

## Chapter 3. Affected Environment and Environmental Consequences

### 3.1 Introduction

A review of the two alternatives presented in Chapter 2, in addition to a site visit by resource specialists, resulted in the identification of 11 environmental resources that either must be reviewed by law or that could be affected by either the Proposed Action Alternative or No Action Alternative. This chapter describes the existing conditions of the 11 environmental resources, as well as the potential effects of each alternative on those resources. Cumulative impacts and environmental commitments are also presented in this chapter. A summary of impacts by resource issue for each alternative is provided in Table 1.

**Table 1. Summary of Environmental Impacts by Resource for Each Alternative.**

ENVIRONMENTAL COMPONENT	ALTERNATIVE		DISCUSSION
	NO ACTION	PROPOSED ACTION	
Air Quality	No	No	Project area is not in a non-attainment zone.
Cultural and Archaeological Resources	No	No	Previously disturbed project location; no cultural resources are known to be present.
Environmental Justice	Yes	No	The "No Action Alternative" would disproportionately affect poorer components of the community, who have fewer alternatives if water is scarce.
Farmlands, Prime/Unique	No	No	None present.
Federal and State listed threatened and endangered species or critical habitat	No	No	No suitable habitat. Species not present.
Floodplains	No	No	None present.
Hazardous Materials	No	No	None present.
Indian Trust Assets	No	No	None present.
Noxious Weeds	No	No	None present.
Soil Erosion	Yes	No	Previously disturbed project location.
Vegetation and Wildlife	No	No	No effect to important vegetation or wildlife species.
Visual Resources	No	Yes	Temporary construction impacts.
Water Resources	No	No	No effect to existing surface or groundwater resources.
Wetlands-Riparian Zones	No	No	Temporary construction impacts.

### **3.2 Water Resources**

There are no perennial, intermittent, or ephemeral drainages within the project area that would be directly affected. There are no jurisdictional wetlands located within the project area.

There are currently two wells (Well #1 and Well #3) and a shallow infiltration gallery owned and operated by the Association. The production of the Well #1 has been steadily declining over the past two years. Although in the past it produced a constant 3,500 gallons per day, its production now ranges seasonally from 800 – 2,500 gallons per day. Well #3 produces a constant 2,500 gallons per day and the production of the shallow infiltration gallery is relatively small. Because less water is produced by the wells in the summer, the Association has had to enforce periodic water rationing during the summer months. Well #1 is approximately 540 feet in depth and Well #3 is 318 feet in depth. Both are screened in the fractured sandstone of the Chinle Formation, a 500-foot thick alternating sandstone and siltstone formation with conglomeratic zones near the base and center of the formation (Muehlberger 1967). The proposed well is located approximately 100 feet from Well #1, and there are currently six domestic wells within a 1-mile radius of the proposed well location. The static groundwater level at the proposed well site is estimated to be 240 feet below surface grade, based on the depth to water in Well #1.

#### **No Action Alternative**

There would be no effects on surface water resources under the No Action Alternative. Under the No Action Alternative, the existing wells would continue to pump groundwater from the Chinle formation to supply the Association under their existing water rights. The current shallow infiltration gallery would remain vulnerable to contamination and the Association would have no backup supply for drinking water, thus requiring further rationing of water for its members.

#### **Proposed Action Alternative**

It is unlikely that there would be any effects on surface water resources under the Proposed Action Alternative. There is an ephemeral drainage in the vicinity of the proposed well location that may be used to discharge well production water, but the drainage would not be adversely impacted because of the following preventive measures: the drill cuttings would be contained, development water would be either contained or filtered before being discharged, and the sediment-free, pump test water would either be contained or discharged into the ephemeral drainage at a rate of less than 10 gallons per minute.

The proposed well would be drilled to approximately 540 feet below the existing land surface into the fractured sandstone of the Chinle formation. The proposed well would be used in conjunction with the existing wells to supply water to the Association, and would be connected to the existing buried pipeline delivery system. The shallow infiltration gallery would be abandoned because of potential contamination hazards associated with its proximity to the ground surface. No new impacts on groundwater resources in the area would be anticipated because the proposed well would withdraw water from the same aquifer as the existing wells. No additional water would be removed from the Chinle aquifer beyond what is currently being removed to supply the Association under their existing water rights.

