6.3 PRIMARY PLANNING GUIDANCE

Primary guidance for natural resource and land use planning is found in Title 9, Chapters 30, 40 and 50 of the Eureka County Code, as amended.

Chapter 30 - NATURAL RESOURCES AND LAND USE PLAN

.010 Definitions

The following definitions apply to this chapter:

Animal unit month - A measure of forage consumption. The forage necessary to support one (1) cow and her calf, one (1) horse or five (5) sheep for one (1) month, often abbreviated as AUM.

Compensable property right -Any type of right to specific property, personal or real, tangible or intangible, which, when reduced or taken for public purpose, is due just compensation under the Fifth Amendment of the U.S. Constitution.
Customary usage right - A right based in custom, usage or practice of the people, which by common adoption and acquiescence, and by long and unvarying habit, has become compulsory, and has acquired the force of law with respect to the place or subject-matter to which it relates.

Federal lands - All land and associated natural resources owned and managed by the United States. Federal lands include, but are not limited to, public lands, federally reserved lands, federal mineral leases, federal geothermal leases, federal forage leases and federally reserved water rights, federal rights-of-way, but categorically exempted are lands or resources to which private interest or title is attached.

Multiple-use - Balanced and diversified management of public lands and their various public resources to best meet present and future economic and environmental needs of the American people.

Natural resources - All renewable and nonrenewable material in its native state which when extracted has economic value. Natural resources may be of commercial or noncommercial nature, including, but not limited to forage, timber, minerals, wildlife, recreational opportunities, fishing, unappropriated streams, springs, seeps and wetlands, ground water, geothermal reservoirs, oil and gas and all other similar resources.

Peer-review - Evaluation of the scientific quality and pertinence of research by other experts in the same field. Peer-review is used by editors in deciding whether submissions meet standards for publication in scientific journals.

Private property - As protected from being taken for public uses. Property that belongs

absolutely to an individual and of which he or she has the exclusive right of disposition.

Public lands - Lands open to sale or other disposition under the general land laws to which no claims or rights of others have attached.

.020 Purpose

The purpose of this Chapter is to (1) guide County policy with respect to natural resource issues facing Eureka County, (2) provide a framework to guide federal agencies in land use planning on federal lands as per the National Environmental Policy Act of 1969, the Federal Lands Policy and Management Act of 1976, the National Forest Management Act of 1976, the Threatened and Endangered Species Act of 1973, and other applicable laws and executive orders, and (3) safeguard property rights and other customary usage rights of the citizens of Eureka County, the State of Nevada, and the United States against any and all encroachments upon those rights by individuals, groups, corporations, public agencies, non-governmental organizations, or any other entity which may attempt to take private property, trespass upon private property or infringe upon other customary rights as have been established by the constitutions, laws and customs of the United States, the State of Nevada, and Eureka County. This title is meant to complement and supplement the constitutions and laws of the United States, the State of Nevada, and Eureka County with additional means of protection and enforcement. This Chapter is not intended to create new rights nor is it intended to in any way supplant the lawful authority of individuals, groups, organizations, corporations, governments or other entities which act pursuant to the laws of constitutions of the United States, the State of Nevada, and Eureka County.

.030 Adoption of the Eureka County Natural Resources and Land Use Plan

A. Holding that the American people are best served when government affairs are conducted as closely to the people as possible (i.e., at the County level), the citizens of Eureka County, through the Eureka County Board of Commissioners, adopt the Eureka County Natural Resources and Land Use Plan as provided in this chapter.

B. The Eureka County Natural Resources and Land Use Plan shall serve as the primary guide for the use and management of all natural resources and state and federal lands within Eureka County.

.040 Custom and culture

A. Since the time that aboriginal peoples inhabited what is now Eureka County, local custom and culture has revolved around beneficial use of natural resources. Aboriginal peoples harvested native plants, animals and geologic material to provide nearly all the raw material for their tools, shelter and sustenance. What was not found locally was traded with other communities in and around the Great Basin. In similar fashion, early

European miners, ranchers and farmers lived largely within the bounds of what they could obtain from the natural environment.

B. With the early gold and silver finds in the mid-1800s came Cornish and Irish miners, Italian charcoal burners (Carbonari), Germans, Swiss, French, Russians, Chinese, and others contributing to mining and support industries, and defining the early custom and culture of Eureka County. The signing of the Treaty of Guadalupe-Hidalgo in 1848 concluded the Mexican-American War and enlarged the borders of the United States to include what is now Eureka County. Upon ratification of the Treaty, the United States acquired and managed this territory as sovereign and proprietor under the Property Clause of the U.S. Constitution. Legal traditions of property rights that existed under Mexican law prior to the establishment of Nevada as a Territory of the United States remain intact today as they are consistent with the U.S. Constitution and laws of the United States. Prior existing property rights including, but not limited to water rights based on the doctrine of prior appropriation, forage rights based on the ownership of water rights and land, rights-of-way, and ownership of real property, are explicitly preserved by all federal land laws. Preservation of these rights demonstrates their importance to the custom, culture and economy of Eureka County and the west.

C. The burgeoning mining camps brought Basque sheepmen who ran sheep in most of the mountains and valleys in Eureka County. On their heels came cattlemen and other settlers who, with the help of the 1877 Desert Lands Act, the Act of 1888, the Act of 1890, the 1891 Creative Act, and the 1916 Stock Raising Homestead Act, established privately-owned base properties to support permanent range livestock operations and farms. Competition among livestock interests resulted in the passage of the 1925 Nevada Livestock Watering Law. A component of this law, locally known as the Three Mile Rule, made it a misdemeanor for a stockman to allow his animals to graze within three miles of a watering site owned by another stockman. The federal government responded to disputes among stockmen and over-use of the federal ranges by passing the 1934 Taylor Grazing Act. The Taylor Grazing Act superseded Nevada's Livestock Watering Law; however, it did not extinguish any prior existing property rights. These property rights withstanding, the Taylor Grazing Act gave the Secretary of the Interior broad discretion to manage public land through rules and regulations and provided that all future grazing on public land be allowed only via grazing permits. The system of management adopted by the Secretary of Interior under the Act provided for (1) adjudication of federal ranges, (2) issuance of revocable licenses with preference given to existing grazers owning commensurate base property, and (3) establishment of Grazing Districts. Graziers in Eureka County and Elko County established the N-1 Grazing District in 1935. Graziers in Eureka County, Lander County, and Nye County

established the N-6 Grazing District in 1951. Early efforts of the State of Nevada to preserve customary grazing rights (*e.g.*, 1925 Nevada Livestock Watering Law) and recognition of these rights by subsequent federal laws (e.g., TGA, FLMPA, and PRIA) demonstrate the importance of livestock grazing to the region's custom and culture. The continued importance of livestock grazing and impacts of federal lands management decisions to citizens of contemporary Eureka County is reflected in establishment of the Eureka County Public Lands Advisory Commission in 1994 and the Eureka County Department of Natural Resources in 1995.

D. Commensurate with development of arable land and distributed water in Eureka County, livestock numbers grew steadily until their peak in the 1940s and 1950s. With these changes came increased wildlife. Populations of mule deer increased across the state until they peaked in the 1940s and 1950s. Similar trends are observed for sage grouse. Downward trends in these wildlife species, beginning in the 1960s, are commensurate with declines in permitted livestock on federal ranges and continues into the present decade.

E. Access to resources on federal lands and the right to pass uninhibited across federal lands are important historical components of the Eureka County's custom and culture. In 1859 Captain James Simpson of the U.S. Corps of Topographical Engineers surveyed the Simpson Wagon Road north of present day Eureka to supplant the earlier-established and longer Humboldt Route. In 1860 the Simpson Route was established as the Pony Express Trail. The 1866 Mining Act and the 1897 Reservoir Siting Act, protected miners, ranchers and others to whom access to federal lands was the basis of their livelihood. The portion of the 1866 Act codified as Revised Statute 2477 provided simply that "[t]he right-of-way for the construction of highways over public land, not reserved for public uses, is hereby granted." Although Revised Statute 2477 was repealed by the Federal Land Management and Policy Act of 1976, miners, ranchers, hunters and fishermen still use these early rights-of-way and rely on Revised Statute 2477 to protect their economic welfare and recreational opportunities.

F. Water rights in Eureka County date back to the mid 1800s. Early miners, ranchers and farmers established surface water rights through the common law doctrine of prior appropriation. The State of Nevada codified this doctrine for surface water in 1905 and extended the law to ground water in 1939. Efforts by Nevada's largest municipalities to import water resources from rural communities is causing contemporary owners of agricultural and stockwatering rights in Eureka County to fear for the future of economically viable beneficial uses of water in Eureka County.

G. Farming has been an important component of Eureka County's industry since the early days of land settlement. Farming was limited to native sub-irrigated meadows and lands irrigated by diverted surface water until supplemental flowing wells were drilled on the Romano Ranch in 1948 and the Flynn Ranch in 1949. In 1949 two irrigation wells were drilled in Diamond Valley in an effort to develop land under Desert Land Entry. By the mid 1950s, pumped irrigation wells were being developed in southern Diamond Valley, Crescent Valley and Pine Valley. By 1965, some 200 irrigation wells had been drilled in Diamond Valley alone. Today, Eureka County's farming districts support a robust grass, alfalfa and meadow hay industry.

H. While standards of living have changed dramatically since the mid-1800s, miners, ranchers and farmers remain the core of the Eureka County community. The shift from strictly local food hunting and fishing to sport hunting and fishing and other natural resource recreation activities has added a small, but viable, recreation and tourism component to the County's natural resource-based culture. Custom and culture of today's Eureka County citizens remain steeped in their mining, farming and ranching heritage. Eureka County is and will ever be dependent upon natural resources for its economic existence.

.050 Community stability

A. Economic and social stability of Eureka County are inseparably tied to the use of natural resources. Over ninety percent (90%) of the County's employment is in the Natural Resources and Mining sector (including agriculture). Mining presently contributes the major portion of the County's personal income and tax revenue stream; however, the "boom and bust" nature of the mine activity periodically brings farming, ranching and agricultural services back to the forefront of the economy. When mining activity lulls, the community relies on its other traditional industries to maintain its viability.

B. State and federal lands make up eighty-one percent (81%) of Eureka County's land area. Given (1) that the community's viability remains largely dependent on business and recreational activities conducted on or in concert with state and federal lands and (2) that many of these activities are inseparably tied to the economic viability of private lands in Eureka County, the community remains particularly sensitive to state and federal planning decisions.

C. Community stability in Eureka County is a symbiosis between the small private land base and the much larger federal land base. Private property interests in minerals, water, forage, rights-of-way and other natural resource attributes of federal lands enhance social and economic

values of Eureka County's private lands. Reductions in the private land base or erosion of private property interests in federal lands, including, but not limited to real property, personal property and mixed property; split estates, easements, rights-of-way, mineral rights, water rights and customary usage rights; fee interest, tenancy and possessory interest, adversely affect the social and economic stability of the County.

D. Certain provisions in a number of federal laws, including the Federal Land Policy and Management Act of 1976, the Public Rangelands Improvement Act of 1978, the Federal Water Pollution Control Act Amendments of 1972 (Clean Water Act), the Threatened and Endangered Species Act of 1973 and the Wild Horse and Burro Protection Act of 1971, have spawned sweeping changes to federal land policy that have proven detrimental to economic and social stability in Eureka County. Repeal of Revised Statute 2477 has denied access to large tracts of federal land, thereby negatively impacting a wide range of economic and recreational users. Department of Interior regulations commonly known as "Range Reform 94'" have substantially reduced viability of cattle and sheep ranches. Zealous and overreaching expansion of Clean Water Act regulations to isolated springs and seeps and ephemeral streams threatens many activities on federal lands. The threat of listing sage grouse, other wildlife and plant species under the Threatened and Endangered Species Act may severely limit economic and recreational use of private, state and federal land in Eureka County, particularly where such listing occurs without adequate peer-reviewed scientific analysis.

E. As the previous observations attest, stability of the Eureka County community, its industries, commerce, schools, health care, police protection, and other services, rests squarely on (1) protection of private property rights, (2) sound and balanced management of natural resources, and (3) continued multiple-use and economic-use of state and federal lands.

.060 Primary planning guidance

A. **Private property and property rights**. Where the Board of Eureka County Commissioners determines that it is in public interest of the citizens of Eureka County, Eureka County will evaluate state or federal actions related to private property and private property interests, including investment backed expectations. The County will use as its primary guidance the Fifth Amendment to the United States Constitution, which prohibits the taking of private property for public use without just compensation. The County will also pursue the principles of Executive Order 12630 which requires federal agencies to prepare a Takings Implication Assessment prior to initiating any action, issuing any rule, or making any decision which would constitute a taking of private property

or private property interest, including investment backed expectation.

B. **Tax base.** It is critical to the welfare of the citizens of Eureka County that the Board of Eureka County Commissioners pursue a stable source of tax revenue based on economic use of natural resources. In order to build a broad tax base, the County supports privatizing certain state and federal lands for commercial, residential, industrial and agricultural and mining uses. In the face of considerable reductions in Ad Valorem tax revenues caused by transfer of private land to public ownership, Eureka County maintains a policy of no net reduction in Ad Valorem taxes related to land tenure changes unless the reductions are adequately mitigated by agreement with the Board of Eureka County Commissioners after public hearing. In addition, Eureka County promotes the concept of split-estate taxation wherein the various components of an estate in real property are taxed as a function of their relative value rather than being accrued only in the surface estate.

C. **Water resources.**

1. Eureka County affirms support for the doctrine of prior appropriation as established by state law; that the right to appropriate water is a compensable property right available to individuals and municipalities. Ownership of the right to use water has, as key principals, those provisions set forth in Nevada Revised Statutes 533.0010 through 533.085, including, but not limited to, first right, first use, beneficial use, and point of diversion.

2. Eureka County promotes private development of water resources on state and federal land for beneficial use in Eureka County, including, but not limited to geothermal reservoirs, power generation, municipal water supplies, irrigation and stock water.

3. Eureka County mandates the use of peer-reviewed science in the assessment of impacts related to water resource development.

4. The County discourages out-of-basin water transfers and will adamantly oppose such transfers that do not (1) pass the highest test of scientific rigor in demonstrating minimal impacts to existing water rights and (2) show a long-term benefit to the economic viability and community stability of the County. Out-of-basin and out-of-county transfers of water shall be accorded full attention of N.R.S. 533.370, N.R.S. 533.438 and other applicable state laws.

5. Eureka County will work to maintain its water resources in a condition that will render it useable by future generations for the full range of beneficial uses that further a viable and stable economic and social base

for its citizens. The County supports retaining authority of States to protect water quality under the Clean Water Act. The County does not support abrogation of that authority to any other governmental or non-governmental entity. The County promotes water quality standards that are i) consistent with actual uses for which a particular water source or body is lawfully appropriated, and ii) based on accurate information regarding its natural state and range of variability. The County will demand coordination among all responsible and affected interests when considering water quality actions.

D. **Air resources.** Eureka County will work to maintain its air resources in a condition that will render them useable by future generations for the full range of beneficial uses that further a viable and stable economic and social base for its citizens.

1. The County supports retaining authority of States to protect air quality under the Clean Air Act. The County does not support abrogation of that authority to any other governmental or non-governmental entity. The County promotes air quality standards that are i) consistent with actual uses for which a particular airshed is lawfully appropriated, and ii) based on accurate information regarding its natural state and range of variability.

2. The Naval Strike and Air Warfare Center at Naval Air Station Fallon affects airspace over Eureka County by operating the Fallon Range Training Complex (FRTC). As a Cooperating Agency in the January 2000 Environmental Impact Statement analyzing changes to operations of the FRTC, Eureka County demonstrated its intention to protect its interests in the public air space. That interest persists today. The County will demand coordination among all responsible and affected interests when considering actions that may impact air quality and air space.

E. **Mining.** It is critical to the welfare of the citizens of Eureka County and the nation that mining on state and federal lands remains an open and free enterprise. Eureka County upholds the tenet that mining claims are compensable property belonging to individuals or groups of individuals. Eureka County supports:

1. retention of and compliance with the 1872 Mining Law as amended;

2. mine reclamation activities as per Nevada Revised Statutes Chapter 519A;

3. streamlining of the permitting process;

4. reasonable bonding requirements that promote small business investment in mine exploration, development, and reclamation;

5. use of the best available science and technology to ensure adequate protection of land, air, and water resources;

6. mitigation of mining activities that may impair the economic future of Eureka County citizens through bilateral or multi-lateral consultations with the Board of Eureka County Commissioners;

7. disposal of mine dewatering water in a manner that returns water to the ground in the same basin it is withdrawn with minimal evaporation and transpiration loss;

8. immediate curtailment of temporary dewatering rights at the cessation of permitted mining and reversion of all temporary change applications supporting dewatering to the permitted use of the originating water right.

F. **Agriculture**. Eureka County recognizes (1) the importance of agriculture to the stability of the local economy and (2) the historic and contemporary influence of agriculture on the community's custom and culture. Farms and ranches have played and continue to play a fundamental role in the social and economic well-being of our County. Eureka County recognizes that increasing regulatory pressures are reducing the viability of farms and ranches. In order to reverse such trends, Eureka County supports, encourages and promotes policies that will lead to the long-term economic strength of family farming and ranching.

1. With respect to farm production, Eureka County supports:
   a. private investment in and ownership of agriculturally productive land;
   b. economically and scientifically sound agricultural practices;
   c. coordination and consultation of state and federal conservation, wildlife and planning activities with local farm organizations and Eureka County.

2. With respect to livestock production and federal lands, Eureka County supports:
   a. private investment in and private ownership of range improvements and water developments;
   b. economically and scientifically sound grazing practices;
   c. increasing grazing capacity and other economic incentives to promote private investment in range

improvements including, but not limited to, fencing, seeding, water development, improved grazing systems, brush control, pinion/juniper eradication, proper fire management and noxious weed control;
d. restoring Voluntary Non-Use AUMs and suspended AUMs to active preference;
e. a grazing fee formula that accounts for all non-fee costs of producing livestock on state and federal land;
f. subleasing of grazing rights;
g. multiple-use concepts;
h. active management of range resources by permittees rather than by public agencies;
i. limiting the role of public agencies to monitoring range condition as per the 1984 Nevada Rangeland Monitoring Handbook and determining compliance with applicable laws;
j. coordination and consultation of state and federal conservation, wildlife, land management and planning activities with permittees, local livestock organizations and Eureka County.

G. **Wildlife**. Management of wildlife, including fish, game animals, non-game animals, predatory animals, sensitive species, Threatened and Endangered Species, under all jurisdictions whatsoever, must be grounded in peer-reviewed science and local input. Wildlife management plans must identify and plan for mitigation of negative impacts to local economies, private property interests and customary usage rights.

1. Eureka County supports wildlife management that:
   a. is responsive to the County Wildlife Advisory Board, the Natural Resources Advisory Commission, and the Board of County Commissioners;
   b. enhances populations of game and non-game species native to Eureka County;
   c. recognizes that enhancing non-native game and non-game species may negatively impact native species and rangeland and forest ecosystems;
   d. increases wildlife numbers where practicable and not in conflict with existing economic uses or ecosystem health;
   e. avoids managing wildlife at population levels that exceed those reported in historical records and established by peer-reviewed scientific investigation;
   f. recognizes that large game animals compete for forage and water with other economic uses;
   g. recognizes that federal agencies are mandated to maintain or improve conditions on federal forests and

ranges;

h. recognizes that wildlife damage mitigation may encumber existing interests and properties to future damages.

2. Eureka County will actively participate in wildlife management decisions that affect the welfare of its citizens via state wildlife planning efforts and county, state and federal land use planning. Eureka County will work to ensure proper implementation of wildlife plans.

3. Eureka County is adamantly opposed to listing any species of wildlife under the Threatened and Endangered Species Act unless the highest level of scientific rigor (*i.e.*, peer-reviewed research based on publicly accessible data sets and methodology) demonstrates that the species warrants listing. The County shall consider all reasonable actions to avoid listings under the Threatened and Endangered Species Act, including, but not limited to, state and local conservation planning and legal recourse.

4. To maintain agriculture as a productive part of the local economy and to enhance the environment for ecologically and economically important wildlife, Eureka County supports sound predator control programs.

5. Eureka County generally opposes the introduction, gradual encroachment and institutionalization of wildlife not native to Eureka County.

6. Eureka County recognizes that the Bureau of Land Management is mandated by Congress to manage all multiple-uses of federal lands, including wildlife, in a manner that maintains or improves the conditions of federal ranges. The County will pursue federal intervention in wildlife management situations in which range conditions are inadequately protected.

H. **Recreation**. Recreation is important to the citizens of Eureka County. The unique outdoor recreational opportunities found in Eureka County are many of its greatest assets. Eureka County values the opportunity and freedom these lands provide and encourages balanced management goals that include hiking, camping, wildlife viewing, and other outdoor recreation activities. Eureka County strongly advocates the rights of recreationists to continued lawful access to public lands.

I. **Utility rights and public consumption**. As per 43 U.S.C., Sec. 315(e), Eureka County supports individual citizen's acquisition of rights-of-ways

for roads, ditches, pipelines, canals, power lines, telephone lines and stock driveways. Eureka County adamantly supports the protection of vested rights that may limit other uses of state and federal lands. As per 43 U.S.C., Sec. 315(d) Eureka County recognizes rights of local citizens to utilize natural resources for personal consumption (e.g., firewood, posts, sand, gravel, etc.).

J. **Land disposition and land tenure adjustments**.

1. Eureka County will respect and uphold private property interests in land, including, but not limited to, land patents, mining claims, easements, rights-of-way, and forage rights.

2. Eureka County maintains a no-net-loss policy with respect to private land and private property rights, and is opposed to public acquisition of private property, except where the acquisition is a) clearly in the public interest of the citizens of Eureka County and b) appropriately mitigated in value and in land area by transfer of property from the public domain to private ownership. Determination that such a transaction is in the public interest of the citizens of Eureka County and that proposed mitigation is appropriate shall be determined by the Board of Eureka County Commissioners after proper public hearing.

3. Eureka County recognizes that the imbalance of the private/public land ownership inhibits new economic activity in Eureka County and is detrimental to Eureka County's long-term viability. The County encourages state and federal agencies to aggressively pursue land disposal to the maximum extent allowed by law. State and federal land transfers to local governments will be given priority consideration in any disposal of state or federal land.

4. If any public entity intends to acquire an estate in land, water, minerals, forage or any other private property in Eureka County, the proposed acquisition shall first be presented to the Board of Eureka County Commissioners. The Board shall determine likely impacts to the County's human and natural environment and render an opinion about the suitability of the acquisition.

K. **Riparian habitat and wetlands**.

1. Riparian areas and wetlands are critically important to well-balanced and productive rangeland ecosystems. Eureka County encourages consultation, cooperation and coordination as provided under Section 8 of the Public Rangelands Improvement Act of

1978 for riparian areas and wetlands under the jurisdiction of a federal agency.

2. The bulk of riparian areas and wetlands in Eureka County exist on private ranches and farms. Eureka County supports retaining riparian areas and wetlands in private ownership by improving the economic environment for the ranching and farming community.

L. **Wilderness, wilderness study areas, parks and refuges**. To the extent that multiple-use of federal lands is vital to the economy of Eureka County, the County is opposed to the designation of any Wilderness Areas or Wilderness Study Areas within its geographic boundaries. The County calls for removal of Wilderness Study Area designations and re-introduction of active stewardship of these lands that do not meet the suitability criteria of the 1964 Wilderness Act. Eureka County demands local input and decision-making in the designation and management of parks, refuges, Areas of Environmental Concern, roadless areas or any other legislative action, regulatory decision or policy that limits access to or use of federal land or resources within the geographic boundaries of the County.

M. **Wild horses**. Eureka County recognizes that horses, protected under the Wild Free-Roaming Horse and Burro Act of 1971, are properly classified as feral animals. The County recognizes that in passing the Wild Free Roaming Horse and Burro Act, Congress failed to account for prior adjudication of the nation's public ranges, thereby disenfranchising livestock grazers and wildlife of existing forage allocations without compensation. The County recognizes that the Department of Interior is mandated by Congress to manage Wild and Free Roaming Horses in a manner that is consistent with legislative intent and will hold the agencies accountable under all applicable laws. Poor management of feral horse herds has resulted in sustained over-population of horses in Eureka County. Over-population has caused long-term damage to range vegetation and water sources, and has resulted in starvation of horses during periods of drought and severe winters. Eureka County encourages federal legislation and policies that promote scientifically-sound and responsible management of feral horse herds. Eureka County advocates economically beneficial uses for feral horses and advocates public sale of excess horses. The County opposes the cost-ineffective policy of long-term pasturing for excess horses where the policy conflicts with the stated intent of the 1971 Wild Free-Roaming Horse and Burro Act to manage horses "...in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands."

N. **Access**. Eureka County supports the right of public access through state and federal lands inasmuch as access does not conflict with private

property rights (as per the Eureka County Public Roads Resolution of March 7, 1994).

O. **Pinyon and juniper control**. Eureka County encourages active management of pinyon/juniper woodlands and removal of woodlands where they exist at unhealthy densities and beyond their historic range. Eureka County supports economic use of these resources.

P. **Wildfire**. Eureka County supports the right for local citizens to protect their property from fires originating on state and federal lands. The County advocates active fire management on federal lands, including, where appropriate and in consultation with grazing permit holders, adjacent landowners, local volunteer fire fighters and Eureka County, a let-burn policy. The County is opposed to arbitrary and inequitable restriction of post-fire land use for recreation and livestock grazing. The County insists that all post-fire land use restrictions be adequately justified and based on peer-reviewed science.

Q. **Other federal land use regulations**. Many land use regulations have the potential to adversely impact Eureka County's economy. Eureka County mandates involvement in all federal actions that may impact the local economy according to this Title.

Chapter 40 - COOPERATIVE PUBLIC LANDS MANAGEMENT

.010 Findings of fact

The Board of Commissioners of Eureka County, a political subdivision of the State of Nevada, finds as follows:

A. The government of the United States of America exercises control over 2,100,000 acres (eighty-one percent) of the land and the majority of natural resources within the geographic boundaries of Eureka County;

B. Decisions governing federal lands in Eureka County have a history of negative impact on the interrelated heritage of cultural, environmental and economic well-being and stability of County residents;

C. The Congress of the United States has expressed intent, codified in 42 U.S.C. §4331, to act in cooperation with County governments while using all practicable means to create and maintain conditions on federal lands allowing for productive harmony between man and nature while fulfilling the social, economic, environmental and cultural requirements of present and future generations;

7.0 LAND USE ELEMENT

7.1. INTRODUCTION

The Eureka County Master Plan Land Use Element has been prepared to guide the use of privately held land resources in the County through the year 2020. This Land Use Element identifies the six principle Land Use Categories that are also described in Element 2, Historic and Current Perspective. These Land Use Categories include: (1) Urban Areas, (2) Permanent Open Space, (3) Open Space with appropriate associated uses, (4) Agriculture or Mining with limited Housing, (5) Agriculture or Mining with Very Limited Housing, and (6) Agriculture only with Associated Housing. Designation of these respective Land Use Categories are intended to help ensure that development, management, and use of land in the County occurs in a manner which promotes the quality of life, health, safety, and welfare of residents and visitors.

Preparation of this Land Use Element has been completed as a portion of the larger effort to update each Element of the Eureka County Master Plan. As explained in Element 1, there has been extensive opportunity for involvement by residents, Eureka County staff, and appointed and elected County officials. Land Use Plan contents were originally prepared by Eureka County in 1973 and were updated in the 2000 Eureka County Master Plan. In those earlier Master Plan documents, the issues of land use on private lands and land use on non-patented lands were both presented in a single element of the Master Plan, Element 6. This 2010 Eureka County Master Plan Update has placed the patented land issues in Element 7, while the non-patented land issues as administered by federal and state agencies continue to be the subject of Element 6. Strategies and policies devoted to non-patented (non-private) lands are needed to enable federal and state agencies to fulfill their obligation to "coordinate" their efforts with Eureka County. Figure 7-1 depicts existing Eureka County land status.

Private land issues have been made the subject of Element 7 in order to recognize the effects of future increases of Eureka County population and to meet related requirements of Nevada State laws (see NRS 278.640). According to NRS 278.160, the land use element to the Eureka County Master Plan "may address a wide variety of issues as such are deemed appropriate to the development of the County". In addition, NRS 278.200 states that a plan shall be "a map, together with such charts, drawings, diagrams, schedules, reports, ordinances, or other printed material, or any one of a combination of the foregoing as may be considered essential to the purposes of the administration of land use" within Eureka County.

In 1973, mining, farming and ranching were each important and stable components of the Eureka County economy and the population of Eureka County was about 900 persons. Largely due to rapid expansion in the mining industry, Eureka County's population in 1990 reached 1,547 persons. As indicated in Eureka Master Plan Element 4, the present population of 1,651

would increase to 1,872 between 2009 and 2021 which is an increase of about 13%. However, proposed development of new mines and proposed development of wind, solar, or geothermal energy would likely provide employment for 600 more people who in turn would require land and housing for their families as discussed in Element 3 and Element 8.

Since completion of the Eureka County Master Plan in 2000, few changes in the distribution of land ownership and administration among private, federal, state, and local entities has occurred in the County. The Bureau of Land Management continues to administer the majority of land in the County. Private land holdings continue to be concentrated in valley bottoms and used for agriculture, found as isolated parcels of homestead, state selection lands, and patented mines, or associated with former railroad lands ("checkerboard") in the northern County.

Eureka County and the Town of Eureka have experienced economic expansion fueled by regional mining activity. Evidence of the area's growth can be seen in the development of housing and commercial ventures in and around the community of Eureka. Also fueled by mining employment in adjacent Lander County, the community of Crescent Valley has experienced population growth. Local growth has placed increased demands on land resources held by private parties and resulted in land division and parceling, particularly in the vicinity of Eureka.

7.2 LAND USE ISSUES

Preparation of this land use plan has been guided by extensive public input derived through a series of community meetings. Residents and other interested persons attended meetings held in Crescent Valley and Eureka and were consistently concerned about protection of private property rights. Opinions of participants in the meetings and responses to the 2010 Eureka County Master Plan Update Survey indicate the majority of Eureka County citizens are concerned about how best to safeguard landowner rights but are opposed to restrictive land use regulation in the form of zoning, as that term is generally used.

Opinions expressed in 2010 reaffirm the opposition to zoning described in the 2000 Eureka County Master Plan. The Eureka County Commission and the Eureka County Planning Commission met jointly in January of 1998 to address the divergent views of residents concerning land use regulation. The Commissions agreed that the 1998 Eureka County Land Use Plan would serve to repeal the 1973 Plan but would not recommend imposition of new land use regulations (i.e. zoning). Rather, the Commissions agreed that the 1998 Eureka County Land Use Plan (2000 Eureka County Master Plan) would encourage future development in a manner and in locations consistent with existing patterns of land use.
Issues raised during community meetings and in Master Plan Update Survey responses focused on the need to increase the amount of private land in the County and reverse an apparent trend which has lead to ever heightened restrictions on the use of land managed by the Forest Service and the Bureau of Land Management.

Other concerns included fiscal impacts from parceling or division of lands and de-facto subdivision development. The effects of parceling on the continued economic viability of the Eureka County agricultural sector were also mentioned as concerns by some. General land use designations and a requirement to dedicate water rights to parceled or divided lands provides opportunities for Eureka County to plan development of land for moderate to high density housing and properly provide for the infrastructure of such developments. Patterns of land use were also discussed from the perspective of entrance themes and community appearance, particularly in the Town of Eureka. Participants in the Eureka meetings expressed interest in seeing annexation lands such as those purchased by the County from the BLM, used efficiently and in a manner maximizing benefits to taxpayers.

Issues raised in Crescent Valley meetings included the effects of continued parceling within the Town on groundwater quality and quantity, the need for a community sewer system as a prerequisite to development of multi-family housing, and the need for additional land to be acquired from the BLM for community expansion. Interest was also expressed in developing industrial sites along the Union Pacific rail line in the vicinity of Beowawe.

7.3 POPULATION

Land use in Eureka County is influenced by population growth or decline. A growing population places demands on private land resources to support development of housing, industry, and commercial establishments. In a growing area, conversion of agricultural lands to municipal and industrial purposes is a common reality. Lands administered by public agencies are used to respond to growth through the provision of public facilities and infrastructure as well as in meeting demands for active and passive recreation. Growth increases the demand for and consequently the value of land resources.

Alternatively, a decline in population will typically reduce demands upon land resources and their related values. Unoccupied dwellings can fall into disrepair and vacant lots can become overgrown with weeds, creating fire hazards. As assessed valuations fall, the fiscal burden to provide needed public services and facilities may become greater for remaining residents.

Population growth can result from immigration (i.e. mining induced growth) and natural increases where births rates exceed death rates. Alternatively, population decline can result from outmigration upon the closure of an industry (i.e. mining) or as a result of natural factors such as when death rates exceed birth rates. The emigration of younger residents of child-bearing age and the aging of an area's population can exacerbate the natural decline of the population of a community.

7.3.1 Assimilation of Growth

Population growth in Eureka County will increase demand for new homesites and development of land for commercial, industrial, and public infrastructure. Table 7-1 illustrates the projected demand for land to support residential development through 2021.

Table 7-1
Estimated Acreage Required to Assimilate
Projected Population Growth in Eureka County

Area	Population[1]		Change 2000-2021	New House-holds[2]	Acreage Required	
	2000	2021			.5 acres /hshld	2.5 acres /hshld
County-wide	1,651	1,981	330	132	66	330
Town of Eureka	545	654	109	44	22	110
Diamond Valley	330	374	44	18	9	45
Beowawe	33	40	7	3	2	8
Crescent Valley	396	449	153	62	31	155
Balance of County	347	416	69	28	14	70

1/ Based on U.S. Census and projections by the Nevada State Demographer.
2/ Based upon 2.5 persons per household.

Table 7-1 suggests that the creation of 130 new households over the next 12 years will require 66 to 330 acres of land. This level of land demand assumes a housing density of 1 home for every 2.5 acres up to 2 dwellings per acre. It is important to note that at a density of 2.5 acres or less per dwelling unit, community water and/or sewer system services would be required for

all 248 dwellings. Alternatively, parcel sizes per dwelling unit in Eureka County tend to be greater than 2.5 acres outside of established community areas. At 5 to 10 acres per dwelling, a total of 650 to 1,320 acres would be required to assimilate the population growth anticipated in the County through 2021.

7.4 PRIVATE LAND USE

There exist approximately 505,000 acres of private land in Eureka County. The majority of these lands are rangelands used to support Eureka County's range livestock industry. Private rangelands are located primarily in northern Eureka County. Irrigated agriculture is the next most significant use of land in the County. Irrigated agriculture is concentrated primarily in the following valleys including Diamond, Pine, Crescent, and Boulder. Most all private lands in the County have the potential for mining and/or oil production. Intensive mining currently occurs in southern Diamond Valley (near Eureka), and immediately northeast of Boulder Valley in the Tuscarora Mountains. Oil production in Eureka County is primarily located in Pine Valley.

With few exceptions, commercial land uses in Eureka County are located within the towns of Eureka and Crescent Valley. Southern Diamond Valley (outside of the Town of Eureka) contains several developed commercial sites. Beyond mining, industrial land uses are located mainly along the I-80/Union Pacific Rail line corridor in northern Eureka County at Beowawe and Dunphy.

7.4.1 Existing Private Land Uses

Figure 7-2 depicts existing land use within Eureka County. Most of the land area within Eureka County is used for livestock grazing on privately owned or federally administered rangelands. Mining is concentrated in northeastern Eureka County and just west of the Town of Eureka in the southeast portion of the County. Predominant agriculture areas are found in Boulder, Pine, Crescent, and Diamond valleys. Urban areas are community centers or residential areas with public water and/or sewer systems. Figure 7-3 shows existing land use within the Town of Eureka. Commercial uses of land are located mainly along the U.S. Highway 50 corridor from one end of the community to the other. Medium density residential sites, which are parcels less than 2.5 acres requiring public water and/or sewer hookups, are scattered throughout the community. On the east side of Highway 50, most residential lots are occupied by older single-family residences. A few mobile homes have been placed on lots east of Highway 50 within Eureka. West of Highway 50, mobile homes occupy lots on the southern and northern ends of Eureka. West-central Eureka is comprised of older single-family residences. Large areas of land within the Eureka Townsite are owned by various governmental entities including Eureka County School District, Eureka County, and the State of Nevada. A small area of high-density residential dwellings (i.e. duplexes and apartments) is

found in the northwestern quadrant of Eureka.

Existing land use in and around the Town of Crescent Valley is depicted in Figure 7-3. Medium density residential (parcels less than 2.5 acres) lots dominate the land use of the community. Larger lots are subject to parceling. Mobile homes are currently found on most occupied parcels in the community. A mobile home park and recreational vehicle parks (located in areas designated commercial) exist in Crescent Valley. Limited existing commercial land uses are concentrated along State Highway 306 in central Crescent Valley and in the northeastern quadrant of the community. The Eureka County School District, the Town of Crescent Valley and Eureka County own parcels of land in the community which are used for public purposes.

Large areas of undeveloped federally administered land are located adjacent to the Crescent Valley Townsite. One such area, immediately to the north of the community, has been identified by the Crescent Valley Town Board as desirable for transfer from federally administered status to private/local government to enable future community expansion. Several areas of low-density residential (parcels greater than 2.5 acres) are found within 2 miles of the Crescent Valley Townsite. Several hundred parcels larger than 2.5 acres in the vicinity of the Townsite have been platted and recorded.

7.4.2 Goals and Policies for Private Land Use

As previously noted, community meetings held to gather input to the preparation of this plan made obvious the interest of existing land owners in protecting private property rights. In addition, the desire to expand the acreage of private land in the County was made consistently clear. This plan addresses the protection of existing property rights from three perspectives. First, the right to use land is not enjoined through restrictive land use designations or zoning ordinances. Second, the potential for erosion of property value through incompatible adjacent land uses is recognized and discouraged. Finally, the adverse consequences of certain land use decisions by federal, state, and local governments on adjacent private lands is recognized and discouraged. Goals and policies of Eureka County follow:

Goal 7.1 - Protect Private Property Rights

Policy 7.1.1 - Eureka County will encourage private land uses which enhance the use and/or value of adjacent private lands.

Policy 7.1.2 - Eureka County will discourage state and federal actions which threaten to impair the use and/or value of private property rights in the County.

Goal 7.2 - Promote Orderly Development

Policy 7.2.1 - Eureka County will encourage private land uses which are consistent with adjacent land uses.

Goal 7.3 - Increase Private Land Holdings

Policy 7.3.1 - Eureka County will encourage transfer of non-patented lands to private ownership.

Policy 7.3.2 - Eureka County will discourage transfer of private land to public ownership.

Policy 7.3.3 – When transfer of non-patented lands from federal administration into private, state, or county ownership removes those lands from the forage base of an adjudicated grazing allotment, the forage loss will be mitigated by providing forage at another location of equal or greater value and any detrimental effects to private property rights, such as rights-of-way or water rights, will require compensation for such losses.

Implementation of the aforementioned goals and policies will serve to maintain the existing character and patterns of land use in Eureka County. Minimization of land use conflicts through encouragement of compatible adjacent land uses will prevent adversarial decline of land value and loss of use rights.

Table 8-4
Demographics by Size of Household
Eureka County, Nevada and the U.S: 2000

Size	Eureka Co.	% of Total	Nevada	% of Total	U.S. (000)	% of Total
Owner Occupied:						
1 person	119	24.1	89,092	19.5	14,190	20.3
2 person	182	37.0	174,492	38.2	24,888	35.6
3 person	73	14.8	74,840	16.4	11,950	17.1
4 person	70	14.1	63,509	13.9	10,991	15.7
5 or more	49	10.0	55,314	12.0	7,794	11.3
Total	493	100	457,247	100	69,815	100
Renter Occupied:						
1 person	69	39.9	97,653	33.22		
2 person	37	21.4	84,738	28.83		
3 person	28	16.2	45,685	15.54		
4 person	18	10.4	33,250	11.31		
5 or more	21	12.1	32,592	11.2		
Total	173	100	293,918	100		

Source: 2000 U.S. Census

8.2.1 Population Growth

Population growth comes from two sources: natural causes (birth minus deaths), and immigration. As shown in Table 8-5, although sporadic, population growth is expected to continue in Eureka County for sometime. Population growth in Eureka County has been driven largely by mining activity in Crescent Valley and Eureka.

Table 8-5
Eureka County
Population Projections: 2000-2028

	2000	2007	2014	2021	2028
Eureka County	1,651	1,458	1,694	1,872	1,792

Source: Nevada State Demographer, 2008 projection and U.S. Census, 2000

8.2.2 Marital Status and Household Composition and Size

Marital status also influences rental demand and home ownership rates. Married couple households are more likely to be homeowners. This is explained, in part, by the correlation between marital status and (1) income, and (2) household size. Marital status varies among areas in Nevada with rural areas generally having higher rates of married

Table 8-7
Residential Sales
Eureka County
1995-1997 and 2007-2009

Eureka County	1995-1997	2007-2009
Minimum Price	$16,500	$32,000
Maximum Price	$87,500	$187,000
Average Price	$42,875	$123,353

Source: Eureka County Assessor

8.3.2 Housing Affordability

A common measure of housing affordability typically includes the relationship of housing prices to income. A household spending more than 30 percent of their income on housing is said to be experiencing a housing cost burden. Attempts to characterize housing affordability solely in terms of the income to housing cost ratio diminish the importance of demographic and economic conditions which also influence affordability and demand for housing. Table 8-8 shows the percentage of households spending more than 30 percent of their income on housing in 2000. In terms of affordability, Nevada is higher (less affordable) than either the United States or Eureka County. Eureka County is more affordable than either Nevada or the United States.

Table 8-8
Housing Affordability
Eureka County, Nevada, and United States: 2000

	Paying more than 30 Percent of Income on Housing	
Area	Owner Percent	Renter Percent
Nevada	40.3	49.9
United States	22.0	39.9
Eureka County	16.2	14.2

Source: 2000 U.S. Census

8.4 HOUSING DEMAND PROJECTIONS

8.4.1 Housing Demand by Location

Table 8-9 shows new housing demand increase from 2000 through 2028. The table shows the number of new dwelling units which will need to be constructed to meet housing demands associated with the population projections in Table 8-5. Using the census basis of 2.5 occupants per household, from 2000 to 2028, a total of 90 new housing units may be needed under the growth population scenario. Table 8-9 does not include additional units which will be vacant, typically 3 to 5 percent.

Based upon household tenure as shown in Table 8-4, it is estimated that approximately 28 percent of the new housing units will need to be rental units. As a result, Eureka County can anticipate a total need of approximately 25 rental housing units through 2028.

Table 8-9
New Housing Demand Projections
Eureka County: 2000-2028

Year	Estimated Population	Loss or Gain of Population	Demand Projection
2000	1651		
2007	1458	-193	-77
2014	1694	+236	+94
2021	1872	+178	+71
2028	1792	-80	-32

Source: Nevada State Demographer and 2000 U.S. Census Bureau

Based on Table 8-1, a breakdown of new housing demand by type of housing is shown in Table 8-10. The greatest increase in housing type is expected to be mobile homes with single family detached housing being the seconded greatest increase.

Table 8-10
New Housing Demand Projections
By Housing Type
Eureka County: 2000-2028

	Total New Demand	Single Family Detached	Single Family Attached	Multi-Family	Mobile Homes
2000	-	-	-	-	-
2007	-77	-	-	-	-
2014	+94	5	1	1	12
2021	+71	19	2	2	48
2028	-32	-	-	-	-
Total	90	24	3	3	60

Source: Nevada State Demographer and 2000 U.S. Census

8.5 FUNDING SOURCES

There are numerous funding sources available for housing assistance in Eureka County. The primary sources are administered by the Nevada Housing Division, the Nevada Commission on Economic Development-CDBG Program, USDA Rural Development, and to a lesser extent the Nevada Welfare Division. Mobile homes that are purchased and converted to real property qualify for additional avenues of financing. The following table summarizes programs which could be utilized in Eureka County.

9.0 Water Resources Element

9.1 Introduction

Water within Eureka County is obtained from both surface and subsurface (underground) water sources. Numerous springs, perennial streams, and ephemeral streams provide surface water sources, including the Humboldt River. Subsurface water as obtained from wells traditionally is used for industrial purposes such as mining, irrigation of agricultural crops, stockwater, domestic use, and municipal water systems. All water within Eureka County originates within the Great Basin portion of Nevada and all Eureka County streams or rivers terminate within the boundaries of Nevada with no interstate movement of water. By law, the State of Nevada owns all the water in Nevada but the right to use specific portions of that water is a lawfully protected property right.

Water rights in Eureka County, as currently recognized under State law, date back to the mid 1800s. Early miners, ranchers and farmers established surface water rights through the common law doctrine of prior appropriation. As discussed in Element 6 of the Eureka County Master Plan, the doctrine of prior appropriation and beneficial use of water was established by Spain throughout what is now the western United States when this area was held under the authority of the Mexican government. Historically, the Treaty of Guadalupe-Hidalgo (1848) specified that property rights and real property ownership would continue without interruption when the United States borders were extended to the present locations. Those property rights included, for example: water, forage, access to water and forage, ranches or farms, and mineral rights. Nevada codified this doctrine for surface water in 1905 and extended the law to ground water in 1939.

9.2 Water Resource Issues

Adjudication of water rights, vested water rights, and appropriated water rights are primarily governed by Nevada Revised Statutes 533. Water rights state-wide are owned by individuals, businesses, partnerships, corporations, and government entities including the U.S., State of Nevada, counties, cities or towns, and special use districts of various kinds. Ownership of water rights requires the designation of specific beneficial use that each water right pertains to such as domestic use, stock water, irrigation, wildlife water, wildlife habitat, industrial use such as mining or milling, municipal use, and several other designations.

Ability of various underground water sources to yield a sustained discharge of water has not been determined throughout Eureka County, but is currently the subject of various studies as a result of concerns that more water has been allocated than those aquifers can provide. As data becomes available in the future, the available quantity of water and the quality of the water from various sources will be incorporated into the Eureka County Master Plan.

At the time of this 2010 Eureka County Master Plan update there are several recent events that illustrate the cause for concern among Eureka County residents. For example, (1) mine de-watering efforts have resulted in subsurface water being pumped from the mine locations and disposed of in several ways including irrigation of crops and discharge onto the surface or

into the Humboldt River. Mine dewatering with discharge into the Humboldt River or its tributaries has the effect of deportation of Eureka County subsurface water from Eureka County. (2) Water rights held by agricultural producers for the beneficial use of irrigation have recently been sold to mining companies for future use at planned mine sites. Beneficial use of that water will become industrial for mining and milling purposes and possibly municipal use which offers positive benefits to the economy of Eureka County. Conversion of beneficial use will also result in those irrigated lands no longer receiving irrigation water that is needed for the crops to live and protect the soils from erosion. The contribution of those croplands to the economy of Eureka County will end. (3) Efforts by Nevada's largest municipalities to import water resources from rural communities are causing contemporary owners of agricultural and stockwatering rights in Eureka County to fear for the future of economically viable beneficial uses of water in Eureka County.

