, mixed, mesic†	4.0 (1.6)	4.8%	N/A	Well drained

Source: *Natural Resources Conservation Service (2006), SSURGO Soils.
†National Resource Conservation Service (1994), STATSGO Soils.

VEGETATION

Grasses observed at the site during the survey include blue grama (*Bouteloua gracilis*), Indian ricegrass (*Achnatherum hymenoides*), alkali sacaton (*Sporobolus airoides*), western wheatgrass (*Pascopyrum smithii*), purple threeawn (*Aristida purpurea*), and long-leaf squirreltail (*Elymus elemoides*). Other plant species recorded on-site include fourwing saltbush (*Atriplex canescens*), broom snakeweed (*Gutierrezia sarothrae*), Bigelow sagebrush (*Artemisia bigelovii*), plains prickly pear (*Opuntia polyacantha*), Adonis blazingstar (*Mentzelia multiflora*), rubber rabbitbrush (*Ericameria nauseosa*), fetid goosefoot (*Chenopodium graveolens*), tree cholla (*Cylindropuntia imbricata*), fineleaf hymenopappus (*Hymenopappus filifolius*), winterfat (*Krascheninnikovia lanata*), and pale desert-thorn (*Lycium pallidum*). One-seed juniper (*Juniperus monosperma*) and twoneedle piñon (*Pinus edulis*) are sparsely scattered across the site. Two common invasive species, prickly Russian thistle (*Salsola tragus*) and five-stamen tamarisk (*Tamarix chinensis*), are present at the site.

The vegetation survey of the proposed pipeline route, outlined in this biological evaluation, occurred to the east and north of the Roca Honda Mine Project location and can be characterized

into four vegetation classifications as described in the USGS Southwest Gap Analysis Project (USGS 2004). These classifications are listed in Table 2 and illustrated in Figure 2. Two vegetation classifications were not included in Table 2 for proposed pipeline route due to their composition of less than 1% of the total survey area.

Table 2 also depicts how the vegetation classifications of the proposed pipeline route compare to the vegetation classifications of the Roca Honda Mine Project location outlined in the Vegetation section of the BDR (Roca Honda Resources, LLC 2011). The vegetation surveys of the Roca Honda Mine Project location classified five broad vegetation types that the majority of the project area fell under as described by Bailey (1978). The vegetation classifications for each project are referenced from different sources, but are similar enough to compare between the USGS (2004) and Bailey (1978) descriptions. The two survey areas both include piñon-juniper woodlands, shrub steppe or grasslands, and mixed conifer woodlands. The vegetation classifications that do not occur in both project areas are juniper savanna and semi-stable dune, which only occur in the Roca Honda Mine Project location.

Table 2. Comparison of Vegetation Classifications in the Roca Honda Mine Area of Impact

	Roca Honda Mine Project Location*	Total Hectares*	% of Survey Area*	Roca Honda Mine Reuse Pipeline Route	Total Hectares	% of Survey Area
Vegetation Classifications	Piñon-Juniper Woodland	152.0	20	Colorado Plateau Piñon-Juniper Woodland	23.3	70
	Shrub Grassland	75.0	10	Inter-Mountain Basins Semi-Desert Shrub Steppe	8.7	26
				Inter-Mountain Basins Semi-Desert Grassland	0.6	2
	Ponderosa Pine-Piñon-Juniper Mixed Woodland	151.0	19	Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland	0.7	2
	Juniper Savanna	275.0	35			
	Semi-Stable Dune	7.0	1			

*Data for first three columns copied from BDR report (Roca Honda Resources, LLC 2011)