### 3.3 Federal and State-Listed Species

Of the 16 wildlife species listed as either threatened or endangered in Rio Arriba County, 3 are Federally protected and 13 are protected by the state (Appendix A) (BISON-M 2008). Although critical habitat for the Mexican spotted owl (*Strix occidentalis lucida*) and southwestern willow flycatcher (*Empidonax traillii extimus*) have been designated for Rio Arriba County (USFWS 2001, 2005), no suitable habitat can be found within the project area for these species. No critical habitat has been designated for interior populations of the Least Tern (*Sterna antillarum athalassos*). Based on species specific habitat requirements, the highly disturbed nature of the project area, and the lack of suitable habitat, no State or Federally protected species are thought to occur within the approximately 1-acre project area.

According to the Natural Heritage Program of New Mexico, there are no Federally protected vegetation species listed for Rio Arriba County.

#### No Action Alternative

There would be no change to the existing conditions and no effects to State or Federally listed species under the No Action Alternative.

#### Proposed Action Alternative

No suitable or potentially suitable habitat exists for any State or Federally listed species within the project area. A “no effect” determination for listed species has been made by a qualified wildlife biologist for the Proposed Action Alternative.

### 3.4 Vegetation and Wildlife

As reported by Bailey (1995), the project area lies within the Arizona-New Mexico Mountains Semi-Desert – Open Woodlands – Coniferous Forest – Alpine Meadow Province, which is generally characterized by mixed grasses, chaparral brush, oak-juniper woodland, and pinyon-juniper woodland. At lower elevations including the project area, vegetation is best described by highly disturbed ponderosa pine woodland. Disturbances are related to residential and recreational development in the area. Mammal species common to this province include black bear (*Ursus americanus*), mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), mountain lion (*Felis concolor*), coyote (*Canis letrans*), beaver (*Castor canadensis*), long-tail weasel (*Mustela frenata*), cottontail (*Sylvilagus auduboni*), and other small mammals.

#### No Action Alternative

Under the No Action Alternative, existing vegetation, including native and non-native species, would remain in place and would not provide suitable habitat for most wildlife. Disturbance-related vegetation species would likely persist and areas void of vegetation would likely be susceptible to erosion from wind and water.

#### Proposed Action Alternative

Activities associated with implementation of the Proposed Action Alternative would not disturb portions of the landscape that are not currently highly disturbed. Native grasses and wildflowers would be seeded in areas disturbed by construction that are not needed for well operation to re-establish an appropriate vegetative cover. Although construction activities may displace existing

wildlife temporarily, most animal species in the project area would be able to return after project completion. Some mortality of less-mobile species would be expected as a result of construction, but not in quantities that would damage local populations.

### **3.5 Noxious Weeds**

No populations of State-listed noxious weeds were observed in the project area during a recent site visit.

#### **No Action Alternative**

Under the No Action Alternative, no additional ground-disturbing activities would be undertaken. Therefore, there would be no effect on any existing noxious weed infestations.

#### **Proposed Action Alternative**

Whenever land is disturbed, the potential exists for the intrusion and establishment of noxious weeds. The Proposed Action Alternative could disturb up to 1 acre of land, depending upon how much space is ultimately needed for construction and staging activities. To minimize the potential for the continued establishment and spread of State-listed and other noxious weeds, a revegetation plan would be implemented. In addition to re-seeding areas disturbed during construction, the introduction of noxious weed seeds would be minimized by a requirement that all equipment used on the project be pressure washed before arriving and leaving the site. As such, the potential for noxious weeds becoming established in the project area over time would be minimal.

### **3.6 Soil Erosion**

Any activities that reduce or eliminate vegetation have the potential to result in soil erosion until vegetation is re-established. The project area has been disturbed as a result of past residential development activities. Residential development (e.g., home sites and access roads) activities often eliminate or reduce vegetation cover, even if only temporarily, and thus become a potential cause of soil erosion during periods of precipitation runoff. Some limited soil erosion at the project area was observed during recent site visits.