Eureka County fully participates in such organizations as the Humboldt River Basin Water Authority and the Central Nevada Regional Water Authority as a means to clearly identify problems related to water resources and to successfully solve those problems. Future effects of mine dewatering, interbasin transfer of water, and exportation of water from subsurface aquifers is not known, but is potentially detrimental to other Eureka County water users who depend on those same aquifers.

Water quality issues, specifically water pollution, is regulated by federal and state laws that further classify pollution as being from an identified "point" source or pollution from diffuse or "non-point" sources. Refer to Nevada Revised Statutes 445A and Nevada Administrative Code 445A, and associated statutes.

Naturally occurring substances may be found in Eureka County water that include, for example, soluble salts (salinity), arsenic, and other such chemicals that have the effect of reducing the suitability of water for some uses. Although they occur naturally, these substances that limit water quality are viewed as water pollution by regulatory agencies. Sewage or storm water from urban sources, waste water from mining or milling, and other such sources may become point sources of pollution in Eureka County that require construction of facilities and further treatment of the water. Examples of non-point sources of pollutants include sediments from erosion of surface soils following storm run-off events and flooding, loss of vegetation due to wildfires, and a number of other situations. Non-point sources of pollution are generally solved through the use of conservation measures known as Best Practices and also called Best Management Practices (BMP).

Eureka County protection of underground water quality includes testing municipal water sources for levels of toxic substances such as arsenic, mercury, or other chemicals. Pesticides and fertilizers applied to cropland or to urban landscapes are a concern in certain portions of the nation, and will continue to be monitored in Eureka County even though production of forage crops such as hay do not involve the types of chemical applications required by other crops. By state law and County ordinance, water well construction and casing along with minimum lot size protects domestic wells from pollution by septic fields. Eureka County provides County water and/or sewer infrastructure within designated urban growth areas (Town of Eureka, Town of Crescent Valley, Devils Gate General Improvement District).

Increasing efforts of federal and state agencies to control water quality standards threatens Eureka County economic and community interests. These efforts include water quantity and quality issues within the Humboldt River and its tributaries. For example, municipal wells placed near the Humboldt River illustrate concerns about water quality. At this time water from the Humboldt River must meet water quality standards that are suitable for irrigation of crops and consumption by livestock, and naturally does so. Wells near the Humboldt River meet water quality standards for human consumption because they pump water from depths that are well below the level that any Humboldt River water seepage can reach. If Humboldt River water is found to be included in the discharge from those wells then Eureka County officials are concerned that federal agencies will demand that the Humboldt River water quality conform to the higher human use standards without regard to the natural quality of Humboldt River water.

Vested water rights, water right appropriation, and water right adjudication are discussed in some detail in the proceedings of the seminar entitled "Vested Water Rights in Nevada" sponsored by the Humboldt River Basin Water Authority and the Nevada Water Resources Association in March 2007 (48 pages) a digitized version is available at http://ndep.nv.gov/bffwp/docs/hrbwa_vestedwaterrightsbook.pdf. That document is included in this portion of the Eureka County Master Plan by reference

9.3 Primary Planning Guidance

Guidance for Chapter 9 of the Eureka County Master Plan is found in Eureka County Code 9.30.060.C and further discussed in Eureka County Master Plan Chapter 6. Further guidance for Chapter 9 of the Eureka County Master Plan is found in:
(1) Resolution of the Eureka County Planning Commission dated June 1, 2000 and accepted by the Eureka County Board of Commissioners on July 6, 2000, entitled: *"Resolution Adopting the Amended Water Resources Plan Into the Eureka County Master Plan." and*
(2) Resolution of the Eureka County Board of Commissioners dated March 6, 2009, entitled: *"Resolution Restating the Eureka County Board of Commissioners Position on Water Resources in Eureka County."*

9.3.1 GOALS:

1. Meet the requirements for water quality contained in the Nevada Administrative Code (NAC) Section 445, to the extent they can be met while complying with constitutional and statutory law regarding property rights including vested water rights.
2. Safeguard the economic stability of Eureka County by the protection of the property interests of water rights owners in accordance with constitutional and statutory law.
3. Clearly inform federal and state entities about the water resource policies of Eureka County to enable officials of those entities to coordinate their proposed regulatory actions with Eureka County.
4. Continue to study the water resources within Eureka County to determine both quantity and quality, using non-biased protocols and procedures (i.e. USGS approaches for inventory, monitoring, and analysis of data).

5. Develop a Water Resources Plan that takes into account existing and current conditions, analyzes various scenarios, outlines and analyzes different management alternatives including a status-quo or no-action alternative.
6. Pursue a funding mechanism for (1) continued water resources study, (2) water resources planning and management, and (3) mitigation of negatively affected water and water dependent resources.

9.3.2 Water Resources, Eureka County Code 9.30.060.C

1. Eureka County affirms support for the doctrine of prior appropriation as established by state law; that the right to appropriate water is a compensable property right available to individuals and municipalities. Ownership of the right to use water has, as key principals, those provisions set forth in Nevada Revised Statutes 533.0010 through 533.085, including, but not limited to, first right, first use, beneficial use, and point of diversion.

2. Eureka County promotes private development of water resources on state and federal land for beneficial use in Eureka County, including, but not limited to geothermal reservoirs, power generation, municipal water supplies, irrigation and stock water.

3. Eureka County mandates the use of peer-reviewed science in the assessment of impacts related to water resource development.

4. The County discourages out-of-basin water transfers and will adamantly oppose such transfers that do not (1) pass the highest test of scientific rigor in demonstrating minimal impacts to existing water rights and (2) show a long-term benefit to the economic viability and community stability of the County. Out-of-basin and out-of-county transfers of water shall be accorded full attention of N.R.S. 533.370, N.R.S. 533.438 and other applicable state laws.

5. Eureka County will continue to work to maintain its water resources in a condition that will render it useable by future generations for the full range of beneficial uses that further a viable and stable economic and social base for its citizens. The County supports retaining authority of States to protect water quality under the Clean Water Act. The County does not support abrogation of that authority to any other governmental or non-governmental entity. The County promotes water quality standards that are i) consistent with actual uses for which a particular water source or body is lawfully appropriated, and ii) based on accurate information regarding its natural state and range of variability. The County will demand coordination among all responsible and affected interests when considering water quality actions.

CERTIFICATE OF SERVICE

Pursuant to NRAP Rule 25(1)(c), I hereby certify that I am an employee of ALLISON, MacKENZIE, PAVLAKIS, WRIGHT & FAGAN, LTD., Attorneys at Law, and that on this date, I caused a CD-ROM version of same to be served to all parties to this action by:

_____ Placing a true copy thereof in a sealed postage prepaid envelope in the United States Mail in Carson City, Nevada
_____ Hand-delivery - via Reno/Carson Messenger Service
_____ Facsimile
_____ Federal Express, UPS, or other overnight delivery
_X_ E-filing pursuant to Section IV of District of Nevada Electronic Filing Procedures

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DATED this 21st day of December, 2012.

/s/ Nancy Fontenot

Enclosure 1

JFA#: 09W4NV03100, Mod#1

POINTS of CONTACT:		
USGS Nevada Water Science Center		Eureka County
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541		PO Box 677 (FedEx) 10 S. Main St. Eureka, NV 89316 Phone #: 775-237-5262 FAX # 775-237-6015 TID: 88-6000080
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Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	09W4NV03100.Mod1
Project #:	9705-BTQ03
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 4th day of August, 2009, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, Nevada, party of the second part.

1 The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 3 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

(a) $69,300 by the party of the first part during the period July 1, 2009 to September 30, 2009

(b) $84,700 by the party of the second part during the period July 1, 2009 to September 30, 2009

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7 The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366
continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	09W4NV03100.Mod1
Project #:	9705-BTQ03
TIN #:	88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Mary Tumbusch
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7637
Email: mtumbsch@usgs.gov

Signatures

By _____ Date 8/4/09
Name: Lari Knochenmus
Title: Acting Director, USGS, NV WSC

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

EUREKA COUNTY

Customer Point of Contact

Name: Jake Tibbitts
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-6010
Email: natresmgr@euredanv.org

Signatures

By _____ Date 8/20/09
Name: James P. Ithurralde
Title: Chairman, Board of Commissioners

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

United States Department of the Interior
U.S. GEOLOGICAL SURVEY

NEVADA WATER SCIENCE CENTER (NWSC)
2730 N. Deer Run Road
Carson City, Nevada 89701
Phone: 775-887-7600; Fax: 775-887-7629
Website: http://www.usgs.gov/

April 2, 2010

Mr. Leonard Fiorenzi
Eureka County Commissioner Chairman
PO Box 682
Eureka, NV 89316

Dear Mr. Fiorenzi:

This letter is in regards to the new Hydrologic Monitoring Program to be conducted cooperatively between the U.S. Geological Survey (USGS) and Eureka County to accurately collect, analyze, document, an disseminate stream flow, groundwater, and water quality information in the Mount Hope and Roberts Mountains vicinity for fiscal year (FY) 2010-2011 (July 1, 2010 - September 30, 2011).

Total cost for operation and maintenance (O&M) of this monitoring program for FY10-11 is $319,800. Pending availability of Federal matching funds from the Cooperative Water Program, the USGS will provide $159,900.00 toward this program. Eureka County's portion of the funding required for this program is $159,900.00.

If you approve this work and the funding required, please sign the two enclosed Joint Funding Agreements (JFAs). Return one signed original to our Financial Specialist so we may begin work on this monitoring program. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for the work that will be done.

Should you have questions regarding this work, agreement, or billing, see the contact list at Enclosure 2.

Sincerely,

Kimball E. Goddard
Director, USGS, Nevada Water Science Center

Enclosures
cc: Steven N. Berris, Hydrologic Networks, USGS, NWSC, Carson City, NV
Chron/File Cys

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Page 1 of 2

Customer #:	NV077
Agreement #:	10W4NV02100
Project #:	9705-00100.00180
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 2nd day of April, 2010, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the Board of Eureka County Commissioners, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation a Hydrologlic Monitoring Program to accurately collect, analyze, document, an disseminate stream flow, groundwater, and water quality information in the Mount Hope and Roberts Mountains vicinity , herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $0.00.

(a) $159,900.00 by the party of the first part during the period July 1, 2010 **to** September 30, 2011

(b) $159,900.00 by the party of the second part during the period July 1, 2010 **to** September 30, 2011

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366
continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	10W4NV02100
Project #:	9705-00100.00180
TIN #:	88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Steven N. Berris
Address: 2730 N. Deer Run Road
Carson City, NV 89701
Telephone: (775) 887-7693
Email: snberris@usgs.gov

Signatures

By _____ Date 4/2/2010
Name: Kimball Goddard
Title: Director

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

EUREKA COUNTY
Board of Commissioners

Customer Point of Contact

Name: Jake Tibbits
Address: P.O. Box 677
Eureka, NV 89316
Telephone: (775) 237-6010
Email: natresmgr@euredanv.org

Signatures

By _____ Date 04/15/10
Name: Leonard Fiorenzi
Title: Chairman, Eureka County Commission

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
NEVADA WATER SCIENCE CENTER (NWSC)
2730 N. Deer Run Road
Carson City, Nevada 89701
Phone: 775-887-7600; Fax: 775-887-7629
Website: http://www.usgs.gov/

August 5, 2010

Leonard Fiorenzi, Chairman
Board of Eureka County Commissioners
P.O. Box 677
Eureka, NV 89316

Dear Mr. Fiorenzi:

This letter is in regards to the ongoing program work conducted cooperatively between U.S. Geological Survey (USGS) and Eureka County for the first year of the Diamond Valley Flow System-Phase III in fiscal year (FY) 2011 (October 1, 2010 – September 30, 2011).

Total cost for this program work in FY2011 is $230,500. Pending availability of Federal matching funds from the Cooperative Water Program, the USGS will contribute $103,725 toward this work. Eureka County's portion of the cost for this work will be $126,775 of which $60,000 is Barrick Mitigation funding. See funding summary table for the Diamond Valley Flow System Project below.

	FY09	FY10	FY 11	FY12	FY13
Barrick Mitigation		$ 60,000	$ 60,000	$ 60,000	$ 60,000
Eureka County	$ 84,700	$ 61,000	$ 66,775	$ 69,800	$ 83,000
USGS	$ 69,300	$ 99,000	$103,725	$106,200	$117,000
Total	$154,000	$220,000	$230,500	$236,000	$260,000

If you approve this work and the funding required, please sign the two enclosed Joint Funding Agreements (JFAs) and return one signed original to our Financial Specialist. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for work that will be done.

Should you have any questions, please refer to our contact list at Enclosure 1.

Sincerely,

Lari Knochenmus
Acting Director, USGS, Nevada Water Science Center

Enclosures
Cc: M. Tumbusch, D. Berger, C.J. Mayers, NWSC
Chron/File Cys

RECEIVED
AUG 09 2010
BY:

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Page 1 of 2

Customer #:	NV077
Agreement #:	11W4NV00400
Project #:	9705-BRTQ03
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 5th day of August, 2010, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the Board of Eureka County Commissioners, party of the second part.

1 The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 3 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

(a) $103,775 by the party of the first part during the period October 1, 2010 **to** September 30, 2011

(b) $126,775 by the party of the second part during the period October 1, 2010 **to** September 30, 2011

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366
continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: NV077
Agreement #: 11W4NV00400
Project #: 9705-BRTQ03
TIN #: 36-6000550

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: C. Justin Mayer
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7613
Email: cjmayers@usgs.gov

Signatures

By _____ Date 8/5/10
Name: Lari Knochenmus
Title: Acting Director, USGS, NWSC

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

EUREKA COUNTY
BOARD OF COMMISSIONERS

Customer Point of Contact

Name: Jake Tibbitts
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-6010
Email: natresmgr@euredanv.org

Signatures

By _____ Date 8/20/10
Name: Leonard Fiorenze
Title: Chairman

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:


Private Land In Vicinity of the Mount Hope Project
7,471 ACRES OF PRIVATE LAND IN KOBEH VALLEY, EUREKA COUNTY PORTION
Basin Boundary
Eureka County Line
Private Land
0 1.5 3 6 9 12
Miles
N

Application No. 79962

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

THIS SPACE FOR. OFFICE USE ONLY

Date of filing in State Engineer's Office JUN 29 2010

Returned to applicant for correction _____

Corrected application filed _____ Map filed JUN 29 2010

The applicant Wise Family Development, LLC

P.O. Box 864 (Street Address Or P.O. Box) of Eureka (City or Town)

Nevada, 89316 (State and Zip code No.) hereby make(s) application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association give names of members.)

June 20, 2007 in Nevada (James K. Wise, Manager)

1 The source of water is Underground (Well No. 2)
Name of stream, lake, underground, spring or other sources

2. The amount of water applied for is 3.2 cfs second feet.
One second foot equals 448.83 gallons per minute.

(a) If stored in reservoir give number of acre-feet _____

3. The water to be used for Irrigation and Domestic
Irrigation, power, mining, commercial, domestic or other use. Must limit to one major use.

4. If use is for:

(a) Irrigation, state number of acres to be irrigated 280 acres

(b) Stockwater, state number and kind of animals _____

(c) Other use (describe fully in No. 12) _____

(d) Power:

(1) Horsepower developed _____

(2) Point of return of water to stream _____

00247

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

NE1/4 SE1/4 of Section 17, T.19 N., R.50 E., M.D.B. & M., at a point from which the East 1/4 Corner of said Section 17, bears N 83° 59' 00" E, 429.00 feet.
(Survey tie taken from map and certificate for Permit 11072, Certificate 2880)

6. Place of use (Describe by legal subdivision. If on unsurveyed land, it should be so stated)

W1/2 NE1/4, E1/2 NW1/4, SW1/4 NW1/4, and the NW1/4 SW1/4 of Section 16, SE1/4 NE1/4 and the NE1/4 SE1/4 of Section 17, all in T.19 N., R.50 E., M.D.B.& M.

7. Use will begin about January 1st (Month and Day) and end about December 31st (Month and Day) of each year.

8. Description of proposed works (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.)

Existing well, irrigation ditches and natural channels

9. Estimated cost of works: $10,000

10. Estimated time required to construct works: Well complete under Permit No. 11072 (If well completed, describe works)

11. Estimated time required to complete the application of water to beneficial use 5 years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

The waters under this application and two other applications being filed concurrently are to be co-mingled for the irrigation of 280 acres within the proposed place of use.

13. Miscellaneous remarks:

remorley@frontiernet.net
E-mail Address

(775) 738-4053
Phone No.

Robert E. Morley
Type or print name clearly

By Robert E. Morley
Signature, applicant or agent

High Desert Engineering, LLC
Company Name

640 Idaho Street
Street Address or P.O. Box

Elko, Nevada 89801
City, State, Zip Code

APPLICATION MUST BE SIGNED BY THE APPLICANT OR AGENT

$300 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

Revised 11-07

Application No. 79963

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

THIS SPACE FOR. OFFICE USE ONLY

Date of filing in State Engineer's Office JUN 29 2010

Returned to applicant for correction _____

Corrected application filed _____ Map filed JUN 29 2010 under 79962

The applicant Wise Family Development, LLC

P.O. Box 864 (Street Address Or P.O. Box) of Eureka (City or Town)

Nevada, 89316 (State and Zip code No.) hereby make(s) application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association give names of members.)

June 20, 2007 in Nevada (James K. Wise, Manager)

1. The source of water is Underground (Well No. 1)
   Name of stream, lake, underground, spring or other sources
2. The amount of water applied for is 3.2 cfs second feet.
   One second foot equals 448.83 gallons per minute.
   (a) If stored in reservoir give number of acre-feet _____
3. The water to be used for Irrigation and Domestic
   Irrigation, power, mining, commercial, domestic or other use. Must limit to one major use.
4. If use is for:
   (a) Irrigation, state number of acres to be irrigated 280 acres
   (b) Stockwater, state number and kind of animals _____
   (c) Other use (describe fully in No. 12) _____
   (d) Power:
      (1) Horsepower developed _____
      (2) Point of return of water to stream _____

002479

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

SE1/4 NE1/4 of Section 17, T.19 N., R.50 E., M.D.B. & M., at a point from which the Northwest Corner of Section 19, T.19 N., R.50 E., M.D.B. & M., bears S 75° 05' 00" W, 10906.00 feet. (Survey tie taken from map and certificate for Permit 9682, Certificate 2780)

6. Place of use (Describe by legal subdivision. If on unsurveyed land, it should be so stated)

W1/2 NE1/4, E1/2 NW1/4, SW1/4 NW1/4, and the NW1/4 SW1/4 of Section 16, SE1/4 NE1/4 and the NE1/4 SE1/4 of Section 17, all in T.19 N., R.50 E., M.D.B.& M.

7. Use will begin about January 1st (Month and Day) and end about December 31st (Month and Day) of each year.

8. Description of proposed works (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.)

Existing well, irrigation ditches and natural channels

9. Estimated cost of works: $10,000

10. Estimated time required to construct works: Well complete under Permit No. 9682 (If well completed, describe works)

11. Estimated time required to complete the application of water to beneficial use 5 years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

The waters under this application and two other applications being filed concurrently are to be co-mingled for the irrigation of 280 acres within the proposed place of use.

13. Miscellaneous remarks:

remorley@frontiernet.net
E-mail Address

Robert E. Morley
Type or print name clearly

By Robert E. Morley
Signature, applicant or agent

(775) 738-4053
Phone No.

High Desert Engineering, LLC
Company Name

640 Idaho Street
Street Address or P.O. Box

Elko, Nevada 89801
City, State, Zip Code

STATE ENGINEER
2010 JUN 29 AM 10: 51
RECEIVED

APPLICATION MUST BE SIGNED BY THE APPLICANT OR AGENT

$300 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

Revised 11-07

Application No. 79964

APPLICATION FOR PERMIT TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

THIS SPACE FOR. OFFICE USE ONLY

Date of filing in State Engineer's Office JUN 29 2010

Returned to applicant for correction _____

Corrected application filed _____ Map filed JUN 29 2010 under 79962

The applicant Wise Family Development, LLC

P.O. Box 864 (Street Address Or P.O. Box) of Eureka (City or Town)

Nevada, 89316 (State and Zip code No) hereby make(s) application for permission to appropriate the public waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorporation; if a copartnership or association give names of members.)

June 20, 2007 in Nevada (James K. Wise, Manager)

1. The source of water is Underground (Well No. 3)
   Name of stream, lake, underground, spring or other sources
2. The amount of water applied for is 3.2 cfs second feet.
   One second foot equals 448.83 gallons per minute.
   (a) If stored in reservoir give number of acre-feet _____
3. The water to be used for Irrigation and Domestic
   Irrigation, power, mining, commercial, domestic or other use. Must limit to one major use
4. If use is for:
   (a) Irrigation, state number of acres to be irrigated 280 acres
   (b) Stockwater, state number and kind of animals _____
   (c) Other use (describe fully in No. 12) _____
   (d) Power:
      (1) Horsepower developed _____
      (2) Point of return of water to stream _____

002487

5. The water is to be diverted from its source at the following point: (Describe as being within a 40-acre subdivision of public survey, and by course and distance to a found section corner. If on unsurveyed land, it should be so stated.)

SW1/4 NW1/4 of Section 16, T.19 N., R.50 E., M.D.B. & M., at a point from which the West 1/4 Corner of said Section 16, bears S 43° 48' 00" W, 812.00 feet.
(Survey tie taken from map and certificate for Permit 11072, Certificate 2880)

6. Place of use (Describe by legal subdivision. If on unsurveyed land, it should be so stated)

W1/2 NE1/4, E1/2 NW1/4, SW1/4 NW1/4, and the NW1/4 SW1/4 of Section 16, SE1/4 NE1/4 and the NE1/4 SE1/4 of Section 17, all in T.19 N., R.50 E., M.D.B.& M.

7. Use will begin about January 1st (Month and Day) and end about December 31st (Month and Day) of each year.

8. Description of proposed works (Under the provisions of NRS 535.010 you may be required to submit plans and specifications of your diversion or storage works.) (State manner in which water is to be diverted, i.e. diversion structure, ditches and flumes, drilled well with pump and motor, etc.)

Existing well, irrigation ditches and natural channels

9. Estimated cost of works: $10,000

10. Estimated time required to construct works: Well complete under Permit No. 11072 (If well completed, describe works.)

11. Estimated time required to complete the application of water to beneficial use 5 years

12. Provide a detailed description of the proposed project and its water usage (use attachments if necessary): (Failure to provide a detailed description may cause a delay in processing.)

The waters under this application and two other applications being filed concurrently are to be co-mingled for the irrigation of 280 acres within the proposed place of use.

13. Miscellaneous remarks:

remorley@frontiernet.net
E-mail Address

Robert E. Morley
Type or print name clearly

By Robert E. Morley
Signature, applicant or agent

(775) 738-4053
Phone No.

High Desert Engineering, LLC
Company Name

640 Idaho Street
Street Address or P.O. Box

Elko, Nevada 89801
City, State, Zip Code

APPLICATION MUST BE SIGNED BY THE APPLICANT OR AGENT

$300 FILING FEE AND SUPPORTING MAP MUST ACCOMPANY APPLICATION

Revised 11-07

EUREKA COUNTY

MASTER PLAN

2010

Board of Eureka County Commissioners
Leonard Fiorenzi, Chairman
Jim Ithurralde, Vice-Chairman
Mike Page, Member

Eureka County Planning Commission
Ellen Rand, Chairwoman
Ron Rankin, Vice Chairman
Maxine Rebaleati
Cecil Wright
Bev Conley
Phillip Brown
Holon Moll
Anthony Rowley

R 2010-000002

Eureka, Nevada April 6, 2010

RESOLUTION OF THE BOARD OF EUREKA COUNTY COMMISSIONERS APPROVING THE 2010 EUREKA COUNTY MASTER PLAN

WHEREAS, NRS Chapter 278 requires the Eureka County Planning Commission to prepare, conduct hearings on, and adopt a comprehensive plan for the physical development and orderly management of the growth of Eureka County; and

WHEREAS, the Eureka County Planning Commission did, following a public hearing, adopt the 2010 Eureka County Master Plan containing these elements:

1.0 Introduction (13 pages)
2.0 Historical and Current Perspective (17 pages)
3.0 Growth Management (7 pages)
4.0 Public Facilities and Services (43 pages)
5.0 Economic Development (12 pages)
6.0 Natural Resources and Federal or State Land Use (91 pages)
7.0 Land Use (8 pages)
8.0 Housing (14 pages)
9.0 Water Resources (4 pages)

with accompanying maps and figures; and

WHEREAS, the Eureka County Planning Commission recommends the Board of Eureka County Commissioners approve the 2010 Eureka County Master Plan; and

WHEREAS, on April 6, 2010, the Board of Eureka County Commissioners held a public hearing on the 2010 Eureka County Master Plan and reviewed the Master Plan, considered all the information including public comments, and has now completed its deliberations; and

WHEREAS, the Board of Eureka County Commissioners believe the 2010 Eureka County Master Plan is properly drafted to represent the long term interests of Eureka County; and

WHEREAS, the Board of Eureka County Commissioners finds that the 2010 Eureka County Master Plan promotes the health, safety and general welfare of the residents of Eureka County; and

WHEREAS, the elements and policies within the 2010 Eureka County Master Plan are severable, and if any portion of the Plan is declared invalid, the remaining elements and policies of the 2010 Eureka County Master Plan are intended to survive and remain in effect:

NOW THEREFORE BE IT RESOLVED that the 2010 Eureka County Master Plan and elements 1.0 through 9.0 is hereby approved, and all other previous versions of the plan no longer have force or effect.

Approved this 6th day of April, 2010.

Ayes: _____

_____

_____

Nays: NONE

_____

Attest:

_____
Eureka County Clerk

TABLE OF CONTENTS

1.0 INTRODUCTION

Few areas of Nevada can boast the diversity of natural, historic, and economic resources which characterize Eureka County. From alpine mountain peaks to irrigated valley floors, County residents enjoy a diverse physiography which supports important natural resources and economic activities. Eureka County is one of few Nevada counties which are traversed by Interstate 80, U.S. Highway 50, and the mainline Union Pacific rail lines. Eureka County is rich in commercial quality geothermal, oil, and mineral resources. North America's largest gold mines are currently located in Eureka County. Figure 1-1 illustrates the strategic location of Eureka County within Nevada.

The growing demand for natural resources produced in the intermountain region of the United States has brought both prosperity and concern to Eureka County. The demand for energy and precious metals has bolstered economic activity related to production of oil and gold. In recent years, Eureka County has experienced significant levels of immigration by workers and their families. Population growth requires the County to consider efficient uses of land as well as provision of public facilities and services. At the same time, urbanization of the intermountain West has brought heightened interest about the management of federal or state administered lands and increased restriction of traditional uses such as domestic livestock grazing or mining. As a consequence, agriculture in Eureka County, long considered an important stabilizing factor, is facing escalating costs of operation and limitations in access to forage resources.

Collectively, these issues have galvanized residents and their elected representatives to seek mechanisms to manage growth and influence resource management. These actions are viewed as necessary to maintain and enhance local economic security and the rural quality of life which has typified Eureka County.

1.1 JUSTIFICATION AND NEED FOR THE MASTER PLAN

In 1973, Eureka County developed and worked to implement a comprehensive County Master Plan. In the following 25 years, dramatic changes in many characteristics of the County occurred. From 1970 to 1995, the County's population increased by nearly 70 percent. The 1973 Eureka County Master Plan projected the population of the County in the year 2010 would be 1,400. In 1995 the Nevada State Demographer indicated that the County's population had already reached 1,580 persons and estimated that by the year 2010 it would grow to nearly 2,100 persons. Because of the changes in growth as well as other changes in the community, Eureka County developed and adopted a new Master Plan in 2000.

Beyond the practical need for Eureka County to appropriately respond to growth, Nevada state law requires the County to "prepare and adopt a comprehensive, long-term general plan for the physical development of the county." (NRS 278.150) The adopted plan is to serve as "a basis for the development of the county for such reasonable period of time" as can practically be included. (NRS 278.150)

2.0 HISTORIC AND CURRENT PERSPECTIVE

Eureka County is valued for its historical significance, mountain scenery, rich natural resources, and diverse recreational opportunities. The County's natural resources have attracted residents since the 1800's when prospectors sought the area's gold and silver. Today, mining, outdoor recreation and agriculture serve as a basis for the County's economy. The "boom or bust" nature of the mining industry has fostered periods of rapid growth and corresponding economic declines throughout the County. Eureka County has experienced these cyclical growth patterns which have, in some cases, resulted in reactive development to satisfy immediate needs.

2.1 GOVERNMENT ORGANIZATION

Table 2-1 identifies elected offices, town boards, special districts and commissions in Eureka County.

Eureka County was established in 1873 and expanded twice, shortly thereafter, to encompass its present territory. Its lands were derived from the existing political units of Elko, Lander and White Pine counties. The Town of Eureka, first settled in 1865, was designated the County Seat, in 1873.

Administrative services funded by the County include:

* Civil Defense	*TV District	* Justice Department
* Library	* Swimming Poll	*Public Health Doctor
* Roads	* Emergency Medical	*Cooperative Extension
* Juvenile Probation	* Law Enforcement	*Rodent/Weed Control
* Fire Protection	* Public Works	*Economic Development
* Devil's Gate Water Fund	* Eureka Airport	* Eureka Museum
* Medical Center	* Fair Grounds	* Ball Parks
* Senior Centers		

2.2 CURRENT LAND USE

Eureka County contains an area of approximately 4,179.96 square miles. The population is concentrated in three unincorporated communities, Eureka Town, Crescent Valley, and Beowawe.

2.2.1 Generalized Land Use

Approximately 79 percent of the 2,668,251 acres of land in Eureka County is managed by federal agencies (Bureau of Land Management and U.S. Forest Service). This land is primarily used for livestock grazing, mining, geothermal energy production, and outdoor recreation. Land Management and ownership in Eureka County are shown in Table 2-2.

Eureka County has not adopted a zoning ordinance. Existing land use patterns within the County have evolved from economic activity such as mining and agriculture. Locations of limited private land resources have also served to influence land use patterns.

The single greatest land use within the County is open space agricultural, comprised of a series of designated grazing allotments. Approximately 2.4 million acres (90 percent of Eureka county land) is used for cattle and sheep grazing and pasture, and for crops such as hay or grass. Also interspersed throughout the County is all or part of 23 mining districts. Mining represents the next-largest land use within the County. Existing mines located in or near Eureka County are shown in Figure 2-1. Superimposed over these

allotments and mining districts, the U.S. Department of Defense has designated certain areas within the County as special use airspace for military training (Figure 2-2).

The Eureka County Master Plan provides an overall designation for existing land uses in Eureka County (Figure 2-3). The Master Plan process recognized principally six land use categories which include: Urbanizing Areas; Permanent Open Space; Open Space and Appropriate Associated Uses; Agriculture, Mining, Limited Housing; Agriculture, Mining, and Very Limited Housing; and Agriculture Only, Associated Housing. Current land status and ownership in Eureka County is depicted in Figure 2-4.

Table 2-2
Eureka County
Land Management and Ownership

MANAGEMENT	2009 ACREAGE	2009 PERCENT
Bureau of Land Management	1,969,762	74
U.S. Forest Service	142,923	5
Private Ownership	554,506	21
State of Nevada	19	.000007
Eureka County	1041	.00039
Total	2,668,251	

Source: Eureka County Assessor's Office 2009

Changes in land uses have occurred since the adoption of the County's last master plan in 2000, but the distribution of land ownership has remained relatively constant. Mining activity has increased in both precious metals, and saleable minerals. Geothermal energy and oil or gas exploration and development have also increased.

Agriculture production is the principle land use within the private lands of Eureka County, including both intensive farming practices on irrigated lands and ranching with dispersed livestock grazing from non-irrigated rangelands. According to the 2007 Census of Agriculture there were 57 irrigated farms producing 144,135 tons of alfalfa hay or grass hay from 35,391 acres of land. The Nevada Agricultural Statistics, 2007-2008, Nevada Department of Agriculture, reported that the cattle and calf inventory increased from 13,000 head in 1993 to a reported 19,000 head in 2004. Numbers then decreased to 15,000 head in 2008. This most recent decline coincided with an extended drought period, falling cattle prices, and increased government regulation of livestock operators.

Since 2000 there has been an increase in the number of housing units corresponding to the increase in population growth. The overall composition of the housing inventory has changed due to the increasing use of mobile homes as the primary housing unit in the County. In 1970 approximately 26 percent of the housing units were mobile homes compared to approximately 60 percent in 1995. In 2009, mobile homes accounted for 67.3 percent of the total housing stock in Eureka County. The percentage of mobile home inventory in Eureka County has decreased from 2000 (69.8 percent) to 2009 (67.3 percent), however, the total number of mobile homes has remained much the same.

During the same time period, the numbers of single family attached units have decreased in number and in percentage, while single family detached and multi-family units have increased both in number and in percentage.

2.2.2 Land Use Within and Around the Town of Eureka

U.S. Highway 50 bisects the core of the town of Eureka. The Township currently contains approximately 520 acres. A variety of land uses occur within Eureka Town boundaries. The core commercial area of Eureka is located primarily along U.S. Highway 50. Other commercial and industrial land uses are found to the north of Eureka near the U.S. Highway 50 and State Route 278 intersection. Development to the south and east of Town is geographically limited due to steep slopes and hillsides.

The Town of Eureka contains mixed land uses throughout. Of principal significance within the Town of Eureka are a number of historic buildings including residential homes, and there has been significant restoration throughout the community. The terrain in Eureka also makes large scale development difficult, for that reason future development and expansion would likely occur to the north of Eureka.

Outside the Eureka townsite limits, the area is primarily open space with limited private land holdings. Eureka Moly proposes to develop the Mt. Hope molybdenum mining operations north of Eureka. They are also proposing the development of a subdivision north of Eureka and east of Highway 50.

2.2.3 Diamond Valley Area

Diamond Valley contains numerous agricultural operations that rely upon groundwater to irrigate the area's principal crop of alfalfa, timothy and grass mix hays . The area is sparsely populated with most residents being associated with agricultural activity. Land use in this area is dominated by open space and agricultural uses, public land and livestock grazing, mining, and outdoor recreation. There are few commercial or industrial uses in Diamond Valley, with most activity occurring along the Highway 50 corridor towards the southern end of the Valley.

2.2.4 Crescent Valley

The unincorporated town of Crescent Valley is located in west-central Eureka County, south of Interstate 80, within Crescent Valley. A variety of land uses occur in Crescent Valley including, residential, agricultural, mining, and limited commercial and industrial use. Growth and development tends to fluctuate with mining activity in the area.

The Town of Crescent Valley is dominated by residential uses, primarily mobile homes and modular units. There are some commercial land uses dispersed throughout the community. Growth in the area has been spurred by mining development to the south of Crescent Valley. Outside the town of Crescent Valley the area is sparsely populated. The Town is somewhat unique in that it lies adjacent to the eastern border of Lander

County, and as mining activity increases, growth and development also occur on lands in Lander County next to the Town of Crescent Valley.

2.2.5 Beowawe

Further to the north, Beowawe is located within the Humboldt River corridor south of Interstate 80. The primary land uses in Beowawe include, residential, agriculture, and industrial. The mainline Union Pacific Railroad passes through the area. There is potential to develop geothermal resources near the community of Beowawe. West of Beowawe in Lander County, the NV Energy Company operates a geothermal power plant with a production capacity of 17.70 mega watts (January 2009, Nevada State Department of Energy). To the north of Beowawe are primarily private land holdings in Whirlwind Valley. The mainline railroad bisects the Valley heading north to Dunphy. Surrounding both Crescent Valley and Beowawe is a checker board pattern of public and private lands.

2.2.6 Balance of County

The balance of Eureka County is open space used for agriculture, mining, and recreation. The area is sparsely populated. Most of the residential development is associated with agricultural uses and ranching operations. Lands north of Interstate 80 encompass approximately 530 square miles. Boulder Valley is one of the largest blocks of privately owned land in the County. Lands in this area are primarily used for agriculture, livestock grazing, mining and outdoor recreation. Two of the largest gold mining operations in North America, Barrick Gold Corporation (operating the Goldstrike, and Cortez mines) and Newmont Mining Corporation (operating the Carlin Trend), are located in this area. Ruby Hill Mine, operated by Barrick Gold Corporation, is located in the southern end of the county. Other major private land holdings in the outlying County occur south of Palisade at the northern end of Pine Valley.

The majority of lands in the outlying area of the County fall under the management authority of the Bureau of Land Management and the U.S. Forest Service. A variety of land uses occur on these lands. There are two wilderness study areas (WSA) including Simpson Park (49,670 acres) and Roberts Mountain (15,090 acres). At this time neither WSA has been recommended for designation as a wilderness area by the Bureau of Land Management. Mineral, geothermal, oil and gas development potential exist on these lands. Oil production occurs on wells in the Pine Valley area. Livestock grazing, mining and recreational activities occur on these public lands.

2.2.7 Development Constraints

Eureka County faces several development constraints including water availability, remoteness, and shopping.

2.2.8 Management of Public Lands

Like most other counties in Nevada and the West, public land management is an issue that affects Eureka County. According to the Eureka County Assessor's office, the Bureau of Land Management manages 1,969,762 acres of the total of 2,668,251 acres of land that makes up Eureka County, while the U.S. Forest Service manages 142,923 acres. Approximately 79 percent of the County is land currently managed by federal agencies. In 1993, the Eureka County Commissioners created the Eureka County Natural Resources Advisory Commission (NRAC) and appointed a nine member board to serve on that commission. NRAC makes recommendations to the County Commission on issues regarding public lands including air space, wild horses, wildlife, grazing allotments, mining and recreation. Eureka County was the first county in the State of Nevada to hire a Natural Resource Manager.

2.3 POPULATION TRENDS

2.3.1 Current and Historic Population

The population of Eureka County is concentrated in four areas: Eureka, Diamond Valley, Crescent Valley, and Beowawe (Figure 2-4). The majority of the County's population lives in and around the Town of Eureka. Population growth has and will likely continue to be influenced by the mining industry. Table 2-3 shows historic, recent and estimated population growth in Eureka County. As indicated, in 1995 population increased by 11 percent but in 2000 decreased by 4 percent. In 2005, population decreased by 10 percent but then showed an estimated increase of 8 percent for 2010. This is an example of population changes that might be expected in a community with a mining based economy.

Table 2-3
Population Growth
Eureka County
1990 to 2010

EUREKA COUNTY	POPULATION	PERCENTAGE OF CHANGE
1990	1,547	
1995	1,717	11
2000	1,651	-4
2005	1,485	-10
2010	1,608	8

Source: Nevada State Demographer's Office

As shown in Table 2-4, the age of the population in Eureka County is some what similar to the State of Nevada. However, with increased mining growth and activity in Crescent Valley and Eureka more family and married couple households can be anticipated.

Table 2-4
Population by Age Groupings
2008

AGE GROUP	EUREKA NUMBER	EUREKA PERCENT	NEVADA NUMBER	NEVADA PERCENT
0-4	100	6.4	204,686	7.2
5-19	365	23.5	587,542	20.7
20-44	493	31.7	1,033,885	36.4
45-64	403	26.0	693,862	24.4
65 and over	193	12.4	324,149	11.4
Total	1554	100	2,844,124	100

Source: Nevada State Demographer

2.3.2 Future Population Growth

According to projections prepared by the Nevada State Demographer, (Table 2-5) Eureka County population could remain fairly stable over the next several years. Directly and indirectly, mining activity will be the primary cause for increased or decreased growth within the County. In addition to mining related growth, smaller gains could occur as a result of migration to the County for retirement, and the quality of life.

The mining population will also influence certain demographic trends found elsewhere throughout the State. Mining households are generally of working age, and have more married couple families with children as compared to the existing population. These factors will tend to influence public services by placing greater demands on schools, and recreational facilities and services.

Table 2-5
2008 Population Forecasts
Eureka County

EUREKA COUNTY	POPULATION	PERCENTAGE OF CHANGE
2007	1,458	
2014	1,694	14
2021	1,872	9
2028	1,792	-4

Source: Nevada State Demographer

2.4 HOUSING

2.4.1 Housing Characteristics

In 2009, mobile homes accounted for 67.3 percent of the total housing stock in Eureka County, as seen in Table 2-6. The percentage of Mobile home inventory in Eureka County has decreased from 2000 to 2009, however the total number of mobile homes have remained much the same. During the same time period, the numbers of single

family attached units have decreased in number and in percentage, while single family detached and multi-family units have increased both in number and in percentage.

Table 2-6
Housing Inventory
Units by Type of Structure
Eureka County 2009

TYPE OF HOUSING	2009	PERCENT	2005	PERCENT	2000	PERCENT
Single Family Detached	268	27.3	242	27.2	239	25.3
Single Family Attached	28	2.9	20	2.3	30	3.2
Multi-Family	25	2.5	16	1.8	16	1.7
Mobile Homes	660	67.3	610	68.7	660	69.8
TOTAL	981		888		945	

Source: Eureka County Assessor, 2009

Eureka County ranks among the highest of counties in the United States for the proportion of total housing stock comprised of mobile homes. The median value of an owner-occupied home in Eureka County in 2000 was $ 65,600 as reported by the 2000 U.S. Census. The 2000 median monthly contract rent was $362.

2.5 ECONOMY

The economic fortunes of Eureka County and its residents have been tied to mining since the discovery of silver-lead mineralization near the present site of the Town of Eureka. According to the Eureka County, Nevada Mineral Assessment Report, October 2007, Eureka County was producing about 36 percent of all Nevada gold in 2007. Between the years 1997 and 2003, Eureka County mines annually produced between $865 million and $1.08 billion of gold and silver. As seen in Table 2-7, mining employment dropped slightly in 2003 and 2004, but rose again in 2009. By March of 2009, there were 4,100 jobs in mining in Eureka County. Mining pays the highest annual wage of all industries in Eureka County as well as the State of Nevada. The two largest gold producers in Nevada, Barrick Gold Company and Newmont Mining Corporation are located in northern Eureka County. Most of the mining services supporting these mines, and most of the employees of these mines, are based outside of Eureka County primarily in nearby Elko County.

Government is the second-largest employment category in the county, with 250 jobs reported in March of 2009. Government employment dropped over the four-year period, shown in Table 2-7, from 204 government jobs in 2002 to 192 in 2004 but by March of 2009, increased to 250 jobs.

Table 2-7
Eureka County Industrial Employment
2002-2009

	2002	2003	2004	2009
All Other	41	66	71	--
Other Services except public administration	-	8	7	--
Trade Transportation and Utilities	33	32	32	140
Professional and Business Services	-	-		10
Accommodation, Food Service, Leisure and Hospitality	25	25	38	40
Government	204	188	192	250
Mining	3,307	3,180	3,211	4,100

Note: To maintain employer confidentiality some individual industry data are suppressed, but are still part of the total. These numbers are included in "All Other". Owner/Operator statistics are not included.
Source: Nevada Department of Employment Training and Rehabilitation, Nevada Workplace Informer "Quarterly Employment and Wages". Eureka County 2002-2004 and March 2009 Nevada Small County Industrial Employment Summary

Agriculture plays an important role in the local economy. Over the years agriculture has provided a stable employment and income base in Eureka County. To maintain the agriculture base, Eureka County must protect the water resource within the County. The 2007 Census of Agriculture reports that the market value of products sold in 2002 was $12,659,000. The majority of these revenues were generated by the sale of hay and livestock. Eureka County produced 144,135 tons of hay from 34,940 acres of land.

Many livestock producers in the County are cow/calf operations which use range lands managed by the Bureau of Land Management and other federal land management agencies for a part of their grazing needs. Range reform efforts by the U.S. Department of Interior continue to place economic pressures on livestock producers. The 2008 Eureka County cattle and calves inventory is reported to be 15,000 head, down 4,000 head from the 2004 inventory of 19,000. (Nevada Agricultural Statistics, 2007-2008, Nevada Department of Agriculture).

Agriculture in Eureka County is an export industry. Because most products are sold outside the County (exported), income flows back (imported) into the area. High quality products are produced in Eureka County.

Most commercial activity in the County is currently located in the Town of Eureka.

3.4.1 Adequate Public Facilities

Require new development to comply with minimum design standards in regard to subdivisions and planned unit development.

3.4.2 Urban Growth Areas

To ensure orderly development and maximize the efficient use of public infrastructure investments, Eureka County will encourage Urban Growth Areas (UGA) around those locales (Town of Eureka, Town of Crescent Valley, Devils Gate General Improvement District,) where County-financed infrastructure is in place. Eureka County will restrict County investments in new water and sewer infrastructure to Urban Growth Areas, as may be included within the Capital Improvements Plan. As a consequence, development of land within Urban Growth Areas will tend to be more feasible relative to lands outside UGA's.

3.4.3 General Land Use Categories

General land use categories are intended to minimize conflicts between existing and potential uses of land. Eureka County will adopt a general land use map as a component of the Land Use Element of the Eureka County Master Plan. Individual developments will be encouraged to fit into the overall development pattern described by the pattern of land use designations. Conforming uses (i.e. agriculture, industrial, commercial, residential, community facilities) will be described for each land use designated on the map.

3.4.4 Master Plan Amendment Process

Amendments may be considered during the master plan review process once each year. A process for requesting amendment of the Master Plan will be developed and adopted by Eureka County.

3.5 GROWTH MANAGEMENT GOALS AND POLICIES

Community workshops and surveys relating to development of this master plan have made clear the desire of Eureka County residents to avoid the establishment of growth management goals, policies, and procedures which are either wasteful government activity or a threat to individual property rights. Rather, growth management is envisioned as a means to encourage new development in a manner which is consistent with the high quality of life and environmental attributes which currently characterize Eureka County. Adoption and implementation by Eureka County of the following goals and policies is intended to enable Eureka County decision-makers to effectively manage the timing, location, and cost of growth.

Goal 3.1 - Encourage new development in Eureka County in a planned and orderly manner consistent with maintenance of existing quality of life, environmental attributes, and fiscal resource limits of the County.

Policy 3.1.1 - Support balanced community development across Eureka County and within individual planning areas

Policy 3.1.2. - Eureka County may plan land uses and encourage development of more area than is needed to accommodate the desired 2020 population and employment to ensure market choice and flexibility

Policy 3.1.3 - Eureka County may manage the timing and location of development to accomplish the County's goals concerning natural resources, economic development, community character, and provision of public services

Policy 3.1.4 - Eureka County may seek to maintain the overall character of existing residential areas by discouraging incompatible adjacent land uses

Policy 3.1.5 - Eureka County may adopt general land use maps as a means to discourage incompatible adjacent land uses

Policy 3.1.6 - Eureka County encourages development which minimizes impacts to sensitive environmental areas

Goal 3.2 - Encourage new development to areas in or proximate to existing communities where public infrastructure can be efficiently provided and a sense of community can be established or improved

Policy 3.2.1 - Eureka County encourages development of infill parcels of vacant land within existing service areas whenever and wherever feasible, prior to extension of infrastructure

Goal 3.3 - Encourage a diversity of land uses including combinations of residential densities and building types, employment centers, recreational, and educational facilities

Policy 3.3.1 - Eureka County may encourage the sale and development of vacant Eureka Townsite lands in a manner which provide an appropriate mix of land uses and maximizes efficient use of existing public infrastructure

Goal 3.4 - Accommodate new development at a rate which can be adequately served by available community facilities and services

Policy 3.4.1 - Eureka County may define adequate levels of service for major public services through the Capital Improvement Planning process. Adequate levels of service may vary between urban and rural development.

