

### 3.20 Monitoring and Mitigation Summary

Based on the resource-specific impact analyses provided in Chapter 3, this section provides the GWD Project monitoring and mitigation measures. **Table 3.20-1** provides a list of all monitoring and mitigation measures proposed for the ROWs and project facilities. These measures are related to the NEPA Tier 1 impact analyses and are tied to decisions that will be made by the BLM in the ROD. Impacts involving future groundwater development and pumping were analyzed at a programmatic level (Tier 2). Monitoring and mitigation related to these future actions were presented as recommendations that can be considered in this or subsequent NEPA analyses. These recommendations are listed in **Table 3.20-2**. In addition, the table identifies those mitigation measures that are being recommended for consideration of implementation by other agencies but are not within the power of the BLM to enforce. It should be clarified that several resources such as water, vegetation, and wildlife have presented measures (e.g., 3M Plan in the Snake Valley [**Appendix B**]) that included both mitigation and monitoring actions.

**Table 3.20-1 Right-of-Way (Tier 1) Monitoring and Mitigation Measures**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Mitigation outside BLM Jurisdiction
<b>Section 3.1 Air and Atmospheric Values</b>		
<b>ROW-AQ-1: Project Road Inspections to Reduce Wind and Water Erosion.</b> The SNWA and the BLM’s Environmental Compliance Monitor shall inspect project roads in areas prone to air and water erosion bi-weekly during construction, or more frequently during periods of adverse weather conditions. Repairs shall be completed within 5 working days of notification to the SNWA or sooner depending on public safety and the nature of the issue detected. SNWA shall make a photographic documentation of the road condition prior to and immediately after road repairs.	X	
<b>ROW-AQ-2: Alternative Dust Control Measures.</b> Areas where soil tackifiers are prohibited (e.g., threatened and endangered species habitat, perennial stream drainages) shall be determined in cooperation with the BLM and the USFWS prior to construction, and identified in both the Construction and Mitigation Plans. Other mitigation (e.g., gravel application) may be required to reduce impacts and to ensure protection of public safety. This measure would supplement SNWA ACM A.10.3.	X	
<b>Section 3.3 Water Resources</b>		
<b>ROW-WR-1: Stream Crossing Construction Plan.</b> A site-specific plan would be developed to detail the construction procedures, erosion control measures, and reclamation that would occur for pipeline construction across live (flowing) stream reaches. The plan would include site-specific designs using either open cut or jack and bore techniques and site-specific measures to minimize disturbance of the stream bed, and release of sediment from the construction area into the downstream stream reach. The plan would be reviewed and approved by the BLM and NDOW prior to initiation of any construction activities within the stream corridor.	X	
<b>ROW-WR-2: Avoid Power Line Structures in Streams.</b> Power line structures would be designed to span all perennial streams and other ephemeral/intermittent streams or washes. No power line structures or ancillary facilities would be located within the active channels of these streams. Access roads constructed for the power line would be located to avoid or minimize disturbance to perennial and intermittent streams.	X	
<b>ROW-WR-3: Construction Water Supply Plan.</b> A Construction Water Supply Plan would be provided to the BLM for approval prior to construction. The plan would identify the specific locations of water supply wells that would be used to supply water for construction of the water pipeline and ancillary facilities; identify specific groundwater aquifers that will be used; estimate effects to surface water and groundwater resources resulting from the groundwater withdrawal; define the methods of transport and delivery of the water to the construction areas; and, identify reasonable measures to reuse or conserve water. The BLM would review and approve the plan and, if necessary, include any monitoring or mitigation requirements required to minimize impacts prior to construction approval.	X	