#### **No Action Alternative**

Erosion of existing soils within the project area would continue under the No Action Alternative until such time as the vegetation becomes re-established naturally.

#### **Proposed Action Alternative**

During construction, the removal of vegetation and disturbance of soil could result in localized soil erosion at the project area. However, standard construction best management practices (BMPs) would be implemented to minimize runoff during construction. Consequently, most runoff would be contained within the active construction site. The re-establishment of native vegetation in the project area following construction would ultimately reduce soil erosion. Because the proposed project could result in the disturbance of more than 1 acre of land, a notice of intent (NOI) would be submitted by the contractor under the New Mexico Construction General Permit and a SWPPP would be prepared and implemented.

### **3.7 Air Quality**

The Clean Air Act of 1970, as amended, established National Ambient Air Quality Standards (NAAQS) (40 CFR 1 Section 81.332) to protect the public from exposure to dangerous levels of several air pollutants. The portion of Rio Arriba County where the project area is proposed is in Air Quality Control Region (AQCR) 157, also known as the Upper Rio Grande Valley Intrastate AQCR (NMED 2008). The AQCR 157 has been classified as an attainment area for all air pollutants identified in the NAAQS (eCFR 2008). Because of this classification, the proposed project is not subject to Environmental Protection Agency requirements for ambient monitoring. The project area is occasionally used for recreational activities, which results in the generation of a small amount of fugitive dust during dry conditions.

#### **No Action Alternative**

There would be no effects to air quality under the No Action Alternative.

#### **Proposed Action Alternative**

Fugitive dust generation from drilling and grading activities in the project area, along with exhaust emissions from heavy equipment and vehicles working on the project, are the only anticipated effects to air quality during construction. These temporary effects would not be expected to be significantly adverse. Fugitive dust would be suppressed by spreading water over disturbed areas where heavy equipment is working during dry conditions. Exhaust emissions from heavy equipment and vehicles working on the project would dissipate rapidly before leaving the project area. There would be no effects to air quality following completion of construction activities and re-establishment of vegetation in disturbed areas.

### **3.8 Cultural and Archaeological Resources**

Reclamation conducted a check in the Archaeological Records Management Section and found no recorded sites within the proposed project site.

#### **No Action Alternative**

There would be no effects to cultural or archaeological resources, or sacred sites, under the No Action Alternative.

#### **Proposed Action Alternative**

There are no structures or sites eligible for the National Register of Historic Places that would be affected by the Proposed Action Alternative. It has been determined that the Proposed Action Alternative would have no effect to cultural or archaeological resources. If cultural or archaeological resources are encountered during site construction or drilling activities, work would stop and the Reclamation Area Archaeologist would be notified immediately. In addition, no sacred sites or traditional cultural properties are known to exist in the project area. However, should consultation with Tribes result in the identification of any such sites or properties, then Reclamation would consult with the Tribes concerned to ensure no adverse effects result from the Proposed Action Alternative.

### **3.9 Indian Trust Assets (ITAs)**

Indian Trust Assets (ITAs) or resources are defined as legal interests in assets held in trust by the U.S. Government for Native American Indian tribes or individual tribal members. Examples of ITAs are lands, minerals, water rights, other natural resources, money, or claims. An ITA cannot be sold, leased, or otherwise alienated without approval of the Federal government. Reclamation consultation with potentially affected Tribes and the Bureau of Indian Affairs has yielded no known ITAs within the project area.

#### **No Action Alternative**

There would be no effects to ITAs under the No Action Alternative.

#### **Proposed Action Alternative**

Because there are no known ITAs within the project area, there would be no effects to ITAs under the Proposed Action Alternative.

### **3.10 Socioeconomics**

According to the most recent data from the U.S. Bureau of Economic Accounts (2008), the annual per capita income for the State of New Mexico in 2006 was \$29,725. The 2005 annual per capita income for Rio Arriba County was \$23,203. According to the most recent data from the U.S. Census Bureau (2008), 72.9 percent of the residents of Rio Arriba County were Hispanic or Latino, 0.3 percent were Black or African American, and 13.9 percent were American Indian or Alaska Native in the year 2000.