Policy 3.4.2- Eureka County may pursue acquisition of water rights needed to serve demands within or adjacent to urban growth areas through the year 2020

Policy 3.4.3 - Developers shall be required to dedicate to the County or State in reserve for the County, water rights in sufficient quantity to serve the proposed developments within or proximate to such areas

Goal 3.5 - Ensure that development and use of land occurs in a manner which promotes the health, safety, and welfare of Eureka County residents

Policy 3.5.1 - Eureka County will evaluate methods to ensure that agreed to adequate public facilities are in place before recordation of final subdivision maps.

Policy 3.5.2 - Eureka County may facilitate a review of the County Code to identify provisions for acceptability and enforceability

Goal 3.6 - Provide for adequate review of development proposals by all interested parties through procedures which are clearly defined and applied consistently, and are designed to achieve the goals of the Master Plan

Policy 3.6.1 - Eureka County may establish specific criteria for the use of development agreements and standard provisions to be included in development agreements.

Methods for Using Levels of Service

In many cases, the current level of service will equal the proposed level of service standards so that the 2020 requirements will simply equal the current staffing, number of vehicles, etc. increased by the predicted percent increase in population. The percentage used depends on whether the facility is a county wide (i.e. Sheriff's Department) or local (i.e. schools) service.

The State Demographer has predicted a 13.4 percent increase in Eureka County's population from 2000 to 2021.

Table 4-1
Eureka County
Population Projections: 2000-2028

	2000	2007	2014	2021	2028
Eureka County	1,651	1,458	1,694	1,872	1,792

Source: Nevada State Demographer, 2008 projection and 2000 U.S. Census

This growth has been further broken down in Table 4-2 based on predicted growth areas. This information was derived from the Nevada State Demographer projections, the 2000 U.S. Census and projections from Table 4-1 of the 2000 Eureka County Master Plan. Eureka, Diamond Valley, and 2/3 of the "other" areas was used for the Eureka Schools while a weighted average of Crescent Valley, Beowawe, and 1/3 of the "other" areas was used for the Crescent Valley.

Table 4-2
Eureka County Population Projections Distributed
Between Community Areas
(Low, Medium, High Growth Scenarios)

	Eureka	Diamond Valley	Crescent Valley	Beowawe	Other	Total
2000	545	330	396	33	347	1651
% Increase From 2000	2%	2%	2%	2%	2%	2%
2021 Low	556	337	404	34	354	1684
% Increase From 2000	13.4%	13.4%	13.4%	13.4%	13.4%	13.4%
2021 Med.	618	374	449	37	394	1872
% Increase From 2000	20%	20%	20%	20%	20%	20%
2021 High	654	396	475	40	416	1981

Source: Nevada State Demographer, 2008 projection and 2000 U.S. Census

In order to determine the number of public facilities that will be required by 2020 this percentage increase is multiplied by the proposed level of service standards. The result is the total amount of public facilities that are needed, regardless of the amount of facilities that are already in place and being used by the public.

This requirement is then subtracted from the current quantity of available facilities resulting in the net surplus of public facilities or the net deficiency that must be eliminated by additional facilities before December 2020. If the net deficiency exists, it represents the combined needs of existing development and anticipated new development. Detailed analysis will reveal the portion of the net deficiency that is attributable to current development compared to the portion needed for new development.

The county must determine the financial feasibility of tentative or proposed standards of service. The preliminary answers use "average costs" of facilities, rather than specific project costs. This approach avoids the problem of developing detailed projects and costs that would be unusable if the standard proved to be financially unfeasible. If the standards are feasible at the preliminary level, detailed projects are prepared for the final answer to financial feasibility. If however, the preliminary answer indicates that a standard of service is not financially feasible, six options are available to the County:

1. Reduce the standard of service, which will reduce the cost, but may also reduce the quality of life in the County; or

2. Increase revenues to pay for the proposed standard of service (higher rates for existing revenues, and/or new sources of revenue); or

Solid Waste and Materials – Goals and Policies

GOAL 4.7 – To provide solid waste and hazardous waste management to meet the needs of planned land uses, with systems that are cost-effective and environmentally sound.

Policy 4.7.1 – The County may seek to implement solid waste management processes that reduce the waste, promote recycling, and provide for the separation of waste prior to incineration or land filling.

Policy 4.7.2 – The County may seek to create a recycling program to include commercial recycling in addition to single-family and multi-family recycling.

Policy 4.7.3 – The County may seek to implement additional waste diversion programs, such as plastics recycling and yard waste collection for composting.

4.4.3.2 Water and Wastewater Systems

This section establishes policies which address key County-wide water and wastewater systems infrastructure and service issues. Potable water, for domestic and commercial use, is a critical service for development; the collection, treatment, and disposal of wastewater is a second service requiring significant investments in infrastructure and operations. These two services, provided by Eureka County are needed for expansion and growth of the County's communities. By locating more intensive land uses in areas with existing water and sewer systems, service can be provided more efficiently and at lower cost than for development in areas requiring significant new extensions. For these reasons, the County Master Plan seeks to coordinate land use planning with provisions of these services. It uses the designation of the land use map as a guide to identify geographic areas where particular levels of service will be needed during the planning period. It enables the concept of "adequate public facilities" as one factor in the planning, review, and approval of development projects. Adequate public facilities are required to be constructed and timed so that when a development is completed and occupied, the facilities will be available and will have enough capacity to serve residents and businesses. Future demand on water and wastewater facilities is based on the annual population growth rate.

4.4.3.2.1 Water Systems

Current Facilities

The Eureka County Public Works Department manages three water systems in Eureka County. The water systems include the Town of Eureka, Devils Gate (District #1 and #2) and Crescent Valley. The Town of Eureka water system serves 280 customers, both residential and commercial. The Devil's Gate General Improvement District's water system serves 78

residential and commercial customers who are located in Diamond Valley. The Crescent Valley water system serves 180 residential and commercial customers.
The Town of Eureka water system includes two wells, pumping 950 gallons per minute (gpm) and 500 gpm, respectively, located in Diamond Valley, and springs south of Eureka that are gravity fed. Water produced by the wells is pumped into three storage tanks with a combined storage capacity of 2,350,000 gallons. Table 4-9 compares existing Eureka water system capacities and demands, and those projected for the year 2021.

Devil's Gate water system is made up of two wells, a water storage tank, a booster pump station, and the Devil's Gate Water Transmission Inter-tie Project pipeline. Water delivery to households and property that have requested the service was developed as Devil's Gate General Improvement District #1 and Devil's Gate GID #2, which are now interconnected along with a 250,000 gallon storage tank. Water is produced from two wells with discharge rates of 70 gpm and 60 gpm respectively, (130 gpm or 187,200 gallons per day) according to Eureka Public Works Department records; however, page 26 of the Eureka Water and Sewer System Master Plan reports the current well capacity to be 275 gpm or 396,000 gallons per day. Water is delivered to customers via a pressurized system with no gravity delivery of the water. There are 164 lots identified within the area served by Devil's Gate GID #1 and GID #2. Water is presently delivered to 78 customers. Average Daily Demand listed in the Eureka Water and Sewer System Master Plan, October 2007, for GID #1 was 4,944 gallons and the Maximum Daily Demand was 14,382 gallons during 2006. The same document reports that in 2006, the GID #2 Average Daily Demand was 20,088 gallons and the Maximum Daily Demand was 60,264 gallons. Table 4-10 compares existing water system capacities and demands as well as projections that include a possible "100% buildout" with all lots occupied.

The town of Crescent Valley's water system originates from two wells 250gpm, and 300 gpm. A total of 672,000 gallons of water is stored in three tanks (150,000 gallons, 200,000 gallons and 322,000 gallons) and supply the gravity fed system. Pilot tests for arsenic treatment of the water in Crescent Valley have been completed. Table 4-11 compares existing Crescent Valley water system capacities and demands and those projected for the year 2021.

Detailed information regarding water quantity, water quality, and facilities or infrastructure as found in the following Eureka County documents, are included in the Eureka County Master Plan by reference:

1) Eureka County Water and Sewer System Master Plan, October 2007
2) Eureka County Joint Water Conservation Plan for the Town of Eureka Water System, Devil's Gate GID District #1 and District #2, and Crescent Valley Town Water System
3) 2008 Annual Drinking Water Quality Report for Town of Eureka
4) 2008 Annual Drinking Water Quality Report for Devil's Gate GID District #1
5) 2008 Annual Drinking Water Quality Report for Devil's Gate GID District #2
6) 2007 Annual Drinking Water Quality Report for Town of Crescent Valley
7) Resolution of the Eureka County Planning Commission dated June 1, 2000 and accepted by the Eureka County Board of Commissioners on July 6, 2000, entitled: *Resolution Adopting the Amended Water Resources Plan Into the Eureka County Master Plan.*

8) Resolution of the Eureka County Board of Commissioners dated March 6, 2009, entitled *Resolution Restating the Eureka County Board of Commissioners Position on Water Resources in Eureka County.*

System Standards

- Minimum pumping capacity should equal the maximum daily demand (3 times average day demand) with the largest well out of service.

- Minimum storage capacity should equal the average daily demand, fire flow requirements and 25% emergency storage.

Water System Recommendations

Future

1. Eureka County water systems may require additional water storage and pumping capacity, should there be an increase in population.

2. Additional water rights may be obtained now to assure that water for existing county water systems and facilities will be available for county residents in the future, should a population increase occur.

Public Water Supply – Goals and Policies

GOAL 4.8 – Provide potable water as necessary to meet demands of planned land use, with cost-effective and environmentally sound systems.

Policy 4.8.1 – The County may develop and implement a plan for water supply and wastewater systems serving all urban areas of the county, consistent with planned land uses (public and private).

Policy 4.8.2 – The County may identify specific areas of groundwater recharge (i.e. watershed), and develop policy regarding protection of those specific areas and their recharge levels.

Policy 4.8.3 – The County may require water supply and treatment facilities concurrent with development of land uses (public and private) generating demand for those facilities.

Policy 4.8.4 – The County may establish consistent policies regarding water use, conservation, and metering for areas with centralized water supply systems.

Table 4-9
Current Facilities Inventory
Water Projections – Eureka
Flow rate of water needed to maintain storage levels.

Low Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity	1450 gpm	Max.Day: 239 gpm Avg. Day: 164 gpm	Max. Day: 243 gpm Avg. Day: 167 gpm	1207 gpm
Storage	2,350,000 gal			
Medium Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity	1450 gpm	Max.Day: 239 gpm Avg. Day: 164 gpm	Max. Day: 271 gpm Avg. Day: 185 gpm	1179 gpm
Storage	2,350,000 gal			
High Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity	1450 gpm	Max.Day: 239 gpm Avg. Day: 164 gpm	Max. Day: 286 gpm Avg. Day: 196 gpm	1164 gpm
Storage	2,350,000 gal			

"gpm" is gallons per minute; "gal" is gallons

Table 4-10
Current Facilities Inventory
Water Projections – Devil's Gate
Flow rate of water needed to maintain storage levels.

Low Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity	130 gpm	Max.Day: 52 gpm Avg. Day: 18 gpm	Max. Day: 53.3 gpm Avg. Day: 18.3 gpm	77 gpm
Storage	250,000gal			
Medium Growth Scenario	**Existing System**	**Existing Demand**	**2021 Demand**	**Excess or (Deffic.)**
Pumping Capacity	130 gpm	Max.Day: 52 gpm Avg. Day: 18 gpm	Max. Day: 59.3 gpm Avg. Day: 20.3 gpm	71 gpm
Storage	250,000 gal			
High Growth Scenario	**Existing System**	**Existing Demand**	**2021 Demand**	**Excess or (Deffic.)**
Pumping Capacity	130 gpm	Max.Day: 52 gpm Avg. Day: 18 gpm	Max. Day: 356 gpm Avg. Day: 119 gpm	(224) gpm
Storage	250,000 gal			

"gpm" is gallons per minute; "gal" is gallons
2021 High Growth Scenario demand is from the
Eureka Water and Sewer System Master Plan, October 2007

Table 4-11
Current Facilities Inventory
Water Projections – Crescent Valley
Flow rate of water needed to maintain storage levels.

Low Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity, gpm	550 gpm	Max.Day: 232 gpm Avg. Day: 136 gpm	Max. Day: 238 gpm Avg. Day: 139 gpm	312 gpm
Storage	672,000 gal			
Medium Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity, gpm	550 gpm	Max.Day: 232 gpm Avg. Day: 136 gpm	Max. Day: 265 gpm Avg. Day: 154 gpm	285 gpm
Storage	672,000 gal			
High Growth Scenario	Existing System	Existing Demand	2021 Demand	Excess or (Deffic.)
Pumping Capacity, gpm	550 gpm	Max.Day: 232 gpm Avg. Day: 136 gpm	Max. Day: 280 gpm Avg. Day: 163 gpm	270 gpm
Storage	672,000 gal			

"gpm" is gallons per minute; "gal" is gallons

4.4.3.2.2 Wastewater System

Current Facilities

The Eureka Wastewater Treatment Facility's (WWTF) domestic (sanitary) wastewater is treated biologically in two clay-lined evaporation/percolation ponds (#5 and #6). Pond #3 and #4 are used as primary facultative ponds. Pond #2 was lined with clay and converted to a primary facultative treatment pond. Ponds #1 and #2 provide primary facultative stabilization, solids settling, nutrient consumption and evaporation. Ponds #5 and #6 provide secondary facultative polishing, evaporation and percolation. The treatment facility's headworks include a battery-powered (solar-cell recharged) ultrasonic flow meter in a transfer manhole. The manhole splits the flow between the two facultative treatment ponds (#1 and #2) when the influent flow exceeds 60,000 gpd. Eureka's WWTF is permitted by Nevada Department of Environmental Protection (NDEP) for a maximum daily discharge rate of 0.1 mgd (100,000 gpd) under the groundwater

within the Master Plan. Even though mining and tourism have increased and brought substantial economic activity to Eureka County, the agricultural sector of the economy has decreased. Recent studies have shown the direct correlation between reductions of livestock numbers and the loss of jobs and business throughout the area. Livestock numbers in Eureka County have decreased as a result of several factors including federal regulations. For example, as discussed in Chapter 6.2.2 "Forage and Livestock Grazing," cattle numbers dropped from 41,000 head in 1982 to 13,000 cattle in 1995 with about 22,000 cattle in Eureka County in 2008. This means there has been a direct impact of the loss of millions of dollars[1] that would be circulating within the Eureka County economy every year if those cattle and sheep numbers were present. Wealth produced from every form of nonrenewable and renewable natural resource is necessary for the long-term economic stability of Eureka County, and is among the goals and objectives identified in this natural resource strategy.

6.1.2 Authority

Authority for the Eureka County Master Plan is found in NRS 278.150 through 278.220. Additional authority is derived from passage of SB40 by the Nevada Legislature in 1983 and the resulting portions of NRS 321, particularly NRS 321.640 through NRS 321.770. Nevada law directs counties to develop plans and strategies for resources that occur within lands managed by federal and state agencies. Eureka County Master Plan, including Element 6: *Natural Resources & Federal or State Land Use Element* allows federal agencies to fully comply with the intent of Congress as specified in the various federal laws referenced herein, by coordinating their proposals with the policies of Eureka County, incorporating the policies of Eureka County into agency documents and activities, and resolving inconsistencies between federal proposals and County plans. This Natural Resource & Federal or State Land Use Element, together with Title 9 of the Eureka County Code (contained herein at 6.3), satisfies the requirements of NRS 278.243 and NRS 278.246 regarding local determination.

6.1.3 Natural Resource and Land Use Planning as a continuing process

A plan is variously defined as "a detailed and systematic formulation of a large scale program" and "an orderly arrangement of parts in terms of an overall design or objective."
The Board of Eureka County Commissioners and the Eureka County Natural Resource Advisory Commission recognize that formulating planning for a community is a continuing process. As Eureka County's effort continues,

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[1] Annual costs of over $350 per cow, the cash spent each year for each head of cattle within the Eureka County area are reported by Dr. Tony Lesperance, 2007, "*Economic Importance of Livestock in Nevada's Cow Counties*" and UNR Cooperative Extension Fact Sheet 05-39, "*Eureka County Cow-Calf Production Costs and Returns, 2004*". At this time there are about 20,000 fewer cattle in Eureka County than in 1982.

scientific studies and reports, empirical data, expertise offered by committee members and consultants, reports of subcommittees tasked with review and research of specific issues, team evaluations, and other information will be compiled and added to this document. When approved by the Board of Eureka County Commissioners, this information will be used to support a growing county presence in state and federal decision making.

Eureka County expects that all decisions regarding natural resource management and land-use and all goals and objectives incorporated into this plan and, by extension, into state and federal agency plans, will be realistic and attainable. Solutions to problems and recognition of opportunities require factual and dependable information, which is a key part of this plan. Personal opinions, feelings, visions, and hunches may form a basis to justify more intensive and objective study but will rarely, if ever, be acceptable as a basis for establishing a policy or deciding a course of regulatory action. Analysis and interpretation of facts is an important part of the process; so important that the U.S. Office of Management and Budget (OMB) has issued an instruction to all federal agencies specifying the minimum standards for acceptable peer review of data or publications.[1] Eureka County expects every federal employee to adhere to the OMB standards for Peer Review. Interpretation of facts allows citizens to choose a successful course of action, specify a strategy to be followed until a need for more specific action arises, or to evaluate the success of actions already completed.

Analysis of technical information requires that managers, elected officials and community members have adequate council and practical experience at their disposal. The present document reflects such an analysis, drawing on numerous outside experts but always vetting expert recommendations back through the local community. The end result is a strong and resilient vision of Eureka County's relationship with its natural resources and publicly-managed lands.

Finally, successful implementation of this Plan requires that the Eureka County Natural Resource Advisory Commission and the Board of Eureka County Commissioners stay involved with analysis and evaluation through all stages of federal, state and local planning efforts. County involvement may include: review of data for scientific and factual soundness, plan development, implementation, monitoring, and evaluation of plan implementation.

[1] Office of Management and Budget (OMB); December 16, 2004; M-05-03; "Final Information Quality Bulletin for Peer Review"; (45 pages)

Monitoring:

- Document the participation of affected parties in the development and establishment of population targets and management guidelines for upland game, water fowl, and big game species.
- Document the inclusion of wildlife habitat objectives in activity plans and BLM approved Reclamation Plans.
- Document the location and extent of water developments and vegetation manipulation projects and prescribed fires for wildlife habitat improvement and provide timely notification to all affected parties.
- Periodically monitor range improvement projects, rights-of-way, woodcuts, mining activities, multiple recreation uses, and materials leases, to document habitat improvement or disturbance.
- Document the incidents of wildlife depredation and extent of game animal harvest in designated management areas of both land and wildlife management agencies.
- Document visitor use of wildlife and fish in terms of hunter or fisherman questionnaire contents, business reports of sales to visitors to the area, etc.

Evaluation:

- Track the participation of agencies, landowners and sportsmen and their progress in development of designated management area plans.
- Reconcile wildlife population fluctuation related to both habitat condition and non-habitat impacts on reproduction and survival.
- Track the numbers and time required for the initiation and completion of water developments, prescribed burns and range treatment projects for wildlife habitat improvement.
- Track the incidents and disposition of wildlife depredation on private lands and property.

6.2.5 Land Tenure

GOAL: Utilize, to the greatest extent possible, agricultural or mining entry, land exchange, and or land sale for disposal of all public lands which by virtue of their size or location render them difficult and expensive to manage and do not serve a significant public need or where disposal will serve important public objectives. Authorize as needed the use of those lands, not currently authorized, for rights-of-way, leases and permits. Fully recognize and protect existing property rights including rights-of-way, easement, water rights, forage rights, mineral rights, and other such property.

PRIMARY PLANNING GUIDANCE ADDRESSED:

- Private Property and Property Rights, Eureka County Code 9.30.060.A
- Tax Base, Eureka County Code 9.30.060.B
- Mining, Eureka County Code 9.30.060.E
- Agriculture, Eureka County Code 9.30.060.F
- Utility Rights and Public Consumptions, Eureka County Code 9.30.060.I
- Land Disposition/Land Tenure Adjustments, Eureka County Code 9.30.060.J
- Access, Eureka County Code 9.30.060.N
- Other Federal Land Use Regulations, Eureka County Code 9.30.060.Q
- Recreation, Eureka County Code 9.30.060.H

GUIDANCE:

Federal Land Policy & Management Act provides for effective use of the BLM administered lands by providing continuity of uses for roads, power, water, and natural gas. The Federal Land Policy & Management Act mandates multiple uses of the BLM administered lands, provides for continuing inventory and classification reviews of the BLM administered land, authorizes the Director to acquire lands when necessary to provide more efficient management through consolidation, and authorizes disposal of certain BLM administered lands. Lands currently under the jurisdiction of other agencies or lands currently withdrawn need a management plan to assure multiple use development when that existing withdrawal is revoked. The BLM is required to comply with federal, state and local government laws relating to hazardous materials.

OBJECTIVES:

1) Identify and give priority consideration to requests for exchanges or purchases from private land owners with fenced federal range, isolated tracts, or irregular boundary lines.

2) Develop an inventory of those BLM and FS administered lands which should be disposed of in the public good and make available for further application for agricultural or mining purposes those lands currently under DLE application or Patent application that are relinquished or rejected.

3) Encourage property owners to identify and record existing property rights, particularly those that predate FLPMA. Eureka County recognizes the minimum width of rights of way to be 50 feet on either side of a water conveyance ditch, pipeline, or flume as established under the 1866 Mining Act and further recognizes that the width of rights-of-way established under R.S.2477 to be from 100 feet to several miles wide and limited only by practical conditions. All necessary actions for maintenance of ditches, pipelines, flumes, roads, trails, or other infrastructure for water conveyance or travel within these rights-of-ways is hereby approved by Eureka County.

3) Seek legal administrative access only through purchase or exchange where significant administrative need exists, construct new roads around private lands where easement acquisition is not feasible, and consider significant public access needs in all land tenure adjustment transactions.

4) Manage newly acquired lands and lands that have been returned to BLM management through revocation of withdrawals in accordance with existing land use plans for adjacent land.

5) In coordination with federal agencies and state and local government planning agencies and in cooperation with interested members of the public through the NEPA process, develop and implement an Action Plan for management of hazardous materials on state and public lands.

Monitoring:

- Document the review procedures and acres of land classified for priority disposal.
- Document all applications for rights-of-way, leases and permits and the actions taken on each.
- Document access needs and procedures and methods utilized to achieve such access.

Evaluation:

- Determine annually the degree of progress in achieving disposal of lands classified for priority disposal.
- Evaluate the degree to which access needs are being met.

6.2.6 Locatable Minerals, Fluid Minerals, and Mineral Materials

GOAL: Facilitate environmentally responsible exploration, development and reclamation of oil, gas, geothermal, locatable minerals, aggregate and similar resources on federal lands.

PRIMARY PLANNING GUIDANCE ADDRESSED:

- Tax Base, Eureka County Code 9.30.060.B
- Water Resources, Eureka County Code 9.30.060.C
- Air Resources, Eureka County Code 9.30.060.D
- Mining, Eureka County Code 9.30.060.E
- Utility Rights and Public Consumptions, Eureka County Code 9.30.060.I
- Land Disposition/Land Tenure Adjustments, Eureka County Code 9.30.060.J
- Access, Eureka County Code 9.30.060.N
- Other Federal Land Use Regulations, Eureka County Code 9.30.060.Q

GUIDANCE: The Mineral Leasing Act of 1920 as amended, Geothermal Steam Act of 1970, as amended, the Mining and Mineral Policy Act of 1970, all declare that it is the continuing policy of the federal government to foster and encourage private enterprise in the development of domestic mineral resources. The 1872 Mining Law along with the Mining and Mineral Policy Act of 1970 declares that it is the continuing policy of the United States to foster and encourage private enterprise in the development of domestic mineral resources. The Federal Land Policy & Management Act, reiterates that the Mining and Minerals Policy Act of 1970 is to be implemented and directs that the BLM administered lands are to be managed in a manner which recognizes the nation's need for domestic sources of minerals and other resources. The National Materials and Minerals Policy, Research and Development Act of 1980 restates the need to implement the 1970 Act and requires the Secretary of the Interior to improve the quality of minerals data in land use decision making. The Mining Law of 1866 guaranteed certain rights which allow for orderly and efficient use of the public lands for commerce.

OBJECTIVES:

1) In coordination with federal agencies and state and local government planning agencies and in cooperation with interested members of the public, develop a land management mineral classification plan to evaluate, classify and inventory the potential for locatable mineral, oil, gas and geothermal, and material mineral exploration or development, to insure that lands shall remain open and available unless withdrawn by Congress or federal administrative action. To the extent practicable, land with high mineral or oil and gas values shall remain open for economic use.

2) Develop an evaluation program that relies upon and uses all available data, including, but not limited to reviewing existing data including hydrological data geochemical and geophysical testing, geological mapping and sampling, and, where appropriate, drilling testing.

3) Provide for mineral material needs through negotiated sales, free use permits and community pits.

4) Actively engage in NEPA analysis of environmental and community impacts related to proposed mineral, oil and gas development, including social, economic, and fiscal impacts.

Monitoring:

- Document all exploration activity and requests for and the issuance of patents through a system of tracking paper work associated with such activity.

Evaluation:

- Determine the degree to which mineral exploration and development are occurring as compared to needs and potential for the County.
- Determine whether the time required to obtain necessary permits and approvals is excessive.

6.2.7 Cultural, Historic, and Paleontological Resources

GOAL: In coordination with federal state and local government planning agencies, tribal leadership and interested members of the public, determine the significance of cultural resource sites according to condition, content and relevance and increase the opportunity for educational, recreational, socio-cultural, and scientific uses of cultural and Paleontological resources.

PRIMARY PLANNING GUIDANCE ADDRESSED:

- Recreation, Eureka County Code 9.30.060.H
- Utility Rights and Public Consumptions, Eureka County Code 9.30.060.I
- Land Disposition/Land Tenure Adjustments, Eureka County Code 9.30.060.J
- Access, Eureka County Code 9.30.060.N
- Other Federal Land Use Regulations, Eureka County Code 9.30.060.Q

GUIDANCE: The Federal Land Policy and Management Act direct that the BLM administered lands be managed so as to protect archeological values. The Antiquities Act of 1906 and the Archeological Resources Protection Act of 1979 require protection of Paleontological resources and require permits for excavation or appropriation of such resources. The National Environmental Policy Act directs preservation of important natural aspects of the national heritage. The National Historic Preservation Act of 1966 describes federal agency' responsibility to preserve prehistoric and historic cultural resources.

OBJECTIVES:

1) Where sufficient data indicate adverse impacts of land uses to high-value sites, establish mitigation measures to reduce impacts and protect and conserve unique cultural and Paleontological resources.

2) Manage the existing historic district designations in accordance with Section 1 10 of the National Historic Preservation Act of 1966.

3) Nominate appropriate site/areas to the national register of historic places only in accordance with the policies and procedures outlined in NEPA and only upon approval of the Eureka County Board of Commissioners.

Monitoring:

- Correlate aspen stand characteristics with recreational use, wildlife populations, wild horses, livestock grazing and other multiple use activities.

6.2.9 Hunting, Fishing, and Outdoor Recreation

GOALS: Provide for multiple recreation uses on Eureka County federal and state administered lands located within its boundaries for residents and visitors to the County. Provide recreational uses including high quality recreational opportunities and experiences at developed and dispersed/undeveloped recreation sites by allowing historic uses and access while maintaining existing amenities and by providing new recreation sites for public enjoyment. Pursue increased public access opportunities in both motorized and non-motorized settings through the acquisition of rights-of-way or easements across federal administered lands and private lands at the invitation of the property owner. Recognize that multiple recreation uses are mandated by the multiple use concepts and that adequate outdoor recreation resources must be provided on the federal administered areas; keeping open all existing access roads and the ability to maintain those same roads or accesses.

PRIMARY PLANNING GUIDANCE ADDRESSED:

- Private Property and Property Rights, Eureka County Code 9.30.060.A
- Tax Base, Eureka County Code 9.30.060.B
- Water Resources, Eureka County Code 9.30.060.C
- Air Resources, Eureka County Code 9.30.060.D
- Agriculture, Eureka County Code 9.30.060.F
- Wildlife, Eureka County Code 9.30.060.G
- Recreation, Eureka County Code 9.30.060.H
- Riparian Habitat, Eureka County Code 9.30.060.K
- Wild Horses and Burros, Eureka County Code 9.30.060.M
- Access, Eureka County Code 9.30.060.N
- Pinyon and Juniper Control, Eureka County Code 9.30.060.O
- Wildfire, Eureka County Code 9.30.060.P

GUIDANCE: The Federal Land Policy & Management Act declares it to be the policy of the United States that BLM administered lands be managed on the basis of multiple use in a manner which provides for outdoor recreation and human occupancy and use, while at the same time protecting scenic, ecological, environmental, water, and archaeological values. The Act also mandates that outdoor recreation be considered one of the principle uses in the multiple use concept for the BLM administered lands. In 1963, Congress enacted the Outdoor Recreation Coordination Act declaring it "desirable that all American people of present and future generations be assured adequate outdoor recreation resources". See 16 U.S.C. ' 460L. The Secretary of Interior was authorized to prepare and maintain "a continuing inventory and evaluation of outdoor recreation needs and resources". 16 U.S.C. ' 460L-1. This Act also requires consideration of the plans of federal agencies, states, and the political subdivisions of states, and required the BLM to cooperate with states, political subdivisions of states and private interests with respect to

outdoor recreation. ' 460L-l(c)(d). The Intermodel Surface Transportation Efficiency Act 16 U.S.C. ' 1302; National Recreational Trails Fund, 26 U.S.C. ' 9511; and National Trails System Act, 16 U.S.C. ' 1241 provide for the preservation, development and funding of roads and trails for recreation use. These statutes mandate that trails for multiple recreation uses be made available for a diversity of motorized and non-motorized uses. Multiple recreation uses must also be provided for the elderly, physically challenged and very young in order to provide diversity of recreation opportunities. See, Americans with Disabilities Act, 42 U.S.C. ' 12111 et seq. All areas historically accessed by off-road recreational vehicles, mechanized vehicles, horses and boats should continue to be available for their historical uses. These historically accessed areas include roads, trails, sandwashes, and waterways identified as Revised Statute 2477 rights-of-ways, including those areas where wild horses may be located.

OBJECTIVES

1) Provide for continued multiple recreation uses for residents and visitors to Eureka County. Provide recreation in special and extensive recreation management areas, including those areas where state, federal and/or private funds and materials were or are considered to be used to provide for recreational facilities.

2) In compliance with applicable local, state and federal laws, cooperatively plan trailhead facilities for both motorized and non-motorized access, development and/or maintenance of roads and trails for both motorized and non-motorized access, restoration of those areas that are open to the public for historical recreational uses, e.g. motorized and equestrian access for recreational and competitive events, hunting, fishing, and camping.

3) Provide for adequate outdoor recreation resources by revising the designated areas to decrease or eliminate limitations and restrictions where the review and evaluation shows that the limitations and restrictions are no longer appropriate and necessary.

4) Plan and establish designated equestrian, foot, and off-road vehicle trail systems for compatible recreational, agricultural, and other multiple uses so that such uses can continue unabated.

5) Maintain existing facilities at developed recreational sites and upgrade, reconstruct and/or increase recreation facilities, when needs are indicated by monitoring data.

6) Describe methods of minimizing or mitigating documented use conflicts or damage and define the manner in which each method is expected to accomplish minimization or mitigation. All recreation promotion will include explanation of the contribution of private property owners to wildlife habitat, recreation access, and recreation sites. Recreation on private property without the approval of the owner is not permitted or approved.

Monitoring:

- Collect, review and analyze data relating to the demand for recreation use, the impact of the various recreation uses on land values, and any actual conflict or damage caused by each of the multiple recreation uses.
- In coordination with federal agencies and state and local planning agencies, review all data to determine whether temporary climatic conditions, wildlife activities, or range conditions require temporary or seasonal restrictions or limitations on historic and present recreation uses, and review data to determine the earliest point at which temporary restrictions or limitations can be removed.
- Collect and maintain data obtained during meetings and discussions with recreation users.
- Collect and maintain data obtained from community business owners concerning business contacts, sales, and future expectations from recreationists.
- Collect and maintain records of all management actions taken specifically to meet requirements of the Americans with Disabilities Act (ADA) and maintain records of use and requests for use from ADA eligible individuals.
- Investigate, validate and document all user conflicts reported to Eureka County and or federal agencies.

Evaluation:

- Meet annually with interested hunters, fishermen and other recreation users and review the data regarding recreation demands, outdoor recreation resources, and multiple recreation uses and their impact.
- Coordinate with federal agencies and state and local government planning agencies, to annually review and analyze recreational inventory, classification and designation information to validate the relevance and importance of criteria and the impact on land values and on recreation uses, historic and present.
- Analyze data on multiple recreational uses in areas with special use designations or which are under study for such designation to identify any adverse impacts on multiple recreational uses.
- Review data regarding implementation of the Americans with Disabilities Act and whether ADA implementation actions are adequate.

6.2.10 Wilderness, Wilderness Study Areas (WSA), Areas of Critical Environmental Concern (ACEC), and Other Restrictive Land Use Classifications

GOAL: Seek immediate Congressional designation action on all WSAs and other restrictive land classifications based on Eureka County policy to release these areas for multiple use management and in the interim prevent, minimize or mitigate impairment or degradation of such areas to the extent that Congressional actions are not pre-empted. Provide the amenities promised by wilderness designation through multiple use management that includes dispersed recreation where appropriate and opportunities for solitude.

2008. Subsequent rehabilitation of Well #2 was completed consistent with Well #1, except that the new pump was lowered 60 feet to adjust to the declining water level in the well.

The decline in water level in the Town of Eureka's wells in Diamond Valley has required the County to look for additional sources of water. In 2007, the county commissioned and completed a water and sewer master plan, which recommended rehabilitating the springs, lines and appurtenances south of town in order to provide additional water supply for Eureka in peak demand times, in times of power outages and pump failures, and to enhance the existing water supply and partially address the potential loss of production from Diamond Valley wells with the declining water levels.

Pumping history
In 1995, Well #1 produced 27,666,000 gallons; Well #2 produced 25,032,000 gallons or approximately 162 acre feet.
In 2006, Well# 1 produced 44,233,000 gallons; Well #2 produced 35,952,000 gallons or approximately 246 acre feet.
The period between 1995 and 2006 reflects a 34% increase in water pumped.

Customer base and demand
Eureka Town Water had 277 customers as of June 1, 2008. In the County's 2007 water and sewer master plan, current Average Daily Demand (ADD) was determined to be 236,000 gpd. Maximum Daily Demand (MDD) is estimated to be 708,500 gpd.

Customer projections
The proposed Mt. Hope molybdenum project is likely to increase demand for water service significantly. The County is making approximately 164 acres of land available near the fairgrounds to General Moly Inc. for a 277 unit subdivision, which will include 121 single-family units, 25 duplex units, 13 four-plex units, and 9 six-plex units. The Prospect Subdivision has a potential build out capability of 47 lots. Also the Townsite development plan, when implemented, yields a potential build out capability of 85 residential lots.

The County estimates that these developments will more than double the number of customers of the Town of Eureka's water system. It is likely that the increase in construction and operations employment will bring an influx of people to Eureka, ensuring that all potential water hookups are utilized, and the likelihood that vacant parcels are developed. Based on the preliminary numbers known at this time, the County projects moderate increases each year until full build out is achieved.

Water Quality
The water quality produced by the Diamond Valley wells is in compliance with the Safe Drinking Water Act, including the new lower limit for arsenic.

Devil's Gate General Improvement District

The Devil's Gate General Improvement District (GID) lies within Diamond Valley and has two separate districts, District #1 and District #2.

The GID took over two privately owned water systems developed in the late 1950's or early 1960's by Earl Rasmussen. Due to repeated "boil water" orders, the County took over the systems in 1996 and established the Devil's Gate GID. The creation of the GID enabled much needed rehabilitation to improve water quality, provide water storage, and supply fire flows to Devil's Gate District #2.

Devil's Gate GID District #1

District #1 is located in the SE ¼ of Section 29 of Township 20 North, Range 53 East and is approximately 4 miles northwest of the Town of Eureka on U. S. Highway 50. It encompasses an area on both sides of the highway bounded by First Street to the west and south, Frontier Drive to the east, and Selim Lane to the north. The district general slopes to the north-northeast from an elevation of 6,015 feet to 5,980 feet which results in a gradual grade of 1%.

Water rights
Water rights for the wells are established in the name of the Devil's Gate GID for quasi-municipal use.

Wells
The well that originally served District #1 was an agricultural irrigation well that was transferred to domestic use. It is now used as a back-up well and is known as Well# 2. The District is served by Well # 1 (formerly known as Well # 4) which was drilled in 1998. Well #1 is on Frontier Street. Well #2 is on the south side of Highway 50 near First Street.

The original undersized water lines were replaced with 6-inch PVC, and telemetry was added to the well, along with a new chlorinator. Due to the system configuration, fire flows do not meet State design standards.

The wells are owned by the Devil's Gate GID and operated by the Eureka Public Works Department under the jurisdiction of the Eureka County Board of Commissioners.

Water levels
In general, groundwater levels in the Diamond Valley have been dropping on the average of one to two feet per year. However, in Devil's Gate District #1 the decline is greater. In 1998 the static water level in the Frontier Street well was 180 feet below land surface. In 2008 the static water level in the same well was 210 feet below land surface an average annual decline of 36 inches, or three feet per year.

Pumping history
In 2006, Well #1 produced 1,643,300 gallons (5 acre feet). The production capability of Well #1 is 28,800 gallons per day. The pump at Well #1 is the original and has not required significant maintenance since its installation in 1998.

Customer base and demand
District #1 serves 14 customers. The ADD for District #1 is 4,944 gallons. The MDD is 14,382 gallons.

Customer projections
Due to its limited size, significant additional growth is not anticipated within District # 1.

Other factors
Storage requirements for District #1 cannot be met by the existing system.

Water quality
The water quality is in compliance with the Safe Drinking Water Act, including the new lower limit for arsenic.

Devil's Gate GID District #2

District #2 is located in the E ½ of Section 17 of Township 20 North, Range 53 East and is approximately six miles northwest of the Town of Eureka on State Route 278. It encompasses an area to the east of the state route bounded by Third Street to the south, Frontier Drive to the east, Fourth Street to the north, and El Paso Street to the west. The district topography is relatively flat with a high point of 5,954 feet at the southwest corner and a low point of 5,940 feet at the northeast corner, which results in an approximate grade of 0.25%.

Water rights
Water rights for the wells are established in the name of the Devil's Gate GID for quasi-municipal use.

Wells
The two wells that serviced District #2 were originally agriculture irrigation wells, but they are no longer in service. At the time the GID was created, the Gourley well was drilled and added to the water system as the primary water source for the district. Originally named Well #5, it is now known as Well #1. The new GID began improvements to the water system in 1998, including replacing some undersized lines. A 250,000 gallon tank was constructed in addition to a pump station with boosters and a 960 gpm fire pump. Fire flows were achieved, and seven hydrants were installed in the District. One of the original agriculture wells was abandoned, and the piping from Well #2 was upgraded. Telemetry was added to the wells with the installation of the new pumps and tank. A new Well #2, located adjacent to the water tank, was drilled in 2006. It is capable of producing 200 gpm. However, Well #2 exceeds the new arsenic standard causing a permitting issue with the Nevada State Bureau of Water Quality. The wells are located within the boundaries of District #2. Well #1 is on Third Street. Well #2, adjacent to the tank, is on Frontier Street.

The wells are owned by the Devil's Gate GID and operated by the Eureka Public Works Department under the jurisdiction of the Eureka County Board of Commissioners.

Water levels
Ground water levels in Diamond Valley have been dropping an average of one to two feet per year. Well #1 in 1997 had a static water level of 144 feet below land surface and in January of 2007 the static water level was 160 feet below land surface, an annual average decline of 19 inches.

Pumping history
In 2006, Well # 1 produced 6,602,900 gallons (20 acre feet). The pump in Well #1 was replaced in January of 2007 and currently produces 35 gpm under system pressure.

Customer base and demand
District #2 had 33 customers as of June 1, 2008. The ADD for District #2 is 20,088 gallons. The MDD is 60,264 gallons. Based on this information the storage requirements for District #2 would be 225,462 gallons assuming a fire flow of 1,000 gpm for two hours. The existing 250,000 gallon tank has sufficient storage to meet these requirements.

Customer projections
There are three areas within District #2 with residential development potential. Within the existing district layout, potential build out is 112 lots. The Ruby Hills Subdivision (north), located to the east of District #2 at the corner of Third Street and SR 278 has potential build out of 98 residential lots. Ruby Hills Subdivision (South), located less than a mile south of the north unit, has residential build out of 24 lots. When the Ruby Hills Subdivision is developed, it is anticipated that it will be absorbed into the Devil's Gate GID and will receive water service from District #2.

Water quality
The water quality of the Devil's Gate GID District #2 system is a concern due to high levels of arsenic in Well #2. However, Well #1 is below the allowable arsenic limit and will be mixed with the Well # 2 outflow to bring the water to an acceptable level of arsenic. If this method is not successful in lowering the concentration of arsenic to an acceptable level, an additional method of arsenic treatment will be required. Future growth in District #2 will require supplementary arsenic treatment since the blending method will be insufficient to properly dilute the arsenic content.

Eureka County Water Level Monitoring Program

Due to concerns about declining water levels for municipal use, Eureka County performs quarterly monitoring of key existing wells in Diamond Valley in cooperation with Barrick Mining Company, which shares information. In addition, the wells that serve the Town of Eureka are monitored on a monthly basis to track the static water levels. These monitoring initiatives provide data showing a continuing water level decline and reinforces the concern about the Diamond Valley municipal water supply.

Conclusion

The primary water sources for the Town of Eureka and Devil's Gate GID are groundwater wells in Diamond Valley. The water level in Diamond Valley is declining at least one to two feet per year under current conditions. Eureka County is managing the declining water levels in a number of ways – by pumping deeper, reactivating spring sources, and drilling new wells to provide back up to serve current customers.

The public water systems in southern Eureka County are expected to be stressed by the demands on the systems from increased development and population. In addition, the effects on the Diamond Valley alluvial aquifer from extensive pumping in Kobeh Valley are unknown at this time, but will likely increase water level decline.

In order to protect the public water supplies in Diamond Valley, it will be necessary to implement a monitoring plan and active monitoring program to provide an early warning system and address Kobeh Valley pumping impacts from the Mt. Hope project.

If current adverse conditions accelerate, Eureka County may not be able to provide an adequate water supply for the new demands placed on its systems from growth and groundwater decline due to Kobeh Valley pumping. It is possible that the tanks for the Town of Eureka may not be able to stay full. In order to ensure that the needs of growth and population expansion are met, Eureka County may need to accelerate the spring development project. Drilling a third well for the Town of Eureka that meets Safe Drinking Water Act standards is also an option.

Eureka County has grave concerns that the water supply is tenuous at best in the face of population growth and potential impacts from new pumping in Kobeh Valley. The Eureka Town wells may be the most vulnerable to Kobeh Valley pumping because of their location at the south end of Diamond Valley. Uncertainty with drilling a new well that meets the Safe Drinking Water Act, especially the costly arsenic standard, further complicates water supply issues if impacts to the Diamond Valley aquifer occur due to the extensive pumping by the Mount Hope project in the adjacent hydrographic basin. The unknown impact of the proposed pumping of more than 12,000 acre feet per year in a basin that has basically never been pumped could further complicate the issue of providing an adequate water supply to the citizens of Eureka.

In the near future, pressures from new development and growth will challenge Eureka County to ensure that safe drinking water is available to current and future customers at a reasonable cost.