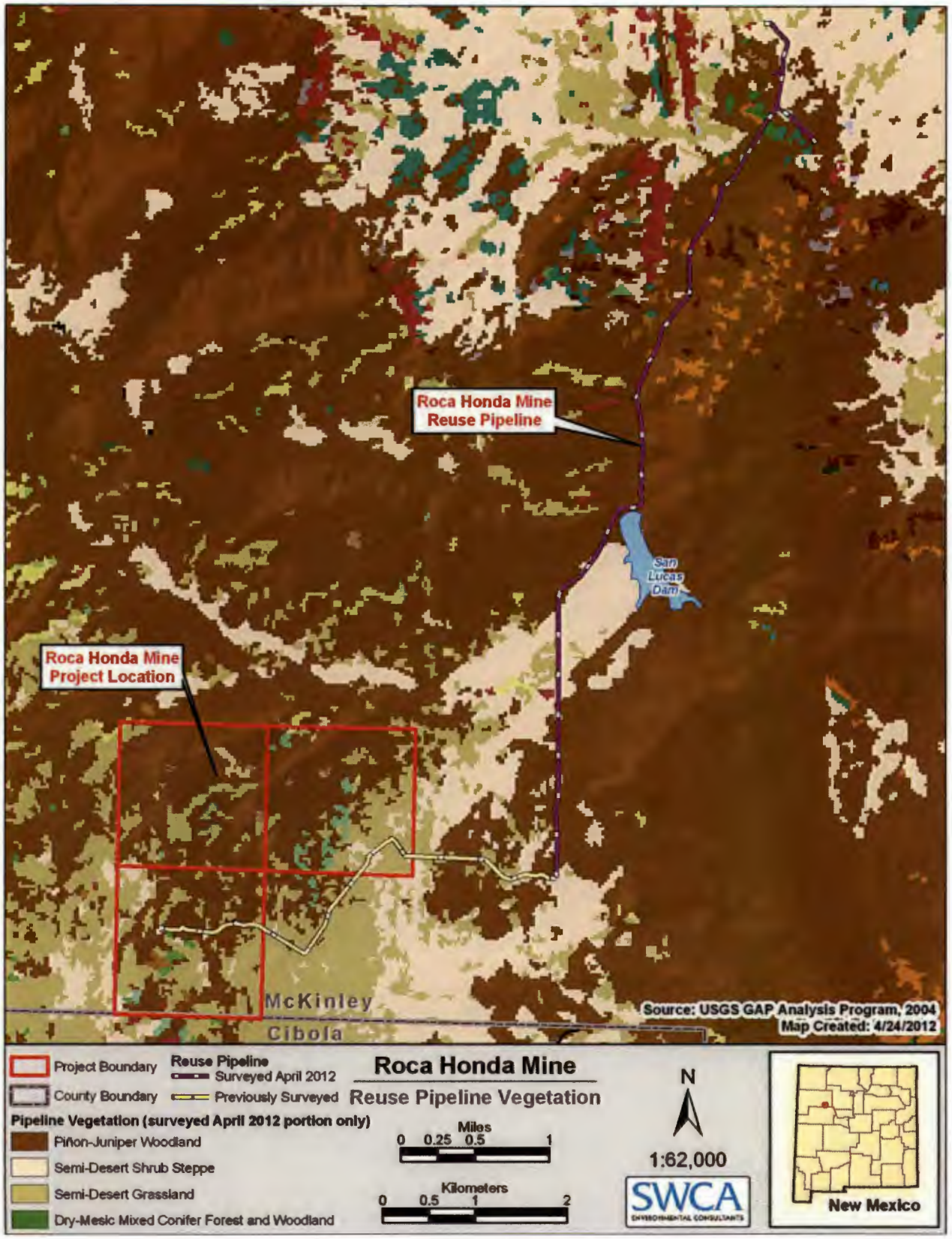

Figure 2. Roca Honda Mine Reuse Pipeline vegetation communities

WILDLIFE

Avian wildlife observed during the survey include mountain bluebird (*Sialia currucoides*), common raven (*Corvus corax*), juniper titmouse (*Baeolophus griseus*), rock wren (*Salpinctes obsoletus*), violet-green swallow (*Tachycineta thalassina*), vesper sparrow (*Pooecetes gramineus*), and prairie falcon (*Falco mexicanus*). Other wildlife observed include elk (*Cervus canadensis*) remains, tracks, and scat; harvester ant (*Pogonomyrmex barbatus*) mounds; white-throated woodrat (*Neotoma albigula*) middens; and small mammal burrows likely inhabited by kangaroo rats (*Dipodomys* sp.) or other small mammals. Other mammals that might be expected to occur on the project site include coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and desert cottontail (*Sylvilagus auduboni*). Project construction could result in the temporary displacement or avoidance of the project site by common wildlife species due to the eventual alteration of the habitat.

