STATE OF NEVADA
**SAGEBRUSH ECOSYSTEM COUNCIL**
201 South Roop Street, Suite 101
Carson City, Nevada 89701-5247
Phone (775) 684-8600 - Fax (775) 684-8604

**MEETING OF THE SAGEBRUSH ECOSYSTEM COUNCIL**

# Wednesday, December 18th, 2013 8:30 a.m.

# The Legislative Building

# 401 S Carson Street, Room 1214, Carson City, Nevada 89701

**The meeting is available for viewing on the internet at:**
http://www.leg.state.nv.us/App/Calendar/A/

1. **CALL TO ORDER**

2. **PUBLIC COMMENT**
   **Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.**

3. **REVIEW AND CONSIDERATION OF APPROVAL OF AGENDA - *FOR POSSIBLE ACTION***

4. **REVIEW AND CONSIDERATION OF APPROVAL OF MINUTES - *FOR POSSIBLE ACTION***

   A. Approval of minutes from the meeting held November 18, 2013.

5. **COUNCIL MEMBER ITEMS AND CORRESPONDENCE:**

   A. Council members may make comments at this time and the Program Manager will bring forward any pertinent correspondence directed to the Council.

6. **DISCUSSION OF THE CONSERVATION CREDIT SYSTEM:**

   A. A brief update on the status of the Conservation Credit System. – *Tim Rubald, Program Manager, Sagebrush Ecosystem Technical Team.*

**7. DISCUSSION AND CONSIDERATION OF PROPOSED REVISIONS TO SECTION 3.0 GOALS AND OBJECTIVES OF THE 2012 STATE PLAN. - *FOR POSSIBLE ACTION***

A. Discussion and consideration of revisions to the 2012 State Plan, including cumulative impacts, as directed during the September 12, 2013 and October 10, 2013 Council Meetings, and discussed at the November 18, 2013 meeting. – *Sagebrush Ecosystem Technical Team*

**8. DISCUSSION AND CONSIDERATION OF PROPOSED SITE SPECIFIC CONSULTATION DESIGN FEATURES, PERTAINING TO THE 'MINIMIZE' POLICY TO BE INCLUDED IN THE REVISED VERSION OF THE 2012 STATE PLAN AND STATE EIS ALTERNATIVE. - *FOR POSSIBLE ACTION***

A. Discussion and consideration of proposed Design Features to be included in the revised State Plan and EIS Alternative, as requested during the October 10, 2013 Council Meeting, incorporating comments made by the Council *et. al.* between the November 18, 2013 meeting and this meeting. – *Sagebrush Ecosystem Technical Team*

**9. DISCUSSION AND POSSIBLE INFLUENCE OF PRIVATE LANDS BY THE SAGEBRUSH ECOSYSTEM PROGRAM.**

A. On numerous occaisions the issue of how private lands in the state might be affected by actions of the Council or SETT has come up in discussion. This issue will be discussed regarding how AB461 affects the Council's actions. – *Cory Hunt, Policy Analyst, Governor Sandoval's Office*

**10. DISCUSSION AND CONSIDERATION OF "HABITAT OBJECTIVES FOR GREATER SAGE-GROUSE" TO BE INCLUDED IN THE REVISED VERSION OF THE 2012 STATE PLAN AND STATE EIS ALTERNATIVE. - *FOR POSSIBLE ACTION***

A. Discussion and consideration of proposed habitat objectives for greater sage-grouse that would be incorporated into the revised State Plan. These objectives were originally developed for the BLM for inclusion in the EIS and have been discussed with the Science Work Group. – *Sagebrush Ecosystem Technical Team*

**11. DISCUSSION OF THE BLM/USFS SUB-REGIONAL DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS). *FOR POSSIBLE ACTION***

A. Discussion of the Sub-regional DEIS. Development of comments and specific items that need additional consideration by the Council, possibly resulting in Council developing specific comments on sections of the DEIS, and additional direction to the SETT. – *Tim Rubald, Program Manager, Sagebrush Ecosystem Technical Team.*

**12. REVIEW OF ACTION ITEMS AND FUTURE AGENDA ITEMS DRAFTED ON FLIP CHARTS DURING THIS MEETING - *FOR POSSIBLE ACTION***

A. With staff assistance, the Council will review items discussed, as well as items acted upon during this meeting, and determine which of those they wish to direct staff to do further work on, as well as which items the Council wishes to act on that may not have been acted upon during earlier discussion.

B. Determination of any specific items the Council would like to work on at their January 8th and 9th, 2014 two day meeting, which is the next regularly scheduled Council meeting.

**13. FEDERAL AGENCY UPDATES AND COMMENTS:**

A. US Fish and Wildlife Service
B. Bureau of Land Management
C. US Forest Service
D. Other

**14. STATE AGENCY UPDATES AND COMMENTS:**

A. Department of Conservation and Natural Resources
B. Department of Wildlife
C. Department of Agriculture
D. Sagebrush Ecosystem Technical Team
E. Other

**15. PUBLIC COMMENT**

**Public comment may be made on any matter, provided that comment will be limited to matters relevant to the Council. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.**

**16. ADJOURNMENT - *FOR POSSIBLE ACTION***

**NOTICE: Items on this agenda may be taken in a different order than listed, combined for consideration by the Council, or removed from the agenda.**

Notice of this meeting was posted in the following location:
Sagebrush Ecosystem Program, 201 S. Roop Street, Carson City, Nevada
Department of Conservation and Natural Resources, 901 S. Stewart Street, Carson City, Nevada
Department of Agriculture, 405 South 21st Street, Sparks, Nevada
Department of Wildlife, 1100 Valley Road, Reno, Nevada
Nevada State Library & Archives Building, 100 North Stewart Street, Carson City, Nevada
Grant Sawyer Office Building, 555 East Washington Avenue, Las Vegas, Nevada
Capitol Building, 101 North Carson Street, Carson City, Nevada
Legislative Building, 401 South Carson Street, Carson City, Nevada

Notice of this meeting was also posted on the Sagebrush Ecosystem Program website at:
http://sagebrusheco.nv.gov

*We are pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify our office by writing to the Sagebrush Ecosystem Program, 201 S. Roop Street, Suite 101, Carson City, NV 89701; or by email at timrubald@sagebrusheco.nv.gov or calling 775-684-8600 no later than two (2) working days prior to the scheduled meeting.*

*Please contact Tim Rubald at 201 S Roop St Ste 101 Carson City, Nevada 89701; or email timrubald@sagebrusheco.nv.gov ; or phone 775-684-8600 to obtain support material for the agenda. Materials will also be posted on the* http://sagebrusheco.nv.gov *website.*

**Video Viewing Location:**

This meeting will be available at the time of the meeting on the Legislative Council Bureau's website. This is for viewing only and is not interactive; some presentations may not be viewable concurrent with the meeting activity due to technical limitations. Any presentations that are available before the meeting will be posted on the Sagebrush Ecosystem Program website at http://sagebrusheco.nv.gov.