Prepared by Eureka County Public Works Department, June, 2008

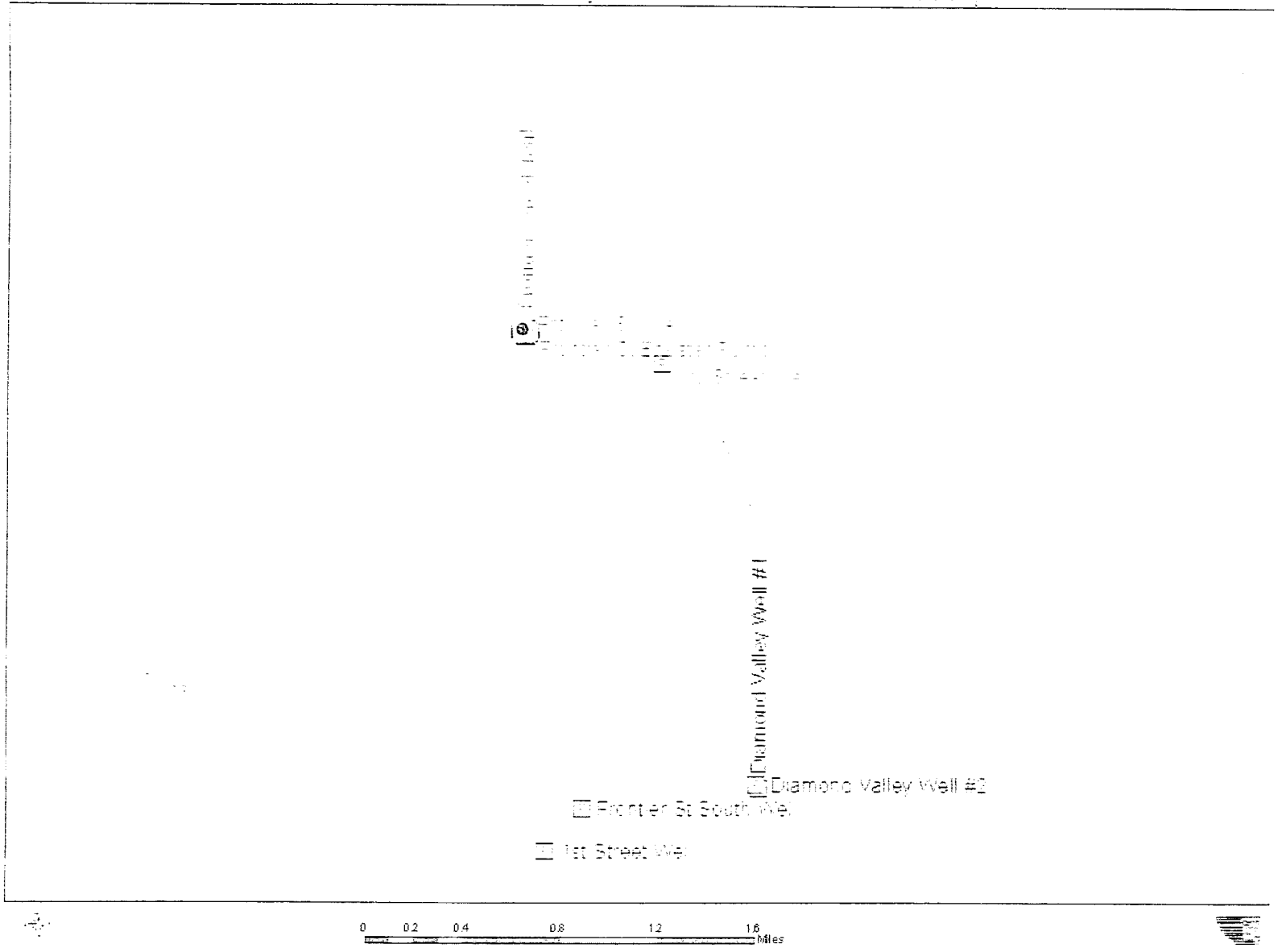
Overview of the "Summary Report of Existing Municipal Water Conditions in Southern Eureka County"

Presented By: Ronald Damele,
Public Works Director

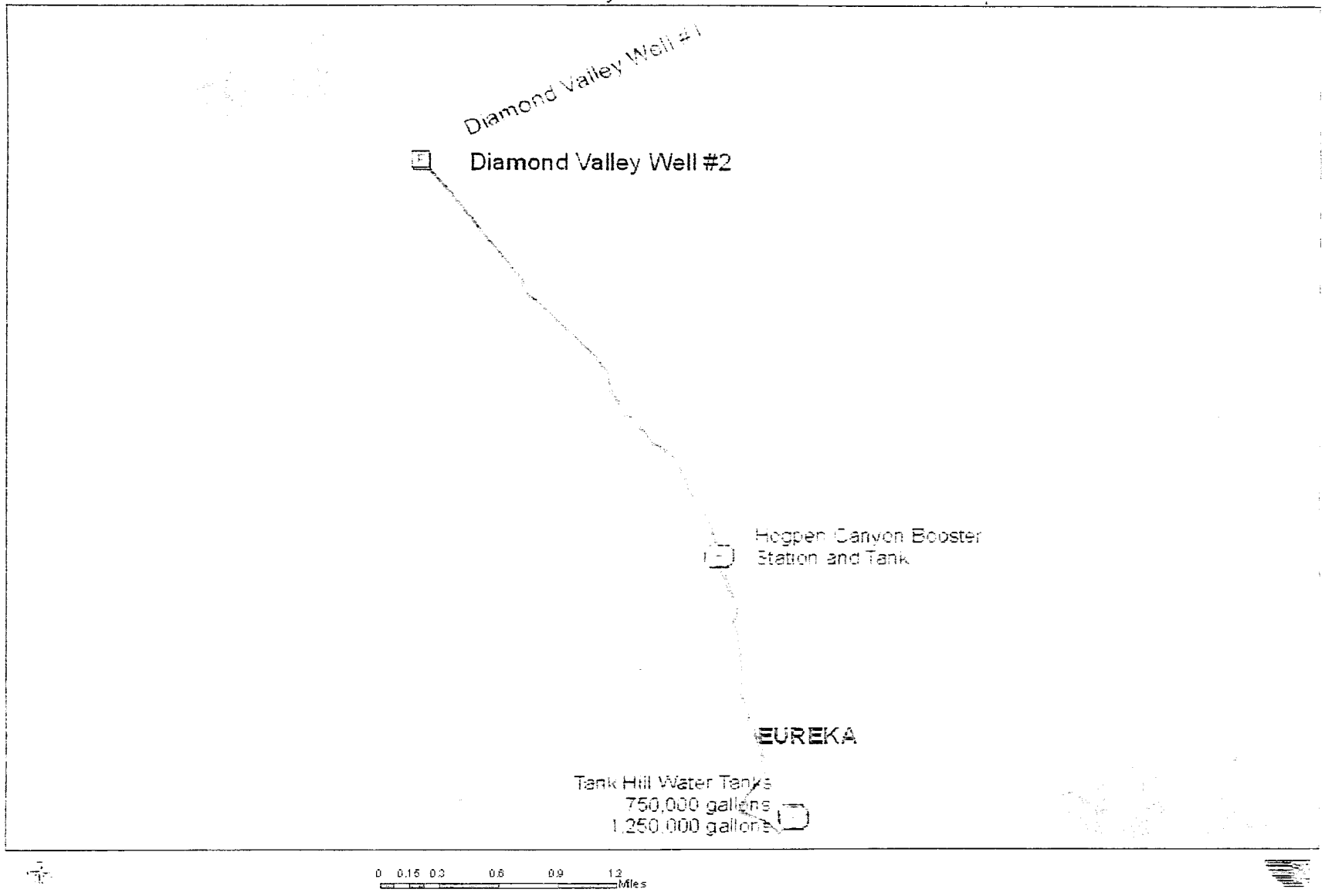
- There are three water systems in Southern Eureka County
  - Eureka Town Water System
  - Devil's Gate GID District #1
  - Devil's Gate GID District #2

- All three systems are operated by Eureka County

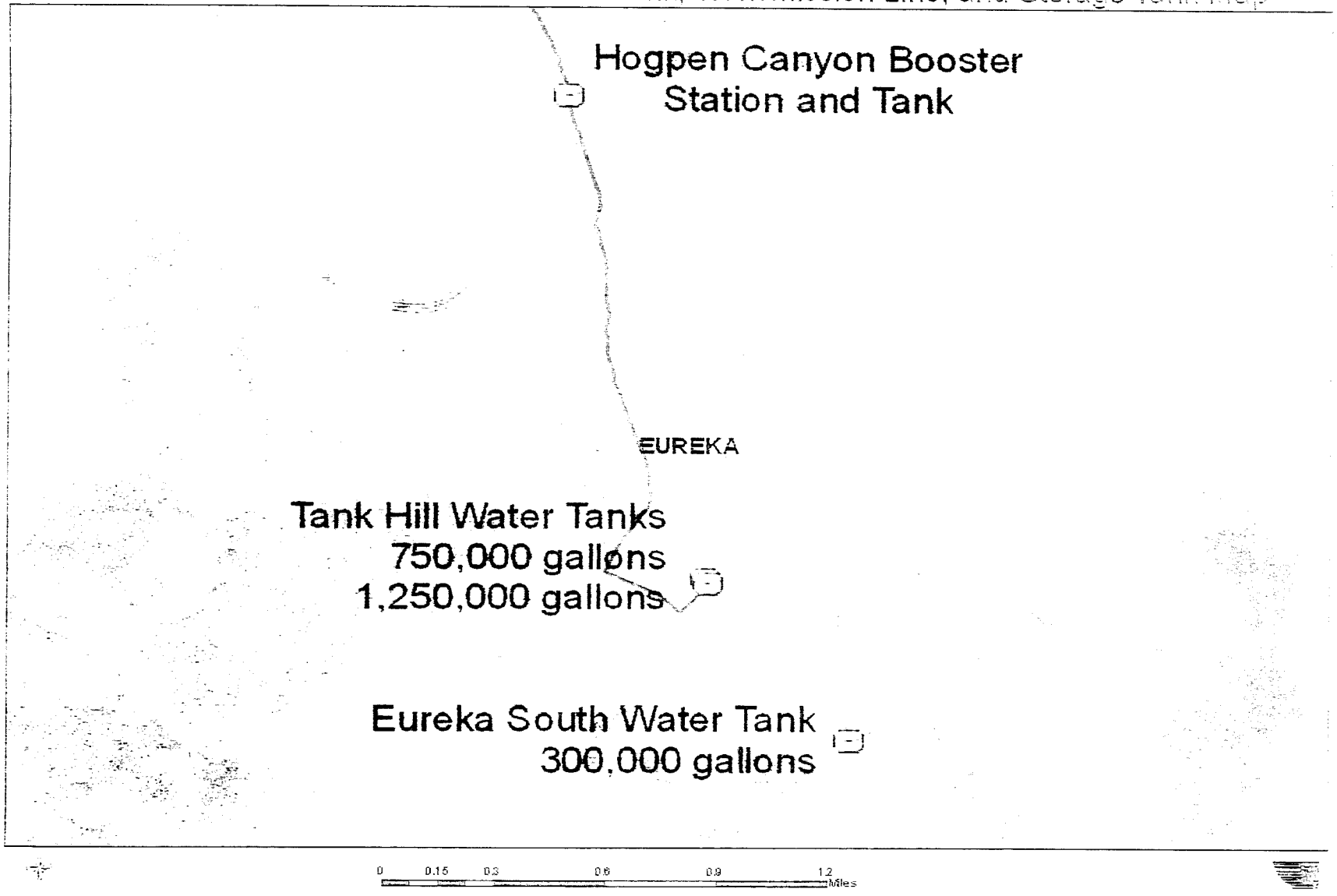
Southern Eureka County Water Point of Diversion Map



Eureka Town Water System Point of Diversion Map



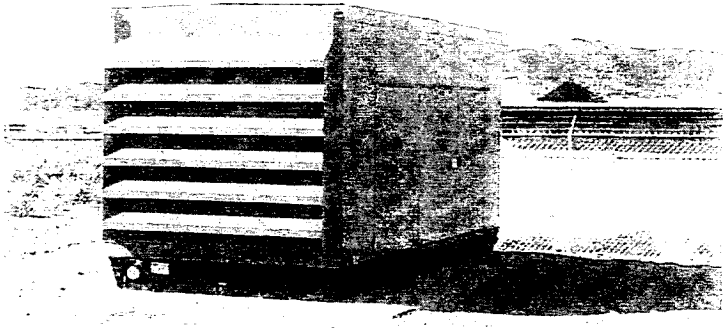
Eureka Town Water Booster Station and Tank, Transmission Line, and Storage Tank Map



Town of Eureka Water System

Diamond Valley Well #1

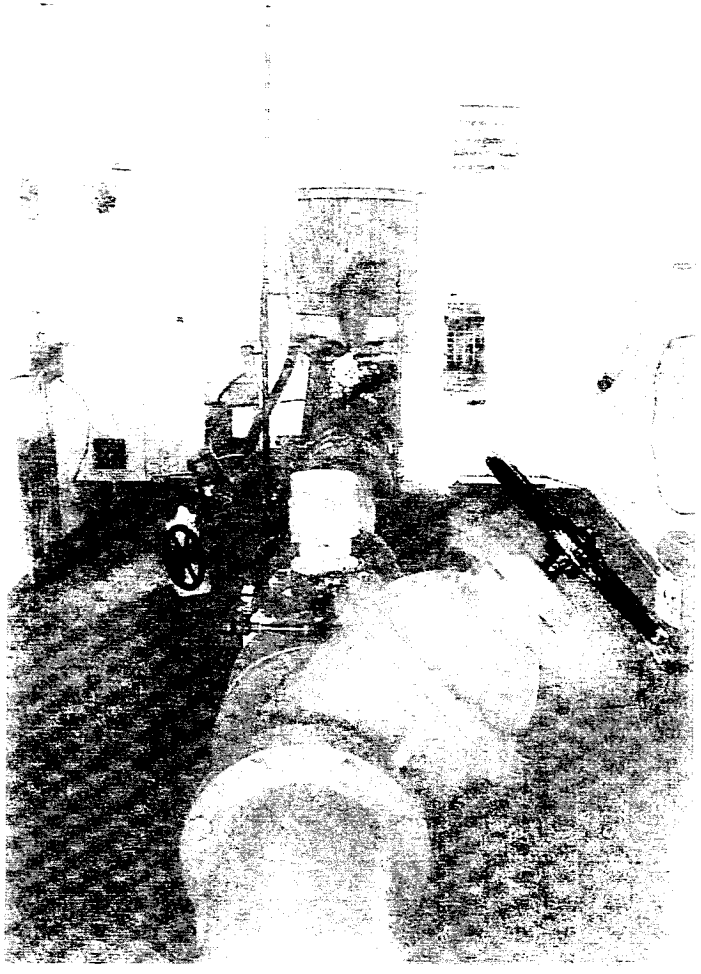
- Well drilled in 1989
- Located 3.5 miles North of the Town of Eureka
- 100 Feet from Well #2
- Produces 900 gpm
- Well pumps into 12 inch PVC main which feeds the booster station 1.7 miles from the well
- Storage tank on Tank Hill is 1.8 miles from the booster station



Town of Eureka Water System

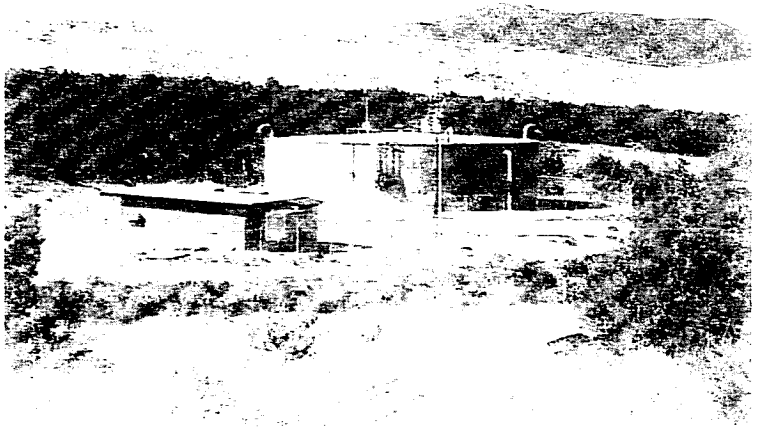
Diamond Valley Well #2

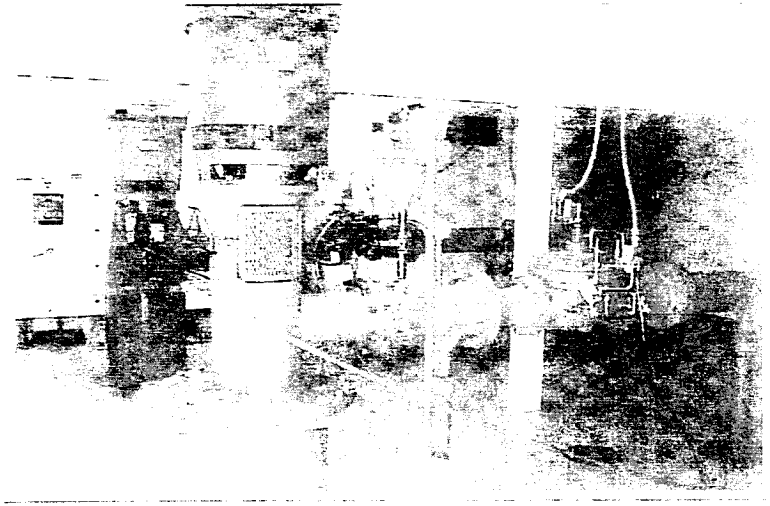
- Well drilled in 1993
- Located 3.5 miles North of the Town of Eureka
- 100 Feet from Well #1
- Produces 750 gpm
- Well pumps into 12 inch PVC main which feeds the booster station 1.7 miles from the well
- Storage tank at Tank Hill is 1.8 miles from the booster station



Town of Eureka Water System
Diamond Valley Wells – Booster Station

- Diamond Valley Well 1 and 2 feed the booster station
- Production capability of 900 gpm
- Transfers water 1.8 miles to town
- Pumps into 12 inch PVC main





Both wells, storage tank, and booster station are controlled by a telemetry system.

Town of Eureka Water System
Diamond Valley Well #1 Water Levels

- Drilled in 1989
  - Static water level was 208 feet below land surface
- October 2010
  - Static water level dropped to 252 feet below land surface

- Annual decline of 25 inches

Town of Eureka Water System
Diamond Valley Well #2 Water Levels

- Drilled in 1993
  - Static water level was 212 feet below land surface
- October 2010
  - Static water level dropped to 249 feet below land surface

- Annual decline of 26 inches

Town of Eureka Water System
Diamond Valley Wells' 1 & 2 Rehabilitation

- Well #1 First Quarter 2008 Well Rehabilitation
  - Brushed well to clean perforations, video and installed new pump 40 feet below original level
  - Pump now set at 352 feet

- Well #2 Second Quarter 2008 Well Rehabilitation
  - Began pumping air and was taken out of service
  - Brushed well to clean perforations, installed new pump 60 feet below original level
  - Pump now set at 370 feet

Town of Eureka Water System
Diamond Valley Wells' 1 & 2 Pumping History

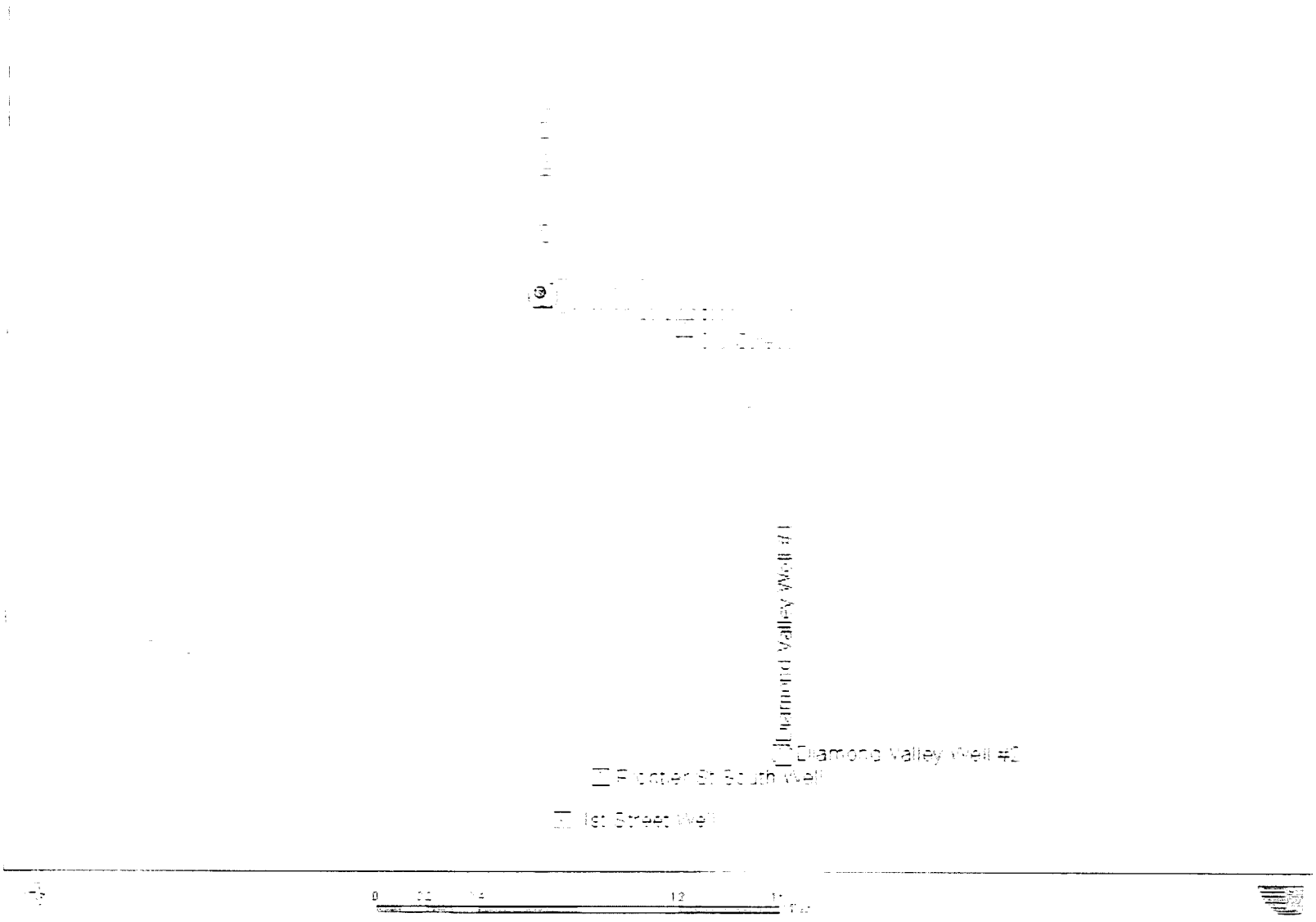
1995	2009
– Well #1 ◦ 27,666,000 gallons	– Well #1 and #2 ◦ 58,402,000 gallons
– Well #2 ◦ 25,032,000 gallons	– Approximately 179 acre feet
– Approximately 162 acre feet	

Increase of 10.5% in water pumped between 1995 and 2009

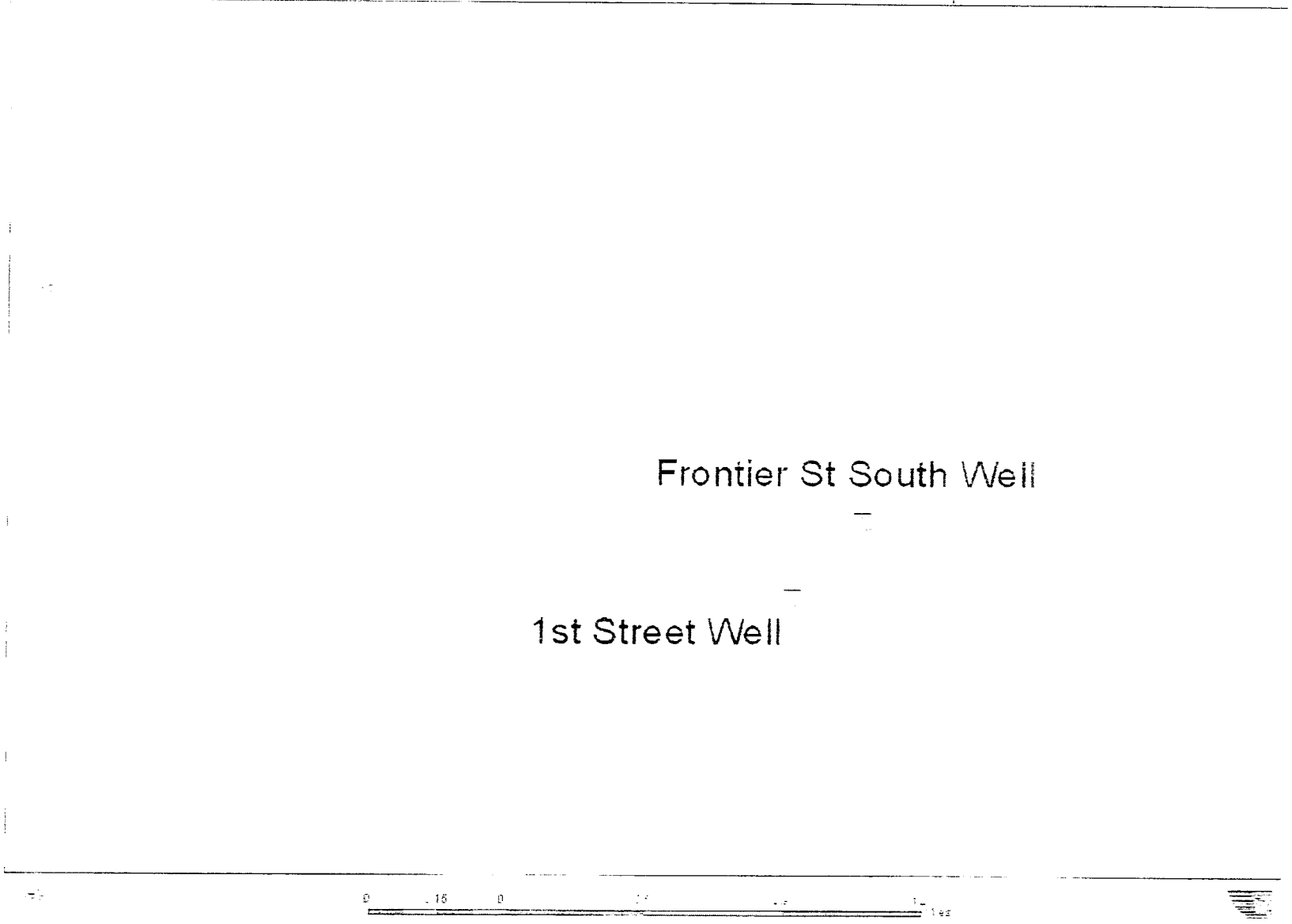
Town of Eureka Water System
Customer Data

- Current Customer Base – 276 (2009)
  - 2009
    - Average Daily Demand – 160,000 gpd
    - Maximum Daily Demand – 480,000 gpd
    - Well Production Capacity – 1,296,000 gpd
- Projected Customer Base – Additional 409
  - Eureka Canyon Subdivision – 277 units
  - Prospect Subdivision – 47 lots
  - Townsite development plan build out – 85 lots
- Developments will more than double the number of customers on the system.

Southern Eureka County Water Point of Diversion Map

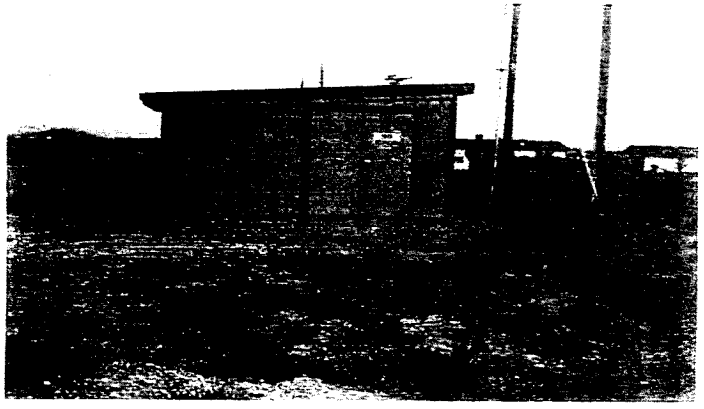


Devil's Gate GID District 1 Point of Diversion Map



Devil's Gate GID District #1
Wells and Water Levels

- **Devil's Gate GID #1 Well**
  - Well #1 drilled in 1998
  - Well #2 used as back-up well
  - Undersized water lines were replaced with 6 inch PVC
  - Chlorination system installed
  - Fire flow does not meet State design standards due to system configuration



- **Water Levels**
  - Drilled in 1998
    - Static water level was 180 feet below land surface
  - 2010
    - Static water level dropped to 221 feet below land surface
  - Annual decline of [illegible] per year

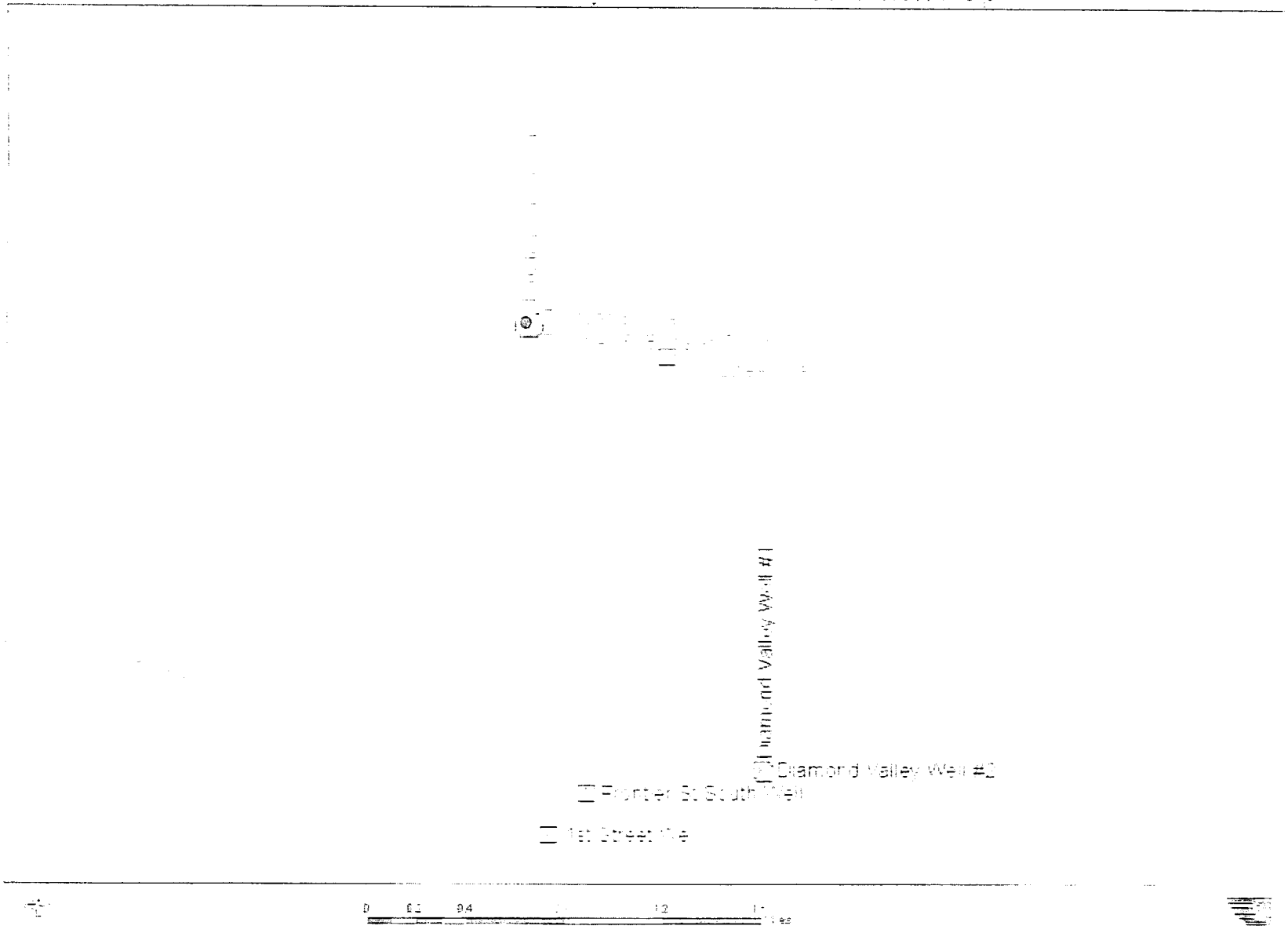
Devil's Gate GID District #1
Pumping History and Customer Data

- **Pumping History**
  - 2009
    - Well #1
      - 2,073,600 gallons (6.4 acre feet)
    - Production capability is 86,400 gallons per day

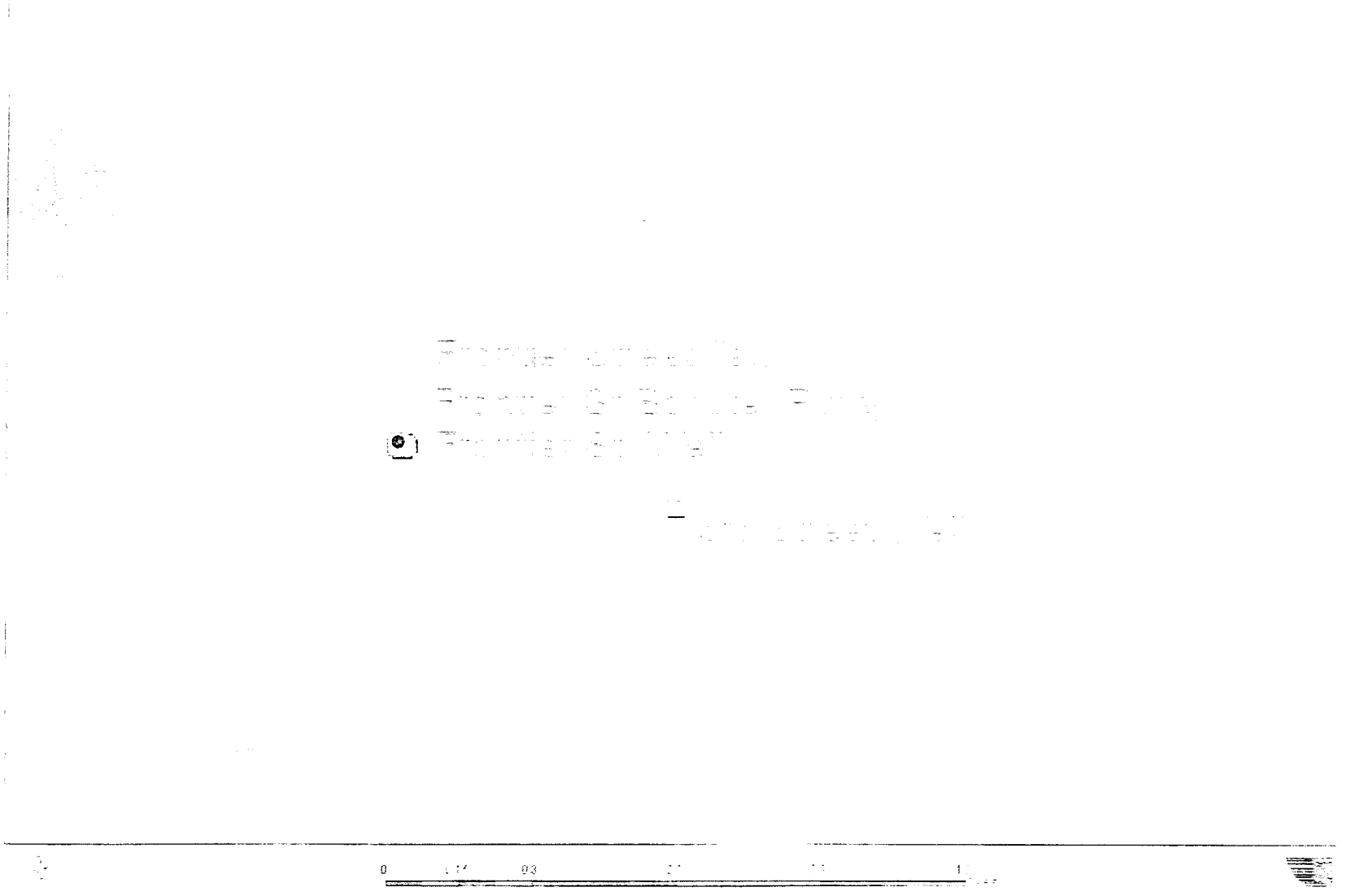
- **Customer Data**
  - Current customer base
    - 14 customers (2009)
- 2009
  - Average Daily Demand
    - 5,681 gallons
  - Maximum Daily Demand
    - 17,046 gallons

- Due to the limited size of Devil's Gate GID #1, significant additional growth is not anticipated

Southern Eureka County Water Point of Diversion Map



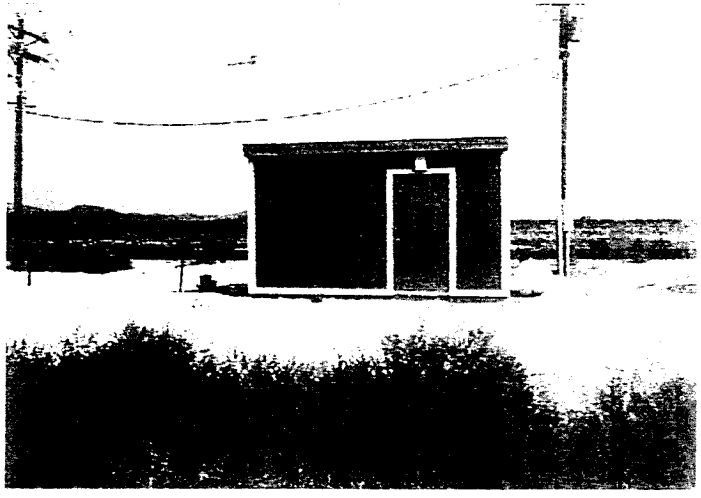
Devil's Gate GID District 2 Point of Diversion Map

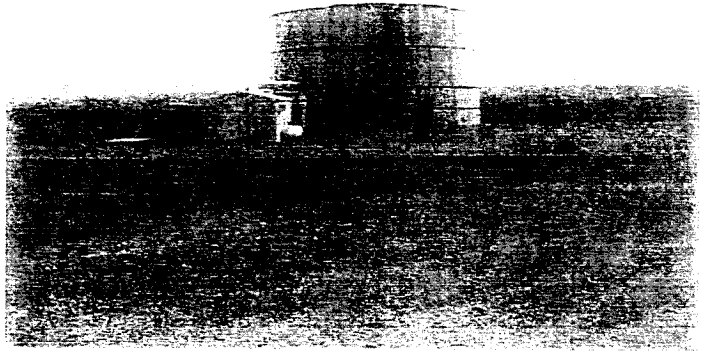


Devil's Gate GID District #2
Wells' 1 & 2

Devil's Gate Dist #2 Well #1

- Well drilled by Private Owner 1997
- Primary water source for district
- 1998 - Replaced some undersized lines
- Feeds to 250,000 gallon tank
- Telemetry system added





Devil's Gate Dist #2 Well #2

- New well drilled in 2006
- Produces 200 gpm
- Exceeds EPA arsenic standards
- Not in municipal system until treatment plan is implemented
- Currently provides construction water

Devil's Gate GID District #2
Water Levels and Pumping History

- Water Levels
  - 1997
    - Static water level was 144 feet below land surface
  - October 2010
    - Static water level dropped to 173 feet below land surface
  - Annual decline of 2 feet

- Pumping History
  - 2009
    - Well #1
      - 5,733,600 gallons (17.6 acre feet)
  - 2007
    - Replaced Well #1 Pump
      - Produces 60 gpm

Devil's Gate GID District #2 Customer Data

- Current Customer Base – 41 (2009)

  2009
  - Average Daily Demand – 15,708 gpd
  - Maximum Daily Demand – 47,125 gpd
  - Storage requirements are 225,462 gallons with fire flow of 1,000 gpm for two hours.
  - Existing 250,000 gallon tank is sufficient storage

- Projected Customer Base – 234
  - Potential build-out within District – 112 lots
  - Ruby Hill Subdivision (North) – 98 lots
  - Ruby Hill Subdivision (South) – 24 lots
    - Both Ruby Hill Subdivisions are anticipated to be absorbed into the Devil's Gate District #2

Water Quality
All Systems

- Diamond Valley Wells – Town of Eureka Water System
  - Compliant with Safe Drinking Water Act, including new lower limit for arsenic
- Devil's Gate GID District #1
  - Compliant with Safe Drinking Water Act, including new lower limit for arsenic
- Devil's Gate GID District #2
  - Well #1 is compliant with Safe Drinking Water Act
  - Well #2 is not compliant with the Safe Drinking Water Act as it exceeds arsenic MCL
  - Well #2 under current conditions can not be permitted as a municipal well

Water System Summary

- The primary water sources for the Town of Eureka and Devil's Gate GID 1 & 2 are from groundwater wells in Diamond Valley
- The water level in Diamond Valley is declining at least 1-2 feet per year under current conditions
  - Eureka County may be able to provide back up water supply to serve current customers by pumping deeper, reactivating spring sources and drilling new wells that meet current Safe Drinking Water Act standards
- The public water systems in Southern Eureka County will be stressed by the demands on the system from increased development and population
- Effects on the Diamond Valley alluvial aquifer from extensive pumping in Kobeh Valley are uncertain
- Due to these uncertainties, Eureka County has grave concerns that the water supply is tenuous at best in the face of population growth and potential impacts from new pumping in Kobeh Valley

Water System Summary – cont.

- Eureka County may not be able to provide an adequate water supply for the new demands placed on its system from growth and groundwater decline
  - To ensure that the growth needs and populations expansion are met, Eureka County may need to accelerate the spring development project
  - Drilling a third well for the Town of Eureka that meets Safe Drinking Water Act standards is also an option
- Uncertainty with drilling a new well that meets Safe Drinking Water Act standards further complicates water supply issues if impacts to the Diamond Valley aquifer occur due to extensive pumping by the Mount Hope Project in the adjacent hydrographic basin
- The unknown impact of the proposed pumping of more than 12,000 acre feet per year in a basin that has basically never been pumped could further complicate the issue of providing adequate water supply to citizens of southern Eureka County

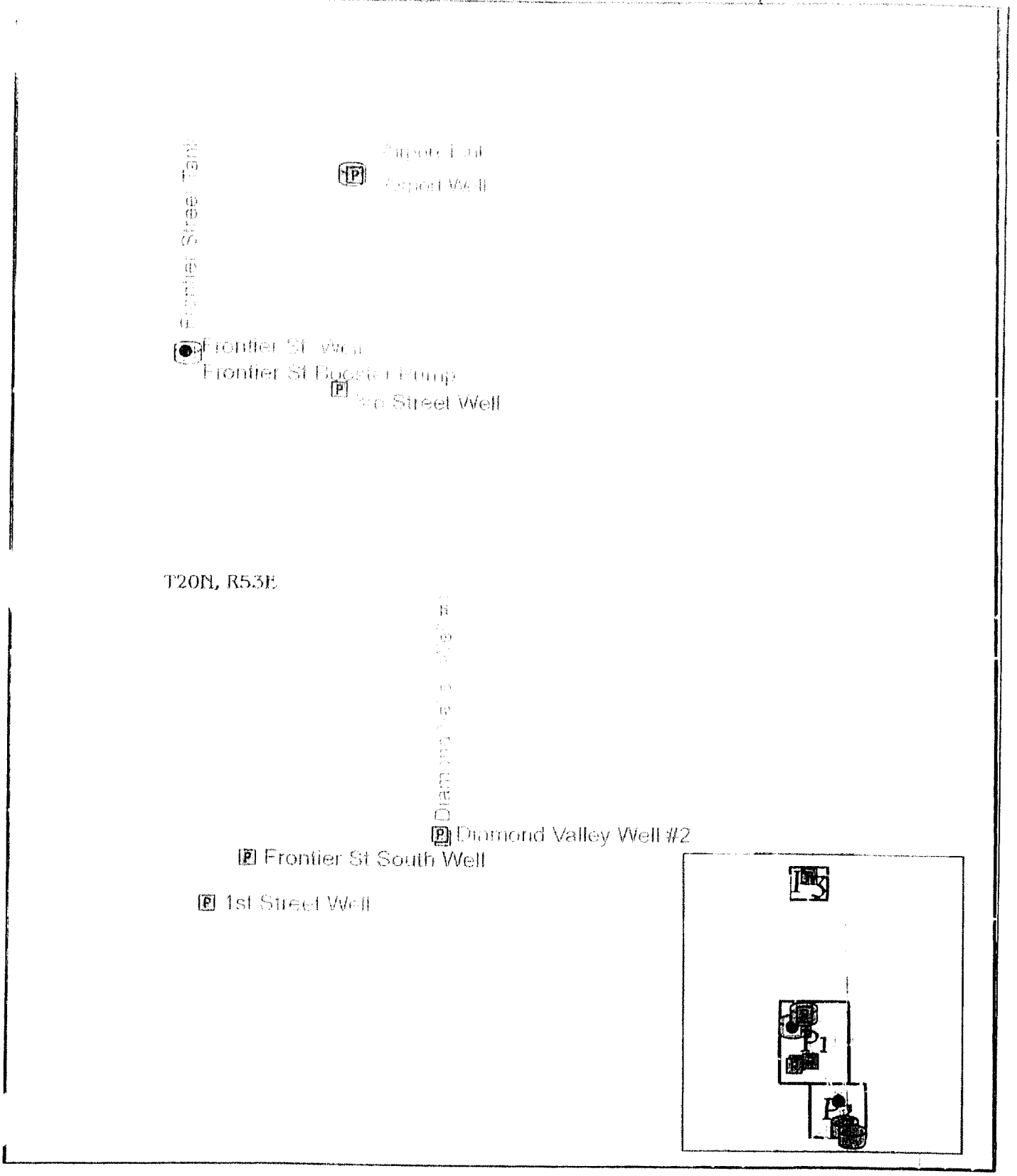
Water System Summary – cont.

