

**U.S. Department of the Interior
Bureau of Land Management**

**Finding of No Significant Impact and Decision Record
DOI-BLM-NV-L0300-2008-007-EA
September, 2009**

**DELAMAR VALLEY GROUNDWATER
TESTING/MONITORING WELLS**

FLPMA TITLE V ROW

Delamar Valley, Lincoln County, Nevada

Applicant:

Southern Nevada Water Authority

Case File: NVN-84720

Caliente Field Office
Caliente, Nevada
Phone # (775) 726-8100
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**UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CALIENTE FIELD OFFICE**

INTRODUCTION

I have reviewed Environmental Assessment (EA) DOI-BLM-NV-L0300-2008-007- EA, for the *Delamar Valley Testing/Groundwater Wells*, dated September 18, 2009 taking into consideration the project design specifications, including the following monitoring measures identified in the EA:

Monitoring: Periodic monitoring will consist of the following:

- BLM and SNWA will monitor the Proposed Action sites for the continued operation of groundwater monitoring equipment until the wells have been plugged, abandoned, and reclaimed. Noxious and invasive weed populations will be monitored at the well sites. Seedling establishment, which would stabilize soils and minimize the introduction and spread of weeds, would also be monitored at the well sites prior to termination of the ROW grant.

I have also considered the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), both with regard to the context and the intensity of impacts described in the EA:

Context:

The proposed action well sites are located in an uninhabited area of no local, regional or national importance.

Intensity:

- 1) Impacts that may be both beneficial and adverse: The Environmental Assessment has analyzed and disclosed both beneficial and adverse impacts of the Proposed Action. These impacts combined do not amount to any significant impacts.
- 2) The degree to which the Proposed Action affects public health or safety: The Proposed Action does not affect public health or safety either adversely or in a significantly beneficial manner. The subsequent land use would be regulated by local, state, and federal regulations as applicable; therefore, no adverse affects to public health or safety are anticipated.
- 3) Unique characteristics of the geographic area such as proximity to historical or cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas: There are no parks lands, prime farmlands, wild and scenic rivers, known wetland/riparian areas, or ecologically critical areas on the Proposed Action sites. Cultural inventories have been performed and no sites eligible for nomination to the National Register of Historic Places are located at the Proposed Action sites.

- 4) The degree to which the effects on the quality of the human environment are likely to be highly controversial: The effects of drilling and testing groundwater wells are well established and there is little to no controversy as to what they are.
- 5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks: The effects of drilling and testing groundwater wells are well established. Nevada State Code provides protection to prevent adverse impacts. No known risks exist on the proposed well and access road sites. It is highly unlikely that any unknown, unique, or uncertain risks exist.
- 6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration: Drilling and testing groundwater wells is a common occurrence on public and private lands throughout the United States. No precedent for future actions with significant effects would be established.
- 7) Whether the action is related to other actions with individually insignificant, but cumulatively significant impacts: Based on the conditions set forth in this Finding of No Significant Impact and Decision Record, no significant impacts will occur due to the Proposed Action. The subsequent land use would be regulated by local, state, and federal regulations as applicable; therefore, no significantly cumulative impacts are anticipated.
- 8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources: No sites eligible for nomination to the National Register of Historic Places are located at the proposed well and access road sites. Because the needs assessment identified no sites would be damaged, no significant impacts are suspected.
- 9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973: The Proposed Action would not adversely affect endangered or threatened species or their habitat. No endangered or threatened species were identified, so no significant impacts are expected.
- 10) Whether the action threatens a violation of Federal, State, local or tribal law or requirements imposed for the protection of the environment: This action was scoped for possible conflicts with Federal, State, local or tribal law and environmental requirements. No possible violations were identified.

FINDING OF NO SIGNIFICANT IMPACT

I have determined that, with incorporation of the monitoring measures listed above, the proposed action will not significantly affect the quality of the human environment and that preparation of an Environmental Impact Statement (EIS) is not required.

/s/ Victoria Barr
Victoria Barr
Field Manager
Caliente Field Office

10/5/09
Date



United States Department of the Interior



BUREAU OF LAND MANAGEMENT

Caliente Field Office

P.O. Box 237 (1400 South Front St.)

Caliente, Nevada 89008-0237

http://www.blm.gov/nv/st/en/fo/ely_field_office.html

In Reply Refer To: NVN-84720

DECISION

Southern Nevada Water Authority	:	Decision Record
Groundwater Resources Dept.	:	ROW Grant
P.O. Box 99956	:	DOI-BLM-NV-L0300-2008-007-EA
Las Vegas, NV 89193-9956	:	

I have reviewed the application, the Environmental Assessment, and have made a Finding of No Significant Impact (FONSI) for Southern Nevada Water Authority proposal for the Delamar Valley Testing/Groundwater Wells. Based on that review and the record as a whole, I approve granting the proposed Right-of-Way NVN-84720.

RATIONALE:

- 1) The Proposed Action is in conformance with the Ely District Record of Decision and Approved Resource Management Plan signed in August of 2008. Part C of Section I of the Environmental Assessment documents the conformance review.
- 2) The proposal for public land rights-of-way are made under the authority of Section 501 of the FLPMA (43 Code of Federal Regulations [CFR] 2801).
- 3) The Proposed Action is consistent with all other federal, state, local, and tribal policies and plans to the maximum extent possible.

PUBLIC INVOLVEMENT:

State, county, and local agencies, tribal agencies, adjacent landowners, and various organizations were informed about the proposed SNWA Delamar Valley groundwater testing wells project in Lincoln County, Nevada. The Draft EA was posted on the Ely BLM website for a 30 day period for public information and comments. The Final EA will be posted on the Ely website at <http://www.blm.gov/nv/>. Persons interested may access the document at the website by first clicking on the "Ely" District and then selecting the document to download.

This document is available upon request to the Caliente Field Office, 1400 S Front St. (PO Box 237), Caliente, NV 89008-0237

Two comment letters were received on the Preliminary EA from the following Parties:

- Great Basin Water Network
- Water Keepers

Both parties had extensive comments on the preliminary EA. Section 1 of the EA was revised to clarify the need for the proposed action and why it was considered a separate action from the Clark, Lincoln and White Pine Counties Groundwater Development Project EIS. Sections 1 and 2 were modified to clarify a statement in the Preliminary EA that implied the possibility that the wells would become production wells. Section 2 was modified to clarify the proposed action. Sections 3 and 4 were revised to provide additional information on oil and gas deposits and to remove extraneous and confusing information on water resources. In addition, the title of the EA to reflect the primary purpose of the proposed wells as testing AND monitoring wells. The Great Basin Water Network had several comments that the impacts of the Clark, Lincoln, and White Pine Counties Groundwater Development Project should be analyzed with the proposed action. The impacts of the pipeline development are outside the scope of the analysis. Water Keepers requested that the EA go out for another comment period after the proposed action was clarified. The clarification of the proposed action was not of such magnitude that it would invite substantive comments beyond those already made.

APPEALS:

This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4. The appellant has the burden of showing that the decision appealed from is in error. If an appeal is taken, a notice of appeal must be filed at the Bureau of Land Management, Caliente Field Office, 1400 S Front St., Caliente, NV within 30 days of either of receipt of the decision if served a copy of the document, or otherwise within 30 days of the date of the decision. If sent by United States Postal Service, the notice of appeal must be sent to the following address:

Bureau of Land Management
Caliente Field Office
P O Box 237
Caliente, NV 89008-0237

The appeal may include a statement of reasons at the time the notice of appeal is filed, or the statement of reasons may be filed within 30 days of filing this appeal. At the same time the original documents are filed with this office, copies of the notice of appeal, statement of reasons,

and all supporting documentation also must be sent to submitted to each party named in this decision and to the Department of Interior Solicitor at the following address:

Regional Solicitor, Pacific Southwest Region
U.S. Department of the Interior
2800 Cottage Way, Room E-2753
Sacramento, CA 95825-1890

If a statement of reasons is filed separately from the notice of appeal, it also must be sent to the following location within 30 days after the notice of appeal was filed:

Board of Land Appeals
Office of Hearings and Appeals
4015 Wilson Boulevard
Arlington, VA 22203

In accordance with 43 CFR 2801.10, this Decision will remain in full force and effect during the appeal unless a written request for a Stay is granted. If the appellant wishes to file a petition pursuant to regulations at 43 CFR 4.21 for a stay of the effectiveness of this decision during the time that the appeal is being reviewed by the Board, the petition for a stay must accompany the notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. If the appellant requests a stay, the appellant has the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or by other pertinent regulation, a Petition for a Stay of a Decision pending appeal shall show sufficient justification based on the following standards:

- (1) The relative harm to the parties if the stay is granted or denied,
- (2) The likelihood of the appellant's success on the merits,
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and
- (4) Whether the public interest favors granting the stay.

Approved by:

/s/ Victoria Barr
Victoria Barr
Field Manager
Caliente Field Office

10/5/09
Date

U.S. Department of the Interior Bureau of Land Management

Environmental Assessment
DOI-BLM-NVL0300-2008-007-EA
September, 2009

DELAMAR VALLEY GROUNDWATER TESTING/MONITORING WELLS

FLPMA TITLE V ROW

Location:

Delamar Valley, Lincoln County, Nevada

Applicant/Address:

*Southern Nevada Water Authority
Groundwater Resources Department
P.O. Box 99956
Las Vegas, Nevada 89193-9956*

Case File: NVN-84720

Caliente Field Office
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Phone: (775) 826-8100
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PROJECT NAME: Testing/Groundwater Wells, Delamar Valley

CASE FILE #: N-84720

LEGAL DESCRIPTION: Mt. Diablo Meridian, Nevada

Permanent Right-of-Way (ROW)

Site DEL4003X (including access road and culverts): N $\frac{1}{2}$ of the SW $\frac{1}{4}$ of the NE $\frac{1}{4}$, SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$, S $\frac{1}{2}$ of the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$, NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ and N $\frac{1}{2}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 17 and NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 18, Township 8 South, Range 63 East.

- The well site would be approximately 168 feet wide by approximately 260 feet long (1.0 acre).
- The access road would be approximately 15 feet wide by approximately 4,154 feet long (1.43 acres). The road includes approximately 809 linear feet of new road and 3,345 linear feet of improvements to an existing road.
- The four culverts would be approximately 50 feet by 50 feet each (0.24 acres).

Site DEL4004X: SW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 15 and SE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 16, Township 5 South, Range 64 East.

- The well site would be approximately 168 feet wide by approximately 260 feet long (1.0 acre).

Total permanent acres = 2.0 acres for well sites and 1.67 acres for access road and culverts

Temporary ROW

Site DEL4003X: SW $\frac{1}{2}$ of the NE $\frac{1}{2}$ of Section 17, Township 8 South, Range 63 East.

- The temporary ROW would surround three sides of the permanent well site. It would be approximately 330 feet wide by 330 feet long, but only include approximately 1.5 acres.

Site DEL4004X: W $\frac{1}{2}$ of the NW $\frac{1}{4}$ of the NW $\frac{1}{4}$ of Section 15 and E $\frac{1}{2}$ of the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 16, Township 5 South, Range 64 East.

- The temporary ROW would surround three sides of the permanent well site. It would be approximately 330 feet wide by 330 feet long, but only include approximately 1.5 acres.

Total temporary acres = 3.0 acres for well sites

CASE TYPE: Federal Land Policy and Management Act Title V Section 501, Right-of-way

APPLICANT: Southern Nevada Water Authority (SNWA)

I. INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze the Southern Nevada Water Authority's Rights-of-Way (ROW) applications relative to the Delamar Valley Groundwater Testing and Monitoring Wells. The EA is a site-specific analysis of potential impacts that could result with the implementation of a proposed action or alternatives to the proposed action. The EA assists the Bureau of Land Management (BLM) in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any "significant" impacts could result from the analyzed actions. "Significance" is determined by the consideration of context and intensity of the impacts. If there is a Finding of No Significant Impact (FONSI), the context and intensity criteria are listed with rationale for the determination in the FONSI document.

This document is tiered to the *Ely Proposed Resource Management Plan/Final Environmental Impact Statement* (RMP/EIS) released in November 2007. Should a determination be made that implementation of the proposed action would not result in "significant environmental impacts" or "significant environmental impacts beyond those already disclosed in the RMP EIS", a FONSI will be prepared to document that determination, and a Decision Record issued providing the rationale for approving the chosen alternative.

A. Background Information

On February 26, 2008, SNWA applied for a ROW to construct two groundwater testing/monitoring well sites and one access road in the Delamar Valley hydrographic basin, on BLM-administered lands within Lincoln County, Nevada. This application was amended on May 30, 2008 to change the size of the wells, the construction methodology, and to include the potential to install an additional well at each of the sites (Proposed Action). The Proposed Action would be used to conduct hydraulic testing and monitoring in Delamar Valley. An approximately 1.0 acre long term (30 year) ROW grant, and an approximately 1.5 acres short term (2 year) ROW grant, is requested for each well site. The total long-term ROW for the Proposed Action would be approximately 3.67 acres, which includes acreage for one access road and culverts, and the total short term ROW would be approximately 3.0 acres. Maps and site photographs are provided in Attachment 1.

Although in the future it is possible that the testing/monitoring wells could be converted to production or monitoring wells for the Clark, Lincoln and White Pine Counties Groundwater Development Project, at this time such uses are speculative, not ripe for analysis and not addressed in this document.

B. Purpose and Need

1. Purpose of the Proposed Action

The BLM's purpose in considering approval of the application for the ROW is to provide legitimate use of the public lands to the proponent. Legitimate uses are those that are authorized under the Federal Lands Management Policy (FLPMA) of 1976 (or other Public Land Acts) and meet the proponent's objective while preventing undue and unnecessary degradation.

SNWA's objective is to collect data on to gain information on aquifer properties including transmissivity, storage parameters, and hydraulic conductivity, as well as to establish baseline water levels ranges, in Delamar Valley. There is limited hydraulic testing information available

in Delamar Valley from four existing monitoring wells, two of which are adjacent to one another. Wells are needed at more locations throughout the valley for more comprehensive understanding of the aquifer properties. The justification for the action is to collect additional information on aquifer properties, including transmissivity, storage parameters, and hydraulic conductivity, that would be used in current and future groundwater modeling associated with the Clark, Lincoln and White Pine Counties Groundwater Development Project EIS and any subsequent NEPA documents tiered to it. This information may also be used to make better decisions on locating future production wells in the Delamar Valley. The data attained would be available to assist Federal, state, and local agencies in their current and future decision making in groundwater modeling analyses and impact assessments.

2. Need for the Proposed Action

The BLM needs to consider approval of the application for the ROW to respond to its mandate under the FLPMA to manage the public lands for multiple use in a manner which recognizes the Nation's need for utility infrastructure. Title V of the FLPMA states:

The Secretary, with respect to public lands and, the Secretary of Agriculture, with respect to lands within the National Forest System, are authorized to grant, issue, or renew right-of-way over, upon, under, or through such lands for – (7) such other necessary transportation of other systems or facilities which are in the public interest and which require rights-or-way over, upon, under, or through such lands.

C. Relationship to Planning

The issuance of a ROW for the Proposed Action is in conformance with the following plan:

- Ely District Record of Decision and Approved Resource Management Plan (RMP) (August 2008), states the following:

Land use authorizations (rights-of-way, permits, leases, easements, and unauthorized use) would be issued on a case-by-case basis.