**Table 3.20-1 Right-of-Way (Tier 1) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Mitigation outside BLM Jurisdiction
<b>Section 3.5 Vegetation</b>		
<b>ROW-VEG-1: Green Stripping.</b> SNWA, in consultation with the BLM, would develop a green stripping revegetation prescription where BLM and SNWA preventive and control measures may be inadequate to mitigate risks of weed invasion and wildfire. Green stripping is defined as ROW revegetation with fast-growing herbaceous species that can out-compete annual and perennial weeds and can provide a green firebreak. Locations where this measure may be applied shall be identified in the Restoration Plan, Integrated Weed Management Plan, and Fire Prevention Plan (see ROW-VEG-2), and approved by the BLM Visual Resource Management Coordinator. For example, it would be applied primarily to Great Basin Desert low elevation bottomlands, with limited applications to open evergreen woodlands (due to low risk for weed invasion) and Mojave Desert lowlands (due to low risk as a fire disturbance ecosystem).	X	
<b>ROW-VEG-2: Fire Prevention Plan.</b> SNWA would prepare a Wildfire Response Plan that would be approved by the BLM. This plan would include: notification procedures for local firefighting agencies, including the BLM; provisions for temporary water sources in the construction area to provide additional fire suppression capability; and training programs for all employees in methods to prevent accidental fires. Construction water sources would be made available for other fire-fighting efforts as needed.	X	
<b>Section 3.6 Wildlife</b>		
<b>ROW-WL-1: Big game key habitat priority restoration and habitat improvement.</b> If surface disturbing activities impact key big game habitats (crucial summer and winter ranges for antelope, Rocky Mountain elk, or mule deer, or occupied desert bighorn sheep habitat), the SNWA shall improve 2 acres of comparable habitat for every 1 acre of disturbed habitat. The SNWA shall coordinate with the BLM and NDOW to determine the specific areas for big game key habitat improvements.	X	
<b>ROW-WL-2: USFWS Concurrence on Plans.</b> The SNWA shall obtain concurrence from USFWS on any plans developed as part of the POD (ACM A.1.1) that address species protected under the MBTA or the Bald and Golden Eagle Protection Act	X	
<b>ROW-WL-3: Raptor nest survey and avoidance.</b> If surface disturbance activities may be initiated during raptor breeding and nesting seasons (as determined by the NDOW and the BLM), surveys for active raptor nests would be conducted by SNWA within suitable habitat, within 2 weeks prior to the anticipated start of surface disturbing construction activities. Raptor nests found during surveys would be addressed under the Ely RMP SS-4 management action as well as protected under provisions of the MBTA and BGEPA as relevant. (SS-4: Where appropriate, restrict permitted activities from May 1 through July 15 within 0.5 mile of raptor nest sites unless the nest site has been determined to be inactive for at least the previous 5 years.)	X	
<b>ROW-WL-4: Specific lek avoidance – Burying power lines.</b> For the power line in Cave Valley, SNWA shall bury the portion of the 25 kV line within the 2 mile buffer of the active leks in Cave Valley. For the power line in Snake Valley, the portion of the 25 kV line within the 2 mile buffer of the active lek shall be buried	X	
<b>ROW-WL-5: Specific lek avoidance –Siting of power lines.</b> SNWA shall site 230kV power lines west of three active leks in southern Spring Valley at sufficient distances to avoid line-of-sight with leks..	X	
<b>ROW-WL-6: Habitat restoration to benefit greater sage-grouse.</b> Restore greater sage-grouse habitat on public lands where habitat is disturbed. The SNWA shall coordinate with the BLM and the NDOW to determine the specific areas and timing for restoration activities.	X	