#### **No Action Alternative**

There would be no effects to socioeconomics under the No Action Alternative.

#### **Proposed Action Alternative**

Implementation of the Proposed Action Alternative would result in the creation of a small number of jobs for contractors during site construction and drilling activities. Construction and drilling activities are anticipated to take approximately 30 days to complete and would employ two to three individuals during that time period. Assuming materials would be purchased and workers would be employed from the Rio Arriba County area, the Proposed Action Alternative would result in minor beneficial effects on the local economy.

### **3.11 Environmental Justice**

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that the effects on minority and low-income populations within a project area be given special consideration to determine if the proposed action would result in disproportionate adverse effects to their communities.

#### **No Action Alternative**

A water shortage can be expected to have an impact on the poorest members of a community first; those least able to afford alternative water sources or unable to relocate to areas without

water shortages. The No Action Alternative could lead to insufficient water for some members of the community during an emergency situation, and would likely impact those with the lowest incomes. Insufficient water may affect health, safety and welfare of the community's poor through lack of water for bathing, clothes washing, cleaning and fire fighting.

**Proposed Action Alternative**

No adverse effects to low-income or minority populations are anticipated under the Proposed Action Alternative. Implementation of the Proposed Action Alternative would provide a reliable water supply for the Association in times of drought.

**3.12 Visual Resources**

Visual quality in this portion of Rio Arriba County varies somewhat, depending on the specific site in question and the viewer. In general, the regional landscape near the project area is vegetated with native upland plant species. Human-made features within this portion of the landscape are highly visible, such as roads, utility corridors, water tanks, industrial and commercial developments, and houses. At a more site-specific level, access roads, powerlines, and nearby residences are visually prominent at the project area.

**No Action Alternative**

There would be no effects to visual resources under the No Action Alternative.

**Proposed Action Alternative**

Impacts of the proposed project include temporary construction effects: dust, noise, increased vehicle traffic to and from the site, and visual impacts of the drill rig and equipment. Once completed, the well and associated equipment would be housed in a small shed, and would blend with the surrounding area. None of these temporary impacts are significant on a local or regional scale.

**3.13 Cumulative Impacts**

No cumulative impacts from the proposed project are anticipated. This project, in combination with other planned projects in the area, would not be expected to result in any long-term adverse cumulative effects to identified resources. The short-term cumulative effects of construction activities would be small in the overall regional context and would be temporary in nature.

Permanent impacts include the effects on the Chinle Formation tapped by the well; the water produced from the proposed well would not be available to others. These effects were considered by the NMOSE in issuing a permit. The water produced would enter the Association's domestic water system, and ultimately be released as effluent. There would be few, if any, operational impacts of the well on the natural environment. Because the well would replace a portion of the Association's existing water supply and is limited in volume by the NMOSE permit, it is unlikely to contribute to additional population growth in the area.

### **3.14 Environmental Commitments**

- Should evidence of possible scientific, prehistoric, historic, or archeological data be discovered during the course of this action, work will cease at that location and the Reclamation Area Archaeologist will be notified by phone (505-462-3644) immediately, with the location and nature of the findings. Care will be exercised to not disturb or damage artifacts uncovered during operations, and the proponents will provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government. Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 110(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.
- Native grasses and wildflowers will be seeded in areas disturbed by construction to re-establish vegetation. Only the amount of the proposed staging and drilling areas needed would be used or disturbed. Upon completion of stabilization activities, all work areas would be cleaned up and all materials and equipment removed.
- To minimize the potential for the establishment of State-listed and other noxious weeds, an aggressive revegetation plan will be implemented. In addition to seeding, the introduction of noxious weed seeds would be minimized by requiring that all project equipment be pressure washed before arriving and leaving the project area.
- To minimize soil erosion during rain storms, standard construction BMPs will be utilized to minimize runoff during construction activities.
- Fugitive dust will be suppressed by spreading water over disturbed areas where heavy equipment is working during dry conditions.