The issuance of a ROW for the Proposed Action is consistent with the terms, conditions, and decisions of the following documents:

- Master Plan for Lincoln County, Nevada (Adopted 2007). The following policy standards are identified:

CNR-IG: Proposed development should be designed to be compatible with riparian areas and playas to protect wildlife habitat, floodways, water quality and quantity and scenic values. New development should be consistent with adopted guidelines.

CNR-IM: New ground disturbance within designated habitat for endangered or threatened species areas of Lincoln County will required consultation by the applicant with affected agencies for any required conservation measures. This applies to all designated habitat areas and species either included or excluded in the Lincoln County Habitat Conservation Plan.

D. Issues

The Ely and Caliente Field Office's National Environmental Policy Act (NEPA) Review Interdisciplinary Team reviewed the Proposed Action. Other than the potentially affected resources analyzed below, no additional specific issues were identified.

II. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVE(S)

A. Proposed Action

The BLM proposes to issue SNWA a ROW grant for the purpose of constructing two to four groundwater wells within two 2.5-acre (1.0-acre long-term and 1.5-acre short-term) site locations in Delamar Valley. The sites have been named DEL4003X and DEL4004X. The long-term ROW for each of the two sites would be 168 feet wide by 260 feet long (1.0 acre each). The dimensions for the short-term ROW would be 330 feet wide by 330 feet long (1.5 acre) for each site.

Each site would contain up to two groundwater wells depending on testing at the site. The well sites were selected based upon proximity to hydrographic basin boundaries and geologic features, likely access to subsurface alluvium and volcanic rocks, and the ability to use existing access roads. The first well on each site would be 12 inches in diameter. If the results of testing the 12-inch monitoring well(s) are favorable, a new 20-inch hydraulic testing well would be drilled, in another portion of the one acre ROW site. The 12 inch well(s) then would be used to monitor the change in water levels in close proximity to the 20 inch well(s) during the pump testing. The wells would be drilled to between 2,200 and 2,400 feet in depth, with the final depth dependent upon actual groundwater depths. The groundwater wells would be up to 20 inches in diameter. Due to the volcanic rock setting and the significant depth to water (greater than 900 feet), large diameter wells (20-inch) are required in order to accommodate a large enough pump needed to extract groundwater from the regional aquifer and temporarily tax the system during hydraulic testing.

Access to the well sites would be from both existing roads and a new access road. Site DEL4003X is located within the vicinity of an existing dirt road. The existing dirt road would require improvements such as grading and fill for approximately 3,345 feet. From the existing dirt road, approximately 809 feet of new access road would be needed to the site. The new access road would require grading and fill. Both the existing access road and new access road would total approximately 4,154 feet in length and would need to be approximately 15 feet wide for a total of approximately 1.43 acres for the access road. Grading and fill, as well as the installation of up to 4 culverts would be required. Each culvert would require approximately 50 feet by 50 feet of disturbance outside the road width for construction and maintenance, for a total of approximately 0.24 acres. Therefore, the total approximate acreage for the access road and culverts would be 1.67 acres. Site DEL4004X is located adjacent to an existing dirt road. Access to the site would be from this existing road and no road improvements are anticipated along it. Public travel along this existing dirt road would not be impacted.

Improvements to other existing roads that would be traveled on to get to the proposed access roads are not anticipated to be needed for the Proposed Action. However, if an existing road requires repairs or stabilization, any activities would be confined to the existing road boundaries. Stabilization, if needed, could include use of gravel, dirt, or straw fill of ruts or unstable surfaces.

Any organic materials used would be certified weed-free. If fill is required, clean fill would be used from a site free of noxious or invasive weeds. Grading of existing roads, except where identified, is not anticipated to be necessary, but if needed in localized areas would be confined to the existing road area.

The Proposed Action would comply with State of Nevada regulations. Well drilling permits would be obtained from the Nevada Division of Water Resources, Office of the State Engineer (State Engineer). A permit from the Nevada Division of Environmental Protection (NDEP), Bureau of Water Pollution Control would be obtained for temporary discharge of groundwater during the hydraulic testing. Well abandonment and plugging would be in accordance with the Nevada Division of Water Resources requirements, set forth in the Nevada Administrative Code, sections 534.420 and 534.4365.

1. Well Construction

Prior to the initiation of construction, the boundaries of the Proposed Action would be staked. No ground disturbance would occur outside of the designated sites. Existing vegetation, primarily sagebrush scrub, would be crushed rather than bladed wherever possible to preserve the native seed bank and reduce erosion. Blading to level work areas would be kept to the minimum necessary, and topsoil and vegetation that are scraped would be stockpiled within the site and re-spread at the completion of construction. Water would be applied as needed for dust suppression during any earthmoving activities. In the event that bedrock is encountered during the creation of a drilling pad, blasting and fill may be required. If blasting is necessary, all required permits would be obtained and the BLM would be notified in advance of any blasting activity. If fill is required during construction of the pad or during restoration as a result of blasting, clean fill would be used from a site free of noxious or invasive weeds.

Well site DEL4003X is located in an area of volcanic bedrock and DEL4004X is located in an alluvial area. A 12-inch well would be installed at each of the sites and hydraulic testing would occur. If the results of the tests indicate that more extensive hydraulic testing can be conducted, a second well at each site would be installed within the 1.0 acre permanent ROW area. The second well would be a 20-inch well to accommodate the second round of hydraulic testing. The casing in the 12-inch wells cannot be replaced with 20-inch casing while maintaining the borehole integrity due to the geologic setting. If the initial testing does not indicate more extensive testing is possible, the second wells would not be installed.

Construction of the groundwater wells is anticipated to begin after the ROW is obtained, which would most likely be in the first quarter of 2009. Each well would require approximately 30 days for drilling and initial well development. Drilling activities would occur on a 12-24 hours/7 days-a-week basis. Equipment used to construct the wells would include a self-contained drilling rig, front loader/backhoe, flat bed trailer for bringing pipe and well casing material to the site, a water tanker, settling tank for containing drilling fluids, and pick-up trucks. A small construction trailer and portable restroom would also temporarily be located on-site during drilling and removed after construction.

Since construction would be occurring up to 24 hours a day, lighting needed to conduct drilling operations at night would be limited to the basic requirements to conduct the work. Lighting would be shielded, and directed down towards the site and not into surrounding areas or onto roads.

A minimal amount of water would be generated during well drilling. The volume would depend upon subsurface conditions, but is anticipated to be less than 250 gallons per minute (gpm). Because of the limited duration and rate of discharge, temporary discharge permits from the NDEP Bureau of Water Pollution Control are not anticipated to be required for the drilling operation (permits not required if discharge is less than 250 gpm and 48 hours in duration); temporary discharge permits would be required for the hydraulic testing, as described below. Any water generated during drilling would be contained in a small (approximately 50 square feet) settling pit on-site or a tank, to allow the drill cuttings and sediment to settle and drop out of suspension. The settling pits would be located adjacent to the drill rig (within the ROW) and dug with a front-end loader/backhoe. The settling pits would be unlined and fenced to keep wildlife out. After settling, the remaining water would be directed to flow into the natural drainage network around the site. Discharged water is not anticipated to extend more than 100 to 200 feet beyond the site, and would be directed to avoid existing roads. The settling pits would be re-filled with the on-site excavated materials. No hazardous or toxic substances would be released.

A SNWA monitor, or SNWA contractor, would be present daily during well construction to ensure compliance with ROW boundaries and other ROW grant conditions. Water needed for drilling operations during construction would be brought to each site by the drilling contractor. Pursuant to Nevada Revised Statute 534.050(4) adopted under SB 275, water may be withdrawn from the developed wells and used for drilling operations at the remaining well sites.

Drill cuttings and other sediments generated during drilling would be scattered around the well site, to blend into the surrounding area. Stockpiled brush and topsoil would be spread over the site, and the ground surface would be left rough-graded. At the surface, the completed wells would consist of a 12-inch or a 12-inch and 20-inch diameter capped steel casing each approximately 2 to 3 feet high, painted a shade to blend with the surroundings, on a 4-foot by 4-foot concrete pad.

The completion date of the Proposed Action well construction activities depends on when the ROW is granted and construction can begin, but it is anticipated to be completed by the third quarter of 2009.

2. Hydraulic Testing

The pumping unit shall be powered by a portable diesel engine generator, either trailer-mounted or on the bed of a truck. In addition to the drilling crew, a hydrologist would be present on-site for the duration of the hydraulic testing. BLM would be notified two days in advance of the hydraulic testing.

For the 12-inch groundwater wells, hydraulic testing would include a pump development test, step-drawdown tests, and an 8 to 72 hour continuous aquifer test. Pump development includes pumping the well at increasing rates from 200 to 3,500 gpm to ensure the well is free of residual drilling effluent and the formation is fully developed. The step-drawdown test involves pumping at varying rates over a 12-hour period, while measuring water level changes. The groundwater discharge rate would be up to 3,000 gpm. The step-drawdown test is anticipated to last about one day at each well. For the continuous aquifer test, a submersible pump would be lowered into the well, to approximately 200-250 feet below the static water level. Groundwater would be continuously pumped for 8 to 72 hours at a constant rate of up to 3,000 gpm. The total volume of water that may be discharged at each of the 12-inch wells during the hydraulic testing could range between 10 and 25 million gallons.

If the results of testing the 12-inch groundwater wells are favorable, new 20-inch groundwater wells would be drilled. Hydraulic testing at the 20-inch groundwater wells would consist of airlift development, a 12-hour step-drawdown test, and a 120-hour constant rate test. The pumps would be capable of pumping at discharge rates between 1,000 gpm and 3,500 gpm. The total volume of water that may be discharged from each well during the second round of hydraulic testing could range between 30 and 40 million gallons.

A temporary discharge permit(s) for the hydraulic testing would be obtained from the Nevada Division of Environmental Protection, Bureau of Water Pollution Control. Water generated during the tests would be discharged into the natural drainage network around the site. A certified weed-free energy dissipater or other erosion control measures would be used to reduce discharge rates to prevent scouring. The discharged water would rapidly evaporate or percolate into the alluvial sediments in the area. No long-term ponding of water would result from the tests.

Additionally, infiltration tests may be conducted in the natural drainage channels while the water is being discharged. The infiltration tests would determine the volume of water lost over a certain area. SNWA hydrologists would determine if these tests are applicable while they are conducting hydraulic tests, dependant on site conditions. The tests would consist of measuring the discharge at several points, using stream gauging techniques and a flume. The stream gauging measurements would involve wading across the channel and taking measurements using a pygmy meter. The infiltration tests involving flume measurements would consist of installing a small portable flume at several locations along the discharge channel. Once the flume is placed in the channel, sand bags and dirt (both weed-free) would be placed around the flume to direct water into the apparatus. After the measurements are collected, the flume, sandbags, and dirt would be removed leaving the drainage channel in its original condition.

The discharged water would be directed to avoid existing roads and would not impact existing travel routes. Anticipated drainage for discharge water from each well site has been identified as follows:

Site DEL4003X: Water from the well would be directed into a natural wash that runs northwest toward the Delamar Valley floor where it would dissipate. Once the hydraulic tests are complete, any existing roads within the path of the discharge flow would be restored to their original condition. South Poleline Road is located approximately 1.3 miles northwest of the site. In the event that runoff crosses South Poleline Road, erosion control measures would be used to control and reduce the flow of water and certified weed-free straw bales would be used to direct and diffuse water flow if needed. South Poleline Road would be restored to its pre-existing condition after the testing. Delamar Dry Lake is located approximately 3.4 miles northwest of the site. It is not anticipated that runoff from the hydraulic testing would reach Delamar Dry Lake due to the distance.

Site DEL4004X: Water from the well would be directed into a natural wash that runs southwest toward the Delamar Valley floor where it would dissipate. Once the hydraulic tests are complete, any existing roads within the path of the discharge flow would be restored to their original condition. North Poleline Road is located approximately 1.2 miles southwest of the site. In the event that runoff crosses North Poleline Road, erosion control measures would be used to control and reduce the flow of water and straw bales would be used to direct and diffuse water

flow if needed. North Poleline Road would be restored to its pre-existing condition after the testing.

Hydraulic testing activities are anticipated to be completed by the fourth quarter of 2009. After completion of the hydraulic testing, the temporary pumps would be removed from all wells. No other hydraulic testing is anticipated, for the duration of the ROW. If further testing is determined to be necessary, additional approvals would be obtained first.

3. Monitoring

At the completion of the hydraulic testing, SNWA would continue to record data to establish baseline ranges of the groundwater levels in the area by equipping the wells with electronic water level recording devices. A well housing, approximately five feet tall, would be installed over each of the well heads and bolted to the concrete pad to allow for the storage of the data logger. A solar panel would be attached to the top of the well housing, with an antenna (approximately 10 feet tall) attached to the side. The completed well housing would be a BLM-approved color selected to blend in with the surrounding vegetation and overall environment color and form. Groundwater level data would be recorded approximately hourly. SNWA would download this data, collect discrete physical water level measurements at the wells, and perform instrumentation maintenance approximately every six weeks. Monitoring at this intensity would continue for an indeterminate length of time, after which the monitoring equipment and well housing may be removed and water levels would be measured quarterly by hand.

4. Data Collection

Data and other information collected from the drilling and hydraulic testing would be compiled and submitted to the State Engineer. Copies would be provided to the BLM and other federal agencies as requested. Water level monitoring data would be submitted annually to the state Engineer and made available to the BLM, federal agencies, and the public.

5. Rights-of-Way Amendment/Extension/Termination

ROWs at these two sites for drilling, testing, and monitoring are requested for 30-year long-term and 2-year short-term durations. After well construction and hydraulic testing, seeding would be conducted to maintain native plant composition and provide cover to stabilize soils and the watershed. A seed mixture would be applied to the disturbed areas within both the permanent and temporary sites at the completion of construction, with the exception of a small area for access around each well. The seed mixture would be certified weed-free and consist of crested wheatgrass (*Agropyron cristatum*) and Indian rice grass (*Oryzopsis hymenoides*) at 10 pounds per acre (ratio at 7:3lbs/acre) based upon 2008 field surveys. The seed would be applied in late fall or early winter to increase potential success of germination. The seeding mixture would be approved by the BLM prior to restoration efforts based on seed availability and price. Upon completion of this rehabilitation, the short-term ROW would be terminated.

If, after completion of the Clark, Lincoln, and White Pine Counties Groundwater Development Project EIS, it is desired to use the groundwater monitoring/testing wells for production, SNWA would apply to change the point of diversion for its water rights with the State Engineer, and apply for a modification of the ROW grant along with additional ROWs for other necessary facilities including power supply, pipeline, and well equipping from the BLM. Analysis of the

impacts from the production wells would occur in a NEPA document tiered to the EIS currently being prepared for the Clark, Lincoln, and White Pine Counties Groundwater Development Project.

If upon expiration of the ROW grants, these wells are desired for continued monitoring or testing, SNWA would request a ROW permit extension. If not desired for continued monitoring and testing by SNWA, the BLM, or other entities, SNWA would abandon the wells. Well abandonment and plugging would be in accordance with the Nevada Division of Water Resources requirements, set forth in the Nevada Administrative Code, including but not limited to sections 534.420 and 534.43. Prior to termination of the ROW grant, rehabilitation of the access road and well site would occur as described above, and the ROW would be terminated in accordance with BLM requirements.

6. Environmental Protection Measures

Environmental protection measures would be implemented during the drilling and testing activities, as summarized below.