**Table 3.20-1 Right-of-Way (Tier 1) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Mitigation outside BLM Jurisdiction
<b>Section 3.7 Aquatic Biology</b>		
<b>ROW-AB-1: Habitat Restoration.</b> The SNWA shall restore substrate composition to preconstruction conditions at the Snake Creek pipeline crossing using procedures approved by the BLM and the NDOW. The results shall be included in the detailed Restoration Plan to be prepared for the project.	X	
<b>ROW-AB-2: Avoidance of Instream Disturbance.</b> Construction of the power line at the Steptoe Creek crossing shall avoid instream disturbance from equipment and vehicles.	X	
<b>ROW-AB-3: Spawning Restrictions.</b> Timing restrictions between October 1 and December 1 shall be required during pipeline construction at the Snake Creek crossing. If construction during this period is necessary, SNWA shall prepare a site-specific plan that adopts mitigation measures recommended by the NDOW to minimize impacts to brown trout.	X	
<b>Section 3.9 Recreation</b>		
<b>ROW-REC-1: Enforce Recreational OHV Travel Restrictions.</b> (see Mitigation Measure ROW-T-1 under Transportation) Identify construction zone and construction vehicle access areas where restrictions to unauthorized OHV travel should be enforced.	X	
<b>ROW-REC-2: Avoid Recreational Use Conflicts with Construction Activities.</b> Schedule construction activities (pipeline and aboveground ancillary facilities) to minimize conflicts with recreation activities such as race events, hunting, and elk viewing.	X	
<b>ROW-REC-3: Avoid Recreational Trail Location Conflicts.</b> Coordinate with the BLM regarding future trail use where SRMAs and SRP areas are crossed.	X	
<b>Section 3.10 Transportation</b>		
<b>ROW-T-1: Traffic Management Plan.</b> SNWA will prepare a detailed Traffic Management Plan that addresses operating procedures and coordination approaches with the BLM and other appropriate agencies to minimize traffic congestion, roads needing improvement and repair, and safety measures during construction.	X	
<b>Section 3.12 Rangelands and Grazing</b>		
<b>ROW-GRA-1: Temporary fencing in livestock high use areas.</b> In the final POD to be prepared as an attachment to the BLM ROD, the SNWA would conduct pre-construction surveys to determine livestock high use locations in and adjacent to the construction ROW where application of temporary fencing would benefit revegetation species establishment. The results of these surveys would be provided to the BLM for review and concurrence. Reseeded areas that are temporarily fenced would be monitored by the SNWA on a yearly basis until the BLM determines that reseeded areas are self-sustaining, and fencing removed. It is anticipated that this measure would be applied in discrete areas of 5 acres or less, unless the BLM identifies a need to temporarily fence larger areas.	X	
<b>Section 3.13 Wild Horses and Burros</b>		
<b>ROW-WH-1: Shrub/tree Removal.</b> In the Eagle and Silver King HMAs, where feasible, shrubs and trees within the power line ROW would be avoided during selection of power pole position and spur access road routes.	X	
<b>ROW-WH-2: Preconstruction Consultation.</b> Preconstruction consultation with the BLM shall occur to identify construction avoidance areas in HMAs between April and July.	X	

**Table 3.20-1 Right-of-Way (Tier 1) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Mitigation outside BLM Jurisdiction
<b>ROW-WH-3: Existing Water Supplies.</b> Preconstruction consultation with the BLM will occur to ensure that wild horses have access to existing water sources or that supplemental water is provided.	X	
<b>Section 3.14 Special Designations</b>		
<b>ROW-SD-1: Construction area siting.</b> To the degree possible, avoid siting temporary construction areas within the boundaries of special designations and within designated ROW corridors.	X	
<b>Section 3.15 Visual Resources</b>		
<b>ROW-VR-1: ROW Width Reduction.</b> SNWA, in consultation with the BLM, will reduce the width of permanent ROW and temporary construction ROW to the smallest width feasible in Pahrnagat Canyon, VRM Class II areas, and within 1,000 feet adjacent to scenic byways (U.S. 50/6/93) to minimize visual contrasts where feasible. The permanent and temporary ROW width can be reduced through narrower roads within the ROW, steeper trench walls, vertical trenching and/or trench boxes, and reducing the ROW width in relation to the size of the pipeline (e.g., a 16 inch pipeline would require less ROW than an 84 inch pipeline).	X	
<b>ROW-VR-2: Power Line Structure Design.</b> Where locating new power lines adjacent to existing lines, the existing pole type, color, and span length would be matched to the extent feasible. In areas where there are no existing power lines, SNWA would consult with the BLM during project design to select the most appropriate structure design from the following: wood H-frame structures or single steel poles for 230-kV power lines and single wood poles or single steel poles for 69-kV and 25-kV. All steel poles would be surfaced with Shadow Grey paint in sage/creosote plant communities and self-weathering Corten in pinyon pine plant communities.	X	
<b>ROW-VR-3: Power Line Conductor and Insulator Design.</b> Conductors are recommended to be non-specular and non-reflective. Insulators shall be porcelain or polymer material to reduce reflection and refraction.	X	X
<b>ROW-VR-4: Surface Treatment of Project Structures and Buildings.</b> SNWA would consult with BLM on surface treatments. All aboveground, non-electric project structures and buildings will utilize architectural details and be painted or constructed of colored block to blend with the colors of the surrounding landscape, per BLM Manual 8400 – Visual Resources Management. Shadow Grey for sagebrush shrub and shrubland cover types and Beetle for pinyon-juniper woodland should be selected from the BLM Standard Environmental Colors Chart CC-001 ( <b>Appendix F3.15, Figure F3.15-1</b> ). Ground surfaces of permanent storage yards that will not be revegetated should have a top-dressing of two inches of dark colored aggregate to minimize color contrast. Non-reflective and non-glare paints will be utilized with proper treatment maintenance for the life of the project.	X	
<b>ROW-VR-5: Facility Siting.</b> During project design and preparation of the detailed POD (ACM A.1.1), SNWA would review facility site locations with the BLM to determine if design features or adjustments could be made to limit the visibility of non-linear facilities. The collocation of facilities has been incorporated into the POD; however, further adjustments for the collocation of non-linear facilities with related project facilities or existing facilities would be reviewed with the BLM. Distance, terrain, and vegetation screening would be utilized to limit the visibility of non-linear facilities. Facility siting to minimize visibility would be subject to engineering and safety requirements that may constrain siting.	X	
<b>GW-VR-4: Site Groundwater Development Structures and Facilities in BLM VRM Class III or IV Areas.</b> No well pads or roads would be constructed in Class I and II areas.	X	