To view the meeting live on the internet, please go to http://www.leg.state.nv.us/, click on *Calendar of Meetings* in the upper right hand side of the page, and then click on *View* under the appropriate listing.

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**STATE OF NEVADA**
**Sagebrush Ecosystem Program**

# SAGEBRUSH ECOSYSTEM COUNCIL
# STAFF REPORT
# MEETING DATE: December 18, 2013

**DATE:** December 13, 2013

**TO:** Sagebrush Ecosystem Council Members

**FROM:** Sagebrush Ecosystem Technical Team
Telephone: 775-684-8600

**THROUGH:** Tim Rubald, Program Manager
Telephone: 775-684-8600, Email: timrubald@sagebrusheco.nv.gov

**SUBJECT:** Discussion and possible consideration of proposed Site Specific Consultation Based Design Features to be Included in the Revision of the State Plan/ EIS Alternative

## SUMMARY

This item presents proposed Site Specific Consultation Based Design Features (hereafter Design Features) that pertain to the "minimize" policy to be included in revisions of the 2012 State Plan and State EIS Alternative. The purpose of this item is to provide greater detail and specificity on the "minimize" policy in order for the BLM to analyze the State Alternative and to provide a greater likelihood for the State Alternative to, at least in part, be selected as the preferred alternative.

## PREVIOUS ACTION

**July 30, 2013.** The Council adopted the Sagebrush Ecosystem Strategic Detailed Timeline, which included revision of the State Plan/ EIS Alternative.

**October 10, 2013.** The Council directed the SETT to develop Best Management Practices (BMPs) for the "minimize" policy for Council consideration.

**November 18, 2013.** The Council discussed proposed Required Design Features. The Council voted to rename them "Site Specific Consultation Based Design Features" and directed the SETT to revise the list based on input from the Council.

## DISCUSSION

Prior to the November 18, 2013 Council meeting, in order to develop the State's sage-grouse Design Features list, the SETT first reviewed those developed in the National Technical Team (NTT) Report and the BLM's EIS Alternative (now available to the public in Alternative D of the DEIS). The BLM's EIS Alternative included (1) the BMPs

developed in the NTT Report, some of which were modified by the BLM and (2) additional Design Features that were listed in no particular order.

The SETT used the BLM's EIS Alternative Design Features as the starting point for the State's EIS Alternative Design Features, reorganized the Design Features by BLM program area, and then modifying, adding, and deleting Design Features as needed. The Council first considered this proposal at their November 18, 2013 meeting. The Council decided to provide electronic edits and comments to the SETT.

Following the November 18, 2013 Council meeting, the SETT compiled the edits and comments submitted by the Council and the general public and modified the document in the form of track changes. The compilation of this effort is provided as Attachment 1 to this staff report.

## FISCAL IMPACT

There is no fiscal impact at this time.

## RECOMMENDATION

Staff recommends the Council approves the proposed Site Specific Consultation Based Design Features or make revisions to revise it, and then approve them so they can be incorporated in a timely manner.

## POSSIBLE MOTION

Should the Council agree with the staff recommendations, a possible motion would be:

> "Motion to approve the proposed Site Specific Consultation Based Design Features for inclusion in the State Plan and State EIS Alternative."

**Attachments:**

1. Proposed State Of Nevada Site Specific Consultation Based Features (to be included as Appendix A of the Revised State Plan)
2. Council and general public comments and edits on Required Design Features document proposed at the November 18, 2013 SEC meeting.

mf: TR

# Attachment 1: Proposed Site Specific Consultation Based Design Features

# Appendix A: ~~Required~~*Site Specific Consultation Based* Design Features~~/ Best Management Practices~~

*Site Specific Consultation Based Design Features (here after Design Features) are used to minimize impacts to GRSG and its habitat due to disturbances on a project by project and site by site basis. Design Features in the state of Nevada's plan apply to all newly proposed projects and modifications to existing projects that require re-permitting within SGMAs. Existing projects within SGMAs are not currently subject to Design Features, but become so when existing permits are up for renewal. All Design Features listed below, according to program area, are required to be considered as part of the SETT Consultation process. The state of Nevada recognizes that all Design Features may not be practical, feasible, or appropriate in all instances considering site conditions and project specifications, nor is this list completely exhaustive. Therefore, the SETT in coordination with the project proponent, will consider all of the listed Design Features on a site-specific basis. If certain Design Features are determined to not be practical, feasible, or appropriate for the specific project site, the SETT will document the reasons the Design Features were not selected. The SETT may also consider additional Design Features that may minimize impacts to GRSG and its habitat that are not specifically listed here and document the reasons for selecting the additional Design Features.*

## *Mineral Resources*

*Fluid Minerals ~~RDFs~~*

*Roads ~~– PPMA~~*

• Do not construct new roads ~~when there are existing~~*where* roads ~~that~~ *already in existence,* could be used or upgraded to meet the ~~need.~~ *needs of the project or operation.*

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose *and level of use*.

• Locate roads ~~to avoid important~~*outside of key GRSG seasonal habitat, such as leks and late brood rearing habitat* areas ~~and habitats.~~.

• Coordinate road construction and use among ROW or SUA holders~~.~~*, when the option is available.*

• ~~Where possible, a~~*A*void constructing roads within riparian areas and ephemeral drainages~~.~~ *(note that such construction may require permitting under section 401 and 404 of the Clean Water Act).*

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• ~~Establish~~*Work with local governments to enforce* speed limits ~~on BLM~~ and ~~Forest Service-managed roads to reduce vehicle/wildlife collisions or~~ design roads to be driven at ~~slower~~ speeds~~.~~ *appropriate to minimize vehicle/wildlife collisions.*

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of *remote access technology, such as* telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to ~~only~~ authorized users on newly constructed routes ~~(using~~*by employing traffic control devices such as* signage, gates, *fencing* etc~~.)~~*.*

• ~~Use dust~~*Dust* abatement on roads and pads *will be based on road use, road condition, season, and other pertinent considerations*.

• Close and rehabilitate duplicate roads *by restoring original landform and establishing desired vegetation, in cooperation with landholders and where appropriate authority exists to do so*.

*Operations*

• Cluster disturbances~~,~~ *associated with* operations ~~(fracture stimulation, liquids gathering, etc.),~~ and facilities *as close as possible, unless site specific conditions indicate that disturbances to sagebrush habitat would be reduced if operations and facilities locations would best fit a unique special arrangement*.

~~*Operations - PPMA*~~

• Use directional and horizontal drilling to reduce surface disturbance.

• Place infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation *through a coordination process among relevant parties*.

• Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic*,* and perching and nesting sites for ravens and raptors.