- **Migratory Birds-** If well construction activities occur during critical nesting period, the area of disturbance would be flagged and a wildlife team would conduct breeding bird surveys no more than one week prior to the disturbance to identify if migratory bird breeding or nesting is occurring in the area. The BLM wildlife team would be notified and either the BLM wildlife team or the proponent would conduct the required survey. Authorization for construction during this breeding period would be contingent on the findings of the survey and guidance from the BLM.
- **Non-native Invasive Species and Noxious Weeds-** All drilling and earthmoving equipment would be washed prior to arrival at the Proposed Action sites, prior to moving between sites and prior to removal to prevent and minimize the introduction or spread of non-native vegetation. All washing would occur at the drilling sites, except for the initial washing which would occur off-site.
- **Garbage-** The Proposed Action sites would be kept free from any accumulation of litter including but not limited to trash, garbage, refuse, ashes and equipment during construction and left in a clean and safe condition. Litter would be placed in storage containers on-site and properly disposed of at an authorized off-site disposal location. Failure to remove litter may result in assessment of damages by the BLM Authorized Officer.
- **Wastes (Hazardous/Solids)-** Hazardous and toxic materials such as fuels, solvents, and lubricants used during drilling would be controlled to prevent accidental spills. Spill cleanup kits would be available on-site, so that any accidental spills could be quickly cleaned up. Any soils or sediments affected by accidental spills would be dug up and properly disposed of at a permitted disposal facility. SNWA would be responsible for clean-up and assumes liability for any and all releases made by SNWA, its contractors, agents or employees of hazardous substances associated with the Proposed Action. SNWA would immediately notify the BLM Authorized Officer and the National Response Center at 687-9485 or 888-331-6337 (NDEP) on all spills/releases in which the reportable quantity for the particular compound is exceeded (40 CFR Part 302). A Spill Prevention, Control, and Countermeasure Plan and a Spill Control Plan would be

developed by the construction contractor and kept on site in their vehicles prior to commencing work. The plans would identify where hazardous materials and wastes are stored on site, spill prevention measures to be implemented, training requirements, appropriate spill response actions, the locations of spill response kits on site, and procedures for making timely notifications to authorities. The construction contractor would also develop and keep on site a Hazardous Materials Management Plan addressing storage, use, transportation, and disposal of hazardous materials anticipated to be used at the site. It would establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess material. The plan would also identify requirements for notices to federal and local emergency response authorities and include emergency response plans. The contractor would maintain Material Safety Data Sheets for all hazardous materials that would be used, stored, or transported at the Proposed Action sites. All hazardous materials would be handled in accordance with manufacturer's written recommendations and by methods and means that would prevent damage, deterioration, and loss. The contractor would maintain a sanitary site with no dumping of sewage or litter. SNWA contracted services would periodically pump port-a-potties and haul offsite for disposal.

- Fire- Fire suppression equipment, including extinguishers and shovels, would be available on-site during drilling activities.
- Erosion Control- During discharge of drilling or hydraulic water testing, certified weed-free straw barriers, or flexible hose or impoundments within approved ROWs, would be used to contain water flow as needed. Discharged water would be directed to avoid existing roads and not impact existing travel routes. If necessary, a certified weed-free energy dissipater, rock rip-rap, or other erosion control measures would be used to reduce discharge rates to prevent scouring.
- Cactus and Yucca Salvage- Salvage of all Joshua trees and banana yucca (1 to 8 feet tall), golden cholla cactus (1 to 3 feet tall) and hedgehog cactus would be conducted prior to site disturbing activities at DEL4004X. All Joshua trees, banana yucca, golden cholla and hedgehog cacti whose vegetative mass is more than 40 percent dead would not be salvaged but instead be mulched. Salvaged Joshua trees, banana yucca, golden cholla and hedgehog cactus would be transplanted to BLM land on a burn site near DEL4003X (specific area to be designated by the BLM prior to salvage operations).

Monitoring

Noxious and invasive weed populations would be monitored at the well sites. Seedling establishment, which would stabilize soils and minimize the introduction and spread of weeds, would also be monitored at the well sites.

B. No Action Alternative

Under the No Action Alternative, the ROW would not be issued and the Proposed Action would not occur. The hydraulic data would not be obtained for the Delamar Valley area. Without this data, there would be limited information to assess aquifer properties, including transmissivity and storage parameters and hydraulic conductivity to better understand carbonate and alluvial aquifers in this area. Furthermore, there would be no data available to assist Federal, state, and

local agencies in their current and future decision making in groundwater modeling analyses and impact assessments.

C. Alternatives Considered But Eliminated From Detailed Analysis

No additional site-specific alternatives are necessary for analysis as no unresolved conflicts concerning alternative uses of available resources have been identified.

III. AFFECTED ENVIRONMENT

The area affected by the Proposed Action is located in Delamar Valley in Lincoln County, Nevada. It is bound by the Pahrangat Valley, Hiko Range, and South Pahroc Range on the west and by the Delamar Mountains on the east. The topography in the area is typical of that found in the Basin and Range physiographic province of the western United States.

A. Mandatory Items for Consideration

The following items have been evaluated for the potential for significant impacts to occur, either directly, indirectly or cumulatively, due to implementation of the proposed action. Consideration of some of these items is to ensure compliance with laws, statues or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Ely BLM in particular.

The mandatory items for consideration are listed in Table 1. A brief rationale for either considering or not considering the issue or resource further is also provided. The resources, uses and issues considered in the EA are described in the Affected Environment section of this EA, and are analyzed in the Environmental Consequences section. Rationales for those issues that would be dismissed from analysis are also listed in Table 1. These items would not be considered further in this document.

Table 1. Mandatory Items for Consideration and Rational For Detailed Analysis for the Proposed Action

Resource/Concern	Issue(s) Analyzed? (Yes/No)	Rationale for Dismissal from Analysis or Issues(s) Requiring Detailed Analysis
Access	No	There are no access routes that would be blocked by the project activities.
Air Quality	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Areas of Critical Environmental Concern (ACEC)	No	There are no ACECs within the vicinity of the Proposed Action.
Cultural Resources	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Environmental Justice	No	No minority or low-income groups would be affected by disproportionately high and adverse health or environmental impacts.
Farmlands (Prime or Unique)	No	Resource is not present.
Floodplains	No	The Federal Emergency Management Agency’s Flood Insurance Rate Maps for Lincoln County, Nevada (Unincorporated Areas) panels were reviewed. The Proposed Action sites are within Zone D, or “Areas of undetermined, but possible, flood hazards”. While flood hazards are possible, due to the small size and placement of the groundwater wells, the Proposed Action would have no effect on a large flood event if it should happen in the area.

Table 1. Mandatory Items for Consideration and Rationale for Detailed Analysis for the Proposed Action (continued)

Resource/Concern	Issue(s) Analyzed? (Yes/No)	Rationale for Dismissal from Analysis or Issues(s) Requiring Detailed Analysis
Forest and Rangeland Health	No	The Proposed action would have no impact on rangeland health based on an evaluation of the five Standards for Rangeland health namely (1) watershed function – uplands, (2) watershed function – riparian/wetlands areas, (3) ecological process, (4) water quality, and (5) native, threatened and endangered, and locally important species.
Geology and Minerals	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Land Use	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Migratory Birds	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Native American Concerns	No	The Confederated Tribes of the Goshute Indian Reservation, Ely Shoshone Tribe, Southern Paiute Bands and Duckwater Shoshone Tribe are located near the project area. Native American resources located on the reservations are managed and protected by the tribes. Native American resources located off the reservations and on land administered by the BLM are managed and protected by the BLM; however, no Indian trust assets have been identified on BLM-administered lands within the Ely District. In May 2008, consultation letters were mailed to tribes within the project area concerning the proposed land action by the District Manger of the BLM Ely District Office and no issues or concerns were identified.

Table 1. Mandatory Items for Consideration and Rationale for Detailed Analysis for the Proposed Action (continued)

Resource/Concern	Issue(s) Analyzed? (Yes/No)	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
Non-native, Invasive Species and Noxious Weeds	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Paleontological Resources	No	The proposed well sites are located within Pliocene and Pleistocene alluvial deposits, which do not typically contain fossils. Cave or fissure deposits which might contain pack rat middens have not been documented within the proposed well sites.
Public Services and Utilities	No	CC-20073 and N-12869 are authorized overhead power lines. These projects would not be disturbed or blocked.
Range/Livestock Grazing	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Recreation	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Special Status Species (Federally Listed, Proposed, and Candidate Species; State Listed Species; and BLM Sensitive Species)	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Soils	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Vegetation	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Visual Resource Management	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Wastes (Hazardous or Solid)	No	Visual inspections of the Proposed Action sites were conducted by SNWA personnel in the spring of 2008 and no hazardous or solid

Table 1. Mandatory Items for Consideration and Rationale for Detailed Analysis for the Proposed Action (continued)

Resource/Concern	Issue(s) Analyzed? (Yes/No)	Rationale for Dismissal from Analysis or Issue(s) Requiring Detailed Analysis
		wastes were observed and no known hazardous or solid waste are known to occur within the vicinity of the sites.
Water Resources (Water Rights)	No	The amount of groundwater pumped for the hydraulic testing would have no measurable impacts on groundwater resources. There may be localized groundwater drawdowns in the immediate vicinity of the testing wells. These drawdowns would quickly recover at the termination of testing.
Water Quality (Drinking and Ground)	No	The wells would be drilled using standard practices to protect ground water resources. Discharged groundwater would quickly percolate back into the ground, and no impacts to surface waters or drainages would occur.
Wetlands/Riparian	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.
Wild Horses and Burros	No	There are no Herd Management Areas within the vicinity of the project area.
Wild and Scenic Rivers	No	There are no wild or scenic rivers in the project area.
Wilderness	No	The project area is not in a federally designated Wilderness area. However, the Delamar Mountains Wilderness Area boundary is approximately 60 feet south of the proposed DEL4003X well site.
Wildlife	Yes	Analyzed in Potentially Affected Resources and Environmental Consequences sections.

B. Potentially Affected Resources

From initial scoping with the BLM Interdisciplinary Team and based on BLM's review of existing baseline data or surveys conducted in preparation of this EA, the following resources may potentially be affected:

1. Air Quality

The Ely District is currently in attainment with local, state and Federal air quality standards. The area is designated as in attainment for particulate matter with a diameter of 10 microns or less (PM₁₀) and as unclassified for other criteria air pollutants, indicating that existing air quality is within applicable National Ambient Air Quality Standards. The air is primarily impacted by particulate air matter produced by wildfire, prescribed burning, road or wind-blown dust, construction, mining, and vehicle use. Of these, the largest is smoke emissions from wildfires, consisting mostly of PM₁₀.

2. Cultural Resources

On April 8, 2008, Don W. Jolly (SNWA/Parsons archaeologist), under BLM Cultural Resource Use Permit Number N-83690 and FANV 04-08-22, conducted a site file search at the BLM Ely Field Office for the presence of previously recorded archaeological sites and previous studies located within a one-mile radius of the Proposed Action locations. In addition, a record search for previously recorded archaeological sites and previous studies was completed online on the state database Nevada Cultural Resource Information System site file computer system. Historic plats and maps were also examined online at two websites:

- Nevada BLM General Land Office (Electronic document, <http://www.nv.blm.gov/LandRecords>, accessed February 11, 2008), and
- University of Nevada, Reno, DeLaMare Library, Nevada in Maps collection (Electronic document, <http://www.delamare.unr.edu/maps/digitalcollections/nvmaps>, accessed February 11, 2008).

A total of seven archaeological surveys have been conducted within approximately one mile of the Proposed Action locations (Table 2). During these surveys, a total of five isolated occurrences (26LN2349, 26LN2359, 26LN2360, 26LN3360, and 26LN2151) and four archaeological sites (26LN1687, 26LN2316, 26LN2350, and 26LN3661) were recorded near DEL4003X. Of the four archaeological sites, one site (26LN3661) was identified as a historic property and was eligible for the National Register of Historic Places. None of the isolated occurrences or archeological sites are located within the footprint of the Proposed Action or hydraulic testing flow path (Table 3). The site that is eligible for the National Register of Historic Places is located uphill in the hills and across a dirt road from DEL4003X.

Table 2. Previous Surveys Within One Mile of the Proposed Action Locations

Proposed Action Site	Previous Survey	Report Title / Description	Reference
DEL4003X	5-400	Class II Cultural Resources Field Sampling Inventory along Proposed IPP Transmission Line Corridors, Utah-Nevada California. DRI Publication No. 72004.	Fowler, Don D., E. Budy, D. Desart, J. Bath, and A. Smith 1978
	5-1725	Cultural Resource Inventory and Evaluation for Williams Telecommunication Company's Fiber Optic Cable Right-of-Way: Nevada-Utah State Line to California-Nevada State Line. Woodward Clyde Consultants, Walnut Creek, California. BLM Cultural Resources Report No. 5-1725.	Stornetta, Susan 1987
	5-906	Cultural Resource Assessment for Proposed Valley Fill Aquifer Studies at 6 Locations in Delamar, Big Smoky, Dry Lake, Pahroc, and Penoyer Valleys in Esmerelda and Lincoln Counties, Nevada. BLM Cultural Resources Report No. 5-906(P).	ERTEC 1981
	5-5036	No data available	No data available
	NV04-99-1302	No data available	No data available
	6-1593	No data available	No data available
DEL4004X	4-386	The Construction of a Haul Road in Connection with the Mineral Material Sale #235127. BLM Cultural Resources Report No. 1-477.	Behrer and Remsen 1982

Table 3. Previously Recorded Sites Within One Mile of the Proposed Action Locations

Proposed Action Site	Previously Recorded Site	Description	Eligible for National Registry
DEL4003X	26LN1687	Lithic scatter	Not eligible
	26LN2316	Lithic scatter	Not eligible
	26LN2350	Historic trash scatter	Not eligible
	26LN3661	Rockshelter	Eligible
	26LN2349	Isolated flake	Not eligible
	26LN2359	Isolated flake	Not eligible
	26LN2360	Isolated flake	Not eligible
	26LN3360	Isolated Elko point	Not eligible
	26LN2151	Isolated can	Not eligible
DEL4004X	None	Not applicable	Not applicable

In addition to the file searches conducted by Mr. Jolly, HRA Inc. archaeologists conducted a site visit to the Proposed Action locations on April 7 and 8, 2008. No archeological sites were identified.

3. Geology and Minerals

DEL4003X borders the hydrographic boundary just west of the Pahrangat shear zone structure. The shear zone is associated with fractured tuffs. DEL4004X is located on an alluvial fan within proximity to a buried shear zone structure.

To determine if mining claims exist within the Proposed Action area a Mining Claim Geographic Report was conducted on March 24, 2008 through BLM's database LR 2000 (<http://www.blm.gov/lr2000/>). This type of report displays all claims by a specific geographic area. According to the Mining Claim Geographic Report, the Proposed Action site DEL4004X is within the same area as one active mining claim. The mining claim location and serial number is Township 5 South, Range 64 East, Section 15: NMC856247. To determine the exact location of the mining claim, a location map for the claim was ordered from the BLM Nevada State Office. The map indicates that the active claim is not within the boundary of the Proposed Action and is about ¼ mile east of the Proposed Action. There are fifteen closed mining claims within the vicinity of the Proposed Action sites.

Nevada Bureau of Mines and Geology records show that independent petroleum companies conducted oil and gas exploration drilling in Delamar Valley in the 1970s. The exploration wells were approximately 4,500 feet in depth. The results of the exploration efforts were negative and indicated the lack of geologic formations and the lack of appropriate geologic structures for the presence of oil and gas to exist.