**Table 3.20-1 Right-of-Way (Tier 1) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Mitigation outside BLM Jurisdiction
<b>Section 3.16 Cultural Resources</b> No additional mitigation		
<b>Section 3.17 Native American Traditional Values</b>		
<b>ROW-NAM-1: Tribal Monitors.</b> Qualified tribal monitors would monitor pipeline construction in the area of a site in which an Indian tribe attaches religious and cultural significance. The BLM would identify these sites in consultation with interested Indian tribes.	X	
<b>Section 3.18 Socioeconomics</b>		
<b>SE-1: To Address Local Law Enforcement Staffing and Equipment Needs.</b> The SNWA would work with the boards of county commissioners of Lincoln, White Pine and Millard counties to develop an Emergency Management Plan (see V-2 in Vegetation) – including provision of multi-year grants for staff recruiting, training, payroll and purchases of patrol vehicles, and communications equipment.	X	X
<b>SE-2: To Address Local Emergency Response Needs.</b> The SNWA would work with the boards of county commissioners of Lincoln, White Pine and Millard counties to develop an Emergency Management Plan (see V-2 in Vegetation) – including providing grants for training, purchases of ambulances and other equipment. Some needs could also be addressed via requirements for contractor-provided on-site first response capabilities	X	X
<b>SE-3: To Address Local Government Fiscal Needs.</b> The SNWA would negotiate and provide “payments in lieu of taxes” to Lincoln and White Pine counties for the local sales, use and property taxes foregone because of SNWA’s tax-exempt status. The negotiated payments should be estimated in advance for the upcoming construction year, with adjustments made the following year for variances in actual outlays.	X	X
<b>SE-4: To Address Temporary Housing Needs In The Rural Areas.</b> In the event that one or more temporary construction worker facilities are not developed in Lincoln County during the construction of the main pipeline and transmission line, the SNWA and its major contractors should work cooperatively with the Board of County Commissioners to develop temporary housing resources, e.g., providing direct funding or occupancy commitment for one or more RV parks.	X	X
<b>SE-5: To Assist Local Counties and Communities Planning Efforts.</b> The SNWA and its contractors would prepare and distribute an annual socioeconomic monitoring report summarizing its construction activities during the past year, planned activity over the next two years, and key characteristics of its work force, e.g., level of employment (low, peak, average), residency patterns, turnover rates, and impacts on local communities.	X	
<b>Public Safety and Health</b>		
<b>ROW-PS-1: Hazardous Material Surveys.</b> Conduct BLM-approved hazardous materials-contaminant surveys before establishing final pipeline ROW locations.	X	