• Pipelines *should*~~must~~ be under or immediately adjacent to the road ~~(Bui et al. 2010)~~.

• ~~Use remote monitoring remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).~~ *Reduce motor vehicle travel during field operations through development and implementation of remote monitoring and control systems plans.*

~~• Restrict~~*To reduce predator perching, limit* the construction of ~~tall~~*vertical* facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to ~~sagebrush~~*GRSG* habitats.

• ~~Place~~*Co-locate* new utility developments (power lines, pipelines, etc.) and transportation routes ~~in~~*with* existing utility or transportation corridors ~~(Bui et al 2010)~~ *where adequate spacing separation can be achieved in order to preserve grid reliability and ongoing maintenance capability*.

• Bury distribution power lines *of up to 35kV where ground disturbance can be minimized*. *Where technology and economic factors allow, bury higher kV power lines.*

• ~~Co-locate p~~*P*ower lines, flow lines, and small pipelines *should be co-located* under or immediately adjacent to existing roads ~~(Bui et al. 2010)~~.

• ~~Design or site p~~*P*ermanent structures*,* which create movement (e.g., pump jack) *should be designed or sited* to minimize impacts to GRSG~~.~~*.*

~~• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.~~ *Preclude GRSG access to pits and tanks through use of practical techniques (e.g. covers, netting, birdballs, location, etc.).*

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting *and/or perching* of raptors ~~and~~*,* corvids~~.~~*, and other predators.*

• Control the spread and effects of non-native*, invasive* plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance). *All projects within SGMAs should have a noxious weed management plan in place prior to construction and operations.*

• Use only closed-loop systems for drilling operations and no reserve pits.

• ~~Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).~~ *Reduce the potential for creating excessive or unintended mosquito habitat and associated risk of West Nile Virus impacts to GRSG. This can be implemented through minimizing pit and pond construction and, where necessary, size of pits and ponds (Doherty 2007).*

• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues *and West Nile virus has been identified as a concern in the project area*, use the following steps for reservoir design to limit favorable mosquito habitat *(Dohery 2007)*:

– Overbuild size of ponds for muddy and non-vegetated shorelines.

– Build steep shorelines to decrease vegetation and increase wave actions. *Ponds with steep shorelines will be equipped with NDOW approved wildlife escape ramps.*

– Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

– Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface~~.~~ *if necessary.*

• Limit noise to less than 10 decibels above ambient measures ~~(20-24 dBA)~~ at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. ~~In preparation~~*2012*).

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit *new* transmission towers with anti-perch devices (Lammers and Collopy 2007).

• ~~Require GRSG safe fences (e.g. marked fences).~~ *Design and construct fences consistent with NRCS fence standards and specifications Code 382 and, where appropriate, use fence markers (Sage Grouse Initiative 2013).*

• Locate new compressor stations outside priority habitats ~~and~~. *Otherwise* design them to reduce noise that may be directed towards priority habitat.

• ~~Clean up refuse (Bui et al. 2011).~~ *Implement site keeping practices to preclude the accumulation of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of GRSG (Bui et al 2010).*

• Locate man camps outside of priority habitats.

*Reclamation ~~– PPMA and PGMA~~*

• Include objectives for ensuring habitat ~~restoration~~*rehabilitation* to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation ~~plan~~*plans* such that goals and objectives are to protect and improve GRSG habitat needs.

*•Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring (minimum three years) is required to determine success.*

• Maximize the area of interim *and concurrent* reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

•Restore disturbed areas at final reclamation to the *near* pre-disturbance landforms and *the* desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly~~.~~ *and if water rights are available.*

• Utilize mulching techniques to expedite reclamation and to protect soils.

*• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for in the reclamation bond.*

~~*Roads – PGMA*~~

~~• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.~~

~~• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.~~

~~• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.~~

~~• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.~~

~~• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.~~

~~• Coordinate road construction and use among ROW or SUA holders.~~

~~• Construct road crossings at right angles to ephemeral drainages and stream crossings.~~

~~• Use dust abatement practices on roads and pads.~~

~~• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.~~

~~*Operations – PGMA*~~

~~• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.~~

~~• Use directional and horizontal drilling to reduce surface disturbance.~~

~~• Clean up refuse (Bui et al. 2010).~~

~~• Restrict the construction of tall facilities and fences to the minimum number and amount needed.~~

~~• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.~~

~~• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.~~

~~• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.~~

~~• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)~~

~~• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).~~

*Locatable Minerals ~~BMPs~~*

*Roads ~~– PPMA and PGMA~~*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose~~s~~ *and level of use*.

• Locate roads ~~to avoid important~~*outside of key GRSG seasonal habitat, such as leks and late brood rearing habitat* areas ~~and habitats~~.

• Coordinate road construction and use among ROW or SUA holders *when the option is available*.

• ~~Where possible, a~~*A*void constructing roads within riparian areas and ephemeral drainages

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• ~~Establish~~*Work with local governments to enforce* speed limits ~~on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or~~*and* design roads to be driven at ~~slower~~ speeds~~.~~ *appropriate to minimize vehicle/wildlife collisions.*

• Do not issue ROWs or SUAs to counties on *newly constructed* mining development roads, unless for a temporary use consistent with all other terms and conditions ~~including~~*included in* this document.

• Restrict vehicle traffic to ~~only~~ authorized users on newly constructed routes ~~(e. g., use signing~~*by employing traffic control devices such as signage*, gates, *fencing* etc~~.)~~*.*

• ~~Use dust~~*Dust* abatement ~~practices~~ on roads *will be based on road use, road condition, season,* and ~~pads.~~*other pertinent considerations*

• Close and ~~reclaim~~*rehabilitate* duplicate roads, by restoring original landform and establishing desired vegetation~~.~~*, in cooperation with landholders and where appropriate authority exists to do so.*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need*s of the project or operations*.

• ~~Where possible, a~~*A*void constructing roads within riparian areas and ephemeral drainages

*Operations ~~– PPMA and PGMA~~*

• Cluster disturbances associated with operations and facilities as close as possible~~.~~ *unless site specific conditions indicate that disturbances to sagebrush habitat would be reduced if operations and facilities locations would best fit a unique special arrangement.*

*• Minimize site disturbance though site analysis and facility planning.*

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• ~~Restrict~~ *To reduce predator perching, limit* the construction of ~~tall~~*vertical* facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to ~~sagebrush~~*GRSG* habitats.

• ~~Place~~*Co-locate* new utility developments (power lines, pipelines, etc.) and transportation routes *with*~~in~~ existing utility or transportation corridors *where adequate separation can be achieved in order to preserve grid reliability and ongoing maintenance*.