4. Land Use

To determine if any granted or pending ROWs utilize the federal land, a Case Recordation Geo Report with Customer search was conducted on March 21 and 25, 2008 through BLM's database LR 2000. Additionally, BLM's Master Title Plats were reviewed to determine if any encumbrances were depicted on the maps.

Two ROW grants have been issued at or within the vicinity of the Proposed Action sites.

- N-43923: ROW issued to MCI Worldcom Network Svc Inc on August 15, 1986 for an underground 10 foot total width fiber optics line.
- N- 63221: ROW issued to Level 3 on March 1, 2000 for a 15 foot total width fiber optics line.

There is one pending ROW grant at or within the vicinity of the Proposed Action sites.

- N-78803: ROW pending application submitted by SNWA on July 15, 2004 for the proposed Clark, Lincoln, and White Pine Counties Groundwater Development (GWD) Project.

5. Migratory Birds

Under the Migratory Bird Treaty Act of 1918 and subsequent amendments (16 U.S.C. 703-711), it is unlawful to take, kill, or possess migratory birds. Executive Order 13186 issued January 11, 2001 further defines the responsibilities of Federal Agencies to protect migratory

birds. The issuance of a ROW grant for this project requires compliance with the Migratory Bird Treaty Act and avoidance of potential impacts to listed birds.

The BLM maintains the Bird Species of Conservation concern List (USFWS Migratory Bird Program Strategic Plan 2004-1014), (per BLM guidance). This list is used by the BLM to prioritize migratory bird conservation action. The species below were taken from the BLM's Bird Species of Conservation Concern List, and are expected to occur within Delamar Valley. These species are generally associated with Great Basin sagebrush habitats, with some overlap into other habitats such as pinyon juniper, or riparian habitat. These are all primarily passerine birds or raptors.

Migratory Birds of Conservation Concern

Black-throated Gray Warbler (BTGW) <i>Dendroica nigrescens</i>	Northern Harrier (NOHA) <i>Circus cyaneus</i>
Brewers Sparrow (BRSP) <i>Spizella breweri</i>	Peregrine Falcon (PEFA) <i>Falco peregrinus</i>
Burrowing Owl (BUOW) <i>Athene cunicularia</i>	Pinyon Jay (PIJA) <i>Gymnorhinus cyanocephalus</i>
Ferruginous Hawk (FEHA) <i>Buteo regalis</i>	Prairie Falcon (PRFA) <i>Falco mexicanus</i>
Golden Eagle (GOEA) <i>Aquila chrysaetos</i>	Sage Sparrow (SAGS) <i>Amphispiza belli</i>
Greater Sage-Grouse (GRSG) <i>Centrocercus urophasianus</i>	Short-eared Owl (SEOW) <i>Asio flammeus</i>
Grey Vireo (GRVI) <i>Vireo vicinior</i>	Spotted Towhee (SPTO) <i>Pipilo maculatus</i>
Horned Lark (HOLA) <i>Eremophila alpestris</i>	Vesper Sparrow (VESP) <i>Pooecetes gramineus</i>
Loggerhead Shrike (LOSH) <i>Lanius ludovicianus</i>	Yellow Warbler (YWAR) <i>Dendroica petech</i>

Species that were on the BLM list were carried forward for analysis of probability of occurrence, and to ensure that construction timing and mitigation measures sufficiently protect and preserve breeding of these species. A predictive model created by the Great Basin Bird Observatory (GBBO) was used to analyze probability of occurrence. The model predicts probability of occurrence based on latitude, vegetation type, and elevation. It should be noted that use of predictive models comes with a degree of uncertainty, because the model generalizes probability across the landscape, species that are generalists may be over-predicted, whereas species that have highly specific habitat requirements may be under-predicted.

Application of the predictive model was accomplished in ArcMap, by overlaying well sites shapefiles with GBBO probability maps for each of the 18 species of conservation concern. Effects analysis was carried out where the probability of sensitive bird occurrence was 50 percent or greater. Two species met the 50 percent criterion: Black-throated Gray Warbler (*Dendroica nigrescens*) and Loggerhead Shrike (*Lanius ludovicianus*).

The probability occurrence of the Black-throated Gray Warbler was 50 percent at both proposed well sites. The Black-throated Gray Warbler breeds in more arid environments and primarily inhabits mid-elevation pinyon-juniper woodlands. In the Great Basin, the earliest breeding date for the warbler was May 11th with signs of nest building occurring. By late May, active nests were seen in the Mojave Desert. Late July ended the breeding season in the Great Basin, while the Mojave Desert saw an end in mid-August.

The probability occurrence of the Loggerhead Shrike was greater than 50 percent at both proposed well sites. Loggerhead Shrike prefers arid open country with just a few perches or lookouts in desert shrublands, juniper and pinyon-juniper woodlands. The breeding period ranges from mid-April through early August.

6. Non-native, Invasive Species and Noxious Weeds

The BLM defines a weed as a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition, and diversity of the site it occupies. The presence of a weed deteriorates the health of the site, makes efficient use of natural resources difficult, and may interfere with management objectives for that site. A weed is an invasive species that requires a concerted effort (manpower and resources) to remove from its current location, if it can be removed at all. "Noxious" weeds refer to those plant species which have been legally designated as unwanted or undesirable. This includes national, state, county, or local designations.

Botanical surveys of the well sites and the associated access road and discharge drainage paths that may be disturbed by the Proposed Action were conducted on March 31 and April 22, 2008 by SWCA Environmental Consultants. The invasive non-native species cheatgrass (*Bromus tectorum*) and filaree (*Erodium cicutarium*) were observed at site DEL4003X. An invasive species of mustard was also observed at this site. Invasive species observed at site DEL4004X included cheatgrass, filaree, horehound (*Marrubium vulgare*), and Russian thistle (*Salsola tragus*). The official Nevada Department of Agriculture list of noxious weeds does not include these invasive non-natives as Nevada noxious weeds. No noxious weeds were found during the survey. A Risk Assessment for Noxious & Invasive Weeds was completed for the Proposed Action and submitted to the BLM on May 22, 2008 (see Attachment 2). The likelihood of noxious/invasive weed species spreading to the Proposed Action sites (Factor 1) rates as Moderate (4) and the consequences of noxious/invasive weed establishment at the Proposed Action sites (Factor 2) rates as High (8). The Risk Rating for the Proposed Action is Moderate (32).

7. Range/ Livestock Grazing

The BLM manages grazing under the authority and grazing and rangeland specific laws (Taylor Grazing Act of 1934, and Public Rangelands Improvement Act of 1978) and the mandates of the Federal Land Policy and Management Act of 1976 that stipulates management of public lands under the principals of sustainability and multiple use. Under this management, ranchers may obtain permits for an allotment of public land on which a specified number of livestock may graze. Term permits authorize grazing use based on perennial vegetation. The number of permitted livestock on a particular allotment is determined by how many animal unit months (AUMs) that the land will support. An AUM is the amount of forage needed to sustain one 1,000-pound cow and her calf, five sheep, or five goats for a month. The BLM operates a program to stabilize or improve the ecological condition of the allotments. The program includes proper management of livestock grazing and such improvements as fences and water developments. The Proposed Action well sites would occur in the two grazing allotments of Buckhorn and Oak Spring.

Site DEL4003X would be located in the Buckhorn grazing allotment which consists of 80,622 acres. The Delmar Valley Cattle Company grazes cattle on the Buckhorn Allotment. The Buckhorn Allotment permits cattle use on a year-round basis (Table 4).

Table 4. Allotment Information for Buckhorn Grazing Allotment

Allotment/Use Area	Number of Livestock	Kind of Livestock	Type of Use	Period of Use	Percent Public Lands	Permitted Use (AUMS)
Buckhorn	281	Cattle	A	03/01 to 02/28	100%	3,372

Site DEL4004X would be located in the Oak Springs grazing allotment which consists of 197,946 acres. The Delmar Valley Cattle Company grazes cattle on the Oak Springs grazing allotment. The Oak Spring Allotment permits cattle use on a year-round basis (Table 5).

Table 5. Allotment Information for Oak Springs Grazing Allotment

Allotment/Use Area	Number of Livestock	Kind of Livestock	Type of Use	Period of Use	Percent Public Lands	Permitted Use (AUMS)
Oak Springs	773	Cattle	A	03/01 to 02/28	100%	9,276

8. Recreation

Recreation through the BLM’s Ely Field Office is managed through the designation of special recreation management areas (SRMA) and extensive recreation management areas (ERMA) as described in the Final Ely RMP (dated August 2008). A SRMA is an area where more intensive recreation management is needed. An ERMA includes all BLM managed land outside the SRMA and may include developed and primitive recreation sites with minimal facilities. The Proposed Action sites are within an ERMA. Well site DEL4004X is located approximately 0.7 miles from the North Delamar SRMA, as described in the Ely RMP.

The majority of recreation within the Delamar desert valley is dispersed casual use; however, Delamar Dry Lake is becoming popular for dry lake bed related recreation such as land sailing as well as permitted events including fireworks, rocket clubs and permitted motorcycle events in the dry lake bed area. Site DEL4003X and DEL4004X are located approximately 3.0 miles south and 14.5 miles north of the Delamar Dry Lake, respectively.

The mountains and desert valleys surrounding the project area offer a variety of dispersed recreation opportunities on BLM-administered public lands. Recreational activities in the project area typically include OHV and motorcycle use on existing roads, trails and dry washes, hiking, sightseeing, and camping. The nearest BLM-administered OHV area is the Silverstate OHV Trail and the Red Rhyolite Trail. The Silverstate OHV Trail provides a back country off-roading experience along 260 miles of designated trails. The Silverstate OHV trail is approximately 11 miles northeast of site DEL4004X. The Red Rhyolite Trail for OHVs is approximately 9 miles northeast of the well site DEL4004X. The Caliente motorcycle special recreation permit (SRP) area is located approximately 4 miles north of DEL4004X.

There are no state parks or state recreation areas in the project area.

The mountains and valleys surrounding the Proposed Action area offer a variety of seasonal hunting opportunities on BLM-administered public lands. According to the 2008 Nevada Hunt

Book (for the 2008-2009 hunting season), the proposed well sites are within Hunt Area 24 and in Unit Group 241. Proposed site DEL4003X is located at approximately 4,730 feet in elevation. For this reason, the site is within hunting range for pronghorn antelope and mule deer between August 1 and November 5. Proposed site DEL4004X is located at approximately 5,260 feet in elevation, and it is within the hunting range for pronghorn antelope, mule deer, and elk between August 1 and November 18. Both sites are within the hunting range for Desert bighorn sheep from November 10 to December 10.

According to Nevada Division of Wildlife (<http://www.ndow.org/hunt/seasons/mig/index.shtml>) for the 2008-2009 hunting season, the wells DEL4003X and DEL4004X are in the hunting range for upland game species, furbearer animals, and mountain lion. The hunting season for furbearer animals and upland game species extends from September 1 to April 15 and the hunting season for mountain lion is year long.

9. Soils

The Natural Resources Conservation Service (NRCS) maintains a database on soils in the project region. Based on soil types, the NRCS database provides an ecological site description (ESD). Each ESD describes the soil characteristics, site location and elevation, average annual precipitation, and the potential native vegetation (grasses, forbs, shrubs and trees). The ESDs for the Proposed Action sites are summarized below (<http://soildatamart.nrcs.usda.gov/Report.aspx?Survey=NV779&UseState=NV>, accessed on December 5, 2008).

Soils around site DEL4003X are classified as Delamar-Koyen association (map unit symbol 1534). The ESD is a DROUGHTY LOAM 5-8" P.Z. (R029XY079NV) for both soils and is described as:

- Occurs on piedmont slopes and slope gradients are typically 2 to 15 percent;
- Soils are moderately deep to deep alluvium derived primarily from volcanic rock sources and soil textures are loams to gravelly loams;
- Soils are well drained, runoff is slow, and permeability is moderately slow to moderately rapid;
- Available water capacity is very low to moderate;
- Potential native plant community (as described in the NRCS database) is dominated by spiny hopsage, Nevada ephedra, Indian ricegrass and desert needlegrass; and
- Potential native vegetation composition is 45% grasses, 5% forbs and 50% shrubs.

The proposed access road to site DEL4003X borders two different ESD units. To the south the ESD is the Pintwater-Rochpah association (map unit symbol 1460) and to the north is the Delamar-Koyen association (map unit symbol 1534). The Delamar-Koyen association is described above. The Pintwater ESD is Bouldery Slope 5-8" P.Z. (R029XY085NV) and exhibits the following characteristics:

- Occurs on extremely bouldery side slopes and summits of hills and low mountains with slope gradients of 15 to 50 percent;

- Soils are coarse textured, shallow and formed in residuum and colluvium from volcanic rock;
- Soils are well drained with moderately rapid permeability;
- Infiltration is rapid and available water holding capacity is very low to low;
- The potential native plant community (as described in the NRCS database) is dominated by green ephedra and desert needlegrass with scattered, short-statured Utah juniper trees occurring sporadically over the site; and
- The potential native vegetation composition is 45% grasses, 50% shrubs and trees.

The Rochpah ESD is Shallow Gravelly Loam 5-8" P.Z. (R029XY013NV) and exhibits the following characteristics:

- Occurs on summits and side slopes of hills and lower mountains on all exposures with slope gradients of 15 to 50 percent;
- Soils are shallow and have formed in residuum or colluvium from volcanic flow rock, tuff or quartzite;
- Soils are well drained, runoff is rapid, and permeability is moderately slow;
- Water and erosion hazards are slight unless the surface is physically disturbed;
- Potential native plant community (as described in the NRCS database) is dominated by black brush. Indian rice grass, Nevada ephedra, and bud sagebrush are also present at the site; and
- Potential native vegetation composition is 15% grasses, 5% forbs and 80% shrubs.

Site 4004X is also located at the border between two different ESD units. To the south is the Tybo-Leo association (map unit symbol 1473), and to the north is the Delamar-Koyen association (map unit symbol 1534). The Delamar-Koyen association is described above. The Tybo-Leo ESD is DROUGHTY LOAM 5-8" P.Z. (R029XY079NV) and exhibit the following characteristics:

- Occurs on piedmont slopes and slope gradients are typically 2 to 15 percent;
- Soils are moderately deep to deep alluvium derived primarily from volcanic rock sources and soil textures are loams to gravelly loams;
- Soils are well drained, runoff is slow, and permeability is moderately slow to moderately rapid;
- Available water capacity is very low to moderate;
- Potential native plant community (as described in the NRCS database) is dominated by spiny hopsage, Nevada ephedra, Indian ricegrass and desert needlegrass; and
- Potential native vegetation composition is 45% grasses, 5% forbs and 50% shrubs.

10. Special Status Species (Federally Listed, Proposed and Candidate Species; State-Protected Species; and BLM Sensitive Species)

Special status species known to occur with the vicinity of site DEL4003X and its access road include Ferruginous Hawk (*Buteo regalis*) (Nevada State Protected and BLM Sensitive Species), Prairie Falcon (*Falco mexicanus*) (Nevada State Protected and BLM Sensitive Species), and Brazilian free-tailed bat (*Tadarida brasiliensis*) (Nevada Special Status Species and Nevada State Protected). Special status species known to occur within the vicinity of site DEL4004X include the Prairie Falcon and Golden Eagle (*Aquila chrysaetos*) (Nevada Special Status Species and Nevada State Protected)

Sensitive species biological surveys of the well sites and the associated access road and discharge drainage paths were conducted on March 31 and April 22, 2008 for site DEL4003X and on March 31, 2008 for site DEL4004X by SWCA Environmental Consultants. No federally listed, proposed or candidate plant or animal species and no sensitive plant or wildlife habitat were observed within the Proposed Action sites. One Loggerhead Shrike (*Lanius ludovicianus*) (BLM Special Status and Nevada State Protected Species) and Pinyon Jays (*Gymnorhinus cyanocephalus*) (BLM Special Status and Nevada State Protected Species) were observed flying through site DEL4003X and site DEL4004X, respectively.