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<b>Section 3.1 Air and Atmospheric Values</b>			
<b>GW-AQ-1: Road Inspection and Repair.</b> The SNWA and the BLM's Environmental Compliance Monitor shall inspect and repair project roads in areas prone to air and water erosion bi-weekly during construction.	X		
<b>GW-AQ-2: Use of Soil Tackifiers.</b> Soil tackifiers and other mitigation (e.g., gravel) may be selected in consultation with the BLM to reduce impacts and to ensure protection of public safety. This measure would replace the SNWA ACM A.10.3.	X		
<b>GW-AQ-3: Monitoring, Mitigation, and Management Plan for Air Quality.</b> SNWA will develop an air monitoring plan approved by the BLM, which will detail the siting and operation of at least three collocated PM <sub>10</sub> and PM <sub>2.5</sub> air monitoring stations, one of which will be upwind of the project area. Recommended monitoring locations include Snake, Spring, and Lake valleys. These valleys are selected for consideration based on predicted changes to the Bar Soil/sparse vegetation ET unit, which has the greatest potential for windblown dust impacts. Baseline air measurements will be initiated at least a year prior to groundwater pumping construction activities, since these activities may increase measured particulate values. Once baseline air quality levels are established, monitoring will continue for the duration of groundwater pumping activities. Finally, the monitoring plan will comply with USEPA monitoring guidance <sup>1</sup> when selecting the site locations, and instruments, developing the data management plan, and establishing quality assurance criteria. See <b>Appendix B</b> .		X	
<b>Section 3.2 Geologic Resources</b>			
<b>GW-G-1: Cave Protection.</b> Prior to ground disturbing or drilling activities in areas close to identified cave resources, the conditions of approval will require appropriate site specific measures for the protection of caves that may be at risk such as, but not limited to, the following: <ul style="list-style-type: none"> <li>• Reasonable and appropriate setbacks and buffers around caves.</li> <li>• Limitations on blasting.</li> <li>• Requirements for the storage and handling of hazardous materials such as fuels.</li> </ul> Other measures that may be appropriate for wells including procedures when encountering subsurface voids while drilling, closed drilling fluid (mud) systems (no earthen mud pits), use of freshwater mud, directional drilling, and special casing programs.	X		

<sup>1</sup> USEPA 2006. Quality Assurance Handbook for Air Pollution Measurement Systems. EPA-454/D-06-001. October 2006.

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<p><b>GW-G-2: Underground voids.</b> If underground voids are unexpectedly encountered during facility construction or drilling, the following measures would apply:</p> <ul style="list-style-type: none"> <li>• Work will be halted and the BLM will be notified immediately.</li> <li>• The BLM, in consultation with the permittee, shall assess the risk of further drilling or siting of surface facilities in the area where the voids are encountered.</li> <li>• Risk assessment may require the use of appropriate geotechnical methods to gather relevant data on the extent of karst features.</li> </ul>	X		
<p><b>GW-G-3: Subsidence Monitoring.</b> Subsidence monitoring is recommended in current and proposed water withdrawal areas in order to provide baseline data before build out begins. As groundwater extraction occurs in full production, monitoring would be needed to assess the magnitude and extent of subsidence in order to take actions that would mitigate subsidence where necessary. Subsidence Monitoring to include:</p> <ul style="list-style-type: none"> <li>• Baseline Subsidence Monitoring.</li> <li>• Initial Subsidence Modeling,</li> <li>• Exploratory Phase .Monitoring During Pumping.</li> <li>• Establish a periodic and systematic inspection of water development areas to observe the development and documentation of ground fissures that may develop.</li> </ul>		X	
<b>Section 3.3 Water Resources</b>			
<p><b>GW-WR-1: Spring Inventories.</b> A spring inventory would be conducted in all groundwater development areas to verify and map the location of all springs prior to construction. Construction and development of the groundwater development areas would avoid ground disturbance in the vicinity (i.e., 0.5 mile) of all verified spring locations.</p>	X		
<p><b>GW-WR-2: Stream Crossing Plans.</b> A site specific plan would be developed to detail the construction procedures, erosion control measures, and reclamation that would occur for pipeline construction across live (flowing) stream reaches. The plan also would incorporate information from BLM Technical Reference 423, for hydraulic considerations in designing pipeline stream crossings (DOI 2007). The plan would include site-specific designs using either open cut or jack and bore techniques and site specific measures to minimize disturbance of the stream bed, and release of sediment from the construction area into the downstream stream reach. The plan would be reviewed and approved by the BLM and NDOW prior to initiation of any construction activities within the stream corridor.</p>	X		