• Bury *distributive* power lines~~.~~ *of up to 35 kV where ground disturbance can be minimized. Where technology and economic factors allow, bury higher kV power lines.*

• ~~Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.~~ *Preclude GRSG access to pits and tanks through use of practical techniques (e.g. covers, netting, birdballs, location, etc.).*

• Equip tanks and other above ground facilities with structures or devices that discourage nesting *and/or perching* of raptors*,* ~~and~~ corvids*, and other predators*.

• Control the spread and effects of *Nevada Department of Agriculture listed noxious weeds (NAC 555.010, classes A through C, inclusive) and undesirable* non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007)..

• *Where West Nile virus has been identified as a concern,* ~~R~~restrict ~~pit~~*pond* and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• *Design and construct fences consistent with NRCS fence standards and specifications Code 382 and, where appropriate, use fence markers (Sage Grouse Initiative 2013)*~~Require GRSG safe fences~~ around sumps.

~~• Clean up refuse (Bui et al. 2010).~~ *Implement site keeping practices to preclude the accumulation of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of GRSG (Bui et al 2010).*

• Locate man camps outside of priority GRSG habitats.

*Reclamation ~~– PPMA and PGMA~~*

• Include ~~restoration~~ objectives *for ensuring* ~~to meet GRSG~~ habitat *rehabilitation to meet GRSG* ~~needs~~*habitat needs* in reclamation practices/sites *(Pyke 2011)*. *Address post reclamation management in reclamation plans such that goals and objective are to protect and improve GRSG habitat needs.*

*•Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring (minimum three years) is required to determine success.*

• ~~Address post reclamation management in reclamation plans such that goals and objectives are to protect GRSG habitat needs.~~*Reclamation In coordination with appropriate agencies, consider development of fuel breaks in reclamation design.*

• Maximize the area of interim *and concurrent* reclamation on ~~long-term access roads and well pads including~~*infrastructure related disturbances through* reshaping*/regrading*, topsoiling and revegetating cut and fill slopes~~, and investigating the possibility of establishing fuel breaks~~. *In coordination with appropriate agencies, consider development of fuel breaks in reclamation design.*

*• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for in the reclamation bond.*

*• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring (minimum three years) is required to determine success.*

• Restore disturbed areas at final reclamation to *near* pre-disturbance landform and *the* desired plant community.

• Irrigate interim reclamation as necessary during dry periods *when valid water rights exist*.

• Utilize mulching techniques to expedite reclamation.

## *Fuels and Fire Management and Post-Fire Rehabilitation*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during *Wildland Fire Decision Support Tree*~~WFDSS~~ planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• ~~Where applicable, d~~*D*esign fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore ~~native plants~~*ecological function*, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• ~~Where appropriate, ensure~~*Ensure* that treatments are configured in a manner that promotes use by GRSG.

• ~~Where applicable, i~~*I*ncorporate roads and natural fuel breaks into fuel break design~~.~~

• ~~Where appropriate and allowable, u~~*U*tilize *supervised* livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency*,* which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat*,* which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat ~~restoration~~*rehabilitation* projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for ~~restoration~~*rehabilitation* when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat*. Within these criteria, projects should be prioritized based on probability of success based on current condition, ecological site and state-and-transition modeling if available*.

• As funding and logistics permit, ~~restore~~*rehabilitate* annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs ~~or one~~*with the goal* of ~~that referenced in land use planning documentation.~~*establishing a functional ecological site based on state-and-transition modeling and ecological site descriptions.*.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions~~.~~

• ~~Remove standing and~~ *Based on ecological site descriptions, remove* encroaching ~~*P*~~*pinyon and* ~~*J*~~*juniper* trees *from areas* within at least ~~110 yards~~*3 kilometers (1.86 miles)* of occupied GRSG leks *(Connelly et al. 2000)* and *from* other *limiting* habitats *at least 850 meters* (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit *(Connelly et al 2000, Casazza et al. 2011)*.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing *and maintaining* fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, *targeted grazing,* etc.) to aid in controlling wildfire, should wildfire occur near ~~PPMA~~*SGMA* or important restoration areas (such as where investments in restoration have already been made).

*• All fuels management projects should include short and long term monitoring to ensure success and provide for adaptive management. Multiple revegetation entries may be required to ensure success.*

*Fire Management*

• Compile *state and local government/*District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of *state and local* resource advisors, contact information, local guidance, and other relevant information for each *state and local government/*District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a *state and/or local* resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional *local, state, and federal* fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

*• Encourage local resources (volunteer fire departments and country equipment) to respond to initial attack efforts and further encourage these agencies to obtain required ICS training to be able to run incidents for longer periods when needed during critical fire periods.*

• During periods of multiple fires, ensure line officers*, in consultation with state and local resource advisors* are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

*• Coordinate and utilize local fire suppression resources to the maximum extent possible.*

*• Eliminate "burning out" islands and fingers of unburned GRSG habitat, unless lives and property are at risk.*

*Post-Fire Rehabilitation*

*• Emphasis should be on fall revegetation to ensure greatest likelihood of success.*

*• All post-fire rehabilitation projects should include short- and long-term monitoring to ensure success and provide for adaptive management. Multiple revegetation entries may be required to ensure success. Emphasize the use of native plant species in post-fire rehabilitation, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions. Selected species maintain site ecological function based on pre-burn conditions and anticipated threat of invasive and noxious weed establishment. Use ecological site descriptions and state-and-transition models if available.*

- *Reseed all burned areas requiring rehabilitation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring (minimum three years) is required to determine success.*

- *Power-wash all vehicles and equipment prior to entering GRSG habitat rehabilitation areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during rehabilitation operations in GRSG habitat.*

- *Consider Integrated Pest Management (IPM) practices to ensure greater initial control of invasive and noxious plant species.*

- *GRSG seasonal habitat requirements must be considered when selecting revegetation materials in all burned potential and current GRSG habitat.*

- *Prioritize shrub island plantings in large burn areas which may lack sufficient shrub seed sources, in order to ensure the reestablishment of the shrub component.*

## *Lands and Realty*

*Leases and Permits*

• ~~Only allow p~~*P*ermits and leases *must include stipulations to minimize impacts to GRSG and GRSG habitat based upon the specific activity and ensure no net loss of GRSG habitat* ~~that have neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas~~.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders ~~in an attempt to install~~*to encourage installation of* perch guards on all poles where existing utility poles are located within *5 km (*3.2 miles*)* of known leks~~, where necessary. Stipulate these requirements at grant renewal.~~ *(Coates et al. 201*3*).*

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. ~~Whenever possible, install~~*Install* new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and *incorporate stipulations, which* minimize such impacts to the extent allowed by law.

~~• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.~~

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs *for wind energy development projects* by applying appropriate ~~BMPs~~ *Design Features*(BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. ~~The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.~~

• ~~Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas.~~ *Bury distribution power lines of up to 35kV where ground disturbance can be minimized. Where technology and economic factors allow, bury higher kV power lines.*

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features*, without interfering with valid pre-existing rights,* and restoring the habitat.