- Water & Sewer master plan recommends rehabilitating the springs to provide additional water supply for Eureka and to partially address the potential loss of production from declining water levels
- It will be necessary to implement a monitoring plan and active monitoring program with local participation to provide an early warning system to address Kobeh Valley pumping impacts from the Mount Hope Project
- Pressures from new development and growth will challenge Eureka County to ensure that an adequate supply of safe drinking water is available to current and future customers at a reasonable cost

Upgrades to the Water Systems

- 2009 – Devil's Gate Inter-tie Project
  - Project joined the two Devil's Gate water districts together
  - Project Amount $565,994
- 2009 – Eureka Town Water Booster Station and New Tank Project
  - Construct 1,250,000 gallon tank on Tank Hill
  - Construct 300,000 storage tank at the Booster Station
  - Construct an additional booster pump at the Booster Station
  - Install a new generator at the Booster Station
  - Project Amount $2,006,693
- 2010 – Eureka Main Street Water/Sewer Improvements
  - Remove and Replace Water/Sewer lines on Main Street
  - Contract Amount $3,936,007
- 2010/2011 – Devil's Gate Tank and Transmission Line
  - Construct 400,000 gallon storage tank
  - Install 7,000 linear feet of 16 inch C905 water main
  - Contract Amount $1,287,000

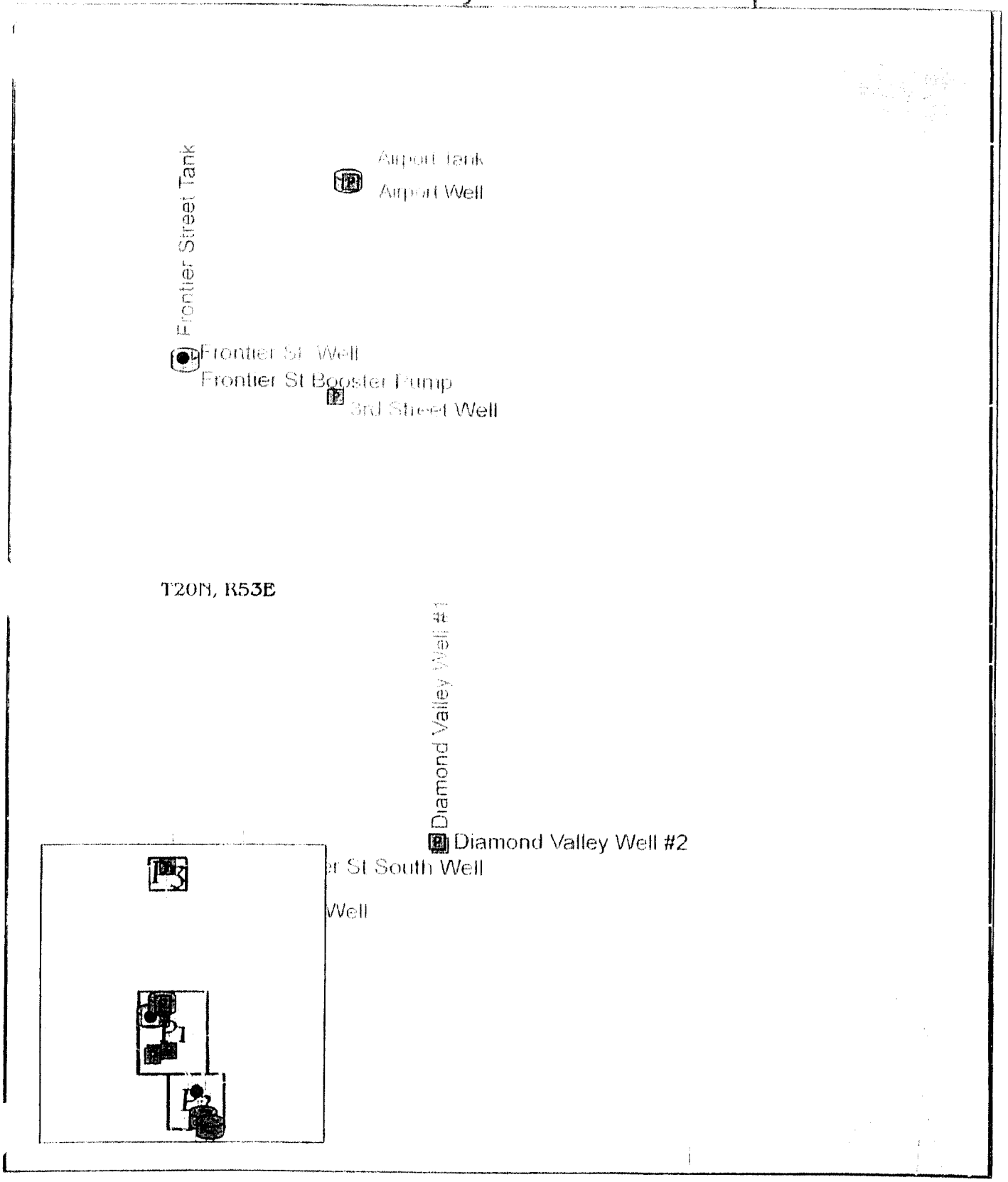
Eureka County Water POD Map



0 21,000 42,000 84,000 Feet

P1

Eureka County Water POD Map



P1

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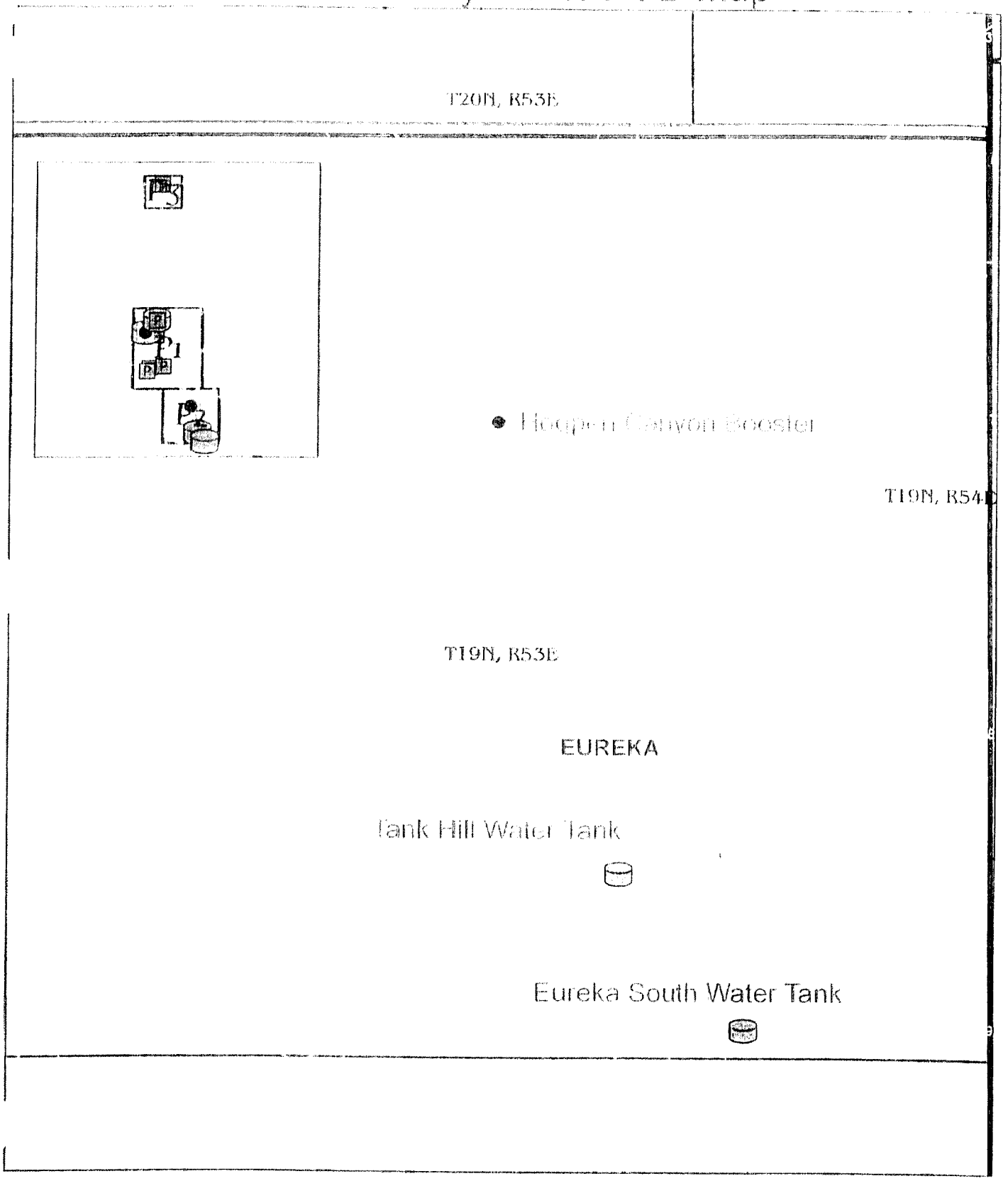
Eureka County Water POD Map

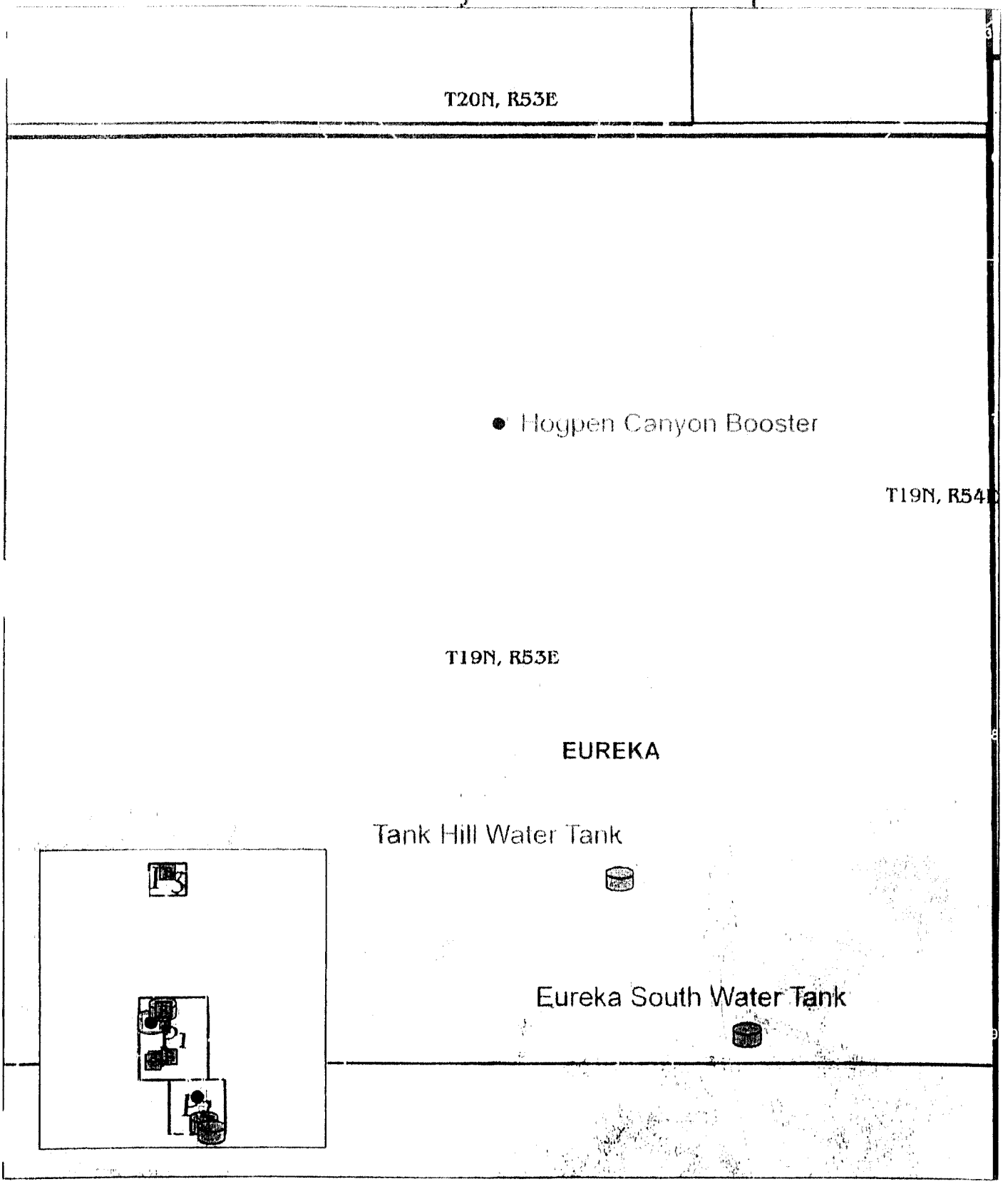


0 21,000 42,000 84,000 Feet

P2

002434

Eureka County Water POD Map

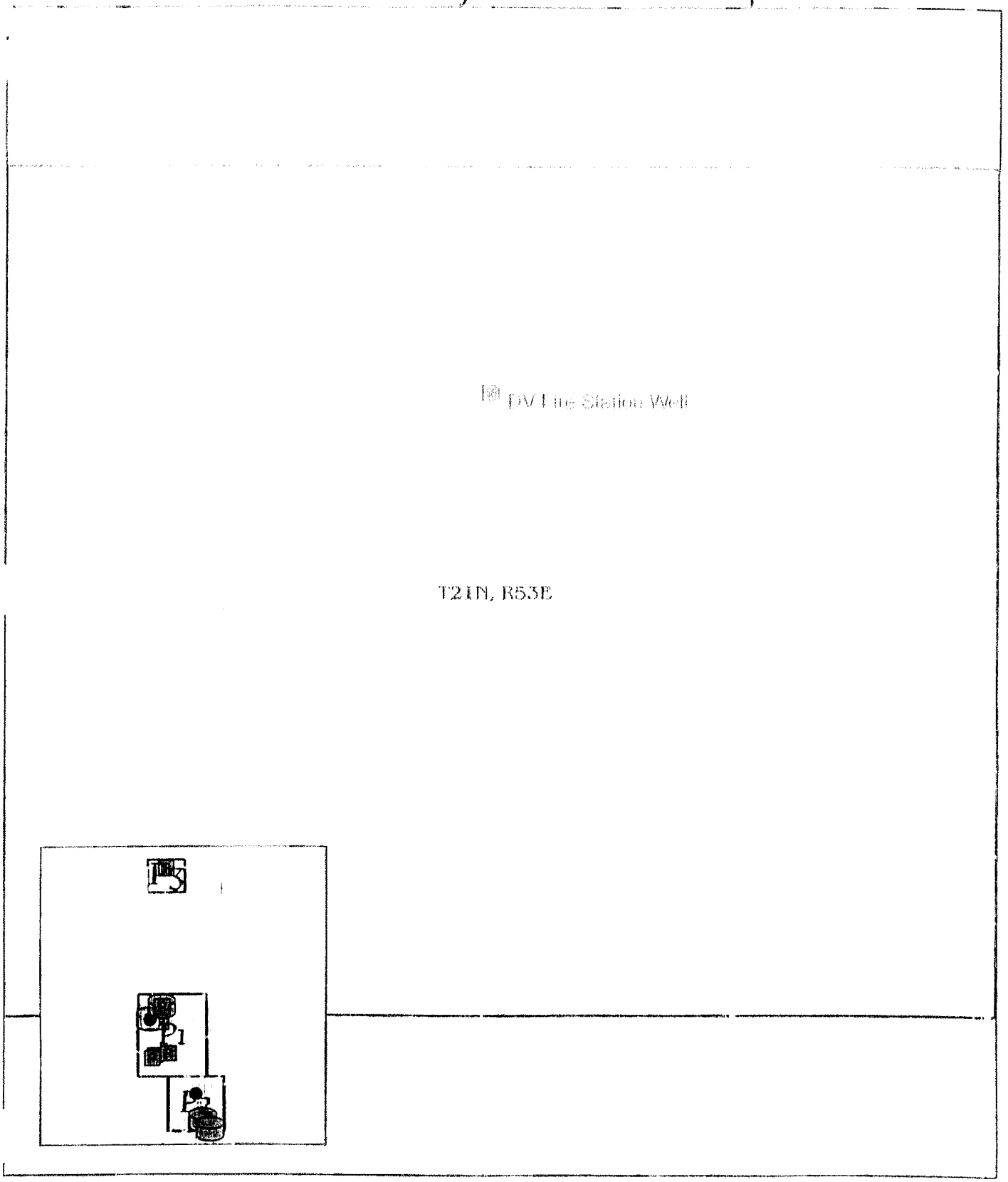


0 21,000 42,000 84,000 Feet

P2

002435

Eureka County Water POD Map

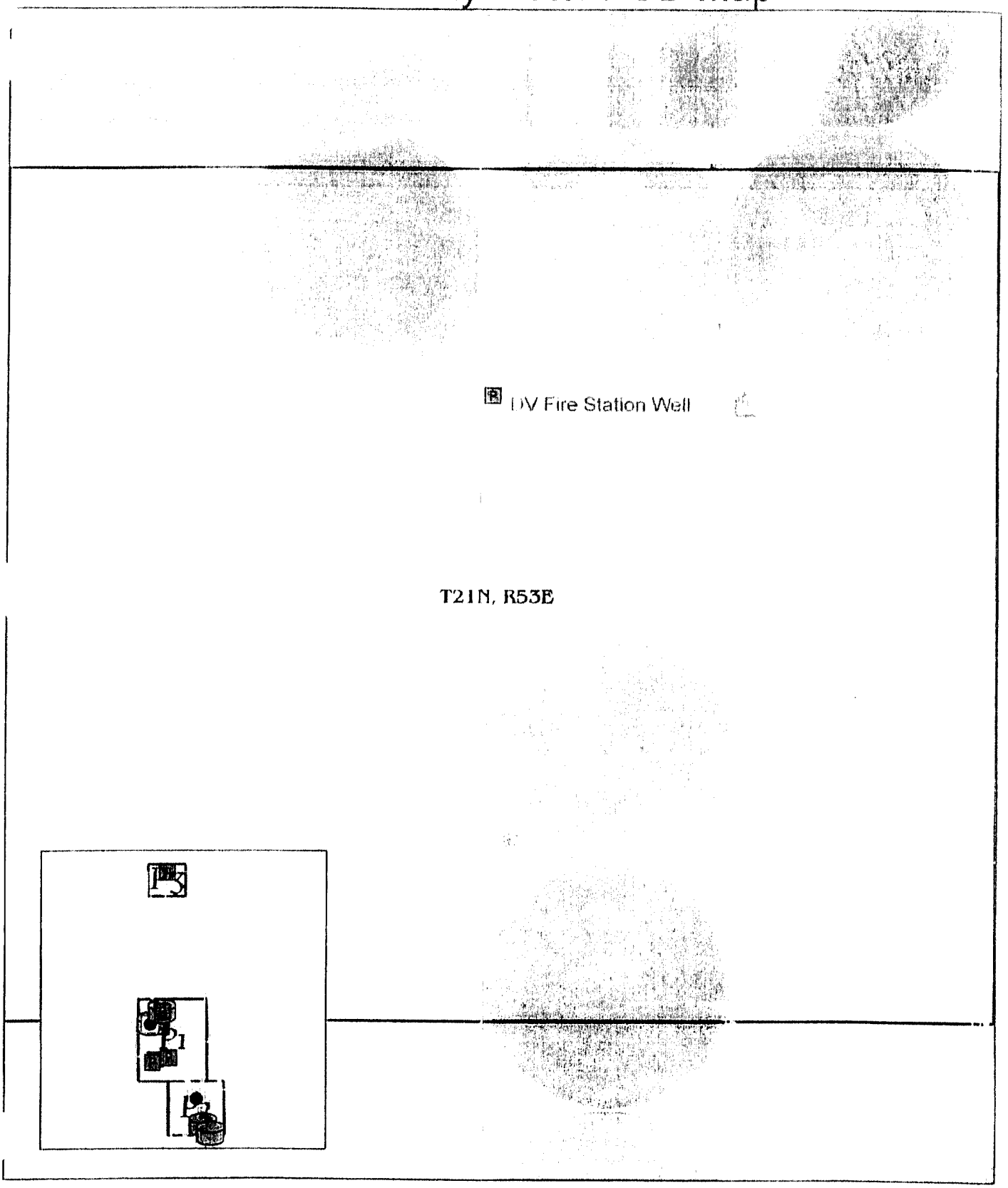


0 21,000 42,000 84,000 Feet

P3

002436

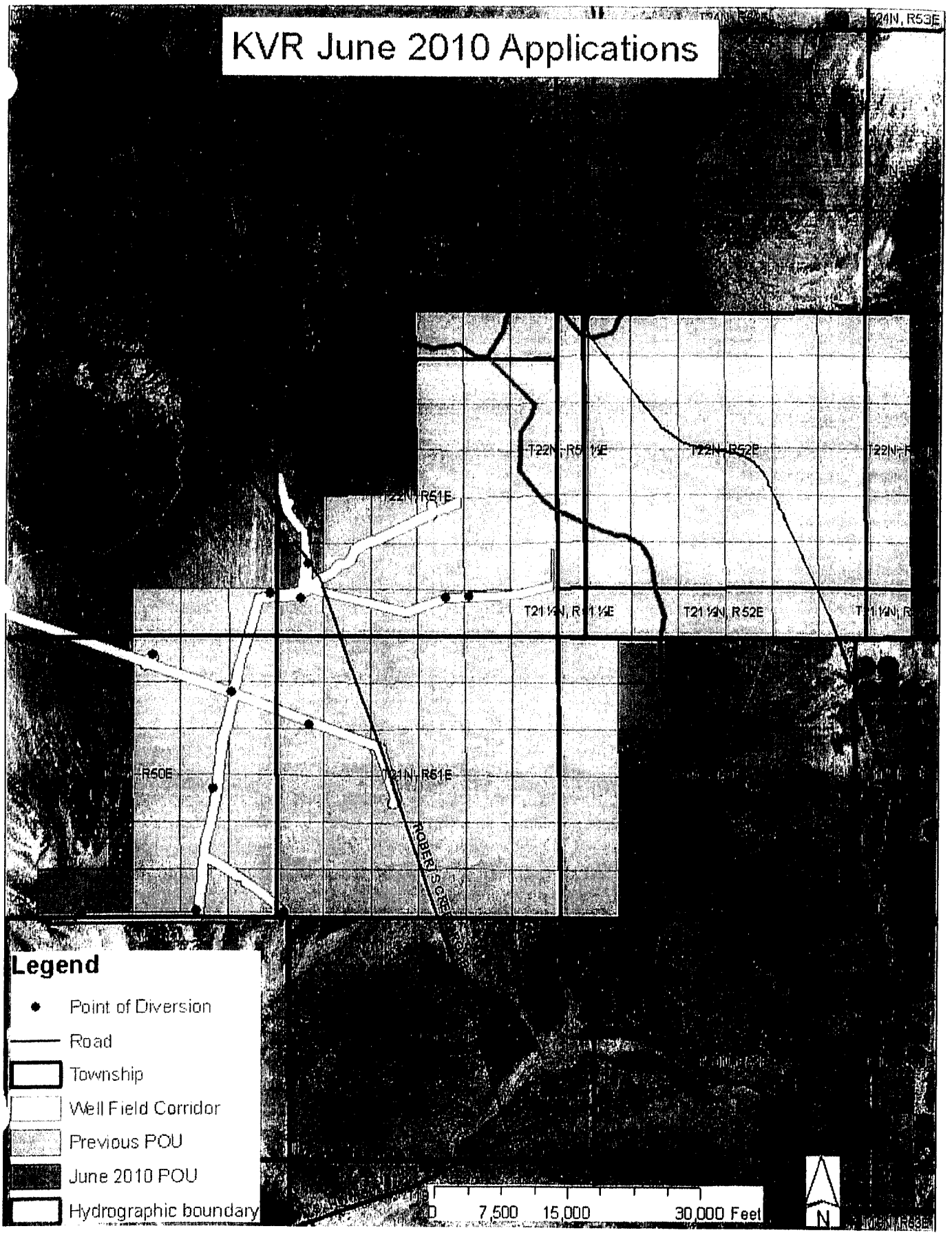
Eureka County Water POD Map



0 21,000 42,000 84,000 Feet

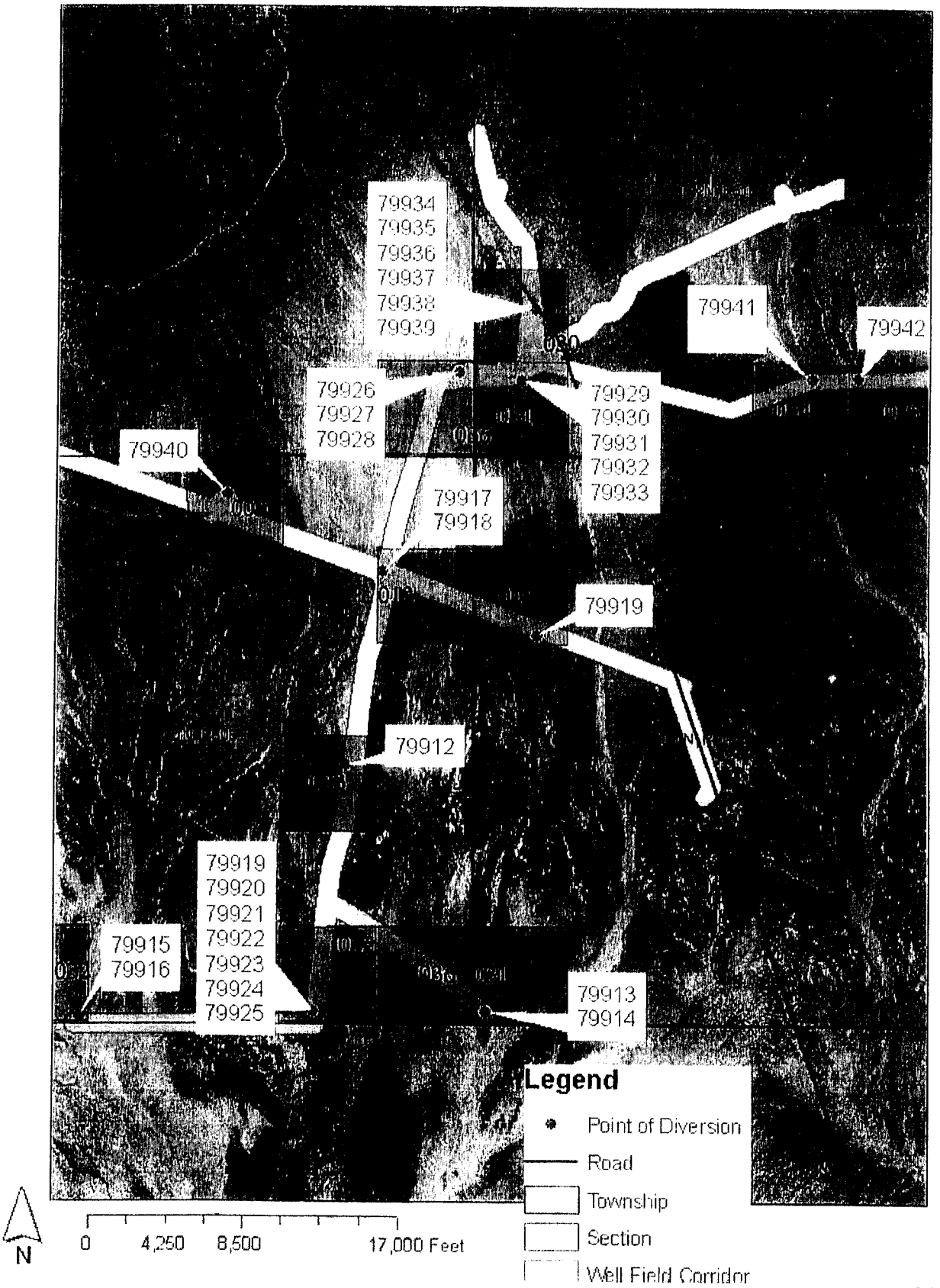
P3

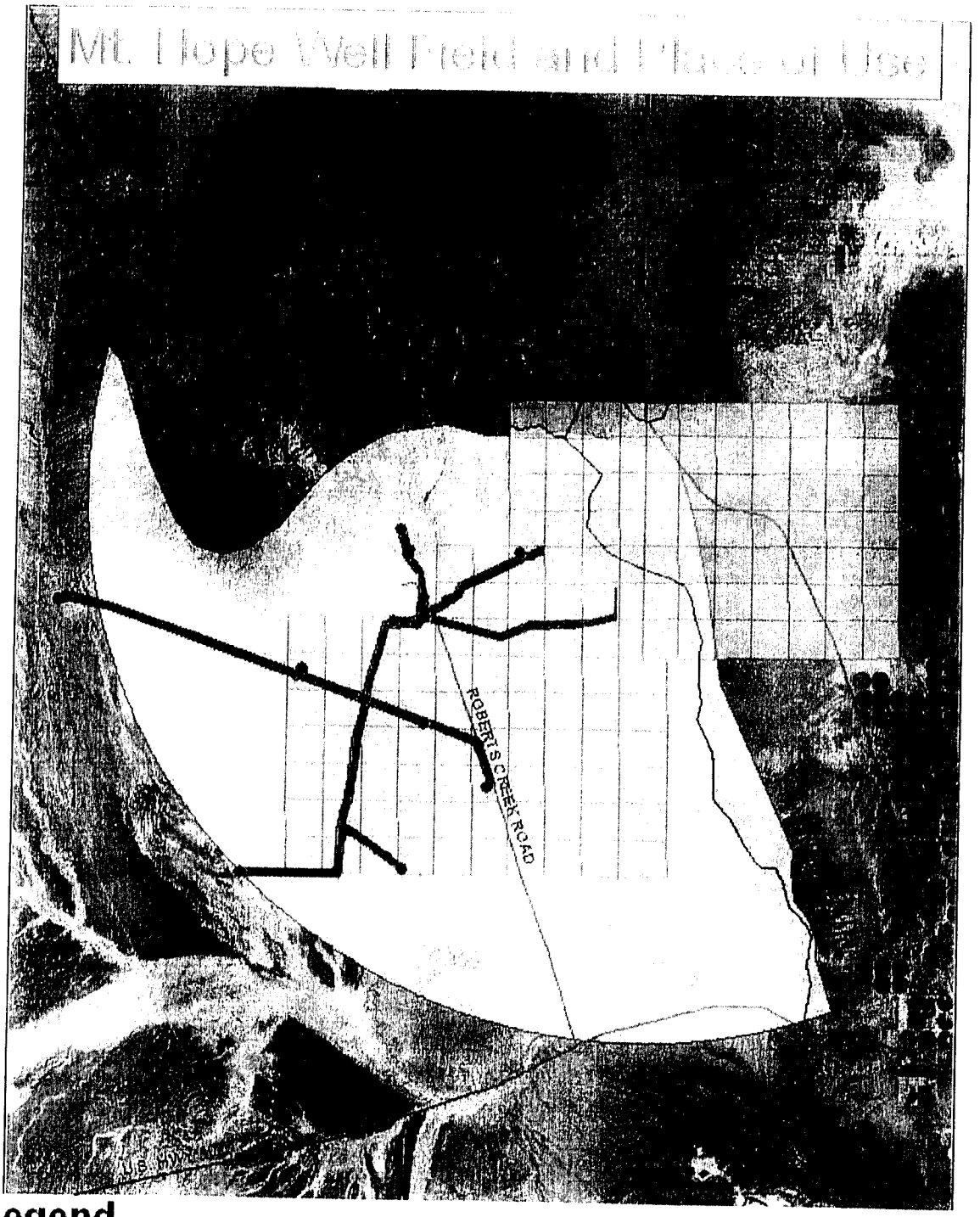
002437


KVR June 2010 Applications
T24N, R53E
T22N, R51E
T22N, R52E
T21 ½N, R52E
R50E
T21N, R51E
ROBERTS CREEK
Legend
Point of Diversion
Road
Township
Well Field Corridor
Previous POU
June 2010 POU
Hydrographic boundary
0 7,500 15,000 30,000 Feet
N

002438

KVR June 2010 Application Points of Diversion





Legend

- Wells
- Pipeline Right-of-Way
- Hydrographic Basin Boundary
- Road
- Proposed Place of Use
- Wellfield & Potential Expansion Area

0 1 2 4 6 8 Miles

002440

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
WATER RESOURCES
Nevada District
333 West Nye Lane, Room 203
Carson City, Nevada 89706

January 7, 2005

Jon Hutchings, Natural Resources Manager
Eureka County
Box 682
Eureka, NV 89316

Dear Mr. Hutchings,

Enclosed are two signed originals of a Joint Funding Agreement between Eureka County and the U.S Geological Survey (USGS) for the first year of the study to document "Ground-Water Conditions in Stevens Basin, Monitor, Antelope, Kobeh and Diamond Valleys." The total cost of the project in Federal fiscal year 2005 (FY05 = October 1, 2004 through September 30, 2005) is $150,000. Pending availability of Federal Matching Funds from the Cooperative Water Program, the USGS will contribute half the cost of the project. Eureka County's share of the funding in FY05 is $50,000. The table below shows the funding summary by agency for this work in FY05.

Eureka County	$50,000
Lander County	$10,000
Nye County	$10,000
Nevada Div. of Water Resources	$ 5,000
Total cooperator funds	**$75,000**
USGS Federal Matching Funds	$75,000
Total project funds for FY05	**$150,000**

To execute this agreement, please sign both Joint Funding Agreement forms (JFA); return one signed JFA to the attention of our Administrative Officer, Vickie Kieffer. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for the work that will be done. Billing to your agency will be semi-annually, beginning in April 2005, unless a written request for a different billing cycle is received with the JFA. If you have questions regarding the billing, please call our Administrative Officer, Vickie Kieffer at (775) 887-7610. Work performed with funds from this agreement will be conducted on a fixed-price basis. The results of all work under this agreement will be available for publication by the USGS.

We look forward to developing a long-term cooperative relationship with Eureka County during the coming year. If you have any questions regarding work on the project, please call one of the co-project chiefs: Mary Tumbusch at (775) 887-7637 or Russ Plume at (775) 887-7612.

Sincerely,

Kimball E. Goddard
Nevada District Chief

Enclosures

cc: M. Tumbusch, WRD, Carson City, NV
D.L. Berger, USGS, WRD, Carson City, NV

RWP:laf

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Form 9-1366
(Nov. 1998)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer # NV077
Agreement # 05W4NV02900
Project # 9705-BTQ01
TIN # 886000080
Fixed Cost Agreement Yes

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the **7th** day of **January, 2005**, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the **Eureka County**, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation **a study to document ground-water conditions in Stevens Basin, Monitor, Antelope, Kobeh and Diamond Valleys** herein called the program.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program.

   (a) **$50,000** by the party of the first part during the period **January 7, 2005** to **September 30, 2005**

   (b) **$50,000** by the party of the second part during the period **January 7, 2005** to **September 30, 2005**

   (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.
8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. Billing for this agreement will be rendered **semi-annually**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717: Comptroller General File B-212222, August 23, 1983).

U.S. GEOLOGICAL SURVEY UNITED STATES DEPARTMENT OF THE INTERIOR	**EUREKA COUNTY**
By: [signature] Date: 1/7/2005	By: [signature] Date: 1/14/05
Title: **Kimball E. Goddard** **Nevada District Chief**	By: _____ Date: _____
	By: _____ Date: _____

(USE REVERSE SIDE IF ADDITIONAL SIGNATURES ARE REQUIRED)

United States Department of the Interior

U. S. GEOLOGICAL SURVEY

NEVADA WATER SCIENCE CENTER
2730 North Deer Run Road
Carson City, Nevada 89701

January 19, 2007

Donna Bailey, Chairman
Board of Eureka County Commissioners
P.O. Box 677
Eureka, NV 89316

Dear Ms. Bailey,

This letter is in regards to the ongoing program work being conducted cooperatively between Eureka County and the U.S. Geological Survey (USGS) for the period of October 1, 2006 thru September 30, 2007 for federal fiscal year 2007 (FY07). This letter is in regards to the Diamond Valley Flow System Project--Phase Two.

The total cost of program work for this study for FY07 is $280,875. Pending availability of Federal Matching Funds from our Cooperative Water Program, the USGS will provide $104,625 toward this work with Eureka County contributing $116,250 and the SB62 grant money of $60,000. The USGS contribution has been limited to 45% because of anticipated shortfalls to fully match cooperative programs in FY07. The cost breakdown for the program study for FY07 is provided in the table below:

Agency Cooperators	**Agency Funds**	**USGS Federal Matching Funds**
Eureka County	$116,250	*$104,625
SB62 Grant Money	$60,000	---
Total	**$176,250**	***$104,625**
Total Project Funds for FY07	**$280,875**	

*USGS contributions are subject to availability of Federal Matching Funds

Enclosed are two copies of Joint Funding Agreement # 07W4NV02600. To execute this agreement, please sign both originals; return one signed copy to Jennifer George (See Enclosure 1), and retain the second copy for your records. To complete the processing of the JFA in our office, we are asking for receipt of the signed JFA by January 31, 2007.

We look forward to working with Eureka County on this cooperative effort. Should you have any questions regarding this work or the agreement, please refer to the contact list on Enclosure 1.

Sincerely,

Kimball E. Goddard
Director, USGS Nevada Water Science Center

Enclosures

cc: Jon Hutchinson, Natural Resource Manager, Eureka County, P.O. Box 682, Eureka, NV 89316
Mary Tumbusch, USGS, NV WSC, Carson City, NV
Russ Plumb, USGS, NV WSC, Carson City, NV
David Berger, USGS, NV WSC, Carson City, NV
Kimball Goddard, USGS, NV WSC, Carson City, NV
Jennifer George, USGS, NV WSC, Carson City, NV

KEG:jdg

NV077.07W4NV02600.BTQ02.LOA.Tumbusch.1-19-07.doc

Enclosure 1

POINTS of CONTACT:

USGS Nevada Water Science Center	Eureka County
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541	P.O. Box 682, Fedex Address: 701 S. Main St. Eureka, NV 89316 Phone #: 775-237-6010 FAX #: 775-237-6012 TID: 88-6000080
Technical Contact/Project Manager: Mary Tumbusch, Russ Plume Phone #: 775-887-7637, -7612 mtumbsch@usgs.gov, rwplume@usgs.gov	Technical Contact/Project Manager: Jon Hutchings, Natural Resource Manager Phone #: 775-237-6010
* Executive Contact: Kimball E. Goddard, Director 775-887-7635	Executive Contact: ~~Donna Bailey~~, Chairman Ken Benson Phone #: 775-237-6010
Billing Contact: Jennifer George, Budget Analyst 2730 North Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751 FAX #: 775-887-7629 jgeorge@usgs.gov	Billing Contact: Michael Rebaleati P.O. Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX #:

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	07W4NV02600
Project #:	9705-BTQ02
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 1st day of October, 2006, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation of the Diamond Valley Flow System Project - Phase Two, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

by the party of the first part during the period

(a) $104,625 October 1, 2006 **to** September 30, 2007

by the party of the second part during the period

(b) $176,250 October 1, 2006 **to** September 30, 2007

*SB62 Grant Money $60,000

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366 continued	U.S. Department of the Interior U.S. Geological Survey Joint Funding Agreement	Customer #: NV077 Agreement #: 07W4NV02600 Project #: 9705-BTQ02 TIN #: 88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **Quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

County of Eureka

USGS Point of Contact

Name: Mary Tumbusch
Address: 2370 N Deer Run Rd
Carson City, NV 89701
Telephone: 775-887-7637
Email: mtumbusch@usgs.gov

Customer Point of Contact

Name: ~~Donna Bailey~~ Ken Benson
Address: 701 S Main St
Eureka, NV 89136
Telephone: 775-237-6010
Email:

Signatures

By _____ Date 1/19/2007
Name: Kimball E. Goddard
Title: Director

Signatures

By _____ Date 2/06/07
Name: ~~Donna Bailey~~ Ken Benson
Title: Chairman

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

United States Department of the Interior

U. S. GEOLOGICAL SURVEY
NEVADA WATER SCIENCE CENTER
2730 N. Deer Run Road
Carson City, Nevada 89701
Phone: 775-887-7600; Fax: 775-887-7629
Website: http://www.usgs.gov/

October 11, 2007

Ken Benson
Chairman, Board of Commissioners
Eureka County
P.O. Box 677
Eureka, NV 89316

Dear Mr. Benson:

This letter is in regards to the ongoing program work conducted cooperatively between the U.S. Geological Survey (USGS) and the County of Eureka Nevada for Federal fiscal year (FY) 2008 (October 1, 2007 – September 30, 2008) for Phase 2 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada.

Since 2002, the matching level of funds available to the Nevada Water Science Center (NWSC) through the USGS Cooperative Water Program (Federal Matching Funds) has remained largely unchanged. However, the ability of these funds to support critical long-term data collection has been eroded each year by inflation, and has forced many USGS Water Science Centers to reduce the match available to cooperators.

To be equitable to all our historic partners, we determined that a 45-55 percent cooperative match had to be implemented effective January 2007. Although enabling legislation of the Cooperative Water Program allows matching "up to 50%", we will consider doing so only in rare circumstances. All NWSC cooperators are being advised to prepare for a smaller match. Only in this way will we be able to meet the requirements of the many agencies that rely on the USGS and the NWSC for critical water resource data and information. Thank you for your understanding and cooperation in this matter.

The total cost for operation and maintenance of this program work in FY2008 is $200,000. Pending availability of Federal matching funds from our Cooperative Water Program, the USGS will provide funding in the amount of $90,000 (45 percent) toward the cost of this program. Eureka County's portion of the cost for this program work is $110,000 (55 percent). Table of funding breakdown is shown below.

Agency	*Agency Funds*	*Barrick Mitigation Funds*	*Total Funding*
Eureka County	$ 50,000	$60,000	$110,000
USGS	$ 90,000	-0-	$ 90,000
Totals	$140,000	$60,000	$200,000

If you approve this work and the funding required, please sign the two enclosed Joint Funding Agreements (JFAs) and return one signed original to this office so that we may provide your agency with uninterrupted, continuous data and research. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for work that will be done.

We look forward to our continued work with Eureka County. If you find that your data needs change or are not being met, please let us know at your earliest convenience. Should you have questions regarding this work, agreement, or billing, please refer to the contact list at Enclosure 1.

Sincerely,

Kerry T. Garcia

Kerry T. Garcia
Acting Director, USGS, Nevada Water Science Center

Enclosures

cc: D. Berger, USGS, NWSC, Carson City, NV
R. Plume, USGS, NWSC, Carson City, NV
Admin/Chron/File Cys

MT:LMK:lmk

NV077.08W4NV01800.BTQ02.jfa.ltr.doc

Enclosure 1

JFA#: 08W4NV01800

POINTS of CONTACT:	
USGS Nevada Water Science Center	**Eureka County**
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541	PO Box 677 (FedEx) 10 S. Main St. Eureka, NV 89316 Phone #: 775-237-5262 FAX # 775-237-6015 TID: 88-6000080
Technical Contact / Project Manager: Mary Tumbusch, Russ Plume Phone #: 775-887-7637, -7612 mtumbsch@usgs.gov , rwplume@usgs.gov	Technical Contact/Project Manager: Ken Benson, Chairman Phone #: 775-237-5262 jberg_ecct@eurekanv.org
Executive Contact: Kimball E. Goddard, Director Phone #: 775-887-7635	Executive Contact: Ken Benson, Chairman Phone #: 775-237-6010
Billing Contacts: Jennifer Kirkpatrick, Budget Analyst; Kerry Garcia, Acting Administrative Officer 2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751, -7659 FAX #: 775-887-7629 jkirkpat@usgs.gov , ktgarcia@usgs.gov	Billing Contact: Michael Rebaleati Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX # 775-

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	08W4NV01800
Project #:	9705-BTQ02
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 11th day of October, 2007, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka Nevada, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 2 of the Diamond Valley Flow System Project to document wqter resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

(a) $90,000 by the party of the first part during the period October 1, 2007 **to** September 30, 2008

(b) $110,000 by the party of the second part during the period October 1, 2007 **to** September 30, 2008

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party

Page 2 of 2

Form 9-1366 continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	08W4NV01800
Project #:	9705-BTQ02
TIN #:	88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Mary Tumbusch
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7637
Email: mtumbsch@usgs.gov

Signatures

By Kerry T. Garcia Date 10-11-07
Name: Kerry T. Garcia
Title: Acting Director

By_____ Date_____
Name:
Title:

By_____ Date_____
Name:
Title:

COUNTY OF EUREKA NEVADA

Customer Point of Contact

Name: Ken Benson
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-5262
Email: jberg_ecct@euredanv.org

Signatures

By [signature] Date 10/19/07
Name: Ken Benson
Title: Chairman, Board of Commissioners

By_____ Date_____
Name:
Title:

By_____ Date_____
Name:
Title:

United States Department of the Interior

U. S. GEOLOGICAL SURVEY

NEVADA WATER SCIENCE CENTER
2730 N. Deer Run Road
Carson City, Nevada 89701
Phone: 775-887-7600; Fax: 775-887-7629
Website: http://www.usgs.gov

April 22, 2008

Jim P. Ithurralde
Chairman, Board of Commissioners
Eureka County
P.O. Box 677
Eureka, NV 89316

Dear Mr. Ithurralde:

The purpose of this letter is to modify Joint Funding Agreement (JFA) #08W4NV01800 between the U.S. Geological Survey (USGS) and the County of Eureka Nevada for Federal fiscal year (FY) 2008 (October 1, 2007 – September 30, 2008) for Phase 2 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, central Nevada. Copy of original agreement is included (Enclosure 1).

This modification is for an increase in funding for $20,000 for additional project sampling and surveying of wellheads. The total cost for this program in FY2008 is now $220,000. Pending availability of Federal matching funds from our Cooperative Water Program, the USGS will provide funding of $110,000 toward this program. Since this is a no-cost modification for Eureka County, their contribution of $110,000 remains unchanged. Total program funding is shown below.

Agency	*Agency Funds*	*Barrick Mitigation Funds*	*Total Funding*
Eureka County	$ 50,000	$60,000	$110,000
USGS	$110,000	-0-	$110,000
Totals	$160,000	$60,000	$220,000

If you approve this modification, please sign the two enclosed original JFA modification forms and return one signed original form to this office. Should you have questions regarding this additional work or the modified agreement, please refer to the contact list at Enclosure 2.

Sincerely,

Kimball E. Goddard
Director, USGS, Nevada Water Science Center

Enclosures

cc: M. Tumbusch, D. Berger, and R. Plume, USGS, NWSC, Carson City, NV
Admin/Chron/File Cys

Enclosure 1

JFA#: 08W4NV01800

(Original Agreement)

Form 9-1366
(Oct. 2006)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	08WANV01800
Project #:	9706-BTQ02
TIN #:	88-6000080
Fixed Cost Agreement:	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 11th day of October, 2007, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka Nevada, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 2 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

   by the party of the first part during the period
   (a) $90,000 October 1, 2007 to September 30, 2008

   by the party of the second part during the period
   (b) $110,000 October 1, 2007 to September 30, 2008

   (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

   (d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Form 9-1366 continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: NV077
Agreement #: 08WI4NV01809
Project #: 8706-BTQ02
TIN #: 88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Mary Turnbusch
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7637
Email: mturnbsch@usgs.gov

Signatures

By Kerry T. Garcia Date 10-11-07
Name: Kerry T. Garcia
Title: Acting Director

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

COUNTY OF EUREKA NEVADA

Customer Point of Contact

Name: Ken Benson
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-5262
Email: jberg_eoct@eurecanv.org

Signatures

By [signature] Date 10/19/07
Name: Ken Benson
Title: Chairman, Board of Commissioners

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

Enclosure 2

JFA#: 08W4NV01800A

(Modification A)

POINTS of CONTACT:		
USGS Nevada Water Science Center		Eureka County
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541		PO Box 677 (FedEx) 10 S. Main St. Eureka, NV 89316 Phone #: 775-237-5262 FAX # 775-237-6015 TID: 88-6000080
Technical Contact / Project Manager: Mary Tumbusch, Russ Plume Phone #: 775-887-7637, -7612 mtumbsch@usgs.gov , rwplume@usgs.gov		Technical Contact/Project Manager: Jim P. Ithurralde, Chairman Phone #: 775-237-5636 Jberg_ecct@e[illegible]v.or
Executive Contact: Kimball E. Goddard, Director Phone #: 775-887-7635		Executive Contact: Jim P. Ithurralde, Chairman Phone #: 775-237-5636
Billing Contacts: Jennifer Kirkpatrick, Budget Analyst; Stacy Masters, Administrative Officer 2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751, -7657 FAX #: 775-887-7629 jkirkpat@usgs.gov , smasters@usgs.gov		Billing Contact: Michael Rebaleati Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX # 775-237-6015

Page 1 of 2

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	08W4NV01800A
Project #:	9705-BTQ02
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 22nd day of April, 2008, by the U.S. GEOLOGICAL SURVEY UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka Nevada, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 2 of the Diamond Valley Flow System Project to document wqter resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

		by the party of the first part during the period		
(a)	$110,000*	October 1, 2007	**to**	September 30, 2008
		by the party of the second part during the period		
(b)	$110,000	October 1, 2007	**to**	September 30, 2008

*This amount represents the USGS original contribution plus the modification amount of $20,000 for additional work to be performed under this agreement

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366
continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #: NV077
Agreement #: 08WANV01800A
Project #: 9705-BTQ02
TIN #: 88-6000009

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Mary Tumbusch
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7637
Email: mtumbsch@usgs.gov

Signatures

By _____ Date 1/22/08
Name: Kimball E. Goddard
Title: Director, USGS, NV WSC

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

COUNTY OF EUREKA, NEVADA

Customer Point of Contact

Name: James P. Ithurralde
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-5262
Email: jberg_ecct@euredanv.org

Signatures

By _____ Date 5/6/08
Name: James P. Ithurralde
Title: Chairman, Board of Commissioners

By _____ Date _____
Name:
Title:

By _____ Date _____
Name:
Title:

Office of
Eureka County Clerk & Treasurer
Jackie Berg, Clerk & Treasurer

Eureka County Courthouse
10 South Main Street
P.O. Box 677
Eureka, Nevada 89316

Phone: (775) 237-5262
Fax: (775) 237-6015
www.co.eureka.nv.us

US Department of the Interior
US Geological Survey
NEVADA WATER SCIENCE CENTER
ATTN: Kimball Goddard
2730 N. Deer Run Road
Carson City, NV 89701

September 22, 2008

RE: USGS Joint Funding Agreement #09W4NV01100

Dear Mr. Goddard,

Enclosed please find the original Joint Funding Agreement between the USGS and Eureka County, which was signed by County Commission Chairman, Jim Ithurralde, at their meeting on Friday, September 19th. Per your instructions, we have retained the second original for our files. If you need anything further, please do not hesitate to contact me.

Sincerely,

Jackie Berg
Eureka County Clerk/Treasurer

Encl: a/s

cc: Eureka County Natural Resources Department
Mary Tumbusch, USGS Nevada Water Science Center

Form 9-1366
(Oct. 2005)

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	09W4NV01100
Project #:	9705-BTQ02
TIN #:	88-6000080
Fixed Cost Agreement	☑ Yes ☐ No

FOR
WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the 2nd day of September, 2008, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the County of Eureka, Nevada, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation Phase 2 of the Diamond Valley Flow System Project to document water resources of Monitor, Kobeh, Antelope, and Diamond Valleys, in central Nevada, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of $.