The federal Migratory Bird Treaty Act (MBTA) of 1918 prohibits the taking, hunting, killing, selling, purchasing, etc. of migratory birds, parts of migratory birds, or their eggs and nests. Most bird species native to North America are covered by the MBTA. Aside from the species mentioned above, the rural setting and diverse habitats of the survey area could likely provide nesting habitat for common shrub and grassland species such as the lark sparrow (*Chondestes grammacus*) or Cassin's sparrow (*Aimophila cassinii*), or piñon-juniper woodland species such as the mountain chickadee (*Poecile gambeli*) or western scrub jay (*Aphelocoma californica*) (New Mexico Partners in Flight 2007). No active bird nests were observed during the survey.

Although no amphibians or reptiles were observed during the survey, common herpetofauna that would be expected to occur in the area include spadefoot toad (*Spea* sp.), fence lizard (*Sceloporus* sp.), whiptail lizard (*Aspidoscelis* sp.), greater short-horned lizard (*Phrynosoma hernandesi*), gopher snake (*Pituophis catenifer*), and prairie rattlesnake (*Crotalus viridis*) (Degenhardt et al. 1996; Stebbins 2003).

STATE AND FEDERALLY LISTED SPECIES AND HABITATS

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) protects listed species from harm or "take," broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Any activity can be defined as a "take" even if it is unintentional or accidental and includes destruction of habitat. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. In addition to endangered and threatened species, which are legally protected under the federal ESA, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the *Federal Register*. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. A species of concern refers to a species that may be declining or require specific conservation actions. Candidate and species of concern are not afforded legal protection under the federal ESA.

The NMRPTC (1999) and USFWS (2012) websites were accessed to determine whether any state-designated rare or federally listed plant species occur in McKinley County. Zuni fleabane (*Erigeron rhizomatus*) is federally threatened, state endangered, and USFS threatened. It occurs at higher elevations (2,225–2,438 m [7,300–8,000 feet]) with specific geological and soil requirements not found in the region, and therefore would not be expected to occur at the site. Parish's alkali grass (*Puccinellia parishii*) is state endangered and USFS sensitive. While Parish's alkali grass is known to occur in the region, it only occurs near alkaline springs and seeps, none of which occur along the proposed reuse pipeline, and therefore would not be expected to occur at the site. Additional plant species categorized as sensitive by the USFS include Chaco milkvetch (*Astragalus micromerius*), Zuni milkvetch (*A. missouriensis* var. *accumbens*), and Sivinski's fleabane (*Erigeron sivinskii*). None of these species are expected to occur at the site, due to unfulfilled habitat requirements (see Appendix A).

Data from the state (BISON-M 2012) and the USFWS (2012) were evaluated to determine potential occurrence in McKinley County of federal and state wildlife species listed as threatened or endangered, and USFS sensitive species (see Appendix A). Based on habitat requirements, an initial evaluation was made whether potential habitat for these species might occur on the project site. Field surveys were conducted to determine whether actual habitat conditions were present at the project site to support any sensitive species.

No species currently listed as federally threatened or endangered are likely to occur in the project area. However, based on literature information and the survey observations, two state-listed threatened species, peregrine falcon (*Falco peregrinus anatum*) and gray vireo (*Vireo vicinior*), and eight USFS sensitive species, western burrowing owl (*Athene cunicularia hypugaea*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike (*Lanius ludovicianus*), long-billed curlew (*Numenius americanus americanus*), occult little brown bat (*Myotis lucifugus occultus*), Botta's pocket gopher (*Thomomys bottae*), and Gunnison's prairie dog (*Cynomys gunnisoni*) prairie population, have the potential to occur within the project area.

The project area contains breeding and foraging habitat for all of the species listed above except for Swainson's hawk, for which there is foraging habitat only. None of the species were observed during the survey, but Gunnison's prairie dogs were observed occupying areas adjacent to the northern end of the pipeline route in grazed grassland habitat.