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project *adjacent to or* within the existing disturbance associated with the authorized ROWs *taking into account operational requirements and safety*.

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the ~~absolute~~ minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• ~~Bury or reroute~~*Construct new* power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible *or bury power lines*,

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on *new* tall structures, such as power lines*, commensurate with the design of the structures*.

## *Travel and Transportation*

• ~~Establish~~*Work with local government to enforce* speed limits ~~on BLM~~ and ~~Forest Service-administered roads to reduce vehicle/wildlife collisions or~~ design roads to be driven at ~~slower~~ speeds~~.~~ *appropriate to minimize vehicle/wildlife collisions.*

• Conduct ~~restoration~~*rehabilitation* of roads, primitive roads, and trails not designated in travel management plans *where such plans exist and have been approved for implementation*. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection*, with due consideration given to any historical significance of existing trails*.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where ~~existing~~*invasive* annual grasses are present, pre-emergent herbicides ~~should~~*may* be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the ~~absolute~~ minimum standard necessary *to support the intended use*.

• ~~Allow no~~*Work with local governments to minimize* upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road*,*~~.~~ *while providing for the intended use.*

~~• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.~~

~~• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.~~

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat~~.~~ *and /or to avoid disturbance during critical periods of the sage-grouse life cycle*

~~• Reclaim closed roads with plant species beneficial to sage-grouse.~~

## *Recreation*

• ~~Only allow special~~*Special* recreation permits ~~that~~*must* have ~~neutral or beneficial effects~~*stipulations* to ~~sage-grouse~~*minimize impacts to GRSG* and ~~their~~*GRSG* habitat ~~in sage-grouse~~*based upon the specific activity and ensures no net unmitigated loss of GRSG* habitat ~~management areas~~.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

• *Develop trail mapping, and educational campaigns to reduce recreational impacts on GRSG, including effects of cross country travel.*

## *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs. 25-29.

## ~~*Riparian Areas and Wetlands*~~

~~• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.~~

## *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

*• As soon as the population is estimated to exceed high AML, gather to low AML and implement fertility control.*

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria ~~identified~~ for ~~domestic livestock identified~~*wild horses and burros year around use and consistent with necessary rights and right of ways* in sage-grouse habitats.

## *Livestock Grazing and Range Management*

• ~~Adopt~~*Where applicable and as part of a ranch management plan, use* the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, ~~adopt~~*use* the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative *and further expanded by the state of Nevada in this document:*

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
  - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
  - Avoid placement where *existing* sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
  - *Springs may be developed as long as valid water claims or rights exist and development shows a net benefit to overall habitat management within a SGMA.*
- Code 533: Pumping Plant
  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
  - *Well placement should encourage dispersion of livestock and provide for a neutral or no net negative impact to habitat within a SGMA. Further water developments will decrease concentrated livestock and wildlife use and further protect sagebrush habitats.*
- Code 516: Livestock Pipeline
  - *Pipelines shall be replaced as needed to provide for better dispersion of livestock.*
  - *Pipelines shall be replaced along existing pipelines, roadways, or fences.*
  - *Replacement and maintenance of pipelines shall use the least invasive techniques and extensive work requiring heavy equipment shall be done in a manner consistent with season of use by the GRSG (i.e. replacing improvements in GRSG winter habitat during the summer and replacing improvements in breeding and nesting habitat during the fall)*
  - *Replacement of improvements shall be allowed in order to not jeopardize existing and valid claims and rights.*
- Code 410: Grade Stabilization Structure
  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts,

securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire~~.~~ *(Stevenson and Reece 2012).*

• ~~Remove~~*Relocate* or modify existing water developments *(including locating troughs to further disperse livestock)* that are having a net negative impact on GRSG habitats.

~~• Remove, relocate, or modify livestock ponds built~~ *Any changes to existing water developments must be conducted* in ~~perennial channels that are having~~*accordance with State Water Law and in close consultation with the water right owner in order to avoid* a ~~net negative impact on riparian habitat, either directly or indirectly. Development~~*"taking"* of ~~new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.~~*private property water rights.*

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

~~• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.~~

## *Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within ~~four (~~4*three (3*) miles of active GRSG leks from March 1 through June 15~~;~~ *during lekking hours of 1-hour before sunrise until 10:00 am*
-Seasonal protection of GRSG *suitable* wintering areas from November 1 through March 31~~;~~*;*
-Seasonal protection of GRSG *suitable* brood-rearing habitat from May 15 to August 15~~.~~*.*

~~• For any surface disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.~~

~~• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.~~

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat ~~to avoid adverse impacts.~~

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat *features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species.* Long-term monitoring *(minimum three years)* is required to determine success.

• Maximize the area of interim reclamation on long-term ~~access roads and well pads~~*surface disturbing activities to* including reshaping, topsoiling and revegetating ~~cut and fill slopes.~~*areas no longer being disturbed within the overall project foot print.*

## *Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect *or rehabilitate* areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

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**Acronym List:**

GRSG: Greater Sage-grouse

~~PGMA: Preliminary General Management Area~~

PPMA: Preliminary Priority Management Area

*NAC: Nevada Administrative Code*

~~RDF: Required Design Feature~~

ROW: Right-of-way

*SGMA: Sage-Grouse Management Area*

SUA: Special Use Authorization

~~WFDSS: Wildland Fire Decision Support Tree~~

# Attachment 2: Council and General Public Comments and Edits on Required Design Features

*Note: the measures below are pretty specific to sage grouse. They are "one sided, single minded, and focused, on sage grouse; and do not take into account other factors in the environment (or protection of other species).*

***It seems appropriate to include an explanatory statement to provide intended – and agreed to – implementation of the Features and Practices. It also seems that this entire section should be edited for consistency in tense, tone, level of detail, and to avoid restatement of similar practices.***

*General Comments: We agree with the Council's determination that the State's sage-grouse conservation objectives can be achieved by providing, in conjunction with other elements of the State's plan including mitigation, flexible site-specific Best Management Practices ("BMPs") that will be evaluated as part of the project consultation process with the Sagebrush Ecosystem Technical Team ("SETT").*

*We think it would be helpful to provide a standard for the imposition of such BMPs. For instance, Section 3.1.2 could be revised to clarify that the BMPs are presumptive recommendations to be evaluated on a case-by-case basis rather than prescriptive, inflexible requirements: "Impacts will be minimized, to the extent reasonably practicable and otherwise appropriate, by modifying proposed actions and/ or developing permit conditions to include measures that lessen the adverse effects to sage-grouse and their habitat. This will be accomplished through the consideration of site-specific ~~Design Features (DFs) or~~ Best Management Practices (BMPs)[.]" Barrick prefers the use of the term BMP to Design Feature, because BMP, in its common usage, suggests adaptable guidance that takes into consideration site-specific circumstances.*