(a) $90,000 by the party of the first part during the period October 1, 2008 **to** September 30, 2009

(b) $110,000* by the party of the second part during the period October 1, 2008 **to** September 30, 2009

* $60,000 of this amount is Barrick Mitigation Grant money

(c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

(d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Page 2 of 2

Form 9-1366 continued

U.S. Department of the Interior
U.S. Geological Survey
Joint Funding Agreement

Customer #:	NV077
Agreement #:	09W4NV01100
Project #:	9705-BTQ02
TIN #:	88-6000080

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey
United States
Department of the Interior

USGS Point of Contact

Name: Mary Tumbusch
Address: 2730 N. Deer Run Rd.
Carson City, NV 89701
Telephone: 775-887-7637
Email: mtumbsch@usgs.gov

Signatures

By_____ Date 9/2/2008
Name: Kimball E. Goddard
Title: Director, USGS, NV WSC

By_____ Date_____
Name:
Title:

By_____ Date_____
Name:
Title:

EUREKA COUNTY

Customer Point of Contact

Name: James P Ithurralde
Address: PO Box 677
Eureka, NV 89316
Telephone: 775-237-5262
Email: jberg_ecct@euredanv.org

Signatures

By_____ Date 9/19/08
Name: James P. Ithurralde
Title: Chairman, Board of Commissioners

By_____ Date_____
Name:
Title:

By_____ Date_____
Name:
Title:

Enclosure 1

JFA#: 09W4NV01100

POINTS of CONTACT:		
USGS Nevada Water Science Center		**Eureka County**
2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7600 FAX #: 775-887-7629 DUNS #: 178930541		PO Box 677 (FedEx) 10 S. Main St. Eureka, NV 89316 Phone #: 775-237-5262 FAX # 775-237-6015 TID: 88-6000080
Technical Contact / Project Manager: Mary Tumbusch, Russ Plume Phone #: 775-887-7637, -7612 mtumbsch@usgs.gov, rwplume@usgs.gov		Technical Contact/Project Manager: Jim Ithurralde, Chairman Phone #: 775-237-5262 jberg_ecct@eurekanv.org
Executive Contact: Kimball E. Goddard, Director Phone #: 775-887-7635		Executive Contact: Jim Ithurralde, Chairman Phone #: 775-237-6010
Billing Contacts: Jennifer Kirkpatrick, Budget Analyst; Linda M-Kolsky, Financial Specialist 2730 N. Deer Run Road Carson City, NV 89701 Phone #: 775-887-7751, -7602 FAX #: 775-887-7629 jkirkpat@usgs.gov , lmkolsky@usgs.gov		Billing Contact: Michael Rebaleati Box 556 Eureka, NV 89316 Phone #: 775-237-5263 FAX # 775-

United States Department of the Interior

U. S. GEOLOGICAL SURVEY

NEVADA WATER SCIENCE CENTER
2730 N. Deer Run Road
Carson City, Nevada 89701
Phone: 775-887-7600; Fax 775-887-7629
Website: http://www.usgs.gov/

August 4, 2009

Jim Ithurralde, Chairman
Board of Eureka County Commissioners
P.O. Box 677
Eureka, NV 89316

Dear Mr. Ithurralde:

The purpose of this correspondence is to modify Joint Funding Agreement (JFA # 09W4NV03100) between the U.S. Geological Survey (USGS) and Eureka County for the first year of the Diamond Valley Flow System-Phase III in fiscal year (FY) 2009. A copy of the original signed JFA is enclosed.

This modification changes the period of performance for the first year of the Diamond Valley Flow System-Phase III work in fiscal year (FY) 2009 to July 1, 2009 – September 30, 2009.

Total cost for this program work in FY09 remains unchanged at $154,000. Contributions from the USGS for this work remain unchanged at $69,300. Eureka County's portion of the cost for this work in FY09 also remains unchanged at $84,700. A funding summary table for the Diamond Valley Flow System Project is included below.

	FY09	FY10	FY 11	FY12	FY13
Barrick Mitigation		$ 60,000	$ 60,000	$ 60,000	$ 60,000
Eureka County	$ 84,700	$ 61,000	$ 66,775	$ 69,800	$ 83,000
USGS	$ 69,300	$ 99,000	$103,725	$106,200	$117,000
Total	$154,000	$220,000	$230,500	$236,000	$260,000

If you approve this modification, please sign the two enclosed Joint Funding Agreements (JFA) modification forms. Return one signed original to our Financial Specialist. Funds are not required at this time; a signed agreement is not a bill, only an agreement to pay for work that will be done. The results of all work done under this agreement will be available for publication by the U.S. Geological Survey.

Should you have any questions about this modification, please refer to our contact list at Enclosure 1.

Sincerely,

Lari Knochenmus
Acting Director, USGS, Nevada Water Science Center

Enclosures

Cc: M. Tumbusch, D. Berger, R. Plume, NWSC
Chron/File Cys

IN THE SUPREME COURT OF THE STATE OF NEVADA

EUREKA COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF NEVADA; KENNETH F. BENSON, INDIVIDUALLY; DIAMOND CATTLE COMPANY, LLC, A NEVADA LIMITED LIABILITY COMPANY; AND MICHEL AND MARGARET ANN ETCHEVERRY FAMILY, LP, A NEVADA REGISTERED FOREIGN LIMITED PARTNERSHIP,

Appellants,

vs.

THE STATE OF NEVADA STATE ENGINEER; THE STATE OF NEVADA DIVISION OF WATER RESOURCES; AND KOBEH VALLEY RANCH, LLC, A NEVADA LIMITED LIABILITY COMPANY,

Respondents.

_____/

Case No. 61324

District Court Case Nos.
CV 1108-15; CV 1108-156;
CV 1108-157; CV 1112-164;
CV 1112-165; CV 1202-170

JOINT APPENDIX
Volume 15

KAREN A. PETERSON, NSB 366
kpeterson@allisonmackenzie.com
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DAWN ELLERBROCK, NSB 7327
dellerbrock@allisonmackenzie.com
ALLISON, MacKENZIE, PAVLAKIS, WRIGHT & FAGAN, LTD.

402 North Division Street
Carson City, NV 89703
(775) 687-0202

and

THEODORE BEUTEL, NSB 5222
tbeutel@eurekanv.org
Eureka County District Attorney
702 South Main Street
P.O. Box 190
Eureka, NV 89316
(775) 237-5315

Attorneys for Appellant,
EUREKA COUNTY

CHRONOLOGICAL APPENDIX TO APPEAL FROM JUDGMENT

DOCUMENT	DATE	VOL	JA NO.
Partial Motion to Dismiss, Notice of Intent to Defend	09/14/2011	1	136-140
Order Allowing Intervention of Kobeh Valley Ranch, LLC, as a Party Respondent	09/26/2011	1	141-142
Answer to Verified Petition for Writ of Prohibition, Complaint and Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/28/2011	1	143-149
Answer to Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/29/2011	1	150-154
Answer to Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/29/2011	1	155-160
Order Directing the Consolidation of Action CV1108-156 and Action No. CV1108-157 with Action CV1108-155	10/26/2011	1	161-162
Summary of Record on Appeal	10/27/2011	2-26	163-5026
Request for and Points and Authorities in Support of Issuance of Writ of Prohibition and in Opposition to Motion to Dismiss	11/10/2011	27	5027-5052
Order Setting Briefing Schedule	12/02/2011	27	5053-5055
Reply in Support of Partial Motion to Dismiss and Opposition to Request for Writ of Prohibition	12/15/2011	27	5056-5061

DOCUMENT	DATE	VOL	JA NO.
Kobeh Valley Ranch's Reply to Conley/Morrison's Request for and Points and Authorities in Support of Issuance of Writ of Prohibition and in Opposition to Motion to Dismiss	12/15/2011	27	5062-5083
Kobeh Valley Ranch's Joinder in the State of Nevada and Jason King's Partial Motion to Dismiss	12/15/2011	27	5084-5086
Petition for Judicial Review	12/29/2011	27	5087-5091
Petition for Judicial Review	12/30/2011	27	5092-5097
Summons and Proof of Service, The State of Nevada	01/11/2012	27	5098-5100
First Additional Summons and Proof of Service, State Engineer, Division of Water Resources	01/11/2012	27	5101-5103
First Amended Petition for Judicial Review	01/12/2012	27	5104-5111
Opening Brief of Conley Land & Livestock, LLC and Lloyd Morrison	01/13/2012	27	5112-5133
Petitioners Kenneth F. Benson, Diamond Cattle Company, LLC, and Michel and Margaret Ann Etcheverry Family LP's Opening Brief	01/13/2012	27	5134-5177
Eureka County's Opening Brief	01/13/2012	27	5178-5243
Eureka County's Summary of Record on Appeal - CV1112-0164	01/13/2012	28	5244-5420
Eureka County's Supplemental Summary of Record on Appeal - CV1108-155	01/13/2012	29-30	5421-5701

DOCUMENT	DATE	VOL	JA NO.
Order Granting Extension	01/26/2012	31	5702-5703
Answer to Petition for Judicial Review	01/30/2012	31	5704-5710
Answer to First Amended Petition for Judicial Review	01/30/2012	31	5711-5717
Supplemental Petition for Judicial Review	01/31/2012	31	5718-5720
Petition for Judicial Review	02/01/2012	31	5721-5727
Summary of Record on Appeal	02/03/2012	31	5728-5733
Record on Appeal, Vol. I, Bates Stamped Pages 1-216	02/03/2012	31	5734-5950
Record on Appeal, Vol. II, Bates Stamped Pages 217-421	02/03/2012	32	5951-6156
Record on Appeal, Vol. III, Bates Stamped Pages 422-661	02/03/2012	33	6157-6397
Answer to Petition to Judicial Review	02/23/2012	34	6398-6403
Answering Brief	02/24/2012	34	6404-6447
Respondent Kobeh Valley Ranch, LLC's Answering Brief	02/24/2012	34	6448-6518
Reply Brief of Conley Land & Livestock, LLC and Lloyd Morrison	03/28/2012	34	6519-6541
Petitioners Kenneth F. Benson, Diamond Cattle Company, LLC, and Michel and Margaret Ann Etcheverry Family LP's Reply Brief	03/28/2012	34	6542-6565
Eureka County's Reply Brief	03/28/2012	34	6566-6638

ALPHABETICAL APPENDIX TO APPEAL FROM JUDGMENT

DOCUMENT	DATE	VOL	JA NO.
Affidavit of Service by Certified Mail	08/11/2011	1	66-68
Answer to Verified Petition for Writ of Prohibition, Complaint and Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/28/2011	1	143-149
Answer to Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/29/2011	1	150-154
Answer to Petition for Judicial Review by Kobeh Valley Ranch, LLC	09/29/2011	1	155-160
Answer to Petition for Judicial Review	01/30/2012	31	5704-5710
Answer to First Amended Petition for Judicial Review	01/30/2012	31	5711-5717
Answer to Petition to Judicial Review	02/23/2012	34	6398-6403
Answering Brief	02/24/2012	34	6404-6447
Corrected Answering Brief	04/05/2012	35	6780-6822
Eureka County's Supplemental Summary of Record on Appeal - CV1108-155	01/13/2012	29-30	5421-5701
Eureka County's Summary of Record on Appeal - CV1112-0164	01/13/2012	28	5244-5420
Eureka County's Opening Brief	01/13/2012	27	5178-5243
Eureka County's Reply Brief	03/28/2012	34	6566-6638
Excerpts from Transcript of Proceedings	10/13/2008	36	6952-6964

DOCUMENT	DATE	VOL	JA NO.
Findings of Fact, Conclusions of Law, and Order Denying Petitions for Judicial Review	06/13/2012	36	6823-6881
First Additional Summons and Proof of Service, State Engineer, Division of Water Resources	08/17/2011	1	129-133
First Additional Summons and Proof of Service, State Engineer, Division of Water Resources	01/11/2012	27	5101-5103
First Amended Petition for Judicial Review	01/12/2012	27	5104-5111
Kobeh Valley Ranch's Reply to Conley/Morrison's Request for and Points and Authorities in Support of Issuance of Writ of Prohibition and in Opposition to Motion to Dismiss	12/15/2011	27	5062-5083
Kobeh Valley Ranch's Joinder in the State of Nevada and Jason King's Partial Motion to Dismiss	12/15/2011	27	5084-5086
Notice of Verified Petition for Writ of Prohibition, Complaint and Petition for Judicial Review	08/10/2011	1	07- 08
Notice of Petition for Judicial Review	08/11/2011	1	69-117
Notice of Entry of Findings of Fact, Conclusions of Law, and Order Denying Petitions for Judicial Review	06/18/2012	36	6882-6944
Notice of Appeal	07/10/2012	36	6945-6949
Opening Brief of Conley Land & Livestock, LLC and Lloyd Morrison	01/13/2012	27	5112-5133

DOCUMENT	DATE	VOL	JA NO.
Order Allowing Intervention of Kobeh Valley Ranch, LLC, to Intervene as a Respondent	09/14/2011	1	134-135
Order Allowing Intervention of Kobeh Valley Ranch, LLC, as a Party Respondent	09/26/2011	1	141-142
Order Directing the Consolidation of Action CV1108-156 and Action No. CV1108-157 with Action CV1108-155	10/26/2011	1	161-162
Order Setting Briefing Schedule	12/02/2011	27	5053-5055
Order Granting Extension	01/26/2012	31	5702-5703
Partial Motion to Dismiss, Notice of Intent to Defend	09/14/2011	1	136-140
Petition for Judicial Review	08/08/2011	1	01-06
Petition for Judicial Review	12/29/2011	27	5087-5091
Petition for Judicial Review	12/30/2011	27	5092-5097
Petition for Judicial Review	02/01/2012	31	5721-5727
Petitioners Kenneth F. Benson, Diamond Cattle Company, LLC, and Michel and Margaret Ann Etcheverry Family LP's Opening Brief	01/13/2012	27	5134-5177
Petitioners Kenneth F. Benson, Diamond Cattle Company, LLC, and Michel and Margaret Ann Etcheverry Family LP's Reply Brief	03/28/2012	34	6542-6565
Petitioners Benson, Diamond Cattle Co., and Etcheverry Family LP's Notice of Appeal	07/12/2012	36	6950-6951

DOCUMENT	DATE	VOL	JA NO.
Record on Appeal, Vol. II, Bates Stamped Pages 217-421	02/03/2012	32	5951-6156
Record on Appeal, Vol. I, Bates Stamped Pages 1-216	02/03/2012	31	5734-5950
Record on Appeal, Vol. III, Bates Stamped Pages 422-661	02/03/2012	33	6157-6397
Reply in Support of Partial Motion to Dismiss and Opposition to Request for Writ of Prohibition	12/15/2011	27	5056-5061
Reply Brief of Conley Land & Livestock, LLC and Lloyd Morrison	03/28/2012	34	6519-6541
Request for and Points and Authorities in Support of Issuance of Writ of Prohibition and in Opposition to Motion to Dismiss	11/10/2011	27	5027-5052
Respondent Kobeh Valley Ranch, LLC's Answering Brief	02/24/2012	34	6448-6518
Summary of Record on Appeal	10/27/2011	2-26	163-5026
Summary of Record on Appeal	02/03/2012	31	5728-5733
Summons and Proof of Service, Kobeh Valley Ranch, LLC	08/11/2011	1	60-62
Summons and Proof of Service, Jason King	08/11/2011	1	63-65
Summons and Proof of Service, Jason King	08/15/2011	1	121-123
Summons and Proof of Service, Kobeh Valley Ranch, LLC	08/15/2011	1	118-120

DOCUMENT	DATE	VOL	JA NO.
Summons and Proof of Service, The State of Nevada	08/17/2011	1	124-128
Summons and Proof of Service, The State of Nevada	01/11/2012	27	5098-5100
Supplemental Petition for Judicial Review	01/31/2012	31	5718-5720
Transcript for Petition for Judicial Review	04/03/2012	35	6639-6779
Verified Petition for Writ of Prohibition, Complaint and Petition for Judicial Review	08/10/2011	1	09-59

CERTIFICATE OF APPENDIX (NRAP 30(g)(1)

In compliance with NRAP 30(g)(1) I hereby certify that this Appendix consists of true and correct copies of the papers in the District Court file.

DATED: December 21, 2012.

/s/ KAREN A. PETERSON
KAREN A. PETERSON, NSB #366
ALLISON, MacKENZIE, PAVLAKIS,
WRIGHT & FAGAN, LTD.
P.O. Box 646
Carson City, NV 89702

Attorneys for Appellant,
EUREKA COUNTY

Dale C. Bugenig
Dale C. Bugenig Consulting Hydrogeologist, LLC.
Hydrogeologist/Owner

Education

M.S., Hydrology and Hydrogeology, University of Nevada, Reno

B.A., Geology, Humboldt State University, Arcata, California

Registration and Certification

Registered Geologist, No. G1045, Oregon

Certified Environmental Manager, No. EM-1163, Nevada

Employment History

September 2010 to present – Dale C. Bugenig Consulting Hydrogeologist, LLC. Owner

March 2000 to September 2010 – ECO:LOGIC Engineering: Chief Hydrogeologist

December 1994 to March 2000 – Consulting Engineering Services, Inc Senior Hydrogeologist

December 1977 to December 1994 – William E. Nork, Inc. Senior Hydrogeologist

June 1977 to December 1997 – Hydro-Search, Inc.. Staff Hydrogeologist

January 1976 to June 1977 – Contract Hydrogeologist with Hydro-Seach, Inc.

September 1974 to June 1977 – Desert Research Institute: Graduate Research Assistant

Dale Bugenig is currently the owner/sole proprietor of Dale C. Bugenig Consulting Hydrogeologist, LLC. He has conducted groundwater investigations in the western U.S. for 35 years, including 25 years of experience related to the exploration and development of low- to moderate-temperature geothermal resources. Prior to going into business for himself, he has been accountable for all phases of groundwater-related projects undertaken by his previous employers and for hydrogeological support to their engineering staff. Dale has been responsible for design, construction oversight and testing of literally thousands of wells. These include municipal and industrial water-supply wells, geothermal production and re-injection wells, de-watering wells, and monitoring wells. The wells have been drilled in alluvial and fractured-rock terrain using construction methods as diverse as cable-tool, direct mud-rotary, air-rotary, reverse-rotary, dual-tube reverse air-rotary, flooded dual-tube reverse-rotary, Odex/Tubex, rotary-vibratory (sonic), and hollow-stem auger. Well depths have exceeded 3,000 feet and borehole diameters have been as large as 48 inches. Well yields have been as high as 20,000 gpm with specific capacities as high as 550 gpm/ft. He is highly skilled with respect to rigorous and comprehensive analysis of pumping-test data from complex fractured-rock terrain and alluvial aquifers and is routinely engaged by agencies to evaluate analyses of pumping-test data performed by others.

Dale is also experienced with the application of surface geophysical techniques to groundwater investigations. His experience includes planning and implementing the surveys through integrating the interpretations of the data into the groundwater investigations. He has employed a number or techniques including vertical electrical soundings (VES), frequency-domain electromagnetics (FDEM), very-low frequency electromagnetics (VLFEM), controlled source audio-magneto tellurics (CSAMT), time-domain electromagnetics (TDEM), and seismic refraction. Where practicable, he has been able to utilize geostatistical analysis techniques to incorporate the survey data into 3-D solids models of the geologic materials in the subsurface, which in turn have been used to guide exploration drilling projects, map leachate plumes, and develop numerical groundwater models to support water-resource exploitation.

Dale is experienced with numerical groundwater flow models, in particular MODFLOW, developed by the USGS and the most widely used groundwater model. His models have been used as the basis for groundwater appropriations in Nevada and Oregon and he has also been engaged to review models developed by others.

Dale has qualified as an expert witness in the fields of hydrogeology and groundwater modeling for administrative hearings in Nevada on at least five occasions and in the State of Oregon. He has also provided expert testimony in California State Court and U.S. District Court in Nevada.

Publications

Bugenig, D.C., C.A. Ringstad, and M.A. Ringstad, 2000. *Application of TDEM to well-field development in an arid basin in the western United States:* 23rd Congress of the European Geophysical Society, Nice, France.

Bugenig, D. C., 1990. *Problems with disposal of heat-spent thermal effluent and their influence on development of low-to-moderate-temperature geothermal reservoirs:* 1990 International Symposium on Geothermal Energy, Kona, Hawaii.

Ringstad, C.A. and D.C. Bugenig, 1984. *Electrical resistivity study to delimit zones of acceptable groundwater quality:* Second National Symposium and Exposition of Ground Water Instrumentation, Las Vegas, Nevada.

Presentations

Colwell, N.T, D.C. Bugenig, & T W Burler II 2010. *Fundamentals of Groundwater and Wells.* Short Course conducted on behalf of the California Rural Water Association – Escondido, Sacramento, Palmdale, and Visalia, California.

Specific Project Experience

Groundwater Resource & Well Construction Projects

North Valleys Water Importation Project - Washoe County, Nevada. Project Hydrogeologist. The project was the culmination of many years of resource evaluation and exploratory drilling and testing. Responsible for design of the well field, which comprised six wells with a combined peak capacity of 18,000 gallons per minute and which was permitted to pump 8,000 acre-feet per year, with a potential to increase output to 13,000 afy. The entire production-well drilling and testing program was completed within a 100-day period. The project also included the groundwater investigations in support of the Environmental Impact Statement for the 30-mile pipeline required to transport the water from the well field to the place of use north of Reno, Nevada.

Groundwater Exploration and Municipal Well Development Project - Lincoln, California. Project Hydrogeologist. The work entailed several related projects involving the installation, testing, and evaluation of exploratory wells; installation and implementation of a water-level monitoring well network; installation and testing of two new municipal water-supply wells; testing of existing water supply wells; and analysis of aquifer yield and the potential impacts of aquifer exploitation on existing wells. The exploratory drilling and monitoring program included a grant to evaluate the application of advanced borehole geophysical logs normally reserved for the petroleum industry to groundwater exploration and development. The work resulted in the completion of two new municipal wells with a combined capacity of 5.8 MGD and an incontrovertible conclusion that the City's wells do not adversely affect nearby residential wells.

City of Lincoln (California) Groundwater Management. Project Hydrogeologist. Specific tasks included conducting aquifer-stress tests of existing wells to characterize the aquifer over a large area, provide recommendations regarding the spacing of production wells, and develop a monitoring network to monitor water levels in the aquifer to evaluate the response of the aquifer to development and impacts on existing users. It also included a geochemical evaluation to characterize the source(s) of recharge to the aquifer as well as an assessment of the potential for intrusion of saline water into the fresh-water aquifer

Alameda County (California) Flood Control District Zone 7 Water Agency Well Master Plan. Project Hydrogeologist. The project involved five individual work tasks related to installation of multiple monitoring wells, installation and testing of exploration wells and culminated in the installation and testing of two municipal wells with a combined yield of

7.2 MGD. A hallmark of the program was its comprehensive aquifer-stress (pumping) test program. Rigorous analysis of test data from a large monitoring well network provided insight into a very complex aquifer system and the testing results enabled a defensible assessment of long-term well performance, potential cross-interference with nearby existing production wells, and settled the issue of the potential for groundwater under the influence of surface water. The well field is part of a conjunctive use strategy by the Agency to recharge the aquifer with surface water delivered to former gravel pits, which will serve as recharge basins.

City of Redmond (Oregon) Municipal Water-supply Wells. Project Hydrogeologist. The project involved the design, installation and testing of three municipal water supply wells over a multi-year period. The drilling program incorporated the cable-tool drilling method because of very difficult down-hole conditions related to the presence of lava tubes and large, non-cohesive gravels. The 16-inch diameter wells each produced more than 3,000 gpm with specific capacities as high as 550 gpm/ft. Rigorous controls in effect during the drilling program resulted in wells that are straight and plumb, in contrast to other wells in the area drilled by more common rotary methods.

City of Dixon (California) Investigation of Potential New Wastewater Disposal Sites. Project Hydrogeologist for a reconnaissance investigation to identify sites where the land application of treated municipal effluent potentially will not degrade the groundwater so as to comply with the current zero degradation policies of the Central Valley Regional Water Quality Control Board. The study incorporated "direct-push" methods which facilitated collecting background water and soil samples from numerous sites over a large area at relatively low cost.

Squaw Valley Public Services District - Placer County, California. Project Hydrogeologist for a series of projects completed for the District. These include an assessment of the vulnerability of the District wells to contamination; locating, drilling, and testing highly efficient water-supply wells; and water quality investigations to evaluate variations in the chemical quality of the aquifer.

Installation/Sampling of Monitoring Wells at Wastewater Treatment Facilities in California. Project Hydrogeologist. Treatment facilities were located at Woodbridge, Mendota, Colusa, Esparto, Dixon, Camp Far West (South Sutter Water District), Live Oak, and San Andreas.

Placer County (California) Water Agency Aquifer-Stress Tests Data Analysis. Consultant to the Placer County Water Agency responsible for comprehensive analysis of data from extended-duration aquifer-stress tests in Martis Valley near Truckee, California. The purpose of the test was to establish the reliable long-term yield of municipal water-supply wells in a structurally complex groundwater basin. Data analysis revealed the presence of multiple boundaries which influenced the long-term yield of production wells, while minimizing interference in wells in

different "structural blocks" within the groundwater basin. The results of the analysis clearly demonstrated that the long-term yield of the wells was significantly less than estimates based on short-term testing and which did not account for the presence of discharge boundaries.

Surface Water Sources Analysis - Southwest Truckee Meadows Area of Washoe County, Nevada. Hydrogeology Team Leader for an analysis of the contribution of surface water sources to the shallow aquifer that domestic well owners depend on for their water supply. The study showed the relative importance of secondary recharge from irrigation, leaky irrigation ditches, and the relatively minor contribution from the perennial streams in the study area. The study also suggested the reduction in recharge from irrigation was allowing geothermal fluids to migrate into the potable water aquifer.

Suburban Water Supply District - Lakeview, Oregon. Project Hydrogeologist responsible for an analysis of the potential for a new municipal well to impact flows on a nearby stream. The analysis entailed a numerical groundwater flow model linking surface water and groundwater. The model clearly showed groundwater withdrawals would have no significant interference with stream flows.

Washoe County (Nevada) Department of Water Resources Aquifer Storage and Recovery Project. Hydrogeology Team Leader for an interdisciplinary group of engineers, geologists, and geochemists working on an aquifer storage and recovery project. A pilot ASR test was conducted and the results indicated poor recovery of the injected water. Analysis of the results suggested that large hydraulic gradients in the aquifer caused the injected water to migrate away from recovery well.

Douglas County (Nevada) Department of Community Development Multiple Projects. Project Hydrogeologist. The projects included an evaluation of groundwater quality in northern Douglas County; an assessment of the performance of a well field in the Johnson Lane area; construction and testing of several new exploration and production wells, and testing and evaluation of wells acquired by the County from private parties.

Whisky Flat Groundwater Resource Evaluation – Mineral County, Nevada. Project Hydrogeologist for a groundwater resource evaluation of the Whisky Flat groundwater basin for Mineral County, Nevada. The project applied Time Domain Electromagnetic (TDEM) geophysical prospecting techniques to groundwater exploration to identify well sites that were validated through the construction of wells. The combined geophysical and hydrogeologic data formed the basis of a numerical groundwater model of the basin which was used in support of groundwater appropriations.

In-situ Arsenic Removal Pilot Study - South Truckee Meadows G.I.D. and the Washoe County (Nevada) Regional Water Planning Commission. Project Hydrogeologist responsible for planning and implementing a

project to test the hypothesis that the solubility of arsenic minerals in the aquifer could be changed and the process might reduce the concentration of arsenic in groundwater produced from a well.

Washoe County (Nevada) Department of Water Resources. Hydrogeology Team Leader for an interdisciplinary group of engineers, geologists, and geochemists working on an aquifer storage and recovery (ASR) project for the Washoe County Department of Water Resources. Its purpose was to evaluate the feasibility of ASR in the southwest Truckee Meadows near Reno, Nevada. The project culminated in a pilot study to evaluate conjunctive use of surface water and groundwater wherein surface water will be injected during the winter when water demand is low and seasonally extracted via wells when water demand is high.

Geophysical Investigations

Lake County (Oregon) Landfill FDEM Survey. Project Hydrogeologist. The project entailed frequency-domain electromagnetic survey to help delineate a leachate plume that occurred as a result of the landfill operator penetrating the liner with equipment. Responsible for developing a 3-dimensional solids model that clearly documented the extent of the plume.

Whisky Flat (Nevada) TDEM Survey. Project Hydrogeologist. The project entailed a time-domain electromagnetic survey to map permeable deposits and locate barriers to groundwater flow. Responsible planning the survey and developing a 3-D solids model of the subsurface based on the numerical inversions of the data from each survey point. The data interpretation was verified through the drilling of exploration wells and a production well. The 3-D solids model provided a basis for a numerical groundwater model of the hydrographic basin which was used to guide future water resource development.

Martis Valley (California) TDEM Survey. Project Hydrogeologist. The project entailed a time-domain electromagnetic survey to locate potential barriers to groundwater flow and areas of secondary permeability in the underlying bedrock targeted for well drilling. Responsible for planning the survey and developing a 3-D solids model of the subsurface based on the numerical inversions of the data from each survey point. The data interpretation was validated through an aquifer-stress test that clearly showed the presence of faults acting as groundwater flow barriers and the completion of a high-yield well in fractured andesite rocks indicated by the 3-D model.

Fish Springs Ranch (Nevada) Resistivity Survey. Project Hydrogeologist. The project entailed vertical electrical soundings to investigate the depth to bedrock as part of a program to develop the groundwater resources of a buried basalt aquifer.

Jackpot (Nevada) CSAMT Survey. Project Hydrogeologist. The project entailed a controlled-source audio-magneto-telluric survey to locate fractures in bedrock that control the flow of infiltrated effluent from a

waste-water treatment facility. The ultimate goal was to locate potential well sites to recover the effluent for secondary uses such as irrigation.

Spanish Springs Valley (Nevada) Resistivity Survey. Project Hydrogeologist. The project entailed vertical electrical soundings to located good-quality groundwater in an area where mineralization of the rocks degraded groundwater quality over a large area of the aquifer. The survey resulted in the completion of a water-supply well that met the applicable drinking water standards.

Jack's Valley (Nevada) VLFEM Survey. Project Hydrogeologist. The project entailed a very low frequency electro-magnetic survey to locate possible fractures in granitic-rock terrain. Exploratory wells encountered fractured rock at depth, which yielded exploitable quantities of groundwater.

Smith Valley (Nevada) Seismic Reflection Survey. Project Hydrogeologist. The project entailed a developing a seismic reflection profile to map the extent of a buried pediment surface. The objective was to locate a well site beyond the obscured range-front fault to exploit a large thickness of the aquifer. An exploratory well was drilled to evaluate the yield of a production well at this site. The well validated the estimate of the thickness of alluvial deposits and the position of the range front fault.

Representative Groundwater Modeling Projects

South Lake Tahoe (California) Groundwater Model. Project Hydrogeologist / Principal Investigator responsible for developing a 3-dimensional groundwater model for the aquifer south of Lake Tahoe that provided the source of water supply for the South Lake Tahoe Public Utilities District. The calibrated transient model incorporated the hydraulic connection between the aquifer, major streams, wetlands, and Lake Tahoe. The model results influenced locations of new water-supply wells and provided the basis for contaminant-transport modeling completed by others. The project resulted in a $69 million settlement with the major oil companies for contaminating the aquifer with MTBE.

South Truckee Meadows Water and Wastewater Facilities Master Plan. Project Hydrogeologist for the South Truckee Meadows Water and Wastewater Facilities Master Plan prepared for the Washoe County Regional Water Planning Commission. The work included developing a 3-D numerical model of the aquifer in the south Truckee Meadows that was used to assess the reliable long-term water supply available from the municipal wells in the study area. The model results demonstrated the need for and benefits of conjunctive use of surface water and groundwater. The model was recently updated to investigate various water-demand scenarios and demonstrated the revised water-demands could be met by existing wells.

Whisky Flat (Nevada) Groundwater Model. Project Hydrogeologist for a project by Hawthorne Utilities to increase groundwater appropriations from the Whisky Flat Hydrographic Basin. The model, which

incorporated geophysical data to help refine the distribution of aquifer materials, demonstrated to the Nevada State Engineer that sufficient groundwater resources existed in the basin for utility to install additional water-supply wells.

Eureka Moly, Mt. Hope (Nevada) Regional Groundwater Flow Model. Consultant to Eureka County, Nevada responsible for technical review of hydrogeologic investigations and groundwater models developed for a world-class molybdenum mine. The review identified a number of technical issues, which when properly addressed by the mine's consultants, resulted in a more robust analysis of the available resource and potential impacts arising from the project.

Southern Nevada Water Authority Coyote Springs Valley Regional Groundwater Flow Model. Consultant to Nye County, Nevada responsible for review of a regional groundwater flow model offered in support of applications to appropriate groundwater resources. Review of the model demonstrated that the applicant's groundwater extractions should be expected to incite inter-basin flow from adjacent hydrographic basins that already were over allocated instead of capturing natural discharge as opined by the applicant's consultant.

Geothermal Resource Projects

Town of Lakeview Geothermal Resource Exploration and Development, - Lakeview, Oregon. Project Hydrogeologist for two geothermal projects for the Town of Lakeview. The first project entailed developing a source of heat to the State of Oregon Warner Creek Correctional Facility at Lakeview, Oregon. The project entailed installation and testing of an exploration well, and the construction and testing of the production and re-injection well. The second project entailed testing of existing wells south of Lakeview to evaluate the resource available to heat public facilities in the Town. For both projects, conceptual models of the resource were developed and used to estimate the amount of heat that could be captured by wells and evaluate the effects of re-injection on the projects' production wells and existing users.

Liskey Farms Aquifer Testing, Klamath Falls, Oregon. Project Hydrogeologist for a comprehensive aquifer-stress test to help identify possible re-injection well locations. An existing geothermal production well was test pumped and numerous existing wells were monitored. The test results provided evidence of horizontal anisotropy in the aquifer and helped to provide a location for a re-injection well that that had small potential for heat spent thermal effluent to impact the temperature in the production well.

Yankee-Caithness Steamboat Power Plant Change in the Plan of Operations/Plan of Use – Steamboat KGRA, Washoe County, Nevada. Project Hydrogeologist for an analysis of the impacts due to increasing geothermal fluid production for the U.S. Bureau of Land Management. The analysis incorporated the impact of adding a binary plant to the

existing flash plant and cumulative impacts of plans for an adjacent property at Steamboat to pump and re-inject 30,000 gpm.

Mills Addition Geothermal Effluent Recovery and Recharge Project, Klamath Falls, Oregon. Project Hydrogeologist. The project examined the feasibility of collecting the diffuse discharge from a large number of residential geothermal space-heating wells and re-injecting this thermal effluent into the aquifer to maintain the aquifer pressure. The project alleviated an overdraft of the aquifer and restored groundwater levels to historical levels.

Ormat Soda Lakes II Reinjection Well. Project Hydrogeologist. Responsible for a review of the injection well program and providing expert testimony for an administrative hearing before the Nevada Environmental Commission on behalf of the State of Nevada Division of Environmental Protection, whose approval of the project was protested by nearby residents.

LAHONTAN
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CAROL E. OBERHOLTZER, MS, CEM
PRESIDENT

SUMMARY OF PROFESSIONAL EXPERTISE

Ms. Oberholtzer is president and founding principal of Lahontan GeoScience Inc. She has over 30 years of experience in environmental consulting, specializing in groundwater hydrology and contaminant fate and transport modeling. She has acted as senior hydrologist responsible for client/regulatory agency liaison and has contributed technical expertise in numerous Environmental Impact Statements and Environmental Assessments per the National Environmental Protection Act. Ms. Oberholtzer is the lead modeling hydrogeologist for LGS managing numerous technically complex projects involving computer modeling of surface water/groundwater flow systems and provided expert witness testimony. Examples of her project experience is included below.

EDUCATION AND TRAINING

University of Arizona, Tucson: M.S., Hydrogeology, 1984
Indiana University, Bloomington: B.A., Earth Sciences, 1978

REGISTRATIONS/CERTIFICATIONS

California - Registered Environmental Assessor No. 01860
Nevada - Certified Environmental Manager No. EM-1259
Member Nevada Water Resources Association

PROFESSIONAL HISTORY

Lahontan GeoScience, Inc., Reno, NV, President, 1994 to Present
WESTEC, Reno, NV, Division Manager of Groundwater Services, 1989 - 1994
Woodward-Clyde Consultants, Oakland, CA, Project Hydrogeologist, 1985 -1989
Kleinfelder & Associates, Walnut Creek, CA, Project Hydrogeologist, 1984 -1985

SELECTED RELEVANT EXPERIENCE

WATER RESOURCE PROJECTS EMPHASIZING COMPUTER MODELING

Eureka County Groundwater Model Reviewed a surface water/groundwater computer model consisting of four interconnected basins under consideration for water exploitation. Work included evaluating impacts of range front faults on the carbonate flow system from well pumping and migration of major anions and cations into agricultural areas. Work to identify faults and their impacts included geophysical reflection surveys, vertical drilling, well installation and performance of aquifer tests. Aquifer testing for as long as 30 days helped calibrate the flow model and aid in prediction of fault impacts on the overall flow regime. Acted as technical expert in administrative hearings before the state engineers office related to water rights requests which required my assessment of the predictive abilities of the model.

Environmental Impact Statement, Lahontan Valley Wetlands Acquisition, Fallon, Nevada: Provided technical expertise for Churchill County, Nevada on surface water and groundwater issues related to the U.S. Fish and Wildlife program to divert water from irrigated lands in Lahontan Valley to Stillwater Wildlife Refuge. Reviewed surface water model and acted as expert witness and reviewer of EIS.

Lake County Hydrologic Investigation: Work includes identifying numerous irrigation wells, measuring their groundwater levels quarterly and using transducers at selected wells for more detailed analysis of water level variations in the valley. Data is submitted to the state engineer to meet ruling requirements.

Coyote Springs Valley Hydrogeologic Evaluation: The groundwater and surface water data available in Coyote Springs, Kane Springs and the Muddy Springs Valleys were reviewed to develop additional information on the hydraulic interaction between these areas, particularly the geology and hydrogeology of the two areas including the degree of interaction vertically, displacement of the bedrock aquifer between key well locations in Coyote Springs Valley, possible blocking of production pumping effects in Muddy Springs area from faults emanating from Kanes Springs Valley

Environmental Impact Statement, Thousand Springs Power Plant, Elko, Nevada: Responsible for characterization of the water resource potential for EIS of the Thousand Springs basin in northeastern Nevada for Sierra Pacific Power Co. Ultimate water demand for the proposed project was 32,000 acre-feet/year Included in the work were exploratory borings, deep well installation, long-term aquifer tests, computer modeling, and hydraulic flow analysis to evaluate the environmental impact of the proposed withdrawals and for design of the large capacity well field.

Environmental Impact Statement, Jerrit Canyon Mine: Managed the development of baseline hydrogeologic characterization and environmental impact analysis of proposed mine pit expansion on groundwater hydrology. Work included compilation of existing well logs, aquifer test data, water quality and stream flow data and performance of qualitative assessment of impact potential.

Water Resource Evaluation and Recharge Assessment, Barrick Resource, Elko, Nevada: Performed evaluation of water resources of Little Boulder Valley to assess potential for recharging large volumes of water to underlying aquifers. Work included performance of infiltration tests, well log review, groundwater characterization and recharge system design.

Steptoe Valley, Nevada For L.S. Power Co.:
Review and assessment of hydrogeology and numerical groundwater flow modeling for a proposed power plant project in Steptoe Valley. The data was used to develop a groundwater flow model of Steptoe Valley to evaluate environmental impacts such as spring flow reduction and groundwater level lowering from basin pumpage to be used for a power plant. A groundwater flow model (MODFLOW) was independently developed on behalf of LS Power to test the conclusions drawn from previous modeling efforts.

Proprietary Client, Northwest, Nevada: Review and assessment of hydrogeology and numerical groundwater flow modeling for a proprietary client in western Nevada. The hydrogeologic investigations used to provide the input for a groundwater model (MODFLOW & Groundwater Vistas) of a basin in western Nevada were reviewed extensively to assess the accuracy of the input to the model. The purpose of the model was to provide the technical data in support of new groundwater appropriations. This work was conducted by a proprietary client who sought to acquire the model and supporting information from the original applicant.

Bedell Flats Environmental Impact Statement, Honey Lake, Nevada: Managed and performed groundwater flow and contaminant transport modeling for EIS for the Bureau of Land Management using MODFLOW and MT3D to evaluate environmental impacts from proposed groundwater withdrawals in Honey Lake Valley for delivery to the Reno/Sparks metropolitan area. Key issues included potential environmental impacts to groundwater users, reduction of flows to adjacent basins, and impacts to existing water quality from saline waters and organic chemicals from proposed withdrawal of 13,000 acre-feet/year

Environmental Impact Report, San Jose Department of Public Works, San Jose, California: Acted as project hydrogeologist for a groundwater basin modeling study designed to evaluate potential for groundwater withdrawals from proposed well field to adversely impact water quantity and quality and VOC contamination at IBM facility to impact municipal water supply well field. Key issues included performing a hydrologic basin balance, evaluation of subsidence potential, VOC characterization, modeling of VOC mitigation and review of water supply alternatives.

Trinity Mine Site, Santa Fe Pacific Gold, Lovelock, Nevada: Performed hydrologic monitoring of mine site near Lovelock, Nevada which included evaluation of infiltration of mine waters into subsurface during heavy rain events simulated using the VS2DT unsaturated zone numerical flow model to predict infiltration rates under varying rain event magnitudes.

Estimate recharge for Tracy Segment of the Truckee River: Several recharge methods such as Hardman, PRISM and Maxey Eakin were used to provide original estimates of the recharge of the Tracy segment of the Truckee River These values were compared to other estimates and used to support water right request in the area.

Hydrologic Review Team Member Wingfield Nevada Coyote Springs Project: Acted as hydrologic reviewer of surface and groundwater flow conditions in the regional faulted carbonate aquifer in southern Nevada in the area of the Muddy River Springs. Assisted in developing baseline water resource report to be used to aid in evaluating two year aquifer test to evaluate basin pumpage on Muddy River Springs. Groundwater flow is considered to be controlled by faults in the carbonate bedrock.

Dixie Comstock Mine, Dixie Valley, Nevada: Designed and implemented an extensive groundwater investigation to characterize the hydrology and design of a mine pit dewatering and recharge system The work included geologic characterization, test well installation, aquifer testing, water sampling, and groundwater flow modeling using the MODFLOW finite difference model. Key issues were impacts from geothermal waters, and complicated flow dynamics. The model was used to locate wells, design the optimum pumping system, and evaluate recharge alternatives.

Round Mountain Mine, Round Mountain, Nevada: Managed and implemented a hydrogeologic and geochemical characterization program for cyanide gold-leaching operations in support of an environmental assessment (EA) and environmental impact study (EIS). Responsibilities included designing and managing the investigation and interpreting results. The study consisted of characterizing the groundwater flow system, developing a groundwater flow model using MODFLOW to predict dewatering and pit refill characteristics, use of the MINTEQ geochemical model to evaluate pit geochemistry and characterization of mine waste dump geochemistry. The information from the studies was used to evaluate the existing surface and ground water quality and assess the potential environmental impacts to soils and water from historic mining practices.

Sonoma County Winery, Sonoma, California: Analyzed of groundwater resources available for irrigation use for an existing winery. Included in the work were an evaluation of the potential impacts of groundwater withdrawals on adjacent water users, water quality analysis and yield assessment, and permit preparation and evaluation.

Silicon Valley Construction Project, San Jose, California: Evaluated groundwater properties and recommended optimum well placement and withdrawal rates to dewater a proposed construction site. Performed computer modeling to design the dewatering system.

Lake County Indian Reservation, Lake County, California: Evaluated well yields and assessed groundwater quality related to domestic and commercial water use needs for the Lake County Indian Reservation. Work included analysis of groundwater quality, recommendations for increasing well yield, and alternatives for improving water quality.

PG & E, Moss Landing, California: Managed and prepared the TPCA Hydrogeologic Assessment and RCRA Part B Permit for the Pacific Gas & Electric Company's Moss Landing power plant. Responsibilities included evaluation of permit requirements, proposal and implementation of hydrogeologic characterization work, and report preparation.

Environmental Impact Statement, U.S. 95, Las Vegas, Nevada: Performed screening study of 32 miles of highway right-of-way for NDOT to identify potentially contaminated properties prior to acquisition. Ranked over 100 sites by degree of potential environmental impacts and proposed further screening actions for NDOT

WATER SUPPLY

Walker Mine Site, Portola, California: Managed the site characterization and restoration design for a historic abandoned copper mine located in the Sierra Nevada Mountains. Working in conjunction with the California Regional Water Quality Control Board to evaluate existing acid mine drainage, develop remediation alternatives including wetlands treatment of copper- and zinc-rich waters, and prevent discharge to adjacent streams. Responsibilities include developing the work scope and managing and implementing the investigation.

Ruth Mine Site, Ely, Nevada: Managed an extensive bi-monthly surface and ground water sampling and characterization program for a historic mine site near Ely, Nevada. The scope of work included bi-weekly sampling of surface waters and mine pits, monthly sampling of monitoring wells, and quarterly sampling of domestic off-site wells. The field data were used to characterize water quality impacts from historic and ongoing mining practices and to develop a conceptual model of the hydrogeologic conditions at the site. Detailed sampling protocols and an extensive QA/QC program were developed to ensure representative samples were collected

Leviathan Mine Contaminant Transport Remediation Assessment, Sierra Nevada near Lake Tahoe, Lahontan Regional Water Quality Control Board: Performed site visit with LRWQCB personnel to evaluate remediation effectiveness and sample monitoring wells. Site has highly acid mine drainage that is impacting nearby surface water streams and groundwater. Work performed has included groundwater characterization, effluent containment and wetland construction to remove metals from discharge water

Chemstar Resources, Mill City, Nevada: Managed and directed a study to evaluate the groundwater flow conditions and propose optimal well locations to supply water to a proposed limestone quarry site in north-central Nevada. The work included reviewing existing information on groundwater evaluating well logs and historical data on water quality, locating wells, and evaluating water delivery alternatives.

Homestake Mining Company, Mclauglin Mine, Lake, Napa and Yolo Counties, California: Performed a geochemical pit water evaluation for the Mclaughlin mine site to meet requirements in their waste discharge requirements issued by the Regional Water Quality Control Board. Data from their existing geochemical studies including whole rock analyses, column tests, acid generating tests and WET and TEP leaching capacities analyses were used to characterize the potential pit water quality after dewatering at the mine ceases for both open pit and backfill scenarios.

GROUNDWATER CONTAMINANT FATE & TRANSPORT MODELING

Downtown Reno PCE Groundwater Investigation, Reno, Nevada: Managed and performed groundwater contaminant study for the Nevada Division of Environmental Protection. Work included defining the extend of PCE contamination in the downtown Reno aquifer, installation and sampling of monitoring well network, aquifer characterization, and contaminant source identification. A numerical model of organic fate and transport, risk assessment and remediation design using MT3D and MODFLOW was developed by Ms. Oberholtzer and is the only such model of groundwater conditions in the downtown area. Potential key issues included possible contamination of water supply wells, impact to area businesses and residents, and review of aquifer remediation alternatives.

Kirkwood Meadows Waste water Treatment Plant Effluent Disposal Model:
A groundwater flow model (MODFLOW) developed by another firm was reviewed on behalf of the Kirkwood General Improvement District to determine whether or not the model accurately predicted the mounding expected to arise from increased application of treated effluent to a disposal field.