Wetlands and Other Waters of the U.S.

Pre-field Geographic Information Systems (GIS) investigations of the USGS National Hydrography Dataset showed two ephemeral drainage crossings (Cañada la Vacas and the arroyo in San Lucas Canyon), two water bodies (the reservoir at San Lucas Dam and Laguna Polvadera), and two diversion structures (San Lucas Dam and Leopoldo Diversion Dam). Field surveys confirmed the presence of the drainages, water bodies and diversion structures.

All drainages and structures are associated with the San Lucas Canyon arroyo, which eventually leads to the Rio Puerco and the Rio Grande, both of which are waters of the U.S. No wetland delineation or consultation with the U.S. Army Corps of Engineers (Corps) has been conducted as a part of this survey and biological report.

Noxious Weeds

One noxious plant, five-stamen tamarisk, was observed in the survey area. This species is a member of the saltcedar family which is classified by the New Mexico Department of Agriculture (NMDA) as a Class C noxious weed. Class C species are widespread in the state and management decisions for these species should be determined at the local level, based on feasibility of control and level of infestation (NMDA 2009). In addition, prickly Russian thistle was observed in the survey area. This plant is not classified by the NMDA as noxious but is weedy and has the potential to spread in disturbed areas.

CONCLUSIONS

Development of the proposed pipeline route may result in impacts to two state threatened species and eight USFS sensitive species. Common bird species may nest on the project site, although no evidence of active nesting was observed. No rare plants are expected to occur on the project site. Noxious and invasive plants were observed in the project area. No wetlands were identified. Although Laguna Polvadera is located near the northern end of the project area and meets certain hydrological and soil conditions, it lacks the necessary vegetation to be classified as a wetland.

The project area for the proposed pipeline route is similar in many ways to the permit area surveyed in the BDR. Available habitats are similar between the two areas and it is expected that the wildlife composition in the proposed route will be no different than in the original permit area. Vegetation composition within the original permit area and the proposed pipeline route are similar vegetation types, however the two areas vary in the percent coverage of these types. Pinon-juniper woodlands and shrublands dominate the proposed pipeline route while juniper savannah, pinon-juniper woodlands and mixed conifer woodlands co-dominate the original permit area.

PHOTOS OF THE PROJECT SITE

Figure 3. View of survey start point at southern end of proposed reuse pipeline facing north.

Figure 4. View of Cañada la Vacas below San Lucas Dam facing southwest.

Figure 5. View of arroyo at San Lucas Dam facing east.

Figure 6. View at Leopoldo Diversion Dam facing south.

Figure 7. View of Laguna Polvadera facing southwest.

Figure 8. View of survey end point at northern end of proposed reuse pipeline facing southwest.

REFERENCES

Bailey, R.G. 1978. Descriptions of the Ecoregions of the United States. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Region.

Biota Information System of New Mexico (BISON-M). BISON-M homepage. Version: 2010 June 15. Available at: http://www.bison-m.org. Accessed April 9, 2012.

Cartron, J.L. (ed.). 2010. Raptors of New Mexico. Albuquerque: University of New Mexico Press.

Degenhardt, W.G., C.W. Painter, and A.H. Price. 1996. The Amphibians and Reptiles of New Mexico. Albuquerque: University of New Mexico Press.

Natural Resource Conservation Service. 1994. State Soil Geographic Database (STATSGO). Available at: http://datagateway.nrcs.usda.gov/. Accessed April 26, 2012.

———. 2006. Soil Survey Geographic Database (SSURGO). Available at: http://rgis.unm.edu/data_entry.cfm. Accessed April 26, 2012.

New Mexico Department of Agriculture (NMDA). 2009. New Mexico Noxious Weed List Update. April 1, 2009. Available at: http://nmdaweb.nmsu.edu/animal-and-plant-protection/noxious-weeds. Accessed April 25, 2012.

New Mexico Partners in Flight. 2007. New Mexico Bird Conservation Plan Version 2.1. C. Rustay and S. Norris, compilers. Albuquerque: New Mexico Partners in Flight.