11. Vegetation

Botanical surveys of the well sites and the associated access road and discharge drainage paths that may be disturbed were conducted on March 31 and April 22, 2008 for site DEL4003X and March 31, 2008 for DEL4004X by SWCA Environmental Consultants. Site DEL4003X is characterized as a Recently Burned National Vegetation Classification since it was burned by a wildfire in 2006. Anderson lycium (*Lycium andersonii*) was the dominant species observed at the site. Thirty-one scattered Joshua trees (*Yucca brevifolia*) were identified, but were mostly small new sprouts re-growing from the wildfire. Six golden cholla (*Opuntia echinocarpa*), five old man cacti (*Opuntia erinacea*), and two Simpson's foot cacti (*Pedicactus simpsonii*) were also observed. Prior to the fire, site DEL4003X may have been characterized as a Mojave Mid-elevation Mixed Desert Shrub, with Joshua tree and banana yucca (*Yucca baccata*) as the dominant species. The lower end of the discharge drainage area corresponded to the Intermountain Basins Mixed Salt Desert Scrub with an almost pure stand of saltbush (*Atriplex* sp.), and scattered budsage (*Artemisia spinescens*) as an associate. The site was moderately grazed and contained desert threeawn, desert needlegrass, galleta grass, spiny hopsage, four-wing saltbush, winterfat, and ephedra.

Site DEL4004X is characterized as Mojave Mid-elevation Mixed Desert Shrub, with Joshua tree and banana yucca as the dominant species. Total, 178 Joshua tree, 160 banana yucca clusters, 61 golden cholla, 4 hedgehog cactus (*Echinocereus engelmannii*), and 3 pincushion cactus (*Escobaria vivipara*) were counted. Site DEL4004X is within the Delamar Mountains Joshua Tree Woodland. The site was moderately grazed and contained desert threeawn, desert needle grass, galleta grass, spiny hopsage, four-wing saltbush, winterfat, and ephedra.

12. Visual Resource Management

For lands managed by the BLM, Visual Resource Management (VRM) objectives have been developed to protect the most scenic public lands, especially those lands that receive the greatest amount of public viewing. The VRM system is the basic tool used by the BLM to inventory and manage visual resources on public lands. VRM classes are objectives that outline the amount of disturbance an area can tolerate before it no longer meets the visual quality of that class. The VRM classifications range from Class 1, the most restrictive, to

Class 4, the least restrictive. The VRM takes visual values for an area into account in order to establish management objectives and actions. Visual resources contribute to peoples' enjoyment when using an area and may be unique or unusual landscapes of natural scenic value.

The Proposed Action area is located in the Great Basin Desert, Delamar Valley. The area is characterized by clear skies and broad, open landscapes of the flat valley bottom bounded by mountain ranges. The valley vegetation has little variety and the color variation is subtle and generally muted shades. The vegetation cover is low and fairly common within the region. The landscapes do not contain any unique scenic vistas, features or landforms and are common to the well site areas; however, the natural setting is an important aspect of the Delamar Valley terrain.

The well sites are all located within a remote and natural area that is nearly free from man-made facilities or structures. Evidence of human modification includes dirt roads. A utility corridor is located approximately one mile west of site DEL4004X and approximately 0.5 miles west of site DEL4003X. The well site DRY4004X would be located adjacent to an existing dirt road and DRY4003X would be located on a short, new dirt road, both of which would receive only sporadic visitation by motorized vehicles. The well site areas have a low volume of dispersed use and visitors would have nearly zero social encounters per day. Once construction was complete, the social setting at the sites would return to pre-construction levels. During the night, construction activities at the well site would be seen throughout the valley which may lead to increased social encounters from curious recreationists traveling off road. Once constructed, the color of the short (two to three feet) well head and possible future well housing would be a shade selected to conform to the surrounding landscape at each site. Well sites DEL4003X and DEL4004X are considered to be in the VRM Class 4 and Class 3, respectively. The VRM classes describe the different degrees of modification allowed to the basic elements of the landscape. The objective within a Class 3 management class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. The objective within a Class 4 management class is to provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

13. Water Quality, Drinking/Ground

Groundwater in Delamar Valley occurs in both a shallower basin-fill (alluvial) aquifer, and a deeper carbonate rock aquifer. To date there has been limited groundwater pumping in Delamar Valley. Public water supply intakes do not occur at the Proposed Action sites.

14. Wetlands / Riparian

As stated in the section above on water resources, the springs in the vicinity of the Proposed Action sites include Grassy Spring, Sawyer Spring, Cottonwood Spring, Hughie Spring, New Indian Spring, and Blythe Spring. These areas are the only areas near the project area that have the potential to host wetlands and riparian species. Although the primary vegetation association with Grassy Spring is hardstem bulrush (*Schoenoplectus acutus*) most of the area at Grassy Spring is classified as open water with no vegetation (BIO-WEST, 2007).

The remaining springs described in the Water Resources section above would most likely have associated riparian species however, since the springs could not be located however, these species cannot be detailed.

15. Wildlife

The diversity of wildlife resources around the Proposed Action sites is typical of Great Basin ecological systems. Site DEL4003X is characterized as a Recently Burned National Vegetation Classification because it was burned by a wildfire in 2006. Prior to the fire, the vegetation types or communities that comprised the primary wildlife habitats in the DEL4003X Proposed Action area consisted of Mojave Mid-elevation Mixed Desert Shrub, and the lower end of the discharge drainage area corresponded to the Intermountain Basins Mixed Salt Desert Scrub. Site DEL4004X is characterized as Mojave Mid-elevation Mixed Desert Shrub (SWCA, 2008).

Big game species in these habitat zones primarily include pronghorn antelope, mule deer, and desert bighorn sheep. Both sites DEL4003X and DEL4004X are located within pronghorn antelope habitat, and near mule deer and desert bighorn sheep habitat.

Nongame species found at the Proposed Action sites include a diversity of small mammals, raptors, passerines, amphibians, and reptiles. Examples include a variety of rabbits, lizards and raptors.

While sensitive species biological surveys were conducted by SWCA Environmental Consultants on March 31, 2008 and April 22, 2008, wildlife species and wildlife species sign were also noted. While these surveys only represent a snapshot in time, species included in the reports include desert cottontail, antelope ground squirrel, desert iguana, desert horned lizard, side-blotched lizard, cactus wren, ladder-backed woodpecker, common raven, chukar, loggerhead shrike, Say's phoebe, and red-tailed hawk.

IV. ENVIRONMENTAL CONSEQUENCES

A. Proposed Action

The following resources have been analyzed and may be potentially impacted by the Proposed Action.

1. Air Quality

Any dust generated during construction activities would be minimal and short term in duration. The use of water for dust suppression would minimize fugitive dust. Thus the Proposed Action would have little, if any, impacts to air quality.

2. Cultural Resources

Based on the file search and survey results, no adverse impacts to National Register of Historic Places eligible historic properties would occur as a result of the Proposed Action. The single archaeological site (26LN3661) identified as a historic property and as eligible for the National Register of Historic Places is not located at or within the immediate vicinity of Proposed Action sites or the discharge drainage area and would not be impacted by the Proposed Action. The archaeological site is located west of South Poleline Road and uphill within the mountain area, therefore in a completely different area from the closest proposed well site (DEL4003X). In the event of an unanticipated discovery of cultural resources as a result of Proposed Action-related activities all work within the vicinity of the discovery would immediately cease and the

BLM District Manager and the Caliente Field Office Archaeologist would be directly informed. Thus, the Proposed Action would have no impact on cultural resources.

3. Geology and Minerals

There is one active mining claim near, but outside the boundary of the Proposed Action site DEL4004X. The Proposed Action would not impact this mining claim or potential future mining operations, or compromise the claimant's rights or claim activities. The proposed Action wells are expected to be between 2,200 and 2,400 feet in depth, are not located within the proper geologic structure for oil and gas and drill is not anticipated to encounter oil and gas. Thus, the Proposed Action would have no impact on geology and minerals.

4. Land Use

The Proposed Action would not impact the two existing fiber optics lines or the pending SNWA GWD Project ROWs. The location of the existing buried telephone/telegraph line, associated with ROW (N-43923), would be verified to ensure avoidance prior to any Proposed Action ground disturbance. Drilling operations are not anticipated to impact any existing fences or cattle guards. No long-term ponding of water would occur during the pump tests. The discharged water would be directed into natural washes near the sites and would avoid existing roads and travel routes. Thus, the Proposed Action would have no impact on land use.

5. Migratory Birds

Based on BLM's list of migratory bird species of conservation concern, two species were determined to have 50 percent probability of occurrence or greater. These species were the black-throated gray warbler and the loggerhead shrike. The breeding period for these birds extends from mid-April to mid-August in the Great Basin Desert. No construction activity would occur at the Proposed Action sites during critical nesting periods for the affected species (mid-April through mid-August) unless a biological survey is conducted to determine if migratory bird breeding or nesting is occurring. These surveys would be conducted by the Ely BLM Field Office wildlife team or an authorized biologist, no more than one week prior to site disturbance. The BLM wildlife team would be notified a minimum of 30 days prior to construction in order for the required survey to be conducted. Authorization for construction during this breeding period would be contingent on the findings of the survey and guidance from the BLM. Since no construction activity would occur within the nesting season without guidance from the BLM, no impacts are expected to individual migratory bird species.

The total amount of bird habitat potentially affected by the Proposed Action two sites (DEL4003X and DEL4004X) and access road would be approximately 3.67 acres permanent ROW and 3.0 acres temporary ROW. The amount of habitat that would be disturbed by the Proposed Action is negligible compared with the total available habitat in Delamar Valley. Due to implementation of site restoration, as described below under vegetation, there would be a negligible impact to migratory bird habitat resulting from the Proposed Action.

Since there would be no effect on individual migratory bird species and negligible impact to migratory bird habitat from the Proposed Action, there would be no impact to migratory bird populations.

6. Non-native, Invasive Species and Noxious Weeds

To minimize the potential introduction and spread of noxious and invasive weeds, environmental protection measures have been included in the Proposed Action. All drilling equipment would be washed prior to arrival on the site, prior to moving between sites, and prior to removal to prevent and minimize the introduction or spread of non-native vegetation. All washing would occur at the drilling sites, except for the initial washing which would occur off-site. Each Proposed Action site would be staked and flagged and no ground disturbance would occur outside of the designated site. Existing vegetation, primarily sagebrush scrub, would be crushed rather than bladed wherever possible. Any topsoil and vegetation that are scraped would be stockpiled within the site and re-spread at the completion of construction. Ground disturbance at each site would be kept to a minimum. Additionally, any backfill used for the Proposed Action would consist of native material directly from the sites themselves, any necessary erosion control material would be certified weed-free, and the sites would be monitored for noxious and invasive weeds as part of the re-vegetation effort. If any populations of noxious weeds are observed, the Ely District Noxious and Invasive Weeds Coordinator would be notified and SNWA would treat the infestations accordingly. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities or for authorized off-road driving would be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment would be cleaned with power or high pressure equipment prior to entering or leaving the work site or project area. Cleaning efforts would concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis would be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs would be swept out and refuse would be disposed of in waste receptacles. Cleaning sites would be recorded using global positioning systems or other mutually acceptable equipment and provided to the Ely District Noxious and Invasive Weeds Coordinator or designated contact person. Thus, the Proposed Action would have minimal impact on non-native invasive species and noxious weeds.

7. Range/ Livestock Grazing

Well construction would disturb relatively little area (approximately 3.67 acres permanent ROW and 3.0 acres temporary ROW) and would limit the impacts to livestock grazing and rangeland resources. Construction of the access road to DEL4003X would add to the impacts through the loss of vegetation and ground cover. However, no reduction of Animal Unit Months would be necessary due to the small amount of forage which may be lost compared to the size of the allotments overall. Following construction, the DEL4003X and DEL4004X sites would be reseeded with the exception of a small area immediately surrounding the well site for access during monitoring.

Livestock management would not be impacted by disturbances related to the construction and testing of the wells. Livestock would become accustomed to the presence of equipment and any noise associated with drilling equipment or would avoid the areas. Also, the two wells sites are not located in the vicinity of any main water sources for livestock. The distance to the nearest livestock-accessible water source is approximately 3.6 miles and 5.2 miles for DEL4003X and DEL4004X, respectively. The Proposed Action would not impact livestock access to existing water. No known range improvements are anticipated to be disturbed or

damaged as a result of the Proposed Action; if any damages occur the improvements would be rebuilt to BLM specifications as identified under the Environmental Protection Measures. Due to the temporary nature of the proposed construction and testing activities, no impact on range or livestock is anticipated.

8. Recreation

Public use of the landscapes in the project area is low, and because the area receives low levels of dispersed recreation use, current visitation to the proposed sites is nearly zero. During construction, the extent of traffic is anticipated to be approximately 6-8 construction and support vehicles traveling to the site each day. Increased traffic in the area would result in an increased attraction to the area, potentially resulting in approximately 1-2 social encounters per day for each site during construction. Once construction was complete, the social setting at the sites would return to near pre-construction levels following completion of drilling. During construction, the abundance of public land similar in nature to the project area would provide other opportunities for solitude and minimal encounters for recreationists. The temporary noise increase would contribute to the decrease in opportunities for solitude in the immediate area; however, noise levels would return to pre-construction levels following completion of drilling.

The Proposed Action would result in the installation of wells, concrete pads, well housings, and a short access road that would change the physical setting and decrease the naturalness of the immediate area. The creation and improvement of a new dirt access road would potentially lead to increased visitation of the well site DEL4003X; however, the short, dirt access road would terminate at the well site leaving curious recreationists (mainly OHVs) with no attraction other than the well itself to justify lingering in the area. These changes in the physical setting would not have any impact on recreation in the immediate area.

The Proposed Action sites DEL4003X and DEL4004X would be located within an ERMA. Management practices for ERMAs are primarily to provide basic recreation information to the public and to allow public access. Since the Proposed Action would not hinder either of these management practices, the Proposed Action is not expected to have an impact on recreation management as currently permitted.

The proposed sites are located within the hunting range for furbearer animals, upland game, and mountain lions. The hunting seasons for these animals are primarily in the fall, winter, and early spring. Construction of the Proposed Action would likely occur within this time period. Increased human presence and drilling activities during construction may discourage hunting in the immediate vicinity of the well sites. Discharged water may attract animals to the sites, but noise from the drilling operation would likely deter the animals as well. Hunters in the area may also encounter additional vehicles on backcountry dirt roads. The well sites and immediate vicinity from which hunters may be temporarily discouraged are minor compared to the total available hunting range in Delamar Valley. After completion of construction, there would be only infrequent visitation for monitoring of the well sites, which would not impact animals or hunters.