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*Section 3.0 of the plan should recognize the right of reasonable access and infrastructure development for purposes of prospecting, locating, and mining. The BMPs provide that mining projects must locate roads to avoid important sage-grouse habitat and must locate new utilities within existing corridors. The prescriptions, however, do not provide for consideration of whether avoiding habitat would be unreasonable or uneconomical for the development of a mining project. The incorporation of a "reasonably practicable and otherwise appropriate" standard would alleviate this problem.*

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*In general, the locatable minerals BMPs do not seem to have received the same thought and consideration as the travel and transportation BMPs. The travel and transportation BMPs contain language that allows for flexibility and other resource considerations to inform a solution, and are not as prescriptive as those under locatable minerals. Many of the specific comments below are designed to bring the locatable minerals BMPs up to the quality of those under travel and transportation.*

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*If BMPs are in conflict with other federally or state required permit conditions or requirements how will the SETT resolve those differences with the owner/operator and federalland management agencies?*

## Appendix A: *Site Specific Consultation Based* ~~Required~~ Design Features~~/ Best Management Practices~~

### *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads where~~n~~ there are existing roads that could be used or upgraded to meet the needs *of the project or operation*. *(This BMP should make allowance for reasonableness of use. As written it could result in requirements to use existing roads regardless of the reasonableness. The SETT should apply the BMPs to provide reasonable access and not to defeat the mining project's purpose and need—e.g., the construction of a new 2-mile-long road through sage-grouse habitat (possibly including habitat mitigation) might be more reasonable than using an existing road that requires a 20-mile trip to reach the same destination. )*

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose *and level of use*.

•*When Possible,* Locate roads to avoid important areas and habitats. *("Important areas and habitats" needs to be defined. Also, avoidance may not always be practicable. In such instances, mitigation should be allowed to address impacts on sage grouse. The statement is vague and inconsistent with other requirements. Elimination should be considered).*

• Coordinate road construction and use among ROW or SUA holders. *(Coordination should allow for reasonable accommodation but not be an absolute requirement. Coordination, or inability to coordinate, should not be used as an excuse for inaction, nor should it be used to force parties into impractical arrangements. Will the federal agencies be give the ability (and use the authority to grant access to multiple users?)*

**Comment [CC1]:** Not sure what SUA is.

• Where possible *and practicable*, avoid constructing roads within *defined* riparian areas and ephemeral drainages. *(We note that such construction may also require section 404 permitting from the Army Corps of Engineers. )*

• Construct road crossings at right angles to ephemeral drainages and stream crossings. *(Coordination should allow for reasonable accommodation but not be an absolute requirement. Coordination, or inability to coordinate, should not be used as an excuse for inaction, nor should it be used to force parties into impractical arrangements. Furthermore, this should be rephrased to specific site conditions and need.)*

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• Establish speed limits on BLM and Forest Service-managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds. *(This BMP needs to better describe the desired outcome. Merely setting slower speeds as an objective leads to the question - Slower that what? It would be better to say: speeds appropriate to condition and occupation of adjacent habitats by sage-grouse.*

*This BMP needs flexibility to allow for variance in habitat quality, occupancy, and possibly seasonality considerations.)*

• *Where possible e*~~E~~stablish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).**I'm not sure what this stipulation means, or how it would apply. It is confusing and should be rewritten along with practical overrides for site specific and special conditions such as emergencies, upsets, etc.*

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.) *(This BMP needs to better describe the desired outcome. Merely setting slower speeds as an objective leads to the question - Slower that what? It would be better to say: speeds appropriate to condition and occupation of adjacent habitats by sage-grouse. When does a newly constructed route become an established route?*

*This BMP needs flexibility to allow for variance in habitat quality, occupancy, and possibly seasonality considerations.)*

• Use dust abatement on roads and pads. *(This BMP needs additional language that allows for flexibility based on road use, road condition, season, and other considerations. Current practice of the land managers should be reviewed)*

• Close and re*claim*~~habilitate~~ duplicate roads. *(In the context of mining projects, this concern would generally be addressed through the mine reclamation plan. Nonetheless, the goal of road closure should be to establish a desired condition or use. Restoration of landform may or may not achieve that goal, and may or may not be practicable. How will "duplicate" roads be determined? )*

• *When feasible c*~~C~~luster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• *When possible, u*~~U~~se directional and horizontal drilling to reduce surface disturbance. *(because of geology and financial aspects of directional/horizontal drilling, this may not always be possible).*

• *When possible, p*~~P~~lace infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation *(Understanding among all parties is critical in the application of this BMP)*.

• *When possible,* Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors. *(Note that such a requirement may result in more disturbance. Such overarching BMPs must be tempered with site specific conditions).*

• Pipelines must be under or immediately adjacent to the road (Bui et al. 2010). *(This may not always be feasible due to topography, geology, proximity to watercourses, etc. and may create additional disturbance)*

• *Where feasible u*~~U~~se remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003). *(A rewrite could be: Reduce motor vehicle travel during field operations through development and implementation of remote monitoring and control systems plans. These plans should include provisions to reduce frequency of light motor vehicle travel in critical sage-grouse management areas (or similar)).*

• *To reduce predator perching, limit*~~Restrict~~ the construction of *vertical*~~tall~~ facilities and fences to the minimum number and amount needed. *(FURTHER CONSIDERATION MIGHT BE GIVEN TO COLLECTIVE IMPACTS IN THAT ROUTING TO AVOID SAGEBRUSH MIGHT CREATE GREATER IMPACTS (e.g. FUEL CONSUMPTION, TAILPIPE EMISSIONS, GREATER POTENTIAL FOR VEHICLE – WILDLIFE INTERACTION).*

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• *When possible and practicable and in consideration of operational and safety needs p.* ~~P~~lace new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury distribution power lines. **See note below under locatable mining. Burying* ~~*powerlines*~~*power lines is really expensive. If needed, I can call NV Energy and get the exact cost to bury a line underground. The cost to bury underground is something like 4 times the cost to construct above ground. It is a significant cost increase; in addition, burying underground results in a significantly more surface disturbance, and increased maintenance/replacement costs. A further consideration could include burying lines with operating voltages of less than 35 kV. Better wording may be: To reduce predator perching opportunities, underground routing of electrical power distribution lines/conductors is encouraged. Economic and operational considerations should be made in the evaluation of practicality of such an approach. Similarly, environmental impacts, including surface disturbance and temporary/permanent vegetation loss, should be considered.*

• *When possible,* Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010) *provided it does not cause additional disturbance. This could be combined with the BMP above.*