New Mexico Rare Plant Technical Council (NMRPTC). 1999. New Mexico Rare Plants Website. Available at: http://nmrareplants.unm.edu. (Latest update: March 30, 2012). Accessed April 9, 2012.

Roca Honda Resources, LLC. 2011. Roca Honda Mine Baseline Data Report Revision 1. Section 4.0. Vegetation.

Stebbins, R.C. 2003. A Field Guide to Western Reptiles and Amphibians. 3rd ed. Boston: Houghton Mifflin Company.

U.S. Fish and Wildlife Service. 2012. Endangered, Threatened, Proposed and Candidate Species of McKinley County, New Mexico. Available at: http://www.fws.gov/southwest/es/NewMexico/SBC_view.cfm?spcnty=McKinley. Accessed April 9, 2012.

U.S. Geological Service. 2004. Gap Analysis Program Land Cover Viewer. Available at: http://gapanalysis.usgs.gov/lcviewer/. Accessed on April 20, 2012.

APPENDIX A

LIST OF FEDERAL THREATENED, ENDANGERED, AND CANDIDATE; U.S. FOREST SERVICE SENSITIVE; AND STATE THREATENED AND ENDANGERED SPECIES THAT MAY OCCUR IN MCKINLEY COUNTY

Table A.1. List of Federal Threatened, Endangered, and Candidate; U.S. Forest Service Sensitive; and State Threatened and Endangered Species that May Occur in McKinley County

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
Birds					
Northern goshawk (*Accipiter gentilis atricapillus*)	–	S	–	The New Mexico population occurs locally in mature, closed canopied coniferous forests of mountains and high mesas.	Occurrence unlikely; no suitable habitat at the project location.
Great egret (*Ardea alba egretta*)	–	S	–	Found in river, riparian woodland, and subalpine marsh areas. Occurs at elevations where stream conditions provide sufficient permanent moisture for emergent plants, or for a narrow band of deciduous trees and shrubs; at low elevation characterized by cottonwood (*Populus* sp.) and sycamore (*Platanus* sp.), at mid-elevation by white alder (*Alnus rhombifolia*) and bigleaf maple (*Acer macrophyllum*), and at high elevation by willow (*Salix* sp.).	Occurrence unlikely; no suitable habitat at the project location.
Western burrowing owl (*Athene cunicularia hypugaea*)	–	S	–	Semiarid grasslands and prairies, often associated with prairie dog towns or mammal burrows.	Occurrence possible; potentially suitable breeding habitat at the project location.
American bittern (*Botaurus lentiginosus*)	–	S	–	Usually found in areas that are heavily vegetated, dominated by cattails (*Typha* sp.) and rushes (*Juncus* sp.), and often in proximity to open water or moist soils.	Occurrence unlikely; no suitable habitat at the project location.
Ferruginous hawk (*Buteo regalis*)	–	S	–	Associated with open country, primarily grasslands and shrub-steppes. In New Mexico often found in grasslands, piñon-juniper woodland-grassland ecotones, and badlands. Badlands are their preferred nesting habitat in northwest New Mexico on pinnacles or ledges (Cartron 2010).	Occurrence possible; potentially suitable breeding and foraging habitat at the project location.
Swainson's hawk (*Buteo swainsoni*)	–	S	–	Swainson's hawks are found in grasslands, shrublands and riparian woodlands from lower (853–1,676 m [2,800–5,500 feet]) to middle (1,524–2,286 m [5,000–7,500 feet]). They rarely occur at higher elevations (7,000–13,000 feet) during migration.	Occurrence possible; potentially suitable foraging habitat at the project location.
Costa's hummingbird (*Calypte costae*)	–	S	T	Microphyll shrubland and canyons at lower elevations (853–1,676 m [2,800–5,500 feet]).	Occurrence unlikely; no suitable habitat at the project location.