9. Soils

Due to the low slope gradients, slow runoff, and well drained soils of the area surrounding sites DEL4003X and DEL4004X and a portion of the proposed access road to site DEL4003X, erosion and water ponding issues are not anticipated. Nevertheless, environmental protection

measures would be implemented during discharge of drilling or hydraulic water testing to reduce discharge rates to prevent scouring and erosion and the well sites would be restored at the completion of construction, including replacement of topsoil and reseeded, which would stabilize the site and minimize the potential for any future erosion.

The western half of the proposed access road to site DEL4003X is adjacent to a ecological soil unit that is classified as well drained, with rapid runoff and moderately rapid to moderately slow permeability. Therefore, ponding issues are not anticipated in this area. The typical slope gradients in this soil unit are 15-50 percent according to the Natural Resources Conservation Service soils database, and water erosion could potentially occur when the surface soil is disturbed. However, this portion of the access road to site DEL4003X is an existing road that may need minor improvements such as grading and fill in sections where the road that are impassable. Since the grading and fill would further stabilize the existing road, erosion issues are not anticipated. Thus, no impacts to soils from the Proposed Action are anticipated.

10. Special Status Species (Federally Listed, Proposed, and Candidate Species; State Listed Species; and BLM Sensitive Species)

No federally listed, proposed or candidate plant or animal species and no sensitive plant or wildlife habitat were identified in biological reports or databases or observed within the Proposed Action sites during the SWCA Environmental Consultants March and April 2008 surveys. The Loggerhead Shrike observed at site DEL4003X and Pinyon Jays observed at site DEL4004X during these surveys were flying through the area and no nests or nesting behavior was observed. The breeding period for Loggerhead Shrike ranges from mid-April through early August. If Proposed Action construction activities occur at the site between these dates, the procedures established under the Migratory Bird Section would be followed. Since surveys would be conducted no more than one week prior to site disturbing activities, the Proposed Action would have no impact on special status species.

11. Vegetation

Existing vegetation at each site would be disturbed, but would be crushed rather than bladed whenever possible. Any topsoil and vegetation that are scraped would be stockpiled within the Proposed Action site and re-spread at the completion of construction. Ground disturbance at each site would be kept to a minimum. No ponding of water would occur since the water would rapidly evaporate or percolate into the alluvial sediments. Vegetation would not be affected by the water developed by the hydraulic testing.

At the DEL4003X well site, restoration, including reseeded, would be conducted at the end of well construction and hydraulic testing. The new access road to this site would result in a loss of vegetation totaling 1.67 acres. However, prior to termination of the ROW grant, rehabilitation of the access road would be determined and the ROW would be terminated in accordance with BLM requirements. The Proposed Action at the DEL 4003X site therefore would have no net measurable impact on vegetation due to rehabilitation and reseeded.

At the DEL4004X site, the Joshua trees, banana yucca, hedgehog and golden cholla cacti would be avoided to the fullest extent possible. Those that cannot be avoided would be salvaged and transplanted on a nearby burn site located south of Delamar dry lake, near the DEL4003X site. All Joshua trees, golden cholla cactus and banana yucca whose vegetative mass is more than 40 percent dead (i.e., apical leaves, brown or significantly chlorotic, stems

rotten or significantly desiccated) would not be salvaged and would become part of the vertical mulch. Site restoration, including reseeded, would be conducted at the end of well construction and hydraulic testing. The Proposed Action at the DEL4004X site therefore would have no measurable impact on vegetation.

12. Visual Resource Management

The Proposed Action occurs within VRM Class 3 (for well site DEL4004X) and VRM Class 4 (for well site DEL4003X). Management objectives for Class 3 views revolve around partial retention of the existing character of the landscaped. Accordingly, management activities and uses should not dominate the view, but may attract the attention of the casual observer. This Proposed Action is consistent with uses within VRM Class 3. Management Objectives for Class 4 is to provide for major modification of the existing character of the landscape. Thus, management activities and uses allow for a high level of change to the characteristic landscape.

While the Proposed Action may dominate the view of the landscape and be the major focus of viewer attention during the construction period, the short-term impacts to visual resources would be temporary. During the night, the lighting needed for construction activities at the well sites would be visible from the valley and surrounding roads, which may lead to increased social encounters from recreationists who travel through the area. Measures included in the Proposed Action for night lighting require the lighting be shielded and directed down toward the site and not into surrounding areas or onto roads to minimize visual effects at night. .

At the completion of construction, the physical setting of the area would be permanently changed. The visible facilities on site would consist of a short (approximately 2 to 3 feet) capped steel casing on a small concrete pad. If desired in the future, a small well housing with an attached transmission antenna may be installed over the well head. The color of the well head and future well housing would be a shade selected to conform to the surrounding landscape at the site. The completed well sites would be seldom seen from the dirt access roads and would blend with the natural environment due to their size and color. Their presence would not substantially alter the character of the existing landscape. Contrasts to the basic landscape would be evident, but would remain subordinate to the existing landscape.

Since the Proposed Action would partially retain the existing character of the landscape with only moderate changes, it would meet VRM Class 3 management objectives. It would also meet VRM Class 4 management objectives. As a result, the Proposed Action would have no impact on visual resource management.

13. Water Quality Drinking/Ground

For the Proposed Action there would be no impacts to drinking or groundwater quality or quantity. Environmental protection measures would ensure hazardous materials are controlled and accidental spill contained. Temporary discharges of water during drilling and testing would be managed to avoid erosion or scouring. As a result, no impacts on water resources from the Proposed Action are anticipated.

14. Wetlands / Riparian

Waterways associated with wetlands and riparian areas in the vicinity of the Proposed Action would not be impacted by the Proposed Action. The temporary groundwater withdrawal associated with the hydraulic testing under the Proposed Action would not cause a drawdown

on the riparian vegetation at nearby springs. Thus, the Proposed Action would have no impact on wetlands or proper functioning condition of riparian areas.

15. Wildlife

Larger wildlife common to the project area and various bird species could be disturbed or temporarily frightened away from the Proposed Action sites as a result of the increased activity and equipment during construction. Smaller species of wildlife, such as lizards or small mammals, would also likely be frightened away from the sites during construction, but some may inadvertently be crushed during construction activities, including blading the access road. These impacts would be temporary and after completion of the construction activities, there would be no impacts to wildlife. Wildlife may be drawn to discharged water during hydraulic testing and well development; however there would be increased human activity in the area when the water is available, the discharged water would rapidly evaporate or percolate into the alluvial sediments surrounding the area, and no long-term ponding of water would result from the tests. For these reasons, impacts to wildlife species are not anticipated.

The total amount of wildlife habitat potentially affected at the Proposed Action sites (DEL4003X and DEL4004X) would be 3.67 acres permanent ROW and 3.0 acres temporary ROW. The amount of habitat that would be disturbed by the Proposed Action is negligible compared with the total available habitat in Delamar Valley, and vegetation restoration would be implemented at the completion of construction. Thus, there would be no measurable impact to wildlife habitat resulting from the Proposed Action.

B. No Action Alternative

Under the No Action alternative selection, none of the above-described impacts would occur to the potentially affected resources.

C. Cumulative Impacts

Cumulative impacts are those that result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. The purpose of the cumulative analysis in the EA is to evaluate the significance of the Proposed Action's contributions to cumulative impacts. A cumulative impact is defined under federal regulations as follows:

“...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” (40 CFR 1508.7).

A cumulative impacts analysis is limited to those past, present, and reasonably foreseeable future actions that involve impacts on a resource value that overlaps with the Proposed Action's impacts on that same resource value. A watershed level of analysis has been completed for the cumulative impact analysis.

1. Past, Present and Reasonably Foreseeable Future Actions

Past/Present: Lincoln County conducts periodic maintenance of county roads in Delamar Valley. This maintenance is conducted as needed, and includes grading and leveling of the existing roads.

Past/Present/Reasonably Foreseeable Future: The BLM currently manages grazing allotments in Delamar Valley. Permittees utilize several grazing allotments in Delamar Valley for cattle. The Bureau will manage livestock grazing on public lands under the principle of multiple use and sustained yield, and in accordance with applicable land use plans.

Past/Present/Reasonably Foreseeable Future: The Air Force currently utilizes the emergency landing strip on Delamar dry lake bed. The Proposed Action sites DEL4003X and DEL4004X are located approximately 3.0 miles south and approximately 14 miles north of the Delamar dry lake bed, respectively. These actions would potentially contribute to increase amounts of dust generation if the landing strip is used during construction periods; however, the duration would be brief and localized.

Reasonably Foreseeable Future: Recreational use of public land managed by BLM in the project area has continued to increase in recent years. Off-highway vehicle use is enjoying popularity across the west with an increase of OHVs in eastern Nevada. Population growth in Clark County, Nevada along with reduced access for OHV use in the Mojave Desert area have led to greater use of BLM-administered land in eastern Nevada. Special recreation permits (motored and non-motorized) would be required from BLM for such activities as OHV races, mountain bike races and equestrian events.

Reasonably Foreseeable Future: A preliminary EA for Lincoln County Non-Motorized Trail System Development and Maintenance has been submitted to the BLM Ely Field Office, to develop a network of non-motorized trails and to re-locate and maintain non-motorized trails all located in Lincoln County, Nevada. The trails include (1) Oak Springs Summit Trilobite Beds (approximately 1/3 mile), (2) Caliente Area Non-Motorized Trail system (approximately 24 miles in length), and (3) Stone Cabin Trail approximately 2.25 miles of trail that connects two recreation sites within Spring Valley State Park. Of the three trails, the Oak Spring Summit Trilobite Beds trail is the closest, located approximately 10 miles northeast of the proposed DEL4004X well site. The trail was originally designated as a portion of the Gray Dome OHV Trail in the Chief Mountain OHV Area.

Reasonably Foreseeable Future: An application has been submitted by Delamar Solar Energy, LLC for a 150-Megawatt solar energy facility to be located in Delamar Valley. Construction of the Delamar Energy facility would possibly occur during the time of the Proposed Action drilling and testing. Well sites DEL4003X and DEL4004X would be located south of the Delamar Solar Energy Facility and would potentially use the same access roads to reach the sites.

Reasonably Foreseeable Future: A ROW N-49781 has been issued to Idaho Power Company on December 8, 1994, for a 500 kilovolt north-south transmission line (Southwest Intertie Project (SWIP)). Construction of the SWIP would possibly occur during the time of the Proposed Action drilling and testing. Well sites DEL4003X and DEL4004X would be located in the vicinity of the SWIP and would potentially use the same access roads to reach the sites.

Reasonably Foreseeable Future: NV Energy has proposed two 500 kilovolt electrical transmission lines along the SWIP corridor, as part of its Ely Energy Center project. Construction could possibly occur during the time of the Proposed Action drilling and testing. Well sites DEL4003X and DEL4004X would be located in the vicinity of the corridor and would potentially use the same access roads to reach the sites.

Reasonably Foreseeable Future: Nevada Test and Training Range (NTTR) has requested electrical power service from Lincoln County Power District No. 1 (LCPD) to their site in Lincoln County. In order to continue reliable electrical service to their existing customers and serve the projected load at NTTR, a portion of LCPD's existing transmission system would need to be expanded to include additional transmission lines. LCPD is planning to construct and operate a proposed 46.5-mile 138 kilovolt overhead transmission line from the permitted Scott Substation to the Delamar Switchyard which will be expanded to become the proposed Delamar Substation. The majority proposed project (approximately 38 miles) would be within the BLM Designated Utility Corridor. Construction could possible occur during the time of the Proposed Action drilling and testing. Well sites DEL4003X and DEL4004X would be located in the vicinity of the corridor and would potentially use the same access roads to reach the sites.

Reasonably Foreseeable Future: SNWA anticipates that additional hydraulic monitoring and testing wells may be requested in Delamar Valley as a result of the Stipulated Agreement between the Department of Interior and SNWA, concerning water rights in Delamar, Dry Lake, and Cave Valley. However, the specific location and schedule for these other wells is not currently known. These reasonably foreseeable future drilling and testing activities would not overlap in the same geographic area or time as the hydraulic testing under the Proposed Action.

Reasonably Foreseeable Future: SNWA has applied to the BLM for ROWs to construct and operate a groundwater development project. The SNWA GWD Project is currently undergoing environmental analysis. Information obtained from the hydraulic testing under the Proposed Action may be used in future groundwater modeling and impact analysis. Construction of this project would not overlap in time with the Proposed Action. However, these sites could be used for future hydraulic monitoring of the GWD Project.

2. Issues and Resource Values

Issues and resource values that potentially may cumulatively be impacted by the Proposed Action in conjunction with other past, present, and reasonably foreseeable future actions include air quality, soils, threatened, endangered, and special status species, vegetation, visual resources, water resources, and non-native, invasive species and noxious weeds. The following resources or concerns have the potential to be impacted by the Proposed Action and thus are analyzed below for cumulative impacts: air quality, invasive and noxious weeds, and recreation.

Air Quality: The resource analysis area for air quality is the Delamar Valley air shed. Road maintenance activities, OHV use, USAF training, and construction activities such as SWIP, LCPD powerline to NTTS, NV Energy, and Delamar Solar Energy facility, if occurring at the same time as ground disturbance under the Proposed Action, could result in a temporary cumulative increase in dust emissions. All of these activities would implement dust control measures such as watering, and are not anticipated to impact the current attainment status of the air shed.

Non-native, Invasive Species and Noxious Weeds: The cumulative resource analysis area for weeds is the Delamar Valley watershed. The Proposed Action, along with county road maintenance, OHV use, construction and operation traffic associated with projects including the SWIP, LCPD powerline to NTTS, NV Energy, Delamar Solar, and vehicle traffic associated with SNWA monitoring activities, have the potential to increase the spread of noxious or invasive weeds. Measures to minimize the spread of invasive and non-native

vegetation would be implemented in accordance with approved ROW grants and roadwork authorizations, and substantive cumulative increase in noxious or invasive weeds is not anticipated.

Recreation: The cumulative resource analysis area for recreation is Delamar Valley. Projects under construction at the same time as the Proposed Action, including SWIP, NV Energy, LCPD powerline to NTTR, and Delamar Solar, have the potential to deter recreational hunting. Because these disturbances would be temporary for the duration of construction, and represent a minor portion of the total available hunting range in the valley, substantive cumulative impacts on hunting are not anticipated.

D. Proposed Mitigation Measures

Environmental Protection Measures have been identified for the Proposed Action. No additional mitigation is proposed based on this environmental analysis.

E. Suggested Monitoring

BLM and SNWA would monitor the Proposed Action sites for the continued operation of groundwater monitoring equipment until the wells have been plugged, abandoned, and reclaimed. Noxious and invasive weed populations would be monitored at the well sites. Seedling establishment, which would stabilize soils and minimize the introduction and spread of weeds, would also be monitored at the well sites prior to termination of the ROW grant.

V. REFERENCES

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VI. GLOSSARY

Airlift development – the use of air to bring groundwater to the surface for the removal of fine grained material adjacent to a borehole and enabling water to enter the borehole more freely.

Alluvial – the term used for describing an object composed of alluvium.

Alluvium – a general term for clay, silt, sand, gravel or similar unconsolidated, eroded material deposited during comparatively recent geologic time by stream or other body of moving water.

Apparatus – a group or combination of instruments, machinery, tools, or materials having a particular function or intended for a specific use.

Appurtenances – an adjunct or accessory to the main object/piece of equipment being identified.

Aquifer – an underground layer of water-bearing permeable rock or unconsolidated materials (gravel, sand, silt, or clay) from which groundwater can be usefully extracted using a water well.