• Design or site permanent ~~structures which~~*structures, which* create movement (e.g., pump jack) to minimize impacts to GRSG. *(AT A PRACTICAL LEVEL, WHAT DOES THIS MEAN? IS THE MOVEMENT A DISTRACTION, A PHYSICAL HAZARD, A VISUAL IMPACT, ETC? THIS NEEDS TO BE BETTER ARTICULATED (IT WAS POORLY STATED IN THE NTT AND APPARENTLY REPRODUCED HERE) TO PROVIDE ACTUAL GUIDANCE).*

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality. *See note under locatable minerals below or reword to: Preclude Greater Sage-grouse access to pits and tanks through use of practical techniques (e.g. covers, netting, birdballs, location, etc).*~~.~~

• Equip tanks and other above-ground facilities with structures or devices that discourage *perching or* nesting of raptors and corvids. *(What about other predators (see Coates recent draft paper).*

• Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance). *(THE NON-NATIVE PLANT CONTROL POTENTIALLY CONFLICTS WITH PRACTICAL REVEGETATION ON LOWER PRECIPITATION ECOLOGICAL SITES (see CLEMENTS et al 2009, 2011, 2012, AND PYKE (MULTIPLE YEARS) etc WHEREIN ESTABLISHMENT OF NATIVE PLANTS IS CHALLENGING AND NOT ALWAYS DEMONSTRABLY SUCCESSFUL)*

• Use only closed-loop systems for drilling operations and no reserve pits. *(This may not be possible at all locations and given the multitude of drilling techniques).*

• *W*~~*w*~~*hen possible,* Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). *(This may increase vehicle traffic and associated impacts and can lead to longer drilling duration. WHAT ABOUT REQUIREMENTS FOR STORMWATER CONTROLS, OPERATIONAL NEEDS, AND THE LIKE? MAYBE: Reduce the potential for creating excessive or unintended mosquito habitat and associated risk of West Nile Virus impacts to Greater Sage-grouse. This can be implemented through:*

- *Minimize pit and pond construction and, where necessary, size of pits and ponds*
- *ITERATE STEPS BELOW AFTER REVISIONS AND EDITING….*

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• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

– Overbuild size of ponds for muddy and non-vegetated shorelines.

– Build steep shorelines to decrease vegetation and increase wave actions. ~~*Bulding*~~*Building steep shorelines is not favored by the agencies. Should wildlife get into these ponds, they will not be able to get out if the shorelines are steep.*

– Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

– Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock. *It would depend on how much water you plan to discharge. If it is a large flow, crushed rock would decrease erosion. If it is a small discharge, the crushed rock would only add to/contribute to more disturbance (which we do not want).*

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface. *We do not want to put any more chemicals into the environment than we have to. If it is a small pond with limited days of holding water, then larvicides are not necessary. If it is a large pond, then maybe we would want to apply larvicide.*

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation). *(Scientific literature on this issue is limited and should be considered in moving ahead with this BMP).*

• *When necessary,* Require noise shields *(on what and where?)* when drilling during the lek, nesting, brood-rearing, or wintering season. *If it is determined that noise is not a factor, or increased in the area, or if your project has less noise than background levels, then we should not require noise shields.*

• Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences). *(Alternative language: Design and construct fences to ensure visibility to Greater Sage-grouse. Utilize fences designs consistent with NRCS fence standards and specifications and, where appropriate, use fence markers (e.g. Stevenson and Reese 2012)).*

• *When feasible l*~~L~~ocate new compressor stations outside priority habitats*. Otherwise* ~~and~~ design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011). *(Alternative language: Implement site keeping practices to preclude the accumulation of debris, solid waste, putrescible wastes, and other potential anthropogenic subsidies for predators of Greater Sage-grouse. These include covering of dumpsters,…..)*

• *When possible l*~~L~~ocate man camps outside of priority habitats *if doing so does not create additional impacts*.

*Reclamation – PPMA and PGMA*

**Comment [CC2]:** Ambient natural noise at our site is 40-50 dBA. the 20-24 dBA identified here does not represent ambient background noise at all areas. NDOW has identified that one can park a car next to a lek with strutting grouse, and there is no impact (as is the case for the unnamed lek near Pole Creek Road/Montana Mountains). Therefore, why is NDOW (and others) suggesting noise impacts grouse?

Question: the definition of "perimeter of a lek" needs to be identified. There are not any definitions of what "Perimeter of a lek" is. Where is the "10 decibles" derived from? I think it is from "one" research paper. All other research papers I have read on noise and wildlife impacts indicates "the level of noise that causes an impact to wildlife is unknown". Therefore, you don't know if it is a 20 dBA increase, 30 dBA, or 10dBA increase. The 10 dBA increase selected is arbitrary.
If this measure is in other categories (e.g., locatable minerals), the comments above should be carried forward.

**Comment [CC3]:** What's this "In preparation"? If it is not published, it should not be cited.

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• Include objectives for ensuring habitat re*habilitation*~~storation~~ to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation ~~plan~~*plans* such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim *and concurrent* reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• *Where practicable rehabilitate* ~~Restore~~ disturbed areas at final reclamation to the *near* pre-disturbance landforms and *the* desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly. *(Water and water rights may not be available nor is this often successful in the Great Basin in the long term).*

• *Where appropriate u*~~U~~tilize mulching techniques to expedite reclamation and to protect soils.

*Roads* ~~–~~ *– PGMA (Please note many of the above comment apply for these identical or similarly worded BMPs)*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• *When feasible c*~~C~~luster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• *When feasible u*~~U~~se directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• *When feasible u*~~U~~se remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

*Locatable Minerals BMPs (Note: the above comments apply for identical or similarly worded BMPs)*

*The locatable minerals section of the Appendix A states that the BMPs would apply to both Preliminary Priority Management Areas ("PPMAs") and Preliminary General Management Areas ("PGMAs"). See App. A at 4. By applying the BMPs to general habitat, the Council appears to be going farther than the BLM's National Technical Team ("NTT") Report or BLM's preferred alternative (Alternative D) in the Draft Land Use Plan Amendment and Environmental Impact Statement ("LUPA/EIS"). However, so long as the imposition of BMPs remains flexible, rather than rigidly prescriptive, Barrick believes that there are situations where the incorporation of BMPs into projects occurring in PGMAs could be accommodated.*

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads *(when possible)* to avoid important areas and habitats. *(It would be helpful to define "important areas and important habitats." )*

*Avoidance may not always be practicable. In such instances, mitigation should be allowed to address impacts on sage-grouse.*

• Coordinate road construction and use among ROW or SUA holders. *(Coordination should allow for reasonable accommodation but not be an absolute requirement. Coordination, or inability to coordinate, should not be used as an excuse for inaction, nor should it be used to force parties into impractical arrangements.)*

• *When possible,* Construct road crossing at right angles to ephemeral drainages and