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
Mountain plover (*Charadrius montanus*)	–	S	–	Frequents xeric/disturbed uplands. High plains/ shortgrass prairie and desert tableland sites with bare ground and a flat topography for breeding and wintering locales. Strongly associated with sites of heaviest grazing pressure.	Occurrence unlikely; no suitable habitat at the project location.
Yellow-billed cuckoo (*Coccyzus americanus*)	C	S	–	Riparian woodlands and similar habitats at lower (853–1,676 m [2,800–5,500 feet]) to middle (1,524–2,286 m [5,000–7,500 feet]) elevations.	Occurrence unlikely; no suitable habitat at the project location.
Snowy egret (*Egretta thula brewsteri*)	–	S	–	Found in river, riparian woodland, and subalpine marsh areas. Occurs at elevations where stream conditions provide sufficient permanent moisture for emergent plants, or for a narrow band of deciduous trees and shrubs; at low elevation characterized by cottonwood and sycamore, at mid-elevation by white alder and bigleaf maple, and at high elevation by willow.	Occurrence unlikely; no suitable habitat at the project location.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	E	S	E	Forested wetland, riparian, old field, shrubland/ chaparral, hardwood woodland, mixed woodland with thickets, and scrubby/brushy areas.	Occurrence unlikely; no suitable habitat at the project location.
Peregrine falcon (*Falco peregrinus anatum*)	–	S	T	Breed on cliffs near wooded or forested habitats, with nearby updrafts available for foraging. They use a wide variety of habitats for foraging, including riparian woodlands, coniferous and deciduous forests, shrublands, and prairies	Occurrence possible; potentially suitable foraging habitat at the project location.
Arctic peregrine falcon (*Falco peregrinus tundrius*)	–	S	T	In New Mexico, the tundra subspecies is a very rare migrant through the state.	Occurrence unlikely due to rarity.
Whooping crane (*Grus americanus*)	P	–	–	In New Mexico whooping cranes tend to occur where sandhill cranes (*Grus canadensis*) are found. Their foraging areas are generally agricultural fields and valley pastures, particularly where there is waste grain or sprouting crops.	Occurrence unlikely; no suitable habitat at project location.
Bald eagle (*Haliaeetus leucocephalus alascanus*)	–	S	T	The majority of the populations occurring in New Mexico are found near streams and lakes. Inhabits cliffs, conifer forests, hardwood forests, mixed woodlands, conifer woodlands, and hardwood woodlands with standing snags/hollow trees.	Occurrence unlikely; no suitable habitat at project location.

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
Black-necked stilt (*Himantopus mexicanus*)	–	S	–	Generally associated with areas of shallow water with little or no emergent vegetation, including shoreline habitats, sandbars, mud flats, and playas. May also include areas where worms, mollusks, crustaceans, aquatic insects, and insect larvae are most abundant. Black-necked stilts are known to use Wetland habitats on the Zuni Reservation, McKinley County, New Mexico.	Occurrence unlikely; although potentially suitable foraging and breeding habitat occurs near Laguna Polvadera, the area is heavily grazed by cattle and not likely to support these species.
Blue-throated hummingbird (*Lampornis clemenciae bessophilus*)	–	S	–	Found in desert riparian deciduous woodland and marsh areas. Woodlands, especially of cottonwoods, that occur where desert streams provide sufficient moisture for a narrow band of trees and shrubs along the margins.	Occurrence unlikely; no suitable habitat at project location.
Loggerhead shrike (*Lanius ludovicianus*)	–	S	–	The species ranges altitudinally from agricultural lands on the prairies to montane meadows, nesting in sagebrush areas, desert scrub, piñon-juniper woodlands, and woodland edges.	Occurrence possible; potentially suitable breeding and foraging habitat at the project location.
Belted kingfisher (*Megacerle alcyon*)	–	S	–	Generally associated with shoreline and marsh habitats that border open water. Vegetation within these areas often consisted of cattails and rushes, but other plant species (including occasional woody shrub and tree species) frequently present. They nest in dirt banks.	Occurrence unlikely; no suitable habitat at project location.
Long-billed curlew (*Numenius americanus americanus*)	–	S	–	Inhabit grasslands at lower (853–1,676 m [2,800–5,500 feet]) to middle (1,524–2,286 m [5,000–7,500 feet]) elevations. During winter, they are more restricted to lower elevations. They breed in prairies, grassy meadows, and usually near water.	Occurrence possible; potentially suitable breeding and foraging habitat at the project location.
Flammulated owl (*Otus flammeolus*)	–	S	–	Foraging habitat includes areas of mature open stands of pine, Douglas-fir (*Pseudotsuga menziesii*), quaking aspen (*Populus tremuloides*), blue spruce (*Picea pungens*), and oaks (*Quercus* sp.). Breeding habitat ranges from dry submontane interior Douglas-fir forests to ponderosa pine to a mixture of oak, piñon and juniper to ponderosa pine mixes with Douglas-firs, true firs, larch, incense cedar, spruce, and stands of aspens.	Occurrence unlikely; no suitable habitat at project location.
Osprey (*Pandion haliateus carolinensis*)	–	S	–	Osprey are heavily dependent on fish for their main food source; they breed and forage near lakes and reservoirs.	Occurrence unlikely; no suitable habitat at project location.