**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<p><b>GW-WR-3: Monitoring and Modeling.</b> This mitigation measure would require that the SNWA provide the BLM with an annual report that provides monitoring results; drawdown maps; a description of any deviation of the modeling results from the current groundwater flow model predictions; and proposed modifications to the monitoring plans based on the results of the monitoring (i.e., changes to the monitoring well network, or network of springs, seeps, streams). The SNWA would also be required to update the model at least every 5 years (after pumping is initiated) or sooner if BLM identifies major differences between the model simulations and monitoring results and determines that model recalibration is necessary. The SNWA would also develop more detailed (local scale) groundwater flow models designed to simulate the effects of pumping within each specific basin. These basin specific models would be developed and approved by BLM prior to BLM's NEPA review of specific groundwater development activities proposed by SNWA.</p>		X	
<p><b>GW-WR-4: Monitoring, Mitigation and Management Plan for Snake Valley.</b> Mitigation measure GW-WR-4 includes the water resource components of the Monitoring, Mitigation, and Management (3M Plan) documents provided in Appendix B. The SNWA, working in conjunction with the BLM and other DOI agencies, and with input from the States of Nevada and Utah, will develop and implement a long-term monitoring, management, and mitigation plan for Snake Valley (3M Plan). The purpose of the 3M Plan is to insure that: 1) implementation of the ROD protects water dependent resources and water-related resources on public lands, 2) protects federal water rights managed by federal agencies, and 3) provides a process for mitigating impacts. The 3M Plan will establish a network of groundwater and surface water monitoring sites to collect baseline data and monitor the effects of groundwater development on water resources. The intent of the 3M Plan is to provide early warning of potential adverse impacts to water rights and water-dependent sensitive resources, and provide time and flexibility to implement management measures and gauge their effectiveness. (Additional details are provided in Section 3.3 and Appendix B.)</p>		X	
<p><b>GW-WR-5: Shoshone Ponds.</b> Drawdown is likely to impact the source of water that supports important aquatic resources for Shoshone Ponds (as discussed in Section 3.7, Aquatic Biological Resources). Impacts to Shoshone Ponds that are attributable to the SNWA's groundwater pumping would be mitigated by improving the existing well or drilling a new well, and installing a pump such that the well, pump, and water conveyance system are designed to maintain the flow to the ponds for the foreseeable future regardless of the groundwater drawdown. Any new well should be designed to pump groundwater from the same aquifer currently used as the source of water for the ponds.</p>		X	

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<p><b>GW-WR-6: Well and Water Rights.</b> Impacts to water wells and water rights would be mitigated, as required by the State of Nevada or Utah (most likely acting under authority of an interstate agreement between Utah and Nevada that would be developed in the future prior to development). Mitigation for impacts to water rights would depend on the site-specific conditions and impacts and could include a variety of measures. Methods for addressing impacts to water rights may include but would not be limited to the following:</p> <ul style="list-style-type: none"> <li>• For wells, mitigation could include lowering the pump, deepening an existing well, drilling a new well, or providing a replacement water supply of equivalent yield and general water quality.</li> <li>• For surface water rights, mitigation could require providing a replacement water supply of equivalent yield and general water quality.</li> </ul>		X	X
<b>Section 3.5 Vegetation</b>			
<p><b>GW-VEG-1: Joshua Tree Avoidance.</b> Mature Joshua trees (<i>Yucca brevifolia</i>) would be avoided to the extent possible when laying out access roads in Delamar Valley.</p>	X		
<p><b>GW-VEG-2: Special Status Plants.</b> Pre-construction surveys for special status plants would be completed along all proposed groundwater development facility ROWs.</p>	X		
<p><b>GW-VEG-3: Monitoring, Mitigation and Management Plan for Snake Valley.</b> Mitigation measure GW-VEG-3 includes the vegetation resource components of Monitoring, Mitigation, and Management (3M Plan) documents provided in Appendix B.</p> <p>The SNWA, working in conjunction with the BLM and other DOI agencies, and with input from the States of Nevada and Utah, will develop and implement a long-term monitoring, management, and mitigation plan for Snake Valley. The purpose of the 3M Plan is to insure that: 1) implementation of the ROD protects water dependent resources and water-related resources on public lands, 2) protects federal water rights managed by federal agencies, and 3) provides a process for mitigating impacts. The 3M Plan includes provision for biological monitoring and analysis to further the understanding of groundwater-influenced ecosystem dynamics and track biotic community responses to SNWA’s groundwater withdrawal from the Snake Valley Hydrographic Basin. This monitoring will provide an early-warning indication as to whether, in combination with the hydrologic monitoring component, SNWA groundwater development in Snake Valley is, or causing or may cause adverse effects to groundwater-influenced ecosystems. It will also track ecosystem response as management response actions are implemented. (See Section 3.5 and Appendix B for additional details)</p>		X	
<b>Section 3.6 Wildlife</b>			
<p><b>GW-WL-1: Avoid siting facilities in key big game habitats.</b> Avoid locating wells, new roads, or other linear facilities within key big game habitats including crucial summer and winter ranges, and occupied bighorn sheep habitats. Where avoidance is not practicable, the SNWA shall improve 2 acres of comparable habitat for every 1 acre disturbed.</p>	X		