Basin-fill Aquifer – an underground layer of water-bearing consolidated or unconsolidated gravel, sand, or silt, from which groundwater can be usefully extracted using a water well.

Carbonate (CO₃) – a mineral compound or sediment formed from the precipitation of carbonates of calcium (Ca), magnesium (Mg), or iron (Fe) (i.e., limestone or dolomite).

Contingent – dependent on or conditioned by something else.

Dissipate – to cause to spread thin or scatter and gradually vanish.

Effluent – outflowing fluid from a natural or man-made structure.

Encumbrances – an interest, right, burden, or liability attached to a title of land.

Energy dissipater – a device that absorbs or disperses energy.

Ephemeral – temporary or lasting a relatively short time.

Hydrographic basin – a defined geographic area encompassing the drainage area or catchment area of a stream, its tributaries or portion thereof. For the purpose of this report, the basins are defined by the State Engineer's Office, Department of Conservation and Natural Resources, Division of Water Resources.

Hydraulic – pertaining to a fluid in motion, or to movement or action caused by water.

Hydraulic conductivity – the property of a water bearing formation as it relates to a measurement of the formations capacity to transmit water through its porous or fractured media.

Impoundment – a structure used to contain liquids.

Percolate – to pass through a permeable substance.

Plat – consists of a map, drawn to scale, showing the divisions of a piece of land.

Portable Flume – a portable, graduated, artificial channel, temporarily set into a streambed or channel, which is used to measure fluid discharge.

Propagule – Any plant material used for the purpose of plant propagation, such as a seed, spore, or a part of the vegetative body capable of independent growth if detached from the parent.

Pygmy meter – device use to measure the velocity of flow in a stream or channel. These measurements along with information on the cross sectional area of the channel or stream are then used to calculate total stream flow at a specific point.

Rhizome - a horizontal stem of a plant that is usually found underground, often sending out roots and shoots from its nodes.

Shear zone structure – an area that has been crushed and brecciated (to form into breccia which is a rock composed of sharp-angled fragments embedded in a fine grained matrix) by many parallel fractures and faults.

Sporadic – occurring occasionally, singly, or in irregular or random instances.

Static water level – level of water in a well or an aquifer when no water is being removed by pumping activities or internal hydrostatic pressure (i.e., artesian) flowing conditions.

Terminus – the end or extremity of something.

Transmissivity – the rate at which water moves through a measured width of an aquifer under a correlative hydraulic gradient.

Tuffs – a general term for all consolidated clastic rock formed by volcanic explosion or aerial explosion from a volcanic vent.

Undifferentiated – lacks qualities that would make it different or unique.

VII. CONSULTATION & COORDINATION

This EA was prepared at the direction of the BLM, Ely and Caliente Field Offices, Nevada, by SNWA. The following is a list of individuals responsible for preparation of the EA.

List of Preparers/Reviewers

BLM Ely and Caliente Field Offices

Alan Kunze - Geologist
Bonnie Million – Natural Resource Specialist
Shirley Johnson – Rangeland Management Specialist
Cody Coombs – Supervisory Natural Resource Specialist (Fuels)
Ben Noyes – Wild Horse and Burro Specialist
Lynn Wulf – Archeologist
Shawn Gibson - Archaeologist
Paul Podborny – Wildlife Biologist
Dave Jacobson – Planning and Environmental Coordinator (Wilderness)
Kalem Lenard – Outdoor Recreation Planner
Elvis Wall – Native American Coordinator
Joe David – Planning and Environmental Coordinator (NEPA)
Brenda Linnell – Realty Specialist
Zach Peterson –Forester
Chris Hanefield – Public Affairs Officer
Gary Medlyn – Supervisory Natural Resources Management Specialist
Melanie Peterson – Environmental Protection Specialist

SNWA and Parsons Water Infrastructure

Lisa Luptowitz – Environmental Planner
Kimberly Reinhart – Environmental Planner
Chiaki Brown – Environmental Planner
Andrea Randall – Environmental Planner
Don Jolly – Principal Archaeologist
Jason Mace – Hydrologist
Audrey Bennett – Biologist
Allen Cattell - Biologist
Stephanie Harris – Biologist
Carol Watson– Biologist

Attachment 1
Maps and Site Photographs

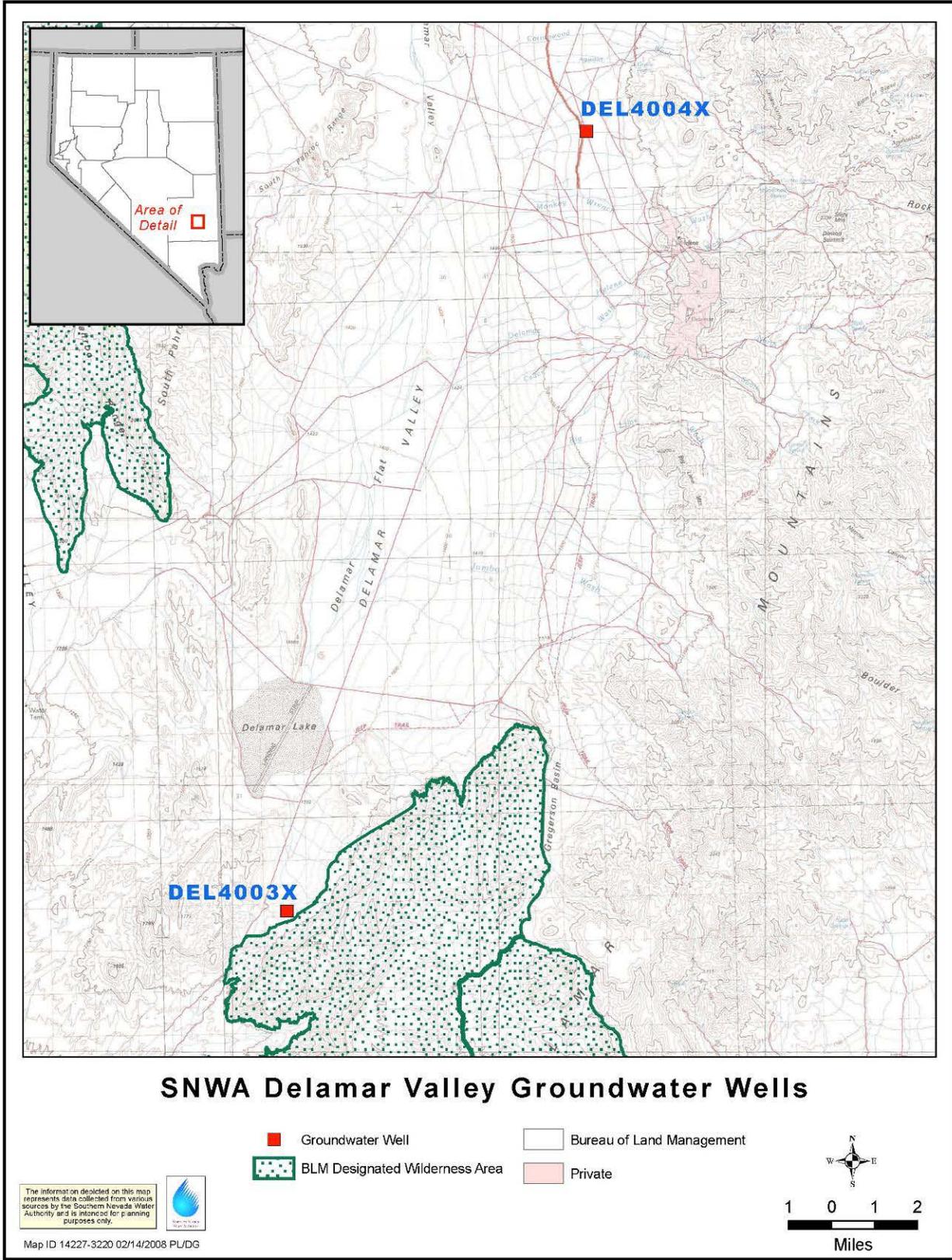


Figure 1: General Location Map

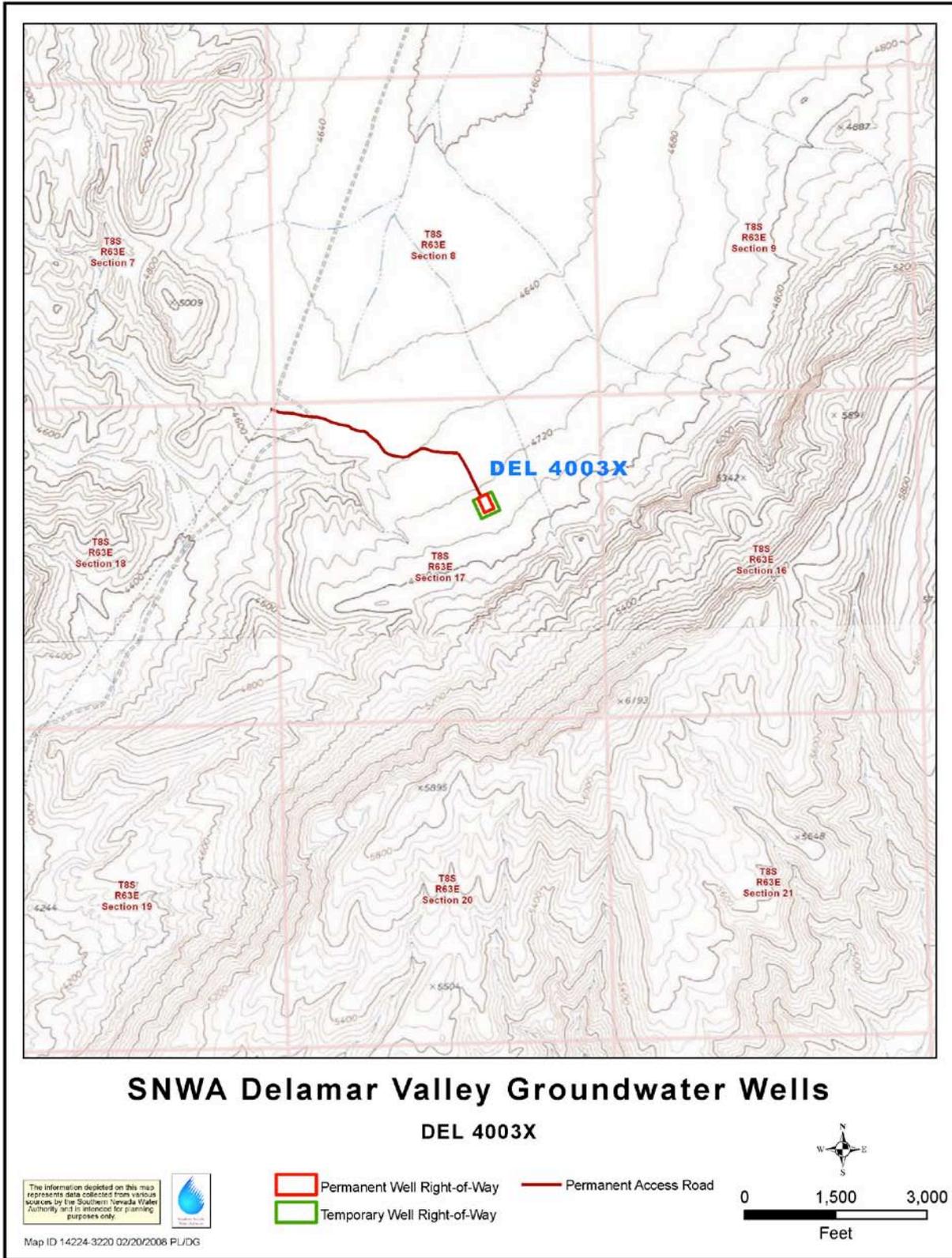


Figure 2: Site DEL4003X Topo View

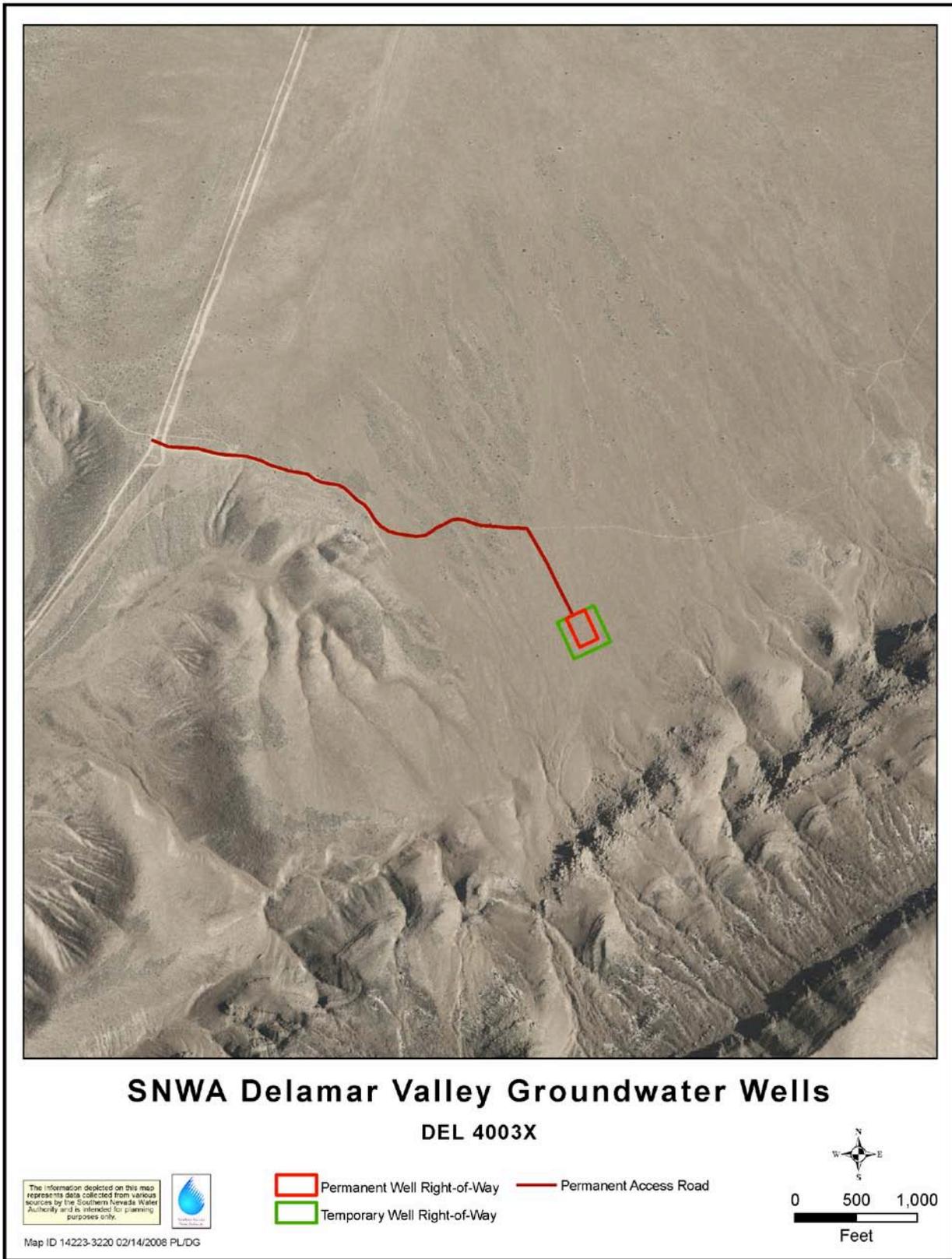
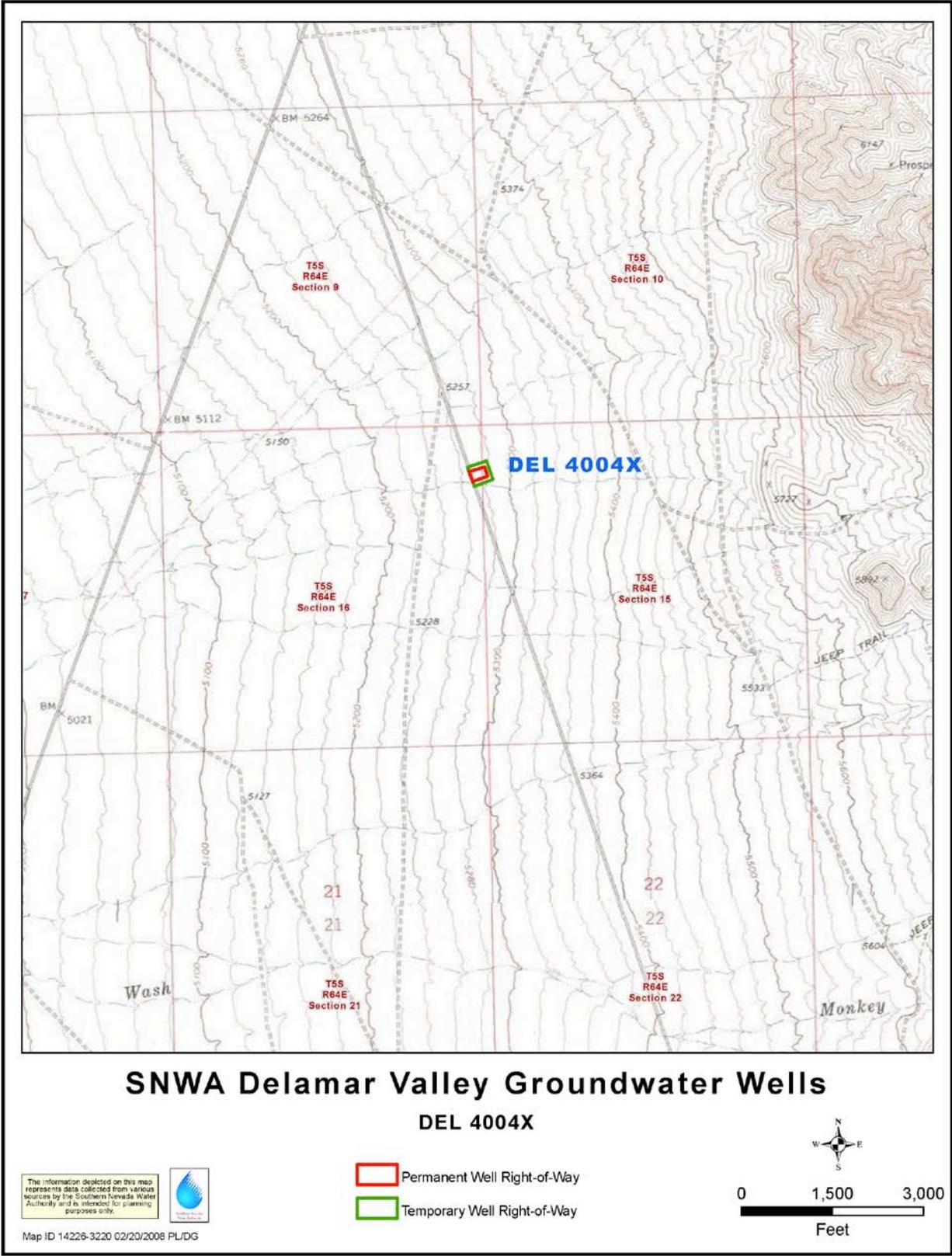