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
White-faced ibis (*Plegadis chihi*)	–	S	–	Nesting colonies are located in shrubs and low trees or in dense standing reeds and tules near or in marshes. They forage in mud and shallow water.	Occurrence unlikely; although potentially suitable foraging and breeding habitat occurs near Laguna Polvadera, the area is heavily grazed by cattle and not likely to support these species.
Sora (*Porzana carolina*)	–	S	–	Transient in open waters and riparian areas near forested land. Prefers freshwater, soggy marshes.	Occurrence unlikely; although potentially suitable foraging habitat occurs near Laguna Polvadera, the area is heavily grazed by cattle and not likely to support these species.
Least tern (*Sterna antillarum athalassos*)	–	S	E	Colonial nesters that nest on the ground, typically on sites that are sandy and relatively free of vegetation, such as sandbars along rivers. They prefer a flat, sandy substrate essentially devoid of vegetation, on which they place their nest scrapes.	Occurrence unlikely; no suitable habitat at project location.
Mexican spotted owl (*Strix occidentalis lucida*)	T	S	--	Cliffs, conifer forests, hardwood forests, and mixed forests with standing snags/hollow trees.	Occurrence unlikely; no suitable habitat at project location.
Gray vireo (*Vireo vicinior*)	–	S	T	In New Mexico, most often found in arid juniper woodlands on foothills and mesas, these most often associated with oaks and usually in habitat with a well-developed grass component.	Occurrence possible; although rare, the project area provides potential breeding and foraging habitat in the form of juniper woodland foothills.
Mammals					
Ringtail (*Bassariscus astutus*)	–	S	–	Ringtails live in extensive rocky areas and cliffs in grassland and woodlands and riparian habitats. They are not usually found more than 800 m (2,625 feet) from water.	Occurrence unlikely; no suitable habitat at project location.
Gunnison's prairie dog, montane population (*Cynomys gunnisoni*)	–	S	–	These animals live in grasslands in the northern and western part of the state where the black-tailed prairie dogs do not occur. *Cynomys gunnisoni* (montane population) occurs in meadows in the montane forests up to at least 3,048 m (10,000 feet).	Occurrence unlikely; no suitable habitat at project location due to low elevational level of the project area.
Gunnison's prairie dog, prairie population (*Cynomys gunnisoni*)	–	S	–	These animals live in grasslands in the northern and western part of the state where the black-tailed prairie dogs (*Cynomys ludovicianus*) do not occur. *Cynomys gunnisoni* (prairie population) occurs in low valleys.	Occurrence possible; potentially suitable breeding and foraging habitat at the project location. Prairie dogs were observed not far from the project area during the survey.