Trinity Mine Site, Winnemucca, Nevada: Participated in a cooperative study with the U.S. Bureau of Mines and Santa Fe Pacific Gold to characterize the natural degradation of cyanides and metals in an inactive heap leaching facility. Data generated from the characterization program was used to evaluate cyanide degradation and metal distribution in heap material and in evaluating remediation alternatives as well as in evaluating the efficacy of the VS2DT model in predicting the flow through rate of the unsaturated zone.

Louisiana Pacific Superfund Site, Oroville, California: Acted as project hydrogeologist and technical consultant to EPA Region 9 on groundwater contamination site at wood processing facility. Tasks included advising EPA on optimum well placement, flow and contaminant modeling to evaluate remediation alternatives and soil contamination evaluation.

Teichert Aggregates, Truckee, California, Lahontan Regional Water Quality Control Board: Performed groundwater characterization evaluation to determine the relationship between surface water and groundwater at a 20 acre gravel pit. Work included assessing environmental impact from historical site operations and evaluating the flow system and source of springs and wetlands.

THAN, Fresno County, California: Acted as technical consultant to ERA Region 9 to aid EPA in evaluating RI/FS workplan for the THAN facility located in Fresco, California. Site investigation work included characterization of organic chemical distribution in groundwater, groundwater flow modeling, monitor well installation and groundwater remediation design.

GROUNDWATER MONITORING PROGRAMS/REMEDIATION/RISK ASSESSMENT

Model T Casino, Bioremediation Design, Winnemucca, Nevada: Managed a groundwater remediation project to remove petroleum hydrocarbons from soil and water. An in-situ bioremediation process is being evaluated for feasibility for the site that would remediate soils, the large smear zone resulting from seasonal water table fluctuations and groundwater contaminated primarily with benzene. In-situ methods are recommended to ensure continuing operation of the facility. Monitored natural attenuation is being performed with augmentation with ORC.

Dixie Valley Well Abandonment Program, US Navy Electronic Warfare Range, Dixie Valley, Nevada: Program manager of a project to identify, sample and abandon over 100 water supply wells in Dixie Valley, Nevada. These wells were illegally established before the Navy purchased land for the training range. The wells ranged from 3-inch-diameter domestic wells to 500-foot-deep 20-inch-diameter agricultural wells. Work performed for the Naval Facilities Engineering

Command, Northwest Division.

Chevron, USA, Alameda County, California: Performed numerous soils and groundwater investigations to evaluate hydrocarbon contamination resulting from leaking underground tanks Services performed included design of investigations, soil sampling, well installation, groundwater plume definition, contaminant migration potential assessment, and remediation design and implementation Included in the investigation were assessments of potential health risks, evaluation of exposure potentials, and environmental impact characterization

Phase I & II Site Investigations, Downtown Reno Redevelopment Project: Performed Phase I & II site investigations in downtown Reno for the City of Reno Redevelopment Agency Work included site history investigation, soil sampling for the existence of hazardous materials and petroleum products, and evaluation of groundwater conditions.

American Water Heater Group, Groundwater Remediation, Stead, Nevada: Provided groundwater-consulting services to industrial facility to remediate DCE-contaminated groundwater Performed operation and maintenance of pump and treat air stripper system, groundwater sampling and evaluated remediation alternative such as bioremediation, air sparging and in situ passive alternatives to facilitate existing remediation efforts.

Bently, Nevada Corp., RBCA Tier I Risk Assessments, Minden, Nevada: Performed a Tier 1 risk assessment following ASTM RBCA guidelines for a pesticide site located in Carson Valley The analysis resulted in closure of the site and no further action required assuming no future land use changes.

Ace High Motel Soils and Groundwater Investigation, South Lake Tahoe: Performed a soils and groundwater Phase II site investigation at the Ace High Motel. Hydrocarbon contamination leaked from an underground storage tank and impacted soils. Groundwater plume was present from adjacent UST leaks. Work was performed to meet non-detect remediation requirements of the Lake Tahoe basin.

Teledyne, Mountain View, California: Performed soil gas survey, well installation and contaminant modeling to characterize VOC plume in groundwater Tasks included well installation, definition of VOC distribution in groundwater and coordination of large scale household water sampling program to evaluate impact to existing well users from VOC contaminants.

Firestone, Salinas, California: Acted as project hydrogeologist to perform site characterization tasks to evaluate VOC contaminants in groundwater from point source leakage of underground tanks at Firestone plant in Salinas, California. Tasks included monitor well installation, VOC characterization, VOC soil gas survey, groundwater flow modeling and VOC pump and treat remediation implementation.

Tooele Army Base, Tooele, Utah: Installed deep monitoring wells to delineate VOC contamination in groundwater Key issues included VOC contamination at depths of greater than 300 feet in difficult drilling conditions through large diameter alluvial sediments and strict QA/QC requirements.

Del Norte Superfund, Del Norte, California: Participated in groundwater sampling of Level B Superfund facility for highly toxic VOC pesticide compounds. Project involved use of air respirators, cordoned off decontamination zones and use of CLP approved laboratory for chemical analyses.

Monolithic Memories, Mountain View, California: Project hydrogeologist for VOC characterization of groundwater in bay alluvial sediments at semi-conductor facility. Tasks performed included remediation design, installation of VOC extractor wells, test pumping to

determine optimal pumping rates and modeling to maximize contaminant capture zones.

Tracy Army Depot Superfund Site, Tracy, California: Acted as project hydrogeologist responsible for characterizing VOC contamination in groundwater. Work included well installation, construction of detailed geologic cross sections, evaluation of VOC migration potential and identification of at-risk water supply wells in area.

PHASE I, II AND III ENVIRONMENTAL ASSESSMENTS AND AUDITS

Union Pacific Railroad Lease Transfers, City of Reno, Nevada: Project manager for this in-depth environmental assessment of properties to be acquired by the City of Reno. As part of a lease transfer agreement between the City of Reno and the Railroad, all applicable properties must be assessed for the presence of recognized environmental hazards. A large portion of the project focuses on historical uses of corridor properties, including in-depth research of available historical building/tax records, maps and aerial photographs.

Phase I Audit and Phase II Site Characterization of the Reno Masonic Temple, Reno, Nevada: Performed an environmental audit of this historic building in downtown Reno under consideration by the City of Reno Redevelopment Agency for purchase. This site has had a long and varied history of use dating back to the late 19th century. Subsequent to the Phase I work LGS was awarded the contract for the Phase II site characterization in which a soils investigation was conducted to assess the presence of petroleum hydrocarbons from underground heating oil tanks.

Phase I Audit and Phase II Site Characterization of Granada Theaters, Reno, Nevada: Performed an environmental audit of theater complex in downtown Reno being acquired by the City of Reno Redevelopment Agency. These buildings were constructed in the early 1900's and the audit involved extensive review of historical records pertaining to commercial use. During Phase II, soil borings were taken to assess the presence of petroleum hydrocarbons from underground heating oil tanks.

Phase I Audit of Slash Bar H Ranch, Carson Valley, Nevada: Performed audit of 10,000 acre ranch operating since approximately 1860, evaluated ranch operation impacts to environment, characterized environmental impact of historical operations such as onsite landfilling, underground tank usage and use of pesticides and herbicides.

Bank of America Site Assessments, Nevada: Managed an on-call contract with Bank of America to conduct environmental site assessments. Project responsibilities included directing site inspections, review of regulatory agency files, evaluating potential impacts of underground storage tanks and known spills or leaks, investigation of wastewater discharge and hazardous waste disposal practices and characterizing groundwater impacts.

Brian Hall, Groundwater Quality Evaluation, Sparks, Nevada: Managed a groundwater quality assessment near the Southern Pacific Rail Yard in Sparks, Nevada, influenced by the Helms pit hydrocarbon plume to evaluate groundwater quality. The investigation consisted of designing and installing monitoring wells, collecting samples, and preparing a report for the commercial property owner.

Brookhaven National Laboratory Environmental Compliance Evaluation, Long Island, New York: Participated in an environmental audit to evaluate the Brookhaven National Laboratory (BNL) in compliance with environmental regulations and permit requirements. The evaluation was performed for the U.S. Department of Energy's (DOE) Chicago Operations Office. Brookhaven Laboratory has been nominated for inclusion on the National Priorities List under Superfund legislation. The environmental evaluation was conducted to assist DOE and BNL in preparation for a rigorous "tiger team" audit of the facility performed in 1990. The evaluation consisted of an on-site inspection of laboratory facilities, review of documentation procedures; interviews with laboratory personnel; and preparation of a report for DOE. The evaluation investigated BNL's

compliance with federal, New York State and Suffolk County environmental laws and regulations and DOE orders, including NEPA, TSCA, RCRA CERCLA, the Clean Air Act, the Clean Water Act, SARA Community-Right-to-Know legislation and state and county regulations concerning storage and handling of petroleum products.

Environmental Compliance Audit, Argonne National Laboratory, Chicago, Illinois: Performed an environmental compliance audit of the Argonne National Laboratory for compliance with federal, state and local environmental regulations. The audit was conducted for the Department of Energy's (DOE) Chicago Operation Office. The audit consisted of an on-site inspection of laboratory facilities review of documentation procedures, interviews with laboratory personnel, and preparation of a report for DOE. Key issues encountered during the audit were appropriate landfill operation practices, RCRA storage and record-keeping practices, and handling and storage of high-level radioactive wastes.

Cannon Air Force Base ECAMP Audit, New Mexico: Ms. Oberholtzer was selected to conduct an Environmental Compliance Assessment Management Program (ECAMP) audit of Cannon Air Force Base. A Martin Marietta division headquartered at Oak Ridge National Laboratory managed the project. Ms. Oberholtzer was responsible for auditing Cannon AFB's compliance with federal and state surface and ground water regulations and with Air Force protocols for compliance with these regulations. Key issues encountered during the audit were groundwater monitoring protocol compliance, RCRA transportation of non-hazardous wastes within facility boundaries, and treatment of wastes via detonation as acceptable practice under RCRA.

SOLID AND HAZARDOUS WASTE MANAGEMENT

Colusa County, Colusa, California: Managed landfill characterization and permitting for Class III county landfills to meet Title 23, Chapter 15 permitting requirements. Work included landfill monitoring, quarterly report preparation, developing revised monitoring requirements.

Central Contra Costa Sanitary District, Martinez, California: Managed and designed an environmental investigation designed to evaluate potential impacts to water quality from operation of a municipal leachline system. Investigation involved waste characterization and processing evaluation to determine potential contaminant sources and design of a field program to delineate the extent of soil and groundwater contamination.

Packaging Company of California (PCC), Red Bluff, California: Managed and designed interdisciplinary study to assist PCC in complying with Subchapter 15 regulations for permitting an existing landfill. Study included groundwater characterization, seismic hazard analysis, geotechnical evaluation of landfill structures, and hydrologic analysis.

Casmalia Resources Waste Management Class I Hazardous Waste Facility, Santa Maria, California: Directed the preparation of the SWAT Solid Waste Assessment report for compliance with Calderon Legislation. Work performed included waste characterization, hydrogeologic evaluations, and assessment of the contaminant migration potential at the site.

Bieber Landfill and Closure Design, Lassen County, California: Project manager for preparation of closure plans to meet California Integrated Waste Management Board requirements. Prepared a closure plan guidance document for this small rural landfill in the arid eastern Sierra Nevada.

PUBLICATIONS

Oberholtzer, C., K. Pack and J. Heggeness, 1994. Use of the VS2DT Unsaturated Zone Model to Predict Leaching Characteristics of an Inactive Cyanide Heap. *In* Proceedings of the First International Conference on Tailings and Mine Waste '94, Fort Collins, Colorado, January 1994.

Oberholtzer, C., with N.L. Jackson, M. Henderson and B. Croyle, 1994. Remediation Options for

the Walker Mine Site. *In* Proceedings of the First International Conference on Tailings and Mine Waste '94, Fort Collins, Colorado, January 1994.

Draft Environmental Impact Statement (EIS). Bedell Flat Pipelines Rights-of-Way, Washoe County, Draft Hydrology Technical Report, March 1993.

Oberholtzer, C. and Pack, K., Guidance Document for Preparation of Solid Waste Landfill Closure Plans. Prepared for Lassen County Department of Public Works, July, 1990.

Oberholtzer, C., 1990. "Environmental Audits for Real Property Transactions - The Cost of Doing Business in the 1990's." *In* Newsletter of the State Bar of Nevada, September 1990 Vol. 2, No. 9.

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Final Comments on PRP's DRIFS Workplan, THAN. Fresno, County, California, Region 9, August 14, 1987 Prepared for U.S. Environmental Protection Agency, Region 9, San Francisco, California, August 14, 1987

Oberholtzer C., 1986. "Utilizing Groundwater Flow Models in Designing Well Field Extraction Systems." Presented at the Woodward-Clyde Consultants Professional Development Symposium, St. Louis, Mo. October 1986.

RCRA Part B Permit/TPCA Hydrogeological Assessment. Prepared for Pacific Gas and Electric, October 1986.

Oberholtzer, C., with G.W. Reid and G. Thompson, 1985. "Soil vapor monitoring as a cost effective method of assessing groundwater degradation of volatile chlorinated hydrocarbons in an alluvial environmental." *In* Proceedings of the Second National Symposium on the Practical Application of Groundwater Geochemistry, 1985.

Oberholtzer C., 1984. The Effect of Mineralogy and Surface Area on the Adsorption of Organic Compounds. The University of Arizona M.S. Thesis.

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EXPERIENCE

12/00 – Present **Consultant** *Walker & Associates*
Represent clients at the Nevada State Legislature specializing in water, land use planning and natural resource issues. Clients include Truckee Meadows Water Authority, Douglas, Lyon, Storey Counties, Carson City and Incline Village General Improvement District. Additionally provide consulting services in the fields of water resource assessment, water resource planning, agricultural land and natural resource assessments. Clients include Eureka County, Carson City Parks Department, Carson Water Subconservancy District and local ranchers. Work output includes resource assessment reports for conservation easement applications, water rights analysis, re-vegetation for disturbed sites and site assessment for water facilities. Have expertise in Nevada natural resources, water resources, water issues and political process.

05/95 – 11/00 **Water Management Planner** *Washoe County, Nevada*
Served as principal staff to the Regional Water Planning Commission, a regional advisory commission to all local government entities on regional water management including water supply, wastewater treatment and flood control. Developed a Regional Water Management Plan for Washoe County that was approved by the elected officials of Reno, Sparks, Washoe County and the State Legislature. Managed planning budget and developed facility plans for all types of water related projects including environmental restoration.

12/92 – 05/95 **Resource Coordinator** *USDA Soil Conservation Service*
Responsible for a federal government program that develops natural resource based projects/programs that assisted four counties in Western Nevada. The program included both financial and technical assistance on local flood control project, irrigation system consolidation and environmental restoration on Tribal lands. Program was lead by regional commission made up of elected officials from sponsoring counties. Experience included grant writing/administration and project start-up/management. Coordinate efforts with other Federal Agencies including USFWS, ACOE, BOR, BLM and Forest Service.

10/81 – 12/92 **District Conservationist** *USDA Soil Conservation Service*
Responsible for the operation and management of a field office in western Nevada/Eastern California that provided technical and planning assistance to private landowners. Programs included irrigation system improvements, rangeland/forest land inventories with utilization plans and natural resource review of local government land development. Supervised a staff of professional employees including engineers and soil scientists. Employment period also include experience in on-farm conservation planning and plant/soil relationship description for soil survey program. Conducted snow surveys for 10 years in the Sierra Nevada Mountains.

74 – 81 **Range Conservationist** *USDA Forest Service*
Variety of positions throughout Nevada and southern Idaho working full time and seasonally for the Forest Service. Experience includes range environmental analysis, livestock/wild horse management plan development, timber sales administration and mining permit administration.

EDUCATION

University of Nevada – Reno
Bachelor of Science – Range Management – 1980
Continuing Education Plant Science/Public Administration – 1982 –1986

PROFESSIONAL ORGANIZATIONS

Nevada Water Resources Association; Douglas Co. Mosquito Abatement Dist. Board Member; State Board for Financing Water Projects.

Walker & Associates

661 Genoa Lane, Minden, Nevada 89423

Assessment of Beneficial Use on Certain Parcels Associated with Water Rights Transfers in Kobeh Valley Hydrographic Basin - Updated to 10/15/2010.

Introduction

Walker & Associates is under contract with Eureka County, Nevada to assess water right applications in Kobeh and Diamond Valley hydrographic basins that propose to change the manner and place of use of agricultural water rights to mining and milling rights for the Mount Hope Mining project. The assessment used the most recent cropping inventory from the State Engineer's office (2009*), field investigation and review of aerial photos to determine the status of agricultural rights associated with the applications. Cropping reports for Kobeh Valley (attached), with 17 years of data starting in 1983, indicated no cropping or irrigation occurred on three (3) of the parcels with certificated water rights that were proposed to be transferred to the mining project.

Procedures and Results

The identified parcels were field investigated and Walker & Associates additionally obtained 3 sets of aerial photos from 1954, 1975 and 1981 to attempt to document if any cropping occurred prior to 1983, the first year that cropping reports were available. The parcels, located on the photos are locally called Bean Flat, Willow Creek, and Bartine Ranch. The approximate property boundaries for the place of use are identified on the attached photos. Below is a discussion and analysis of each property.

Bean Flat – Application 76744

Ground-water rights were certificated in 1951 for a total duty of 1,111 acre-feet. The application is to transfer 951 acre-feet. Cropping inventories are only available in 2006 through 2008 with no crop reported. The beneficial use area is a saline-alkali meadow with water very near the surface and no irrigation equipment noted. Water was at ground level in May, 2008. To the north of Bean Flat in a very similar area from a native vegetation standpoint called Grubb Flat where cropping inventories were conducted on a 1952 certificated right – 13956 – showing ground-water levels at 3.2 to 4.2 during 5 years of measurement in the 1980s and 1990s. Photo inventories starting in 1954 show no change to the area over a 30 year period. A small diameter well appears to be used periodically for stock-water

Bartine Ranch – Application 76989 and 76990

Ground-water rights were certificated in 1933 and 1944 for a total duty of 1,152 acre-feet. The application is to change 804 acre-feet. Cropping inventories were conducted here in all of the 17 years of record. The 2006 through 2009 reports indicate 65 to 45 acres of irrigation from the artesian wells on the property. All earlier reports from 1983 to 2005 indicate 20 acres of irrigation from the same artesian well. The area has ponded water at the surface and photos

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indicate attempts were made to build water spreading ditches on some of the property. No water levels measurements were made due to the flowing conditions of the wells.

Willow Ranch – Applications 76483 - 76486

Ground-water rights were certificated in 1939 and 1967 under a Desert Land Entry process for 1,879 acre-feet. The cropping inventories indicated no production with the exception of 1983 when two rights were used on 100 acres of alfalfa production. Stock water pumping was noted. Depth to water was measured from 1983 to 1986 and varied from 68 to 80 feet below land surface. Photos in 1975 and 1981 indicated most of the area was irrigated during that timeframe.

Discussion

With the exception of the Willow Creek parcel, the other ranches are located in areas of natural groundwater discharge. The Bartine Ranch has two wells that flow artesian. Bean Flat has a small diameter stock water well as noted above. Based on this investigation, Walker & Associates believes that the beneficial use was determined at Bean Flat by simply mapping the phreatophytic areas of ground-water discharge as the beneficial use maps associated with the permits imply. The Bartine Ranch does show evidence of some attempt at water spreading, but irrigation is limited to somewhere between 20 to 65 acres with no more than 260 acre-feet duty. The bulk of the water rights associated with the Bean Flat and Bartine Ranch properties appear to not have been pumped, yet phreatophytic and spring discharge does occur on these parcels. This discharge will continue to occur after the water rights are transferred based on the most recent groundwater model developed by General Moly, depicting no ground-water draw down in these discharge area after 46 years of pumping. Using estimates of discharge from the 1964 Ground-Water Appraisals of Monitor Antelope and Kobeh Valleys, Everett/Rush, Reconnaissance Report 30, Table 5, these areas of salt grass and moderately wet meadow will still discharge 1.25 ft/yr. Based on the duties of the water rights proposed for transfer (1755 acft/4 acft/ac = 439 acres X 1.25 ft/yr evapo-transpiration per acre) this discharge would equal 548 acre-feet. Transfer of any of these non-used water rights is questionable. Yet, if they were transferred and the full duty of the water rights pumped, the total consumptive water use would exceed the duty by 548 acre-feet due to continued phreatophytic discharge on the original parcels and should be discounted. This discount would be in addition to the transfer of only the consumptive use from the agricultural right – assumed to 60 to 65% of the total duty.

*Cropping and Pumping Inventory for 2009 assumed Ruling 5996 was in effect, so only water rights not associated with that ruling were inventoried with the exception of Application 76990 (Bartine Ranch) which was partially used to irrigate 45 acres.

Crop Inventory and Groundwater Pumpage Inventory from Irrigation - Kobeh Valley, Basin 139, 2009

Basin	App	Cert	File Date	Status	Source	Qtr	Qtr	Sec	Twn	Rng	Type	Sup	Sup Permit No	Permited Acres	Duty	Co	Owner of Record	Crop	Type	Irr By	Irr Ac	Duty Used	Units
139	76059		7/13/2007	PER	UG	SW	SW	16	19N	47E	IRR	Y	76592	37.62	150.48	LA	PETER JOE AND TOM DAMELE	Y	pasture grass	flood	37.62	150.48	AFA
139	76592		1/4/2008	PER	UG	SW	SW	16	19N	47E	IRR	Y	76059	37.62	150.48	LA		Y	pasture grass	flood	37.62	150.48	AFA
													Supplemental Totals:	**37.62**	**150.48**						**75.24**	**300.96**	
139	11072	2880	2/25/1944	CER	UG	NE	SE	17	19N	50E	IRR			136.05	330.5	EU	FISH CREEK RANCH LLC	Y	past grass	flood	45	180	AFS
																				artesian well	**45**	**180**	
139	13956	5334	12/31/1951	CER	UG	SE	SW	9	20N	49E	IRR			169.4	677.6	EU	DAMELE FARMS, INC	N	no crop	native grass	0	0	AFA
																					0	**0**	
139	23549	7899	12/15/1966	CER	UG	NW	SE	20	20N	52E	IRR			12	48	EU	RISI MARY F	Y	pasture	#NAME?	12	48	AFA
																					12	**48**	
																				Totals:	**132.2**	**529.0**	

Crop Inventory and Groundwater Pumpage Inventory from Irrigation - Kobeh Valley, Basin 139, 2008

Basin	App	Cert	File Date	Status	Source	Qtr	Qtr	Sec	Twn	Rng	Type	Sup	Sup Permit No	Permited Acres	Duty	Co	Owner of Record	Crop	Type	Irr By	Irr Ac	Duty Used	Units
139	35866		9/11/1978	PER	UG	SW	SW	16	19N	47E	IRR	Y	64616	0	979.23999	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
139	64616		11/16/1998	PER	UG	NE	NE	21	19N	47E	IRR	Y	35866	0	979.23999	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
													Supplemental Totals	**244.81**	**979.23999**						**252**	**1008**	**AFA**
139	72580		4/12/2005	PER	UG	SE	SE	15	19N	47E	IRR	Y	72581-88	0	300.76	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1 5/8 pivots	203	812	AFA
139	72581		4/12/2005	PER	UG	NW	NE	23	19N	47E	IRR	Y	72580, 72582-88	0	1142.4	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
139	72582		4/12/2005	PER	UG	NW	NE	23	19N	47E	IRR	Y	72580-81, 72583-88	0	500	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
139	72583		4/12/2005	PER	UG	SW	NW	23	19N	47E	IRR	Y	72580-82, 72584-88	0	211.25	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1/2 pivot	63	252	AFA
139	72584		4/12/2005	PER	UG	NE	SE	21	19N	47E	IRR	Y	72580-83, 72585-88	0	842.91	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1/2 pivot	63	252	AFA
139	72585		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-84, 72586-88	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	5/8 pivot	78	312	AFA
139	72586		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-85, 72587-88	0	300.76	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1/2 11T pivot	155	620	AFA
139	72587		4/12/2005	PER	UG	SW	NW	23	19N	47E	IRR	Y	72580-86, 72588	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
139	72588		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-87	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
													Supplemental Totals	**1584.33**	**6337.32**						**1066**	**4264**	**AFA**
139	13849	4922	10/1/1951	CER	UG	NE	SE	5	19N	49E	IRR			277.661	1110.64	EU	DAMELE, PETER	N	no crop	stockwater	0	0	AFS
																					0	**0**	
139	10426	2782	9/28/1939	CER	UG	SW	NW	20	19N	49E	IRR			5	15.5	EU	3F LLC	N	no crop	stockwater	0	0	AFS
																					0	**0**	
139	23951	8002	6/23/1967	CER	UG	SW	SW	29	19N	49E	IRD			83.16	332.64	EU	3F LLC	N	no crop	stockwater	0	0	AFS
																					0	**0**	
139	18544	6457	1/26/1960	CER	UG	NE	NE	30	19N	49E	IRD			323.1	1292.4	EU	3F LLC	N	no crop	no irr equip	0	0	AFA
																					0	**0**	
139	23952	8003	6/23/1967	CER	UG	NE	NE	30	19N	49E	IRD			59.66	238.64	EU	3F LLC	N	no crop	no irr equip	0	0	AFS
																					0	**0**	
139	11072	2880	2/25/1944	CER	UG	NE	SE	17	19N	50E	IRR			136.05	330.5	EU	FISH CREEK RANCH LLC	N	past grass	flood	45	180	AFS
																				artesian well	**45**	**180**	
139	9682	2780	7/25/1933	CER	UG	SE	NE	17	19N	50E	IRR			65.54	474	EU	FISH CREEK RANCH, LLC	Y	past grass	flood	15	60	AFA
																				artesian well	**15**	**60**	
139	13956	5334	12/31/1951	CER	UG	SE	SW	9	20N	49E	IRR			169.4	677.6	EU	DAMELE FARMS, INC	Y	pasture	flood	169.4	169.4	AFA
																				Est @ 1 AFA	**169.4**	**169.4**	
139	22111	7902	7/17/1964	CER	UG	SW	NE	17	20N	52E	IRR	Y	22112-13, 23359, 23466-68	142	568	EU	IDAHO GENERAL MINES INC	N	no crop	stockwater	0	0	AFA
139	22112	7903	7/17/1964	CER	UG	NW	NE	18	20N	52E	IRR	Y	22111, 22113, 23359, 23466-68	292.5	170	EU	IDAHO GENERAL MINES INC	N	no crop	stockwater	0	0	AFA
139	22113	7904	7/17/1964	CER	UG	NW	NW	18	20N	52E	IRR	Y	22111-12, 23359, 23466-68	265.5	1062	EU	IDAHO GENERAL MINES INC	N	no crop	not pumped	0	0	AFA
139	23359	7905	8/26/1966	CER	UG	SW	NE	13	20N	51E	IRR	Y	22111-13, 23466-68	287	148	EU	IDAHO GENERAL MINES INC	N	no crop	not pumped	0	0	AFA
139	23466	8334	11/1/1966	CER	UG	NE	SW	17	20N	52E	IRR	Y	22111-13, 23359, 23467-68	234.6	938.4	EU	IDAHO GENERAL MINES INC	N	no crop	not pumped	0	0	AFA
139	23467	8335	11/1/1966	CER	UG	SE	NW	18	20N	52E	IRR	Y	22111-13, 23359, 23466, 23468	245	980	EU	IDAHO GENERAL MINES INC	N	no crop	not pumped	0	0	AFA
139	23468	8336	11/1/1966	CER	UG	NE	SW	18	20N	52E	IRR	Y	22111-13, 23359, 23466-67	323.9	1295.6	EU	IDAHO GENERAL MINES INC	N	no crop	not pumped	0	0	AFA
													Supplemental Totals	**1073.77**	**4295.08**						**0**	**0**	**AFA**
139	23549	7899	12/15/1966	CER	UG	NW	SE	20	20N	52E	IRR			12	48	EU	RISI, MARY E	n	no crop	stockwater	0	0	AFA
																					0	**0**	
																				Totals:	**1547**	**5681.4**	

Crop Inventory and Groundwater Pumpage Inventory from Irrigation - Kobeh Valley, Basin 139, 2007

Point of Diversion

	Basin	App	Cert	File Date	Status	Source	Qtr	Qtr	Sec	Twn	Rng	Type	Sup	Sup Permit No	Permited Acres	Duty	Co	Owner of Record	Crop	Type	Irr By	Irr Ac	Duty Used	Units
	139	35866		9/11/1978	PER	UG	SW	SW	16	19N	47E	IRR	Y	64616	0	979.23999	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
	139	64616		11/16/1998	PER	UG	NE	NE	21	19N	47E	IRR	Y	35866	0	979.23999	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
														Supplemental Totals	244.81	979.23999						252	1008	AFA
75986	139	72580		4/12/2005	PER	UG	SE	SE	15	19N	47E	IRR	Y	72581-88	0	300.76	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1 5/8 pivots	203	812	AFA
75997	139	72581		4/12/2005	PER	UG	NW	NE	23	19N	47E	IRR	Y	72580, 72582-88	0	1142.4	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
75998	139	72582		4/12/2005	PER	UG	NW	NE	23	19N	47E	IRR	Y	72580-81, 72583-88	0	500	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
75999	139	72583		4/12/2005	PER	UG	SW	NW	23	19N	47E	IRR	Y	72580-82, 72584-88	0	211.25	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1/2 pivot	63	252	AFA
76000	139	72584		4/12/2005	PER	UG	NE	SE	21	19N	47E	IRR	Y	72580-83, 72585-88	0	842.91	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	63	252	AFA
76001	139	72585		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-84, 72586-88	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	5/8 pivot	78	312	AFA
76002	139	72586		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-85, 72587-88	0	300.76	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	1/2 11T pivot	155	620	AFA
76003	139	72587		4/12/2005	PER	UG	SW	NW	23	19N	47E	IRR	Y	72580-86, 72588	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
76004	139	72588		4/12/2005	PER	UG	SW	SW	22	19N	47E	IRR	Y	72580-87	0	1280	LA	KOBEH VALLEY RANCH, LLC	Y	alfalfa	pivot	126	504	AFA
														Supplemental Totals	1584.33	6337.32						1066	4264	AFA
76744	139	13849	4922	10/1/1951	CER	UG	NE	SE	5	19N	49E	IRR			277.861	1110.64	EU	DAMELE, PETER	N	no crop	stockwater	0	0	AFS
																						0	0	
76748	139	10428	2782	8/28/1939	CER	UG	SW	NW	20	19N	49E	IRR			5	15.5	EU	3F LLC	N	no crop	no irr equip	0	0	AFS
																						0	0	
76485	139	23951	8002	6/23/1987	CER	UG	SW	SW	29	19N	49E	IRD			83.16	332.64	EU	3F LLC	N	no crop	no irr equip	0	0	AFS
																						0	0	
76479	139	18544	6457	1/28/1980	CER	UG	NE	NE	30	19N	49E	IRD			323.1	1292.4	EU	3F LLC	N	no crop	no irr equip	0	0	AFS
																						0	0	
76486	139	23952	8003	6/23/1987	CER	UG	NE	NE	30	19N	49E	IRD			59.66	238.64	EU	3F LLC	N	no crop	no irr equip	0	0	AFS
																						0	0	
76929	139	11072	2880	2/25/1944	CER	UG	NE	SE	17	19N	50E	IRR			136.05	330.5	EU	FISH CREEK RANCH LLC	N	no crop	no irr equip	0	0	AFS
																						0	0	
76919	139	9882	2780	7/25/1933	CER	UG	SE	NE	17	19N	50E	IRR			65.54	474	EU	FISH CREEK RANCH, LLC	Y	past grass	flood	65.54	282.16	AFA
																						65.54	282.16	
[illegible]	139	13956	5334	12/31/1951	CER	UG	SE	SW	9	20N	49E	IRR			169.4	677.6	EU	DAMELE FARMS, INC.	N	no crop	no irr equip	0	0	AFA
																						0	0	
	139	22111	7902	7/17/1984	CER	UG	SW	NE	17	20N	52E	IRR	Y	22112-13, 23359, 23466-68	142	568	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	22112	7903	7/17/1984	CER	UG	NW	NE	18	20N	52E	IRR	Y	22111, 22113, 23359, 23466-68	292.5	1170	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	22113	7904	7/17/1984	CER	UG	NW	NW	18	20N	52E	IRR	Y	22111-12, 23359 23466-68	265.5	1062	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	23359	7905	8/26/1986	CER	UG	SW	NE	13	20N	51E	IRR	Y	22111-13, 23466-68	287	1148	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	23466	8334	11/1/1986	CER	UG	NE	SW	17	20N	52E	IRR	Y	22111-13, 23359, 23467-68	234.6	938.4	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	23467	8335	11/1/1986	CER	UG	SE	NW	18	20N	52E	IRR	Y	22111-13, 23359, 23466, 23468	245	980	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
	139	23468	8336	11/1/1986	CER	UG	NE	SW	18	20N	52E	IRR	Y	22111-13, 23359 23466-67	323.8	1295.6	EU	IDAHO GENERAL MINES INC	N	no crop		0	0	AFA
														Supplemental Totals	1073.77	4295.08						0	0	AFA
[illegible]	139	23549	7899	12/15/1986	CER	UG	NW	SE	20	20N	52E	IRR			12	48	EU	RISI, MARY E	n	no crop	stockwater	0	0	AFA
																						0	0	
																					Totals:	###	5534	

Crop Inventory and Groundwater Pumpage Inventory from Irrigation - Kobeh Valley, Basin 139, 2006

Basin	App	Cert	File Date	Status	Qtr	Qtr	Sec	Twn	Rng	Type	Sup	Sup Permit No	Permitted Acres	Duty	Units	Co	Owner of Record	Crop	Type	Irr By	Irr Ac	Ac-Ft pumped	Units	
139	35866		9/11/1978	PER	SW	SW	16	19N	47E	IRR	Y	64616	0	979.24	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
139	64616		11/16/1998	PER	NE	NE	21	19N	47E	IRR	Y	35866	0	979.24	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
												Supplemental Totals	**244.81**	**979.24**							**250**	**1000**	**AFA**	
139	72580		4/12/2005	PER	SE	SE	15	19N	47E	IRR	Y	72581-88	0	300.76	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	1 5/8 pivots	203	812	AFA	
139	72581		4/12/2005	PER	NW	NE	23	19N	47E	IRR	Y	72580, 72582-88	0	1142.40	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
139	72582		4/12/2005	PER	NW	NE	23	19N	47E	IRR	Y	72580-81, 72583-88	0	500.00	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
139	72583		4/12/2005	PER	SW	NW	23	19N	47E	IRR	Y	72580-82, 72584-88	0	211.25	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	1/2 pivot	63	252	AFA	
139	72584		4/12/2005	PER	NE	SE	21	19N	47E	IRR	Y	72580-83, 72585-88	0	842.91	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	63	252	AFA	
139	72585		4/12/2005	PER	SW	SW	22	19N	47E	IRR	Y	72580-84, 72586-88	0	1280.00	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	5/8 pivot	78	312	AFA	
139	72586		4/12/2005	PER	SW	SW	22	19N	47E	IRR	Y	72580-85, 72587-88	0	300.76	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	1/2 11T pivot	155	620	AFA	
139	72587		4/12/2005	PER	SW	NW	23	19N	47E	IRR	Y	72580-86, 72588	0	1280.00	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
139	72588		4/12/2005	PER	SW	SW	22	19N	47E	IRR	Y	72580-87	0	1280.00	AFA	LA	BOBCAT RANCH, LLC	Y	alfalfa	pivot	125	500	AFA	
												Supplemental Totals	**1584.33**	**6337.32**							**1062**	**4248**	**AFA**	
139	13849	4922	10/1/1951	CER	NE	SE	5	19N	49E	IRR			277.661	1110.64	AFS	EU	DAMELE, PETER	N	no crop		0	0	AFS	76794
																					0	**0**		
139	10426	2782	9/28/1939	CER	SW	NW	20	19N	49E	IRR			5	15.50	AFS	EU	3F LLC	N	no crop		0	0	AFS	76483
																					0	**0**		
139	23951	8002	6/23/1967	CER	SW	SW	29	19N	49E	IRD			83.16	332.64	AFS	EU	3F LLC	N	no crop		0	0	AFS	76455
																					0	**0**		
139	18544	6457	1/26/1960	CER	NE	NE	30	19N	49E	IRD			323.1	1292.40	AFA	EU	3F LLC	N	no crop		0	0	AFA	76484
																					0	**0**		
139	23952	8003	6/23/1967	CER	NE	NE	30	19N	49E	IRD			59.66	238.64	AFS	EU	3F LLC	N	no crop		0	0	AFS	76486
																					0	**0**		

Crop Inventory and Groundwater Pumpage Inventory from Irrigation - Kobeh Valley, Basin 139, 2006

Basin	App	Cert	File Date	Status	Qtr	Qtr	Sec	Twn	Rng	Type	Sup	Sup Permit No	Permitted Acres	Duty	Units	Co	Owner of Record	Crop	Type	Irr By	Irr Ac	Ac-Ft pumped	Units	
139	11072	2880	2/25/1944	CER	NE	SE	17	19N	50E	IRR			136.05	330.50	AFS	EU	FISH CREEK RANCH LLC	N	no crop		0	0	AFS	76990
																					0	0		
139	9682	2780	7/25/1933	CER	SE	NE	17	19N	50E	IRR			65.54	474.00	AFA	EU	FISH CREEK RANCH, LLC	Y	past grass	flood	65.54	474	AFA	76989
																					65.54	474		
139	13956	5334	12/31/1951	CER	SE	SW	9	20N	49E	IRR			169.4	677.60	AFA	EU	SMITH, DONALD RICHARDSON	N	no crop		0	0	AFA	NOT SUB
																					0	0		
139	22111	7902	7/17/1964	CER	SW	NE	17	20N	52E	IRR	Y	22112-13, 23359, 23466-68	142	568.00	AFA	EU	HOEKENGA CATTLE COMPANY	N	no crop		0	0	AFA	75979
139	22112	7903	7/17/1964	CER	NW	NE	18	20N	52E	IRR	Y	22111, 22113, 23359, 23466-68	292.5	1170.00	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	75980
139	22113	7904	7/17/1964	CER	NW	NW	18	20N	52E	IRR	Y	22111-12, 23359 23466-68	265.5	1062.00	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	75981
139	23359	7905	8/26/1966	CER	SW	NE	13	20N	51E	IRR	Y	22111-13, 23466-68	287	1148.00	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	75982
139	23466	8334	11/1/1966	CER	NE	SW	17	20N	52E	IRR	Y	22111-13, 23359, 23467-68	234.6	938.40	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	75983
139	23467	8335	11/1/1966	CER	SE	NW	18	20N	52E	IRR	Y	22111-13, 23359, 23466, 23468	245	980.00	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	75984
139	23468	8336	11/1/1966	CER	NE	SW	18	20N	52E	IRR	Y	22111-13, 23359 23466-67	323.9	1295.60	AFA	EU	RISI, MARY E.	N	no crop		0	0	AFA	
												Supplemental Totals	1073.77	4295.08										
139	23549	7899	12/15/1966	CER	NW	SE	20	20N	52E	IRR			12	48.00	AFA	EU	RISI, MARY E	Y	pasture grass	flood	12	48	AFA	75985
																					12	48		NOT S
																			Totals		1389.54	5770	AFA	

KOBEH VALLEY (139)
CROP INVENTORY
SEPTEMBER 21, 2005

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

1150 acres alfalfa	x 3 =	3450 acre feet
20 acres grass	x 2 =	40 acre feet
1170 Total Acres		3490 Total Acre Feet

T.19N., R.47E.

15Cd
75998
#56575. Irrigates NO CROP. Guelich.
NO CROP

15Cb
75998
#56575. Open 16" casing. Irrigates 125 acres new alfalfa. MP .5 Above road to Rowan Farms. NO CROP

15Dd
75998
#49752. Amarillo gearhead, John Deer motor. Irrigates 125 acres alfalfa with pivot.

16Cc
76002
#35866. Tait AC pump. No crop. MP .5 Wheel lines.

21Ba
Open 16" casing. NO CROP

21Ca
76004
#49753. 16" casing. Diesel motor. Irrigates 125 acres alfalfa by pivot. MP .5

21Da
76004
#63285T, Serves #49753. John Deere Diesel motor, Floway pump. Irrigates 125 acres in Section 21B by pivot. Jantz. 421,305 X 1000. Serial #99 240110

22Bb
76004
No motor, Peerless pump, Peerless gearhead. MP .4 Irrigates 125 acres alfalfa by pivot. Supplied by well in 22Cb, N1/2N1/2 Sec. 22.

22Cb
76003
#44690. Detroit Diesel motor, Floway pump. MP 2.0 Irrigates 125 acres alfalfa by pivot. Sowlakis. Meter #6364882 x 1000. Micro Meter #03-03060-14

23Ab
75997
#41752. John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres alfalfa in 23A and 24B. MP .3

T.19N., R.47E.

23Bc #55426. US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa by pivot and 120 acres alfalfa in N1/2 of Section 22A by pivot.

76000

T.19N., R.49E.

20Bc #10426. Open 6" casing. No crop. MP .4 Large red holding tank.

Walker 76483

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

76990

T.20N., R.49E.

9Cd #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

Not Sold

KOBEH VALLEY (139)
CROP INVENTORY
NOVEMBER 8, 2004

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

1150 acres alfalfa	x 3 =	3450 acre feet
20 acres grass	x 2 =	40 acre feet
1170 Total Acres		3490 Total Acre Feet

T.19N., R.47E.

49752

15Cd #56575. Irrigates NO CROP. Guelich.
75998 NO CROP

49752

15Cb ~~#56575~~. Open 16" casing. No crop. MP .5 Above road to
75998 Rowan Farms. NO CROP

15Dd #49752. Amarillo gearhead, John Deer motor. Irrigates 125
75998 acres alfalfa with pivot.

16Cc #35866. Tait AC pump. No crop. MP .5 Wheel lines.
76002
21Ba Open 16" casing. NO CROP

21Ca #49753. 16" casing. Diesel motor. Irrigates 125 acres
76004 alfalfa by pivot. MP .5

21Da #63285T, Serves #49753. John Deere Diesel motor, Floway
pump. Irrigates 125 acres in Section 21B by pivot. Jantz.
76004

22Bb No motor, Peerless pump, Peerless gearhead. MP .4
Irrigates 125 acres alfalfa by pivot. Supplied by well
76004 in 22Cb, N1/2N1/2 Sec. 22.

22Cb #44690. Detroit Diesel motor, Floway pump. MP 2.0
Irrigates 125 acres alfalfa by pivot. Sowlakis.
76003 Meter #358415 x 1000. Micro Meter #03-366-14.

23Ab #41752. John Deere Diesel motor, Worthington pump,
75997 Randolph gearhead. Two pivot sprinklers irrigates 270
acres alfalfa in 23A and 24B. MP .3

T.19N., R.47E.

23Bc #55426. US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa by pivot and 120 acres alfalfa in N1/2 of Section 22A by pivot.

76600

T.19N., R.49E.

20Bc #10426. Open 6" casing. No crop. MP .4 Large red holding tank.

76583

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

76990

T.20N., R.49E.

9Cd #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

N.T. Sold

KOBEH VALLEY (139)
CROP INVENTORY
OCTOBER 30, 2003

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

780 acres alfalfa	x 3 =	2340 acre feet
20 acres grass	x 2 =	40 acre feet
800 Total Acres		2380 Total Acre Feet

T.19N., R.47E.

15Cd #56575. Irrigates NO CROP. Guelich.
76002 NO CROP
49752

15Cb #56575. Open 16" casing. No crop. MP .5 Above road to
75998 Rowan Farms. NO CROP

15Dd #49752. Amarillo gearhead, John Deer motor. Irrigates 125
75998 acres alfalfa with pivot.

16Cc #35866. Tait AC pump. No crop. MP .5 Wheel lines.
76002
21Ba Open 16" casing. NO CROP

1280 AcFt

21Ca #49753. 16" casing. Diesel motor. No Crop. MP .5
76004

21Da #63285T, Serves #49753. John Deere Diesel motor, Floway
pump. Irrigates 125 acres in Section 21B by pivot. Jantz.
76004

22Bb No motor, Peerless pump, Peerless gearhead. No crop. M
.4 Supplied by well in 22Cb, N1/2N1/2 Sec. 22, Alfalfa.
76004

22Cb #44690. John Deere Diesel motor, Floway pump. MP 2.0
Irrigates 125 acres alfalfa by pivot. Sowlakis.
76003

23Ab #41752. John Deere Diesel motor, Worthington pump,
Randolph gearhead. Two pivot sprinklers irrigates 270
acres alfalfa in 23A and 24B. MP .3
76006

T.19N., R.47E.

23Bc #55426. US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa by pivot and 120 acres alfalfa in N1/2 of Section 22A by wheelline.

76005

T.19N., R.49E.

20Bc #10426. Open 6" casing. No crop. MP .4 Large red holding tank.

76483

3E

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

76110

Flood

T.20N., R.49E.

9Cd #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

not sure

#13999

check location

KOBEH VALLEY (139)
CROP INVENTORY
SEPTEMBER 2002

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

780 acres alfalfa	x 3	=2340	acre feet
20 acres grass	x 2 =	40	acre feet
800 Total Acres		2380	Total Acre Feet

T.19N., R.47E.

15Ca — #56575. Should irrigate 320 acres. Guelich.
76000 — NO CROP

15Cb — #49752. Open 16" casing. No crop. MP .5 Above road
76001 — to Rowan Farms. NO CROP

15D — Amarillo gearhead, John Deer motor. NO CROP - FALLOW
75998

16Cd — #35866. Diesel motor, Amarillo gearhead, Tait AC pump.
76002 — No crop. MP .5 Wheel lines.

21Ba — Open 16" casing. NO CROP

21Ca — #49753. 16" casing. Diesel motor. No Crop. MP .5
76004

21Da — #63285T. John Deere Diesel motor, Floway pump.
Exp — Irrigates 125 acres in Section 21C by pivot. Jantz.

22Bb — No motor, Peerless pump, Peerless gearhead. No crop.
MP .4 Supplied by well in 22Cb, N1/2N1/2 Sec. 22
Alfalfa — and Oats.

22Cb — #44690. John Deere Diesel motor, Floway pump. MP 2.0
76003 — Irrigates 125 acres alfalfa by pivot. Sowlakis.

23A — #55426. John Deere Diesel motor, Worthington pump,
76000 — Randolph gearhead. Two pivot sprinklers irrigates 270
acres alfalfa in 23A and 24B. MP .3

T.19N., R.47E.

23Bc — #55426. US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa by pivot and 120 acres alfalfa in N1/2 of Section 22A by wheelline.

35A — 8" casing. MP .2

T.19N., R.49E.

5Bd — Road washed out in 1986. NO CROP.

20Bc — #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

T.19N., R.50E.

17Ad — #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

T.20N., R.49E.

9Cc — #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

T.20N., R.52E.

17Ac — #22111. Should irrigate 142 acres. Hoekenga Cattle Co.

NO CROP

T.21N., R.50E.

26B — 6" casing. MP 2.0

KOBEH VALLEY (139)
CROP INVENTORY
DECEMBER 2001

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

900 acres alfalfa	x 3 =	2700 acre feet
20 acres grass	x 2 =	40 acre feet
920 Total Acres		2740 Total Acre Feet

T.19N., R.47E.