Figure 3: Site DEL4003X Aerial View



SNWA Delamar Valley Groundwater Wells

DEL 4004X

The information depicted on this map represents data collected from various sources by the Southern Nevada Water Authority and is intended for planning purposes only.



- Permanent Well Right-of-Way
- Temporary Well Right-of-Way



0 1,500 3,000
Feet

Map ID 14226-3220 02/20/2006 PL/DG

Figure 4: Site DEL4004X Topo View

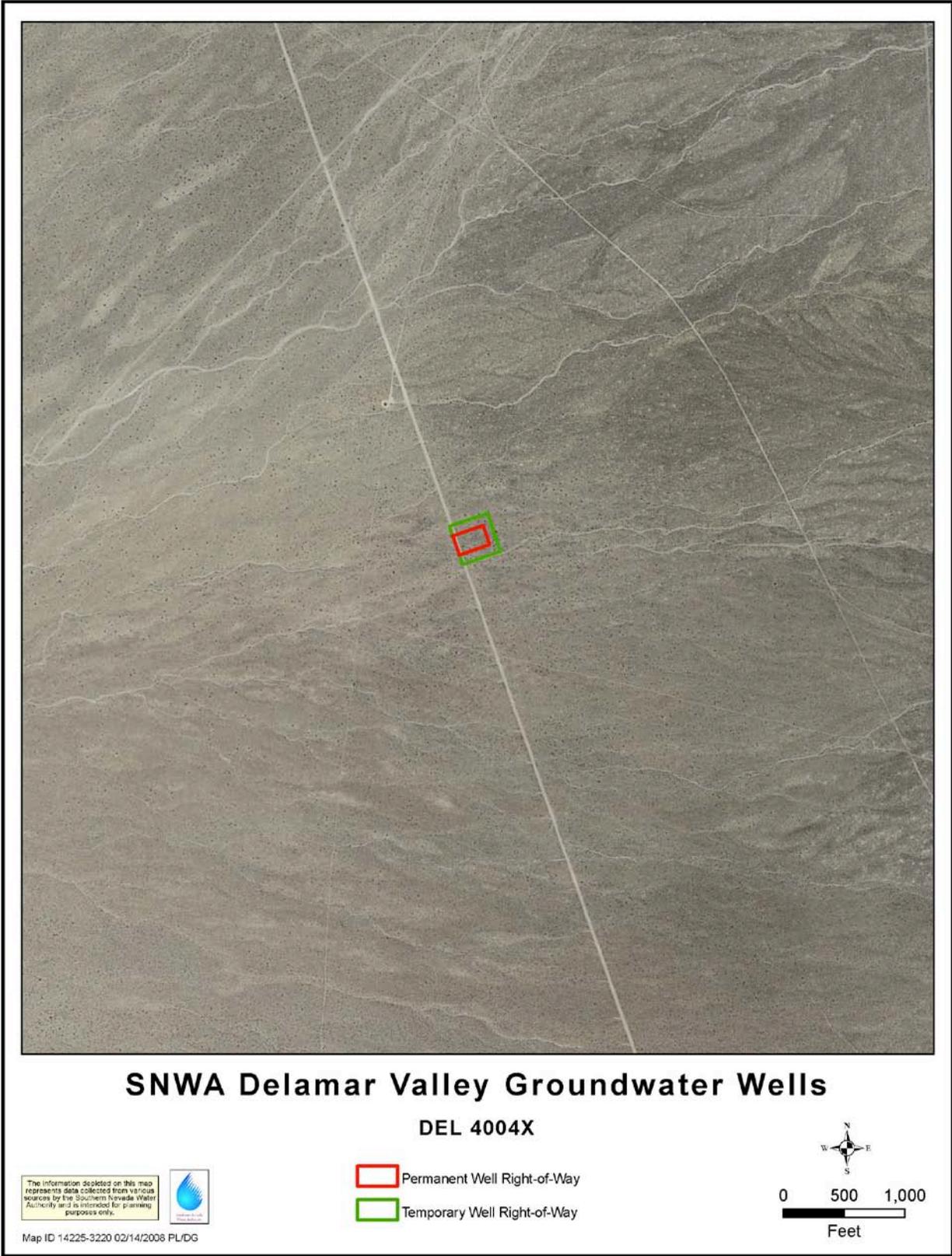


Figure 5: Site DEL4004X Aerial View



Figure 6: Site DEL4003X

May 2008



Figure 7: Site DEL4004X

May 2008

Attachment 2
Risk Assessment for Noxious &
Invasive Weeds

RISK ASSESSMENT FOR NOXIOUS & INVASIVE WEEDS

N-84720, Delamar Valley Groundwater Wells

The Southern Nevada Water Authority (SNWA) proposes to construct two groundwater wells and one access road in Delamar Valley, Lincoln County (Proposed Action). Site habitat and weed evaluations were completed by SWCA Environmental Consultants for SNWA for groundwater well sites DEL4003X and DEL4004X and the associated access road and discharge drainage paths that may be disturbed by the Proposed Action. Site DEL4003X was surveyed on March 31 and April 22, 2008. Site DEL4004X was surveyed on March 31, 2008. Noxious and invasive weed surveys were not completed for the surrounding area but instead the Ely District weed inventory data was consulted.

Under Title V of the Federal Land Management Policy Act, SNWA has requested a BLM right-of-way (ROW) to construct two groundwater well sites. Water level measurements would be collected quarterly to annually from each well site. A permanent ROW grant, with a term of 30 years, and a temporary ROW grant, with a term of 2 years, is requested.

The purpose of the Proposed Action is to gain information to assess aquifer characteristics, including storage parameters and hydraulic conductivity to better understand carbonate and alluvial aquifers in the Delamar Valley area. The need for the Proposed Action is to acquire data which would be made available to assist Federal, state and local agencies in their current and future decision making. The wells would be used to conduct hydraulic testing after which the wells would be converted to monitoring wells and would continue to be used for groundwater monitoring.

Access to the sites would be from both new access roads and existing roads. Site DEL4003X is located within the vicinity of an existing dirt road. The existing dirt road would require improvements such as grading and fill for approximately 3,345 feet. From the existing dirt road, approximately 809 feet of new access road would be needed to the site. The new access road would require grading and fill. Both the existing access road and new access road would total approximately 4,154 feet in length and would need to be approximately 15 feet wide for a total of approximately 1.43 acres for the access road. Grading and fill, as well as the installation of up to 4 culverts would be required. Each culvert would require approximately 50 feet by 50 feet of disturbance outside the road width for construction and maintenance, for a total of approximately 0.24 acres. Therefore, the total approximate acreage for the access road and culverts would be 1.67 acres. Site DEL4004X is located adjacent to an existing dirt road. Access to the site would be from this existing road and no road improvements are anticipated along it. Public travel along this existing dirt road would not be affected.

Each groundwater well site would be 1.0 acre in permanent ROW and 1.5 acres in temporary ROW. Total, the well sites and access roads would encompass approximately 3.67 acres permanent ROW and the well sites would encompass approximately 3.0 acres temporary ROW.

Botanical Information:

The Proposed Action sites were surveyed and the Ely District weed inventory data was consulted in order to determine the presence of noxious and/or invasive weed populations within the surrounding area of the sites. When comparing the Proposed Action site locations to the Ely District weed inventory, the following standards have been applied:

- If the weed inventory documented a weed \leq 0.5 mile from the Proposed Action site, the weed was considered within the surrounding area.
- If the weed inventory documented a weed \leq 1.0 mile but $>$ 0.5 mile from the Proposed Action site, the weed was considered within the surrounding area, but the distance to the nearest weed population to the Proposed Action site is provided.
- If the weed inventory documented a weed $>$ 1.0 mile from the Proposed Action site, the weed was not included as being within the surrounding area.

DEL4003X: The March 31 and April 22, 2008 SWCA Environmental Consultants surveys observed no noxious weeds at this site, but the invasive non-native species cheatgrass (*Bromus tectorum*) and filaree (*Erodium cicutarium*) were observed. An invasive species of mustard was also observed. The Ely District weed inventory documented no noxious or invasive weeds within the surrounding area.

DEL4004X: The March 31, 2008 SWCA Environmental Consultants survey observed no noxious weeds at this site. Invasive species observed included cheatgrass, filaree, horehound (*Marrubium vulgare*), and Russian thistle (*Salsola tragus*). The Ely District weed inventory documented no noxious or invasive weeds within the surrounding area.

Factor 1 assesses the likelihood of noxious/invasive weed species spreading to the project area.

None (0)	Noxious/invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious/invasive weed species in the project area.
Low (1-3)	Noxious/invasive weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious/invasive weeds into the project area.
Moderate (4-7)	Noxious/invasive weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious/invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious/invasive weeds within the project area.
High (8-10)	Heavy infestations of noxious/invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious/invasive weeds on disturbed sites throughout much of the project area.

This Proposed Action rates as Moderate (4) for Factor 1 at the present time. During the March and April 2008 surveys by SWCA Environmental Consultants, no noxious weeds were observed at any of the sites. The invasive weeds, cheatgrass and filaree, were observed at both sites, and horehound, Russian thistle, and a mustard species were observed at one site. A survey conducted by Tri-County Weed Group in the summer of 2005 observed red brome (*Bromus rubens*) within the surrounding area, with the closest population approximately 0.7 mile from site DEL4003X. Cheatgrass was observed approximately 0.9 mile and an invasive mustard species approximately 1.0 mile from the site. A survey conducted by Tri-County Weed Group in the summer of 2006 identified the invasive species halogeton (*Halogeton glomeratus*), cheatgrass, and an invasive

mustard species (*Chenopodium* sp.) all approximately 1.0 mile from site DEL4004X. The Ely District weed inventory documented no noxious or invasive weeds within the surrounding area of either site DEL4003X or DEL4004X.

All drilling and earthmoving equipment would be washed prior to arrival on the site, prior to moving between sites, and prior to removal to prevent and minimize the introduction or spread of non-native vegetation. All washing would occur at the drilling sites, except for the initial washing which would occur off-site. The Proposed Action site would be staked and flagged and no ground disturbance would occur outside of the designated site. Existing vegetation, primarily sagebrush scrub, would be crushed rather than bladed wherever possible. Any topsoil and vegetation that are scraped would be stockpiled within the site and re-spread at the completion of construction. Ground disturbance at each site would be kept to a minimum.

Factor 2 assesses the consequences of noxious/invasive weed establishment in the project area.

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (8-10)	Obvious adverse effects within the project area and probable expansion of noxious/invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

This Proposed Action rates at High (8) for Factor 2 at the present time. Since no noxious weed populations were observed within any of the Proposed Action sites, any new noxious weed introductions could adversely impact the current native plant community. Also, any increase in cheatgrass could alter the fire regime in the area.

The Risk Rating is obtained by multiplying Factor 1 by Factor 2.

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious/invasive weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction or spread of noxious/invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious/invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious/invasive weeds and follow-up treatment for previously treated infestations.

The Risk Rating for the Proposed Action is Moderate (32) at the present time. The following measures would be taken to control and manage invasive and noxious weeds.

Preventive Measures:

- All vehicles and equipment used for the completion or monitoring of the Proposed Action would be free of soil and debris capable of transporting weed propagules. All such

vehicles and equipment would be cleaned with power or high pressure equipment prior to entering or leaving the Proposed Action site.

- Any backfill would consist of native material directly from the Proposed Action site itself.
- Any necessary erosion control material would be certified weed-free.

Monitoring Measures:

- When the sites are visited quarterly or annually, the crew would monitor for any new infestations of noxious or invasive weeds.

Treatment Measures:

- If any populations of noxious weeds are observed, the Ely District Noxious & Invasive Weeds Coordinator would be notified.

Reviewed by: _____

Bonnie Million
Ely District Noxious & Invasive Weeds Coordinator

_____ Date