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
Long-tailed vole (*Microtus longicaudus*)	–	S	–	A montane forest species, usually associated with meadows and forest edge, and sometimes living in forest itself.	Occurrence unlikely; no suitable habitat at the project location.
Navajo Mogollon vole (*Microtus mogollonensis navaho*)	–	S	–	This species is usually restricted to Navaho Mountain, straddling the Utah-Arizona state line. Occurs in dry grass, grass-forb, and shrub habitats in lower coniferous forests.	Occurrence unlikely; suitable habitat occurs at the project location but it is outside the known range of the species.
Black-footed ferret (*Mustela nigripes*)	E	–	–	Considered extirpated in New Mexico, having been last confirmed in 1934. Closely associated with their prey, the prairie dog, and whose burrows they use for cover.	Occurrence unlikely; suitable habitat may occur the project location but due to their extirpated status, they are not likely to occur there.
Occult little brown bat (*Myotis lucifugus occultus*)	–	S	–	Uses desert-scrub, ponderosa pine, spruce-fir, deciduous riparian, and coniferous riparian habitat types. They typically forage near permanent water sources. Known summer roosts of the species (in New Mexico are in buildings.	Occurrence possible; potentially suitable breeding and foraging habitat at the project location.
Merriam's shrew (*Sorex merriami leucogenys*)	–	S	–	Two of the three known specimens of this species from New Mexico come from the Sandias, and the other from the Manzano Mountains. All were taken in the zone of white fir, Douglas fir, and yellow pine, at approximately 2,438 m (8,000 feet) in elevation. Most of the specimens were taken in sage and grassland.	Occurrence unlikely; no suitable habitat at the project location.
Botta's pocket gopher (*Thomomys bottae*)	–	S	–	From the western edge of the eastern plains westward this gopher occupies almost every habitat where suitable soil conditions exist. It occurs in soils ranging from loose sands and silts to tight clays and in vegetative zones grading from dry deserts to montane meadows.	Occurrence possible; potentially suitable breeding and foraging habitat at the project location.
Reptiles and Amphibians					
Northern leopard frog (*Rana pipiens*)	–	S	–	A variety of aquatic habitat types are utilized by leopard frogs, including marches, ponds, streams, irrigation ditches, wet meadows, and portions of reservoirs. These may be surrounded by a large variety of terrestrial habitats.	Occurrence unlikely; no suitable habitat at the project location.

Common Name (Scientific Name)	Status			General Habitat	Likelihood of Occurrence in Project Area
	USFWS	USFS	NM		
Fish					
Zuni bluehead sucker (*Catostomus discobolus yarrowi*)	C	S	E	Endemic to the Zuni basin of New Mexico, this subspecies is now confined to a few streams upstream of Zuni Pueblo.	Occurrence unlikely; no suitable habitat at the project location.
Plants					
Chaco milkvetch (*Astragalus micromerius*)	–	S	–	Gypseous or limy sandstones in piñon-juniper woodland or Great Basin desert scrub; 2,000–2,250 m (6,600–7,300 feet).	Occurrence unlikely; no suitable habitat at the project location.
Zuni milkvetch (*Astragalus missouriensis* var. *accumbens*)	–	S	–	Gravelly clay banks and knolls in dry, alkaline soils derived from sandstone, in piñon-juniper woodlands; 1,890–2,410 m (6,200–7,900 feet).	Occurrence unlikely; no suitable habitat at the project location.
Zuni fleabane (*Erigeron rhizomatus*)	T	–	–	Nearly barren detrital clay hillsides with soils derived from shales of the Chinle or Baca formations (often seleniferous); most often on north- or east-facing slopes in open piñon-juniper woodlands at 2,225–2,438 m (7,300–8,000 feet).	Occurrence unlikely; no suitable habitat at the project location.
Sivinski's fleabane (*Erigeron sivinskii*)	–	S	–	Chinle shale in piñon-juniper woodland and Great Basin desert scrub; 1,850–2,250 m (6,100–7,400 feet).	Occurrence unlikely; no suitable habitat at the project location.
Parish's alkali grass (*Puccinellia parishii*)	–	–	E	Alkaline springs, seeps, and seasonally wet areas that occur at the heads of drainages or on gentle slopes at 792–2,195 m (2,600–7,200 feet) range-wide. The species requires continuously damp soils during its late winter to spring growing period.	Occurrence unlikely; no suitable habitat at the project location.

Note: C = Candidate; E = Endangered; P = Experimental Population; S = Sensitive; T = Threatened;
Plant information taken from the NMRPTC website unless otherwise mentioned, accessed April 2012 at:
http://nmrareplants.unm.edu/county_result.php?output=html.