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<b>GW-WL-2: Avoid Siting Facilities Within 2 Miles of Active Sage-grouse Leaks.</b> Where possible, the SNWA shall avoid siting wells and power lines within 2 miles of active sage-grouse leks. Where not possible, all power lines 33-kV or smaller within 2 miles of active greater sage-grouse leks must be buried.	X		
<b>GW-WL-3: Pre-construction Surveys and Avoidance of Active Burrowing Owl Burrows.</b> Prior to siting future facilities, SNWA shall conduct pre-construction surveys for burrowing owl based on habitat, known range, and previous occurrences within areas being considered for facilities. Well and other facility siting shall avoid active burrows during breeding and nesting season to the extent practicable.	X		
<b>GW-WL-4: Pre-construction Survey and Avoidance of Pygmy Rabbit Occupied Habitat.</b> Prior to siting future facilities, the SNWA shall conduct pre-construction surveys for pygmy rabbits based on habitat, known range, and previous occurrences within areas being considered for facilities. Well and other facility siting shall avoid occupied habitat to the extent practicable.	X		
<b>GW-WL-5: Pre-construction Survey and Avoidance of Desert Valley Kangaroo Mouse Occurrences.</b> Prior to siting future facilities, the SNWA shall conduct pre-construction surveys for desert valley kangaroo mouse based on habitat, known range, and previous occurrences within areas being considered for facilities. Well and other facility siting shall avoid occurrences to the extent practicable. Where impacts cannot be avoided, measures similar to those proposed by the applicant for ROW construction would be followed.	X		
<b>GW-WL-7: Artificial Water Sources for Big Game.</b> If groundwater pumping by the SNWA results in the loss of existing water sources used by big game, the SNWA, in coordination with the BLM or NPS and NDOW, will develop artificial water sources to maintain current distribution of big game.		X	
<b>GW-WL-8: Monitoring, Mitigation and Management Plan for Snake Valley.</b> (related to GW-WR-3 and others). In addition to the monitoring and mitigation described in Section 3.3, Water Resources and Section 3.4, Vegetation Resources, the Snake Valley 3M Plan will include management and mitigation measures that could be used to address impacts identified during monitoring relevant to terrestrial wildlife species including: 1) geographic redistribution of groundwater withdrawals, 2) reduction or cessation of groundwater withdrawals, 3) if water supplies used for consumptive purposes, such as irrigation, domestic, and livestock watering use were limited by the project, then SNWA will provide alternate supplies of water, 4) acquisition of real property and/or water rights dedicated to management of special status species, and 4) augmentation of water supply and/or acquisition of existing water rights. The Draft Plan and accompanying guidance is provided in Appendix B.		X	
<b>Section 3.7 Aquatic Biology</b>			
<b>GW-AB-1: Avoid Disturbance to Springs.</b> Avoid direct disturbance to springs in Spring and Snake valleys with known special status aquatic species by establishing a 0.5-mile buffer around these areas.	X		
<b>GW-AB-2: Avoid Disturbance to Streams.</b> Avoid locating wells, new roads or other linear facilities within 0.5 mile of or parallel to perennial streams and riparian areas.	X		