15Ca — #56575. Should irrigate 320 acres. Guelich.
76001 NO CROP

15Cb — #49752. Open 16" casing. No crop. MP .5 Above road to Rowan Farms. NO CROP
75998

15D — Amarillo gearhead, John Deer motor. 125 acres alfalfa by pivot.

16Cd — #35866. Diesel motor, Amarillo gearhead, Tait AC pump. No crop. MP .5 Wheel lines.

21Ba — Open 16" casing. NO CROP

21Ca — #49753. 16" casing. Diesel motor. No Crop. MP .5

21Da — #63285T. John Deere Diesel motor, Floway pump. Irrigates 125 acres in Section 21 B by pivot. Jantz.

22Bb — No motor, Peerless pump, Peerless gearhead. No crop. MP .4

22Cb — #44690. John Deere Diesel motor, Floway pump. MP 2.0 Irrigates 125 acres alfalfa by pivot. Sowlakis.

23A — #55426. John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres alfalfa. MP .3

T.19N., R.47E.

23Bc #55426. [illegible]S Gear head, John Deere m[illegible]or, Worthington pump. Irrigates 135 acres alfalfa and 120 acres alfalfa in Section 22A by wheelline.

35A 8" casing. MP .2

T.19N., R.49E.

5Bd Road washed out in 1986. NO CROP.

20Bc #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

T.20N., R.49E.

9Cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

T.20N., R.52E.

17Ac #22111. Should irrigate 142 acres. Hoekenga Cattle Co. NO CROP

T.21N., R.50E.

26B 6" casing. MP 2.0

PUMPAGE INVENTORY CHART
KOBEH VALLEY (139)

YEAR	POD T19N. R47E.	PERMIT #	CROP	LOCATION OF CROP
2001	15Ca	56575	NO CROP	
	15Cb	49752	NO CROP	
	15D		125 ACRES ALFALFA	
	16Cd	35866	NO CROP	
	21Ba		NO CROP	
	21Ca	49753	NO CROP	
	21Da	63285T	125 ACRES	21B
	22Bb		NO CROP	
	22Cb	44690	125 ACRES ALFALFA	
76960	23A	55426	270 ACRES ALFALFA	
1979	23Bc	55426	135 ACRES ALFALFA 120 ACRES ALFALFA	SEC. 22A
	35A			
	T19N. R48E.			
	5Bd		NO CROP	
	20Bc	11836 578 w.	NO CROP	
	T19N. R50E.			
76990	17Ad	11072	20 ACRES PASTURE	
	T20N. R49E.			
1997 SOB	9Cc	13956	NO CROP	
	T20N. R52E.			
75980	17Ac	22111	NO CROP	
	T21N. R50E.			
75970	26B		NO CROP	

KOBEH VALLEY (139)
CROP INVENTORY
DECEMBER 1999

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

900 acres alfalfa	x 3 =	2700 acre feet
20 acres grass	x 2 =	40 acre feet
920 Total Acres		2740 Total Acre Feet

T.19N., R.47E.

15Ca #56575. Should irrigate 320 acres. Guelich.
NO CROP

15Cb #49752. Open 16" casing. No crop. MP .5 Above road to Rowan Farms. NO CROP

15D Amarillo gearhead, John Deer motor. 125 acres alfalfa by pivot.

16Cd #35866. Diesel motor, Amarillo gearhead, Tait AC pump. No crop. MP .5 Wheel lines.

21Ba Open 16" casing. NO CROP

21Ca #49753. 16" casing. Diesel motor. No Crop. MP .5

21Da #63285T. John Deere Diesel motor, Floway pump. Irrigates 125 acres in Section 21 B. Jantz.

22Bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4

22Cb #44690. John Deere Diesel motor, Floway pump. MP 2.0 Irrigates 125 acres alfalfa by pivot. Sowlakis.

23A #55426. John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres alfalfa. MP .3

T.19N., R.47E.

23Bc #55426. US Gear head, John Deere tor, Worthington pump. Irrigates 135 acres alfalfa and 120 acres alfalfa in Section 22A by wheelline.

35A 8" casing. MP .2

T.19N., R.49E.

5Bd Road washed out in 1986. NO CROP.

20Bc #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

T.20N., R.49E.

9Cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

T.20N., R.52E.

17Ac #22111. Should irrigate 142 acres. Hoekenga Cattle Co. NO CROP

T.21N., R.50E.

26B 6" casing. MP 2.0

KOBEH VALLEY (139)
CROP INVENTORY
1998 ABSTRACT

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

815 acres alfalfa	x 3 =	2445 acre feet
815 Total Acres		2445 Total Acre Feet

T.19N., R.47E.

15Ca #56575. Should irrigate 320 acres. Guelich.
7600

15Cb #49752. Open 16" casing. No crop. MP .5 Above road to Rowan Farms.

15D Amarillo gearhead, John Deer motor. 135 acres alfalfa.

16Cd #35866. Diesel motor, Amarillo gearhead, Tait AC pump. No crop. MP .5 Wheel lines.
7300

21Ba Open 16" casing. Irrigates 135 acres alfalfa by pivot. MP .2

21Ca #49753. 16" casing. No Crop. MP .5
76004

21Da #63285T. Jantz.
Expired

22Ab Open casing. Irrigates 140 acres alfalfa by wheel line. Helped by 23Bc. MP .3
7600

22Bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4

76003

22Cb #44690. Open casing. Ground plowed. MP 2.0 No Crop Should irrigate 320 acres. Sowlakis.

T.19N., R.47E.

23A #55426. John Deere Diesel moto Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres grain. MP .3

23Bc #55426. US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa.

35A 8" casing. MP .2

T.19N., R.49E.

5Bd Road washed out in 1986. No measurement for 1991.

18Ca #18100. Old windmill down, casing sealed with new pump and stem.

20Bc #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

29Cc #23951. Detroit diesel motor, Randolph gearhead, Western pump. No crop. (Tall red vertical holding tank)

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

T.20N., R.49E.

9Cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

T.20N., R.52E.

17Ac #22111. Should irrigate 142 acres. Hoekenga Cattle Co.

T.21N., R.50E.

26B 6" casi . MP 2.0

T.21N., R.51E.

17Bd Open casing. No crop. Large 5,000 Gallon horizontal storage tank. MP .6

18Bb #22113. Cat diesel motor, Johnson gearhead, Universal pump. MP .6

18Bd #23467. No motor, Amarillo pump, Johnson gear head. No crop.

KOBEH VALLEY (139)
CROP INVENTORY
AUGUST 1995

36 wells were checked, 6 were pumped for irrigation and one artesian well was used for pasture.

815 acres alfalfa	x 3 =	2445 acre feet	
815 Total Acres		2445 Total Acre Feet	

T.18N., R.47E.

5Cd #11411. Windmill. 5HP Briggs and Stratton gas engine. MP 3.2

12/09/91	NM
12-03-93	13.5
12-07-94	80.8

20Ab #10426. Windmill. Solar operated.

12/09/91	CM
12-03-93	CM No hole in plate
12-07-94	CM

T.19N., R.47E.

9Ad #11410. Windmill. MP 2.2

12/09/91	NM
12-03-93	149.9
12-07-94	145.9

15Cb ? #44692. Open 16" casing. No crop. MP .5 Above road to Rowan Farms.

76601

12/09/91	90.3
12-03-93	91.5
12-07-94	91.5

15D Amarillo gearhead, John Deer motor. 135 acres alfalfa.

12/09/91	69.1
12-03-93	NM
12-07-94	NM No Hole in Casing

T.19N., R.47E.

16Cd #3586. Diesel motor, Amarillo gearhead, Tait AC pump. No crop. MP .5 Wheel lines.

12/09/91	84.7
12-03-93	76.2
12-07-94	90.1

76002

21Ba Open 16" casing. Irrigates 135 acres alfalfa by pivot. MP .2

12/09/91	83.9
12-03-93	84.6
12-07-94	85.0

21Cb #44691. 16" casing. No Crop. MP .5

76004

12/09/91	NM
12-03-93	78.8
12-07-94	85.0

22Ab Open casing. Irrigates 140 acres alfalfa by wheel line. Helped by 23Bc. MP .3

12/09/91	NM
12-03-93	NM
12-07-94	CM No Hole-Capped

22Bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4

12/09/91	72.1
12-03-93	72.7
12-07-94	73.2

22Ca Open casing. Ground plowed. MP 2.0 No Crop

12/09/91	5	5	.	8
12-03-93	56.9			
12-07-94	58.2			

22Cc 6" open casing. Dry 64'

12-03-93	DRY
12-07-94	Capped & Covered up

T.19N., R.47E.

23A #44690 John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres grain. MP .3

12/09/91	CM
12-03-93	NM
12-07-94	CM No Hole

23Ab House well, sealed.

12/09/91	57.9
	DOMESTIC

23Bc US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa.

76000

12/09/91	19.0
12-07-94	CM No Hole

31Aa #44750. Windmill. MP .5 Solar operated

11/06/86	P
12/09/91	NM
12-03-93	CM No hole,plugged cap

35A 8" casing. MP .2

12/09/91	NM
12-03-93	NM
12-07-94	49.3

T.19N., R.48E.

22Db #44747, 45686. Windmill with 5HP gas engine with generator, submersible jacuzzi pump for stockwater. MP .7

12/09/91	NM
12-03-93	NM
12-07-94	44.3

T.19N., R.49E.

5Bd Road washed out in 1986. No measurement for 1991.

18B MP 1.3

12/09/91	NM
12-03-93	NM
12-08-94	NM

18Ca #18100. Old windmill down, casing sealed with new pump and stem.

12/06/91	NM
12-03-93	NM
12-07-94	NM

20Bc #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

12/09/91	27.9
12-03-93	NM
12-07-94	27.0

29Cc #23951. Detroit diesel motor, Randolph gearhead, Western pump. No crop. (Tall red vertical holding tank)

76485

12/09/91	NM
12-03-93	NM
12-08-94	CM No Hole

30Aa #18544. No motor, Amarillo gearhead, Layne & Bowler pump. Being used for stockwater. MP 1.0

76484

12/09/91	74.5
12-03-93	NM

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

T.20N., R.49E.

9Cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

12/09/91	3.2
12-03-93	NM
12-08-94	3.0

10C #11449. Windmill.

12/09/91	NM
12-03-93	NM
12-07-94	NM

23Ca #11105. Windmill. Open casing, turn at gravel pit. MP .4

12/09/91	11.7
12-03-93	NM
12-08-94	11.9

T.21N., R.48E.

35D Windmill. MP 1.0

12/09/91	NM
12-03-93	NM
12-08-94	NM

T.21N., R.49E.

16Cc #13955. Windmill. MP 2.0

12/09/91	CM New motor & no hole to pass tape
12-03-93	NM
12-08-94	NM

T.20N., R.50E.

30C Can't measure. No description.

T.21N., R.50E.

17B #4477[illegible]. Windmill. MP .8

12/09/91	CM
12-03-93	NM

26B 6" casing. MP 2.0

12/09/91	NM
12-03-93	NM

T.21N., R.51E.

17Bd Open casing. No crop. Large 5,000 Gallon horizontal storage tank. MP .6

12/09/91	18.0
12-03-93	NM
12-08-94	18.4

18Ab #22112. 5HP gas engine. Homelite pump for stockwater. MP .5 (Inside small shed)

75180

12/09/91	6.5
12-03-93	NM
12-08-94	6.7

18Bb #22113. Cat diesel motor, Johnson gearhead, Universal pump. MP .6

75981

12/09/91	6.6
12-03-93	NM
12-08-94	6.7

18Bd #23467. No motor, Amarillo pump, Johnson gear head. No crop.

75189

12/09/91	CM
12-03-93	NM
12-08-94	CM No Hole

KOBEH VALLEY (139)
Crop & Water Surveys
December 3, 1993

36 wells were checked, 4 were pumped for irrigation and one artesian well was used for pasture.

425 acres alfalfa	x 3 =	1275 acre feet
270 acres pasture	x 2 =	540 acre feet
0 stock water		100 acre feet
695 Total Acres		1935 Total Acre Feet

T.18N., R.47E.

5Cd #11411. Windmill. 5HP Briggs and Stratton gas engine. MP 3.2

11/06/86	NM
12/09/91	NM
12-03-93	13.5

20Ab #10426. Windmill. Solar operated.

11/06/86	CM
12/09/91	CM
12-03-93	CM No hole in plate

T.19N., R.47E.

9Ad #11410. Windmill. MP 3.3

11/06/86	83.4
12/09/91	NM
12-03-93	149.9

15Cb #44692. Open 16" casing. No crop. MP .5 Above road to Rowan Farms.

76001

11/06/91	83.2
12/09/91	90.3
12-03-93	91.5

15D Amarillo gearhead, John Deer motor. 135 acres alfalfa.

12/09/91	69.1
12-03-93	NM

16Cd #35866. No motor, Amarillo gearhead, Tait AC pump. No crop. MP .5

76002

11/06/86	76.5
12/09/91	84.7
12-03-93	76.2

T.19N., R.47E.

21Ba Open 16" casing. No crop. MP .2

11/06/86	85.1
12/09/91	83.9
12-03-93	84.6

21Cb #44691. 16" casing. MP .5

76004

11/06/86	87.3
12/09/91	NM
12-03-93	78.8

22Ab Open casing. No crop. MP .3

11/06/86	65.4
12/09/91	NM
12-03-93	NM

22Bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4

11/06/86	65.4
12/09/91	72.1
12-03-93	72.7

22Ca Open casing. Ground plowed. MP 2.0 No Crop

12/09/91	5	5	.	8
12-03-93	56.9			

22Cc 6" open casing. Dry 64'

12-03-93	DRY

23A #44693. John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot sprinklers irrigates 270 acres grain. MP .3

76000

11/06/86	43.3
12/09/91	CM
12-03-93	NM

23Ab House well, sealed.

12/09/91	57.9
	DOMESTIC

7606 23Bc US Gear head, John Deere motor, Worthington pump. Irrigates 135 acres alfalfa. — 135 acre

12/09/91	19.0

T.19N., R.47E.

31Aa #44750. Windmill. MP .5 Solar operated

11/06/86	P
12/09/91	NM
12-03-93	CM No hole,plugged cap

35A 8" casing. MP .2

11/06/86	NM
12/09/91	NM
12-03-93	NM

T.19N., R.48E.

32Db #44747, 45686. Windmill with 5HP gas engine with generator, submersible jacuzzi pump for stockwater. MP .7

11/06/86	P
12/09/91	NM
12-03-93	NM

T.19N., R.49E.

5Bd Road washed out in 1986. No measurement for 1991.

18Ca #18100. Old windmill down, casing sealed with new pump and stem.

11/06/86	CM
12/06/91	NM
12-03-93	NM

20Bc #11836. Open 6" casing. No crop. MP .4 Large red holding tank.

11/06/86	61.7
12/09/91	27.9
12-03-93	NM

29Cc #23951. Detroit diesel motor, Randolph gearhead, Western pump. No crop.

76485

11/06/86	Cas.
12/09/91	NM
12-03-93	NM

T.19N., R.49E.

30Aa #18544. No motor, Amarillo gearhead, Layne & Bowler pump. Being used for stockwater. MP 1.0

76484

11/06/86	74.2
12/09/91	74.5
12-03-93	NM

18B MP 1.3

11/06/86	NM
12/09/91	NM
12-03-93	NM

T.19N., R.50E.

17Ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

76990

T.20N., R.49E.

9Cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

Not sad

11/06/86	3.9
12/09/91	3.2
12-03-93	NM

10C #11449. Windmill.

11/06/86	Pumping
12/09/91	NM
12-03-93	NM

23Ca #11105. Windmill. Open casing, turn at gravel pit. MP .4

11/06/86	9.7
12/09/91	11.7
12-03-93	NM

T.21N., R.48E.

35D Windmill. MP 1.0

11/06/86	22.0
12/09/91	NM
12-03-93	NM

T.21N., R.49E.

16Cc #13955. Windmill. MP 2.0

11/06/86	37.1
12/09/91	CM New motor & no hole to pass tape
12-03-93	NM

T.20N., R.50E.

30C Can't measure. No description.

T.21N., R.50E.

17B #44775. Windmill. MP .8

11/06/86	52.3
12/09/91	CM
12-03-93	NM

26B 6" casing. MP 2.0

11/06/86	76.6
12/09/91	NM
12-03-93	NM

T.22N., R.51E.

? 17Bd Open casing. No crop. MP .6

75980

11/06/86	18.1
12/09/91	18.0
12-03-93	NM

18Ab #22112. 5HP gas engine. Homelite pump for stockwater. MP .5

75981

11/06/86	6.5
12/09/91	6.5
12-03-93	NM

18Bb #22113. Cat diesel motor, Johnson gearhead, Universal pump. MP .6

75984

11/06/86	6.6
12/09/91	6.6
12-03-93	NM

T.21N., R.51E.

18Bd #23467. Couldn't get to well. No crop.

11/06/86	CM
12/09/91	CM
12-03-93	NM

75 984

A:\CROP\KOBEH

KOBEH VALLEY (139)
Crop & Water Surveys
November 6, 1986

33 wells were checked, one was pumped for irrigation and one artesian well was used for pasture.

270 acres alfalfa	x 3 =	810 acre feet	
20 acres pasture	x 3 =	60 acre feet	
stock water		100 acre feet	
290 Total Acres		970 Total Acre Feet	

T.18N., R.47E.

5cd #11411. Windmill, 5 HP Brigs and Straton gas engine. MP 3.2 NEW AIR
11/06/84 14.1
11/20/85 N.M
11/06/86 N.M.

20ab #10426. Windmill, 5 HP Briggs and Straton gas engine.
11/06/84 CM AF C
11/20/85 CM 155 AF 2722
11/06/86 CM

T.19N., R.47E.

9ad #11410. Windmill. MP 3.3
11/06/84 P
STK 11/20/85
11/06/86 83.4

15cb #44692. Open 16" casing. No crop. MP .5 ABR - ~~SHOT~~ ?
11/06/84 87.6 1940 76001
76001 11/20/85 87.7
11/06/86 83.2

16cd #35866. No motor, Amarillo gearhead, Tait AC pump. No crop. MP .5
11/06/84 72.7
11/20/85 71.5 301 76002, 72580
11/06/86 76.5

21ba Open 16" casing. No crop. MP 1.5
11/06/84 83.5
11/20/85 81.6 301 " "
11/06/86 85.1

21cb #44691. 16" casing. MP .5 1260 76004
11/06/84 91.7
11/20/85 90.0
11/06/86 87.3

22ab Open casing. No crop. MP .3
11/06/86 64.9
11/20/85 62.8
11/06/86 65.4

22bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4
11/06/84 75.2
11/20/85 72.9
11/06/86 65.4

23bb House well, sealed.

23bc #44693. John Deere Diesel motor, Worthington pump, Randolph gearhead. Two pivot type sprinklers, 270 acres alfalfa. MP .3
11/06/84 49.4
11/20/85 48.6 443 76000
11/06/86 43.3 (1086)

27b 6" casing. MP .7
11/06/84 60 dry
11/20/85

31aa #44750. Windmill. MP .5 STK WAR

11/06/84	P
11/20/85	99.3
11/06/86	P

35a 8" casing. MP .2

11/06/84	41.0
11/20/85	NM
11/06/86	NM

T.19N., R.48E.

22db #44747, 45686. Windmill with 5 HP gas engine with generator, submersible jacuzzi pump for stockwater. MP .7

11/06/84	P
11/20/85	P
11/06/86	P

STK WD

T.19N., R.49E.

5bd Road washed out, couldn't get to well.

11/06/84	CM
11/20/85	CM
11/06/86	CM

18ca #18100. Old windmill down, casing sealed with new pump and stem.

11/06/84	CM
11/20/85	CM
11/06/86	CM

5 6 STK C

20bc #11836. Open 6" casing. No crop. MP .4

11/06/84	49.9
11/20/85	62.3
11/06/86	61.7

6.9 STK C

29cc #23951. Detroit diesel motor, Randolph gearhead, Western pump. No crop.

11/06/84	Cas.
11/20/85	Cas.
11/06/86	Cas.

333 - DIE C 76485 WESTERN

30aa #18544. No motor, Amarillo gearhead, Layne & Bowler pump. No crop. Being used for stockwater. MP 1.0

11/06/84	68.1
11/20/85	88.4
11/06/86	74.2

1791 - C 76484

18b MP 1.3.

4/ 18/84	2.5
11/20/85	NM
11/06/86	NM

T.19N., R.50E.

17ad #11072. Artesian well with closed valve. Irrigates 20 acres pasture by flood.

3305 C 76496

T.20N., R.49E.

10c #11449. Windmill.

11/06.86	Pumping

T.20N., R.49E.

9cc #13956. Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0

11/06/84	3.7
11/20/85	4.2
11/06/86	3.9

678 C NOT SOLD

23ca #11105. Windmill. MP .4

11/06/84	11.0
11/20/85	9.8
11/06/86	9.7

T.21N., R.48E.

35d Windmill. MP 1.0

11/6/86	22.0

T.21N., R.49E.

16cc #13955. Windmill. MP 2.0

11/06/84	35.7
11/20/85	36.6
11/06/86	37.1

T.20N., R.50E.

30c Can't measure. No description.

T.21N., R.50E.

17b #44775. Windmill. MP .8

11/20/85	59.2
11/06/86	52.3

T.21N., R.51E.

26b 6" casing. MP 2.0

11/06/86	76.6

T.20N., R.52E.

17bd Open casing. No crop. MP .6

11/06/84	17.6
11/20/85	18.0
11/06/86	18.1

18ab #22112. 5HP gas engine. Homelite pump for stockwater. MP .5

11/06/84	5.7
11/20/85	6.2
11/06/86	6.5

1170 C 75980

18bb #22113. Cat diesel motor, Johnson gearhead, Universal pump. Wasn't pumped for irrigation this year. MP .6

11/06/84	6.0
11/20/85	6.1
11/06/86	6.6

1062 C 75981

18bd #23467. Couldn't get to well. No crop.

11/06/84	CM
11/20/85	CM
11/06/86	CM

980 C 75984

KOBEH VALLEY (139)
Crop and Water Survey
November 20, 1985

30 wells were checked, one was pumped for irrigation and one artesian well was used for pasture.

270	acres alfalfa x 3 =	810 acre feet
20	acres pasture x 3 =	60 acre feet
	stock water	100 acre feet
290	Total Acres	970 Total Acre Feet

T.18N., R.47E.

5cd 11911 Windmill, 5 HP Brigs and Straton gas engine. MP 3.2
11/29/83 13.7
11/06/84 14.1
11/20/85 N.M.

20ab Windmill, 5 HP Briggs and Straton gas engine.
11/29/83 CM
11/06/84 CM
11/20/85 CM

T.19N., R.47E.

1 Windmill. MP 3.3
11/29/83 11.1
11/06/84 P
11/20/85 10.1

15cb Open 16" casing. No crop. MP .5
11/29/83 88.1
76001 11/06/84 87.6
11/20/85 87.7

16cd No motor, Amarillo gearhead, Tait AC pump. No crop. MP .5
11/29/83 97.8
76002 11/06/84 72.7
11/20/85 71.5

21ba Open 16" casing. No crop. MP 1.5
11/29/83 92.6
11/06/84 83.5
11/20/85 81.6

21cb 16" casing. MP .5
76004 11/-6/84 91.7
11/20/85 90.0

ab Open casing. No crop. MP .3
11/29/83 83.2
11/06/84 64.9
11/20/85 62.8

22bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4
11/29/83 70.6
11/06/84 75.2
11/20/85 72.9

23bb House well, sealed.

23bc John Deere Diesel motor, Worthington Pump, Randolph gearhead. Two pivot type sprinklers, 270 acres alfalfa. MP .3
76000 11/29/83 CM
11/-6/84 49.4
11/20/85 48.6

27b 6" casing. MP .7
11/06/84 60 dry
11/20/85

`aa Windmill. MP .5
11/29/83 P
11/06/84 P
11/20/85 99.3

35a 8" casing. MP .2
11/06/84 41.0
11/20/85 NM

T.19N., R.48E.

24aa Windmill with 5HP gas engine with generator, submersible jacuzzi pump for stockwater. MP .7
11/29/83 56.9
11/06/84 P
11/20/85 P

T.19N,. R.49E.

5bd Road washed out, couldn't get to well.
11/29/83 CM
11/06/84 CM
11/20/85 CM

18ca Old windmill down, casing sealed with new pump and stem.
11/29/83 CM
11/06/84 CM
11/20/85 CM

20bc Open 6" casing. No crop. MP .4
11/29/83 61.6
11/06/84 49.9
11/20/85 62.3

29cc Detroit diesel motor, Randolph gearhead, Western pump. No crop.
11/29/83 blowing
76985 11/06/84 Cas.
11/20/85 Cas.

30aa Detroit diesel motor, Amarillo gearhead, Layne & Bowler pump. No crop. Being used for stockwater. MP 1.0
11/28/83 CM
76484 11/06/84 68.1
11/20/85 88.4

18b MP 1.3
4/18/84 2.5
11/20/85 NM

T.19N., R.50E.

17ad Artesian well with closed valve. Irrigates 20 acres pasture by flood.

76990

T.20N., R.49E.

9cc Well is equipped with gearhead and pump and is covered by brush. No crop. MP 1.0
11/28/83 CM
Not 11/06/84 3.7
sold 11/20/85 4.2

23ca Windmill. MP .4
11/28/83 10.9
11/06/84 11.0
11/20/85 9.8

T.21N., R.49E.

16cc Windmill. MP 2.0
11/28/83 43.0
11/06/84 35.7
11/20/85 36.6

T.20N., R.50E.

30c Can't measure. No description.

T.21N., R.50E.

17b Windmill. MP .8
11/20/85 59.2

T.20N., R.52E.

17bd Open casing. No crop. MP .6
11/29/83 16.9
11/06/84 17.6
11/20/85 18.0

18ab 5HP gas engine, Homelite pump for stockwater. MP .5
11/29/83 5.0
75980 11/06/84 5.7
11/20/85 6.2

18bb Cat diesel motor, Johnson gearhead, Universal pump. Wasn't pumped for irrigation this year. MP .6
11/29/83 5.4
75981 11/06/84 6.0
11/20/85 6.1

18bd Couldn't get to well. No crop.
11/29/83 CM
75984 11/06/84 CM
11/20/85 CM

KOBEH VALLEY (139)
Crop and Water Survey
November 6, 1984

29 wells were checked, one was pumped for irrigation and one artesian well was used for pasture.

270	acres alfalfa	x 3 =	810 acre feet
20	acres pasture	x 3 =	60 acre feet
___	stock water		100 acre feet
290	Total acres		970 acre feet Total

T 18N, R 47E

5cd Windmill, 5 HP Briggs & Straton gas engine. MP 3.2
11/29/83 13.7
11/06/84 14.1

20ab Windmill, 5 HP Briggs & Straton gas engine.
11/29/83 CM
11/06/84 CM

T 19N, R. 47E

9ad Windmill. MP 3.3
11/29/83 11.1
11/06/84 P

15cb Open 16" casing. No crop. MP .5
76001 11/29/83 88.1
11/06/84 87.6

16cd No motor, Amarillo gearhead, Tait AC pump. No crop. MP .5
76002 11/29/83 97.8
11/06/84 72.7

21cb 16" casing. MP .5
76004 11/06/84 91.7

21ba Open 16" casing. No crop. MP 1.5
11/29/83 92.6
11/06/84 83.5

22ab Open casing. No crop. MP .3
11/29/83 83.2
11/06/84 64.9

22bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4
11/29/83 70.6
11/06/84 75.2

23bb John Deere Diesel Motor, Worthington Pump, Randolph gearhead. Two pivot type sprinklers, 270 acres alfalfa. MP .3
76000 11/29/83 CM
11/06/84 49.4

27b 6" casing. MP .7
11/06/84 60 dry

31aa Windmill.
11/29/83 P
11/06/84 P

35a 8" casing. MP .2
11/06/84 41.0

T. 19N, R. 48E

22aa Windmill with 5HP gas engine with generator, submersible jacuzzi pump for stockwater. MP .7
11/29/83 56.9
11/06/84 P

T.19, R. 49E

5bd Road Washed out, couldn't get to well.
11/29/83 CM
11/06/84 CM

18ca Old windmill down,casing sealed with new pump and stem.
11/29/83 CM
11/06/84 CM

20bc Open 6" casing. No crop. MP .4
11/29/83 61.6
11/06/84 49.9

29cc Detroit diesel motor, Randolph gearhead, Western pump. No crop.
11/29/83 blowing
76485 11/06/84 Cas.

30aa Detroit diesel motor, Amarillo gearhead, Layne & Bowler pump. No crop.
MP 1.0
11/28/83 CM
76489 11/06/84 68.1

18b MP 1.3
4/18/84 2.5

T. 19N, R. 50E

17ad Artesian well with closed valve. Irrigates 20 acres pasture by flood.
11/28/83
11/06/84
76490

T. 20N, R. 49E

9cc Well is equipped with gearhead and pump and is covered by brush.
No crop. MP 1.0
11/28/83 CM
11/06/84 3.7

23ca Windmill. MP .4
11/28/83 10.9
11/06/84 11.0

T. 21N, R. 49E

16cc Windmill. MP 2.0
11/28/83 43.0
11/06/84 35.7

T. 20N, R. 50E

30c Can't measure, no description

T. 20N, R. 52E

17db Open casing. No crop. MP .6
11/29/83 16.9
11/06/84 17.6

18ab 5HP gas engine, Homelite pump for stockwater. MP .5
75980 11/29/83 5.0
11/6/84 5.7

18bb Cat diesel motor, Johnson gearhead, Universal pump. Wasn't pumped for irrigation this year. MP .6
75981 11/29/83 5.4
11/06/84 6.0

18bd Couldn't get to well. No crop.
11/29/83 CM
75984 11/06/84 CM

KOBEH VALLEY
Crop & Water Survey
November 28,29, 1983

26 wells were checked, four were pumped for irrigation and two artesian wells were used for pasture.

610 acres alfalfa x 3 = 1830 acre feet
40 acres pasture x 3 = 120 acre feet
650 acres total 1950 total acre feet

T.18N., R.47E.

5cd Windmill, 5 HP Briggs & Straton gas engine. MP 3.2
11/29/83 13.7

20ab Windmill, 5 HP Briggs & Straton gas engine.
11/29/83 CM

T.19N., R.47E.

9ad Windmill. MP 3.3 11/29/83 11.1

15cb Open 16" casing. No crop. MP .5
76001 11/29/83 88.1

21bb No motor, Amarillo gearhead, Tait AC pump. No crop. MP .5
11/29/83 97.8

21bc Open 16" casing. No crop. MP .5
76004 11/29/83 92.6

22ab Open casing. No crop. MP .3
11/29/83 83.2

22bb No motor, Peerless pump, Peerless gearhead. No crop. MP .4
11/29/83 70.6

23bb Locked gate. Two pivot type sprinklers, 270 acres alfalfa.
76000 11/29/83 CM

31aa Windmill. 11/29/83 P

T.19N., R.48E.

22aa Windmill with 5 HP gas engine with generator, submersible Jacuzzi pump for stockwater. MP .7
11/29/83 56.9

T.19N., R.49E.

5bd Road washed out, couldn't get to well.
11/29/83 CM

18ca Old windmill down, casing sealed with new pump and stem.
11/29/83 CM

20bc Open 6" casing. No crop. MP .4
11/29/83 61.6

29cc Detroit diesel motor, Randolph gearhead, Western pump. Irrigates 40 acres alfalfa by flood type irrigation.
76485 11/28/83 blowing

30aa Detroit die[illegible] motor, Amarillo gearhead, Lay[illegible] & Bowler pump.
Irrigates 60 acres alfalfa by flood type irrigation.
11/28/83 CM

76484

T.19N., R.50E.

17ad Artesian well with closed valve. Irrigates 20 acres pasture by flood. 11/28/83

76990 T.20N., R.49E.

9cc Well is equipped with gearhead and pump and is covered by brush.
No crop. 11/38/83 CM

23ca Windmill. MP .4 11/28/83 10.9

T.21N., R.49E.

16cc Windmill. MP 2.0 11/28/83 43.0

T.20N., R.52E.

17db Open casing. No crop. MP .6
7 11/29/83 16.9

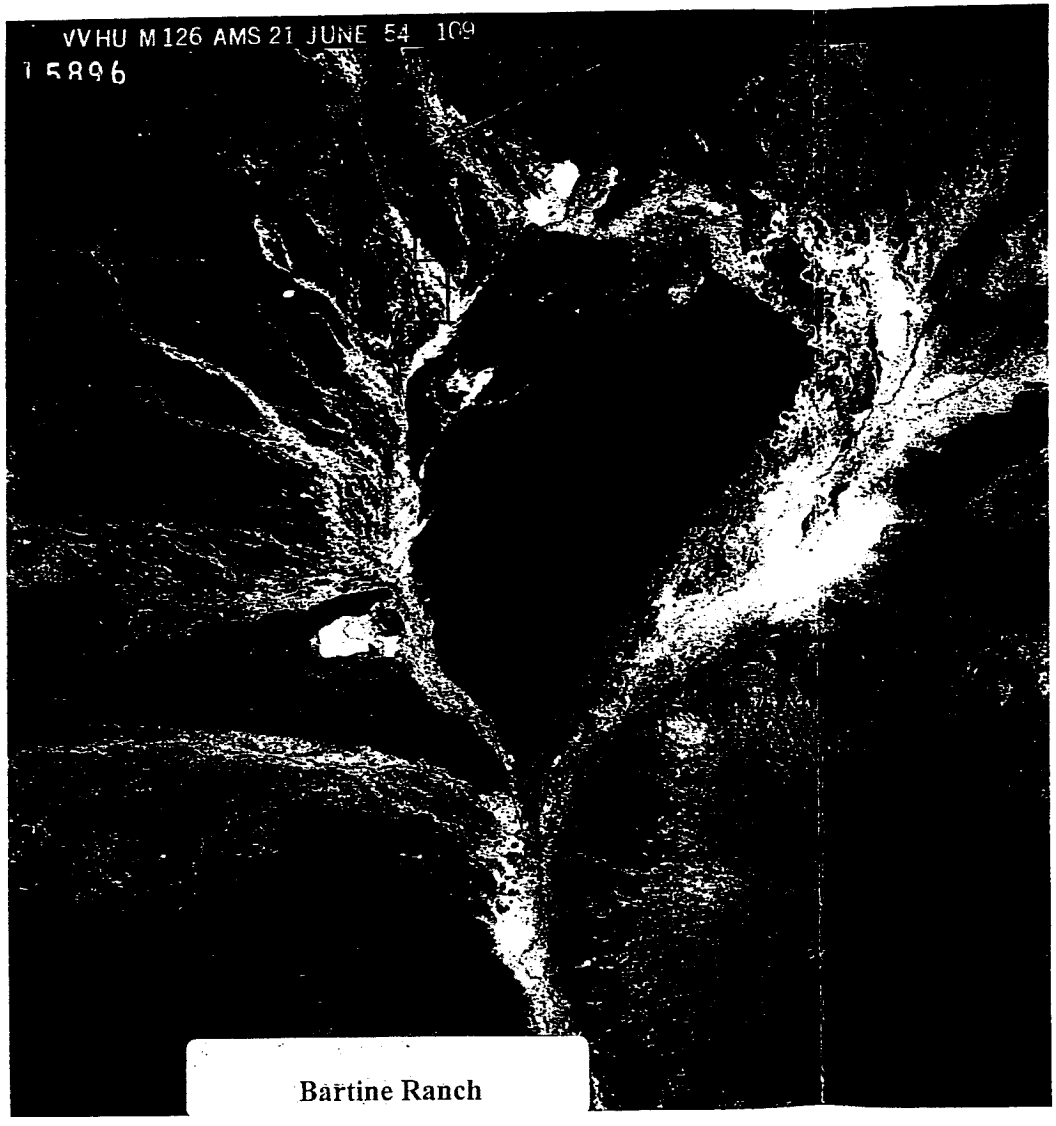
18ab 5 HP gas engine, Homelite pump for stockwater. MP .5
75980 11/29/83 5.0

18bb Cat diesel motor, Johnson gearhead, Universal pump. Wasn't pumped for irrigation this year. MP .6
75981 11/29/83 5.4

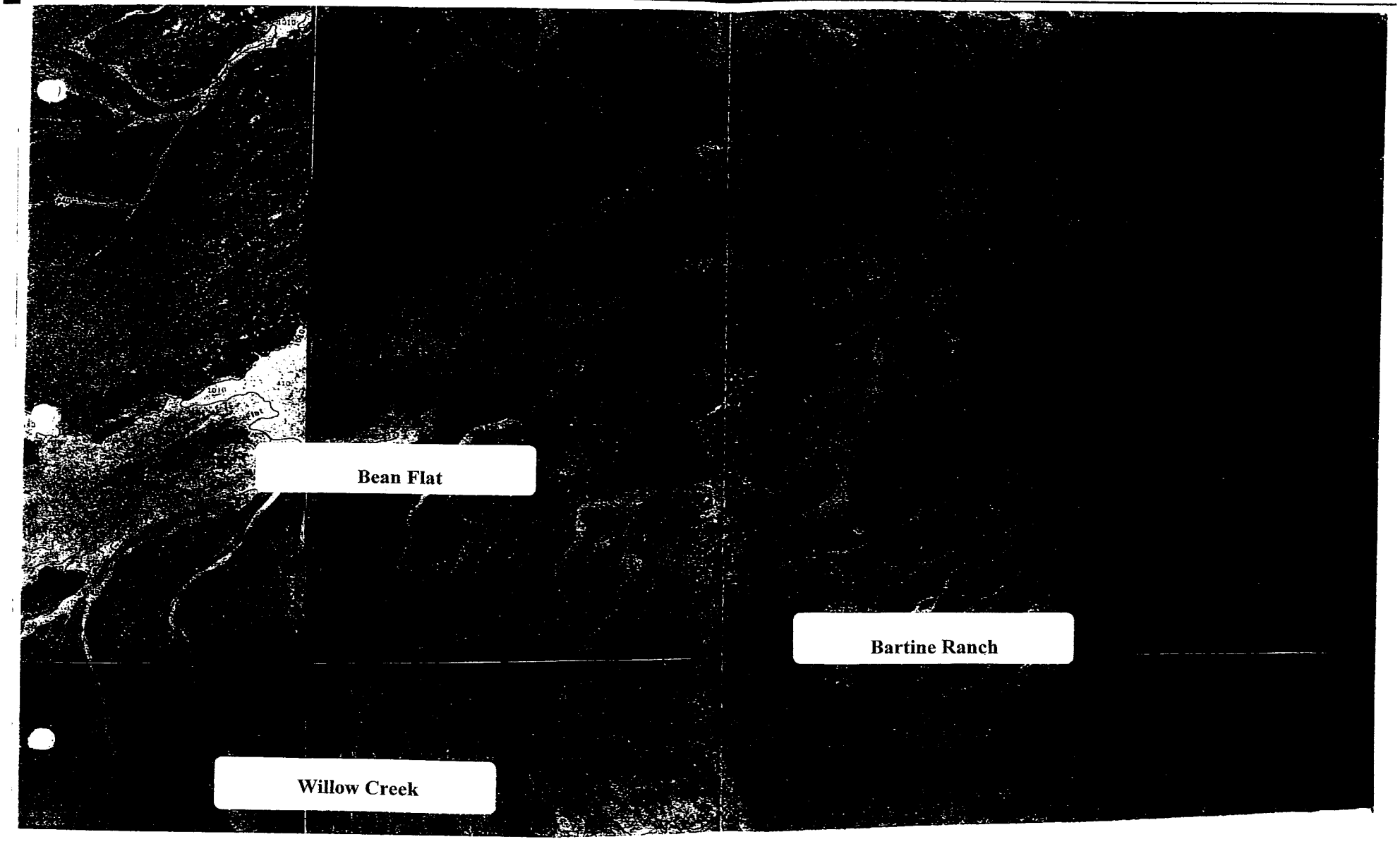
18bd Couldn't get to well. Irrigates 240 acres alfalfa.
11/29/83 CM

75984

VVHU M126 AMS 21 JUNE 54
Willow Creek
Bean Flat



Bartine Ranch


Bean Flat
Bartine Ranch
Willow Creek

2-34A

Bartine Ranch

2-33
Willow Creek
Bean Flat

Walker & Associates

661 Genoa Lane, Minden, Nevada 89423

10/15/2010

TO: Karen Peterson, Esq. – Allison Mackenzie

FROM: Steve Walker, Walker & Associates

SUBJECT: Updated Estimates of Consumptive Use of Irrigated Crops in Eureka County

Ms. Peterson – Based on your request to determine values for consumptive use of irrigated agriculture in Diamond and Kobeh Valleys, Walker & Associates provides the following analysis. (Note - All estimates of consumptive use data are for of the consumptive use of alfalfa minus effective precipitation. ft/yr is acre-feet of consumptive use of water/acre/year.)

The Natural Resources Conservation Service (NRCS) has developed irrigation system design criteria for each agricultural area in Nevada. The NRCS Irrigation Guide Manual provides an estimate of consumptive use as part of the design criteria. The estimate involves averaging two methods/formulas to estimate consumptive use in specific areas where weather data is available. Once the average has been determined, effective precipitation is then subtracted from the total consumptive use average. The two methods are TR 21 and FAO – pan evaporation. The consumptive use for alfalfa in Diamond Valley using this average is 37 inches per year The effective precipitation – also listed in the manual - is 6 inches with a total precipitation of just over 9 inches in Diamond Valley. The amount of water applied to meet the consumptive use requirements of alfalfa is 31 inches or approximately 2.6 ft/yr

Other recent estimates of consumptive use on croplands in adjacent White Pine County were made by USGS as part of the BARCASS study report referenced below. The study authors stated "Estimates of average crop consumptive use (FTc) for each HA (hydrographic basin) ranging from 2.78 ft/yr to 3.08 ft/yr are in agreement with measured consumptive-use rates for alfalfa and pastureland given in Maurer and others (2006) for a similar climate." (U. S. Geological Survey Scientific Investigations Report 2007 5087 - Mapping Evapotranspiration Units in the Basin and Range Carbonate-Rock Aquifer System, White Pine County, Nevada, and Adjacent Areas in Nevada and Utah.) The study used an average of 2.9 ft/yr of consumptive use.

In January 2010, the State Engineer's Office published a report on consumptive use in Nevada, using the most sophisticated methodology to date to determine consumptive use in most of the hydrographic basins in the State. The authors J. L. Huntington, Hydrologist, Division of Water Resources and R.G. Allen, Professor of Water Resource Engineering, University of Idaho – estimated consumptive use for alfalfa for Diamond Valley to be 2.5 ft/yr.

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The State Engineer's Office estimate of consumptive use, like the NRCS estimate, is Diamond Valley specific. Based on this new data, Walker & Associates would suggest using 2.5 ft/year as the best estimate. The difference between the two estimates – 1/10th of acre foot – is less than the accuracy of the estimate. Using 2.5 ft/ac implies approximately 63 percent of a 4 acre foot of water per acre per year water right is consumptively used.

The estimate of consumptive use for Kobeh Valley per the Division of Water Resources Report is 2.7 ft/yr. Walker & Associates assumes the difference is based on estimate of effective precipitation, since total consumptive use values in the report are the same for both Kobeh and Diamond Valley.

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Summary Report
of Existing Municipal Water Conditions in Southern Eureka County

Introduction

Eureka County operates three public water systems in the southern portion of Eureka County in compliance with the Safe Drinking Water Act. Eureka Town Water serves the residents of the Town of Eureka. The water source is two wells in Diamond Valley and ten springs with certificated water rights south of town. Devil's Gate General Improvement District (GID) #1 and Devil's Gate GID #2 are located in Diamond Valley. Wells within the respective districts serve the customers of these GIDs.

This report summarizes the history, ownership, capacity and function of the wells that serve these public water systems, and describes based on available data the past and current condition of the wells, including water levels and pumping ability. The report also summarizes the monitoring being done by Eureka County to track declining water levels.

Town of Eureka Water System

The Town of Eureka is the county seat for Eureka County, Nevada and is approximately 240 miles east of Carson City on U.S. Highway 50. (Township 19, North, Range 53 East, Portions of Sections 24, 13, 23, and 14) With a mean elevation of 6,500 feet above sea level, the Town of Eureka lies within Eureka Canyon, which slopes to the north at an approximate 3% grade.

History

Early history of the Eureka Town water system is sketchy. It is known that the system was created in the mining town by Mr. Fletcher in the 1800's as a private water system. He acquired the rights to several springs and diverted the water to the residents of Eureka. The spring line was constructed in the 1850's. The system changed hands several times, and ultimately was acquired by the Eureka Water Association (date unknown.) The Eureka Water Association (EWA) was comprised of local residents who wanted to upgrade the system to provide reliable water service. They obtained a loan in the late 1960's or early 1970's to construct a water storage tank. An underground storage tank was taken out of service, and a portion of the spring line was upgraded to plastic pipe. The EWA had difficulty paying the loan and operating the system. In 1977, the County agreed to operate the system for the EWA. In 1982, the EWA conveyed the water system to Eureka County which in turn accepted it.

The first improvements that followed occurred in 1985 when the town replaced and expanded existing water mains. In 1989, the springs were replaced as the main water source for the town with groundwater sources in Diamond Valley. The first well was drilled in 1989; the second in 1993. A new transmission main and booster station were constructed to convey the water to town. The springs currently serve a trailer park and baseball fields at the south end of town. These upgrades were followed by additional water distribution system improvements and the installation of a 750,000 gallon storage tank on the northern end of town in the 1990's that is used to supplement the existing 350,000 gallon storage tank located south of town.

Water rights
Water rights for the wells in Diamond Valley are in the name of Eureka Town Water, and are established for quasi-municipal use.

Use of water
The water is used by the Town of Eureka for the schools, community and public buildings, businesses, and residences and fire protection.

Wells
The two groundwater wells that supply the Town of Eureka are located approximately 3.5 miles northwest of the Town of Eureka in Diamond Valley, T20 R53 Section 28. The wells are owned by the Town of Eureka and operated by the Eureka Public Works Department under the jurisdiction of the Eureka County Board of Commissioners.

The two wells are located approximately 100 feet apart and are operated on alternating schedules as redundant water sources. Each well is capable of producing approximately 900 gpm and pumps into a 12 inch PVC transmission main that feeds a 7,000 gallon storage tank 1.7 miles away. The storage tank feeds a booster pump with the same production capabilities as each of the wells (900 gpm). The booster pump continues to transfer the water the remaining 1.8 miles to town through a 12 inch PVC transmission main. The wells, 7,000 gallon storage tank, booster station and Tank #2 are automated and controlled by a telemetry system.

Water levels
Groundwater levels in Diamond Valley have been dropping on the average of one to two feet per year. This is consistent with the data and experience of Eureka Public Works which operates and maintains the water system. Well #1 had a static water level of 208 feet below land surface when drilled in 1989. On May 30, 2008, the static water level was 242 feet below land surface, an annual decline of 22 inches. When Well #2 was drilled in 1993, the static water level was 212.43 feet below land surface. On May 30, 2008, the static water level was 240 feet below land surface, an annual decline of 22 inches. The decreasing groundwater levels have increased the total dynamic head that the wells need to pump against, therefore reducing the well production capacity.

In the first quarter of 2008, Well #1 was rehabilitated which included installation of a new pump 40 feet below the original level to compensate for the declining water level. Well #2 began pumping air and had to be taken out of service in the second quarter of