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<b>GW-AB-3: Flow Change Mitigation.</b> Specific mitigation measures will be identified for those springs or streams with game fish or special status aquatic species where flow or water level changes are identified during modeling or monitoring. Mitigation ideas are identified as part of ACMs under adaptive management (Appendix E).		X	
<b>GW-AB-4: Mitigation Actions Resulting from the 3M Plan for Snake Valley.</b> Mitigation planning will be developed as part of the 3M Plan for Snake Valley (Appendix B). Management actions to be considered will include geographic redistribution of groundwater withdrawals; reduction or cessation of groundwater withdrawals; provision of consumptive water supply requirements using surface and/or groundwater sources; acquisition of property or water rights dedicated to management of special status species; and augmentation of water supply and/or acquisition of existing water rights.		X	
<b>Section 3.13 Wild Horses and Burros</b>			
<b>GW-WH-1: Water Source Maintenance.</b> In cooperation with the BLM, SNWA shall identify key natural water sources and monitor those sources on a regular basis (frequency determined by the BLM). If impacts to those sources are observed, SNWA would consult with the BLM to identify locations where artificial water sources could be maintained to supply herds with adequate water supplies.		X	
<b>Section 3.14 Special Designations</b>			
<b>GW-SD-1: Avoid New Disturbance in ACECs.</b> To the degree possible, avoid new surface disturbance in ACECs outside of utility corridors when planning well locations and roads.	X		
<b>Section 3.15 Visual Resources</b>			
<b>GW-VR-1: Avoid Siting Facilities on Slopes.</b> Where determined necessary by BLM for visual resource protection, groundwater development facilities would not be located on slopes greater than 5 percent.	X		
<b>GW-VR-2: Install Distribution Power Lines Underground.</b> Where determined necessary by BLM for visual resource protection reasons, distribution power lines (voltages less than 33 kV) would be placed underground, when not located within high voltage transmission corridors. Underground power lines can be located within the 100-foot ROW with a minimum separation in accordance with the National Electric Safety Code Standard 353. Underground power lines should be located within the disturbed area of the permanent ROW to minimize soil disturbance and visual contrasts to the extent feasible.	X		

**Table 3.20-2 Groundwater Development (Subsequent Tiers) Monitoring and Mitigation Measures (Continued)**

Mitigation/Monitoring	ROW Surface Disturbance, Construction Maintenance Effects	Groundwater Pumping Effects	Mitigation outside BLM Jurisdiction
<b>GW-VR-3: Site Wellfield Facilities away from Designated Viewing Locations.</b> Where determined necessary by BLM for visual resource protection reasons, site groundwater development production wells, staging areas, and pumping stations more than 0.5 mile from designated viewing locations with high viewer sensitivity (e.g., scenic byways, KOPs, wilderness areas and national parks) except where they are within the temporary and permanent ROW for the main or lateral pipelines or collocated with ROW facilities. Utilize terrain to screen groundwater development facilities and avoid placing buildings on high land features and along “skylines” to conceal or reduce changes.	X		
<b>GW-VR-4: Site Groundwater Development Structures and Facilities in BLM VRM Class III or IV Areas.</b> No well pads or roads would be constructed in Class I and II areas.	X		
<b>Section 3.18 Socioeconomics</b>			
<b>SE-6: To Provide a Source Of Emergency Financial Assistance and Equitable Treatment of Potentially Affected Ranchers and Public Water Systems that Rely on Groundwater.</b> SNWA should create and fund a mitigation/protection program for holders of water rights in Nevada comparable to that for water rights holders in Utah outlined in the draft Nevada/Utah agreement.		X	X
<b>SE-7: To Provide a Source Of Emergency Financial Assistance to Individual Businesses Adversely Affected By Factors Linked to Groundwater Drawdown.</b> SNWA should expand the impact assistance and compensation program to compensate/provide economic relief to individual businesses for losses due to business interruption or other factors that are reasonably linked to groundwater drawdown.		X	X
<b>SE-8: To Promote Income Stability and Long-Term Sustainability of Local Agricultural Industry.</b> SNWA should work cooperatively with DRI, University of Nevada - Reno, University of Utah, USDA, and others to assist farmers and ranchers to implement water conservation practices and to transition to higher value, less water consumptive crops.		X	X
<b>SE-9: To Facilitate Local Planning and Ensure Timely Response in the Event of Problems.</b> A cooperative effort should be undertaken by the respective state engineers of Nevada and Utah, SNWA, and White Pine, Lincoln and Millard counties, to develop and implement a comprehensive socioeconomic monitoring program as an adjunct to the stipulated agreements for Spring and Snake valleys. This effort could include creation of an “Ombudsmen” position, perhaps within the NSE, to ensure public access and timely response regarding groundwater issues.		X	X
<b>SE-10: To Help Maintain Local Government Fiscal Strength.</b> If SNWA purchases additional private property or pays another party to establish a permanent conservation easement on productive agricultural or timber lands that results in a reduction in taxable value, SNWA should provide annual “payments in lieu of taxes” to the affected county to offset any resulting reductions in ad valorem taxes.		X	X
<b>Public Safety and Health</b>			
<b>GW-PS-1: Five-year Review of Leak Detection Methodologies.</b> Review and implement best industry practices for leak detection.	X		