**Comment [CC4]:** Important areas – is too vague and unknown; and can be interpreted widely by each BLM office. Also, it should be "when possible" we will locate roads to avoid…

stream crossings. *(Coordination should allow for reasonable accommodation but not be an absolute requirement. Coordination, or inability to coordinate, should not be used as an excuse for inaction, nor should it be used to force parties into impractical arrangements.)*

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds. *(This BMP needs to better describe the desired outcome. Merely setting slower speeds as an objective leads to the question - Slower that what? It would be better to say: speeds appropriate to condition and occupation of adjacent habitats by sage-grouse.)*

*This BMP needs flexibility to allow for variance in habitat quality, occupancy, and possibly seasonality considerations*

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.). *(This is an undue restriction on use of established roads. Once a road is established it is logical to direct as many users as possible to existing roads. This will reduce the pressure for construction of alternate routes. As written, the BMP conflicts with the desire to minimize road construction. Furthermore, restricted-use roads can cause resentment among unauthorized user groups and result in vandalism of private property; conflicts between authorized and unauthorized users; or resource damages, if unauthorized users create alternative routes around road-blocking gates. Finally public land is multiple use. Is it legal to restrict a certain group of users from that land?*

• *When necessary,* Use dust abatement practices on roads and pads. **dust abatement is not necessary during winter months when conditions are damp, and also not necessary if you have wet/moist clay soils. (This BMP needs additional language that allows for flexibility based on road use, road condition, season, and other considerations).*

• Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation. *(In the context of mining projects, this concern would generally be addressed through the mine reclamation plan. Nonetheless, the goal of road closure should be to establish a desired condition or use. Restoration of landform may or may not achieve that goal, and may or may not be practicable).*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need. *(This BMP should make allowance for reasonableness of use. As written it could result in requirements to use existing roads regardless of the reasonableness. The SETT should apply the BMPs to provide reasonable access and not to defeat the mining project's purpose and need—e.g., the construction of a new 2-mile-long road through sage-grouse habitat (possibly including*

*habitat mitigation) might be more reasonable than using an existing road that requires a 20-mile trip to reach the same destination).*

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages *(We note that such construction may also require section 404 permitting from the Army Corps of Engineers.)*

*Operations – PPMA and PGMA*

• *Where possible and safe, c*~~C~~luster disturbances associated with operations and facilities as close as possible *unless site specific conditions indicate that disturbances to sagebrush habitat would be reduced if operations and facilities locations would best fit a unique special arrangement*. *(This BMP needs allowance for other resource conflicts. For instance, concentrating some operations in clusters could result in concentration of air pollutants or could result in excess resource expenditure to transport workers or materials to one location when another location would relieve the resource pressure.)*

• *Minimize site disturbance though site analysis and facility planning. When possible, p*~~P~~lace infrastructure in already disturbed locations where the habitat has not been restored. *(As an objective this is fine, but as a BMP it needs to allow for practical considerations).*

• Restrict the construction of tall facilities and fences to the minimum number and amount needed. *(This BMP needs to recognize practicality, functionality, and economics in determining what the minimum number and amount are).*

• *When possible, site*~~Site~~ and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats. *(This BMP needs to recognize that all sagebrush habitats are not equal and that merely reducing overall disturbance may not minimize impact on the resource).*

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors. *(This needs to be re-written to allow for practical considerations when consolidating utility corridors and to ensure it creates no additional disturbance).*

• Bury power lines *(burying power lines is usually not financially possible [check with NV Energy, I think the cost to bury a powerline is 4 times greater than above ground powerline]. Also, because so many other things at a mine site are "above ground and tall", does it really make sense to only bury the powerline. I would think "when appropriate and when financially possible, we would bury powerlines", but…for a mine site, it is not appropriate nor feasible. This is a "big" point, and we should not accept that all powerlines would be buried! Should we have to bury powerlines, it would make the cost of some projects unfeasible. Also, burying a powerline creates more disturbance (e.g., and would result in*

*significantly more disturbance in sagebrush, sagegrouse habitat). Burying power lines is not always feasible for either technical or economic reasons. Power lines within facilities and existing disturbances may not add to overall habitat degradation or encroachment. Consideration should be given to limiting this to lives of 35 kV or less.*

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality. *It is not physically possible to cover pits and tanks. They do not make nets that big! (and the bigger the net, the larger the cost). In addition, there is likely a human safety hazard in maintaining a net that large (e.g., if it was over a pit). Installing nets have other drawbacks to wildlife; depending on the size of the net "hole" (size of mesh), birds/bats can get caught in the net and die. The smaller the mesh, the more snow and ice would develop and rip the net when the snow/ice is excessive and heavy. Also, to install and maintain nets, over a pond/pit, you would need to install several large cranes~~ine's~~ on the sides/edges of the pond/pit, so you can lift the net when needed. These large cranes~~ines~~ would provide further perching areas for raptors (which is not desirable). This measure (cover with nets) is unfeasible from many areas, and should be deleted from consideration. Not all pits and tanks contain substances, or are constructed, such that they are detrimental to sage-grouse. Not all pits and tanks are in use during times when sage-grouse might be present. Also, existing bird netting practices have been successful in significantly reducing bird mortality. New netting requirements may add significant costs for little or no environmental gain.*

*The term "pit" should be defined so as not to include the mining pit itself. Additionally, the phrase "regardless of size" should be deleted; there might be large pits or impoundments that economically or practically cannot be covered or for which alternative deterrence mechanisms would be effective.*

• Equip tanks and other above ground facilities with structures or devices that discourage nesting *or perching* of raptors and corvids. *If we have to access this equipment or facilities on a daily basis, it is not always feasible to install anti nesting devices. Installation of devices should only be done "when safe", when equipment is not accessed on a daily basis, and when it does not hinder the daily operation of such equipment. The Council should specify whether this provision applies to buildings. It may not be practical to discourage nesting on a building's roof.*

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007). *(Not all non-native species are deleterious to the habitat or the birds. Some may be useful in establishing vegetation communities that can progress toward suitable habitat while defending against aggressive non-native species. They may also be useful for establishing barriers to other threats to the habitat, such as fire. This blanket prohibition ignores evolving science on the use of non-natives to achieve long-term habitat improvements. AS NOTED ABOVE, THIS PRACTICE AS STATED WILL LIKELY PRECLUDE ESTABLISHMENT OF DESIRED VEGETATION ON SOME SITES. THUS: Reduce the invasion, establishment, and spread of noxious weeds and undesirable invasive plants through the development and implementation of weed management and reclamation plans (Clements, Pyke, and countless others…).).*

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• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). • Require GRSG-safe fences around sumps. **I'm assuming this involves the restriction of puddles/ponds so west ~~nile~~Nile ~~virsus~~virus doesn't develop. Again, this is almost impossible to restrict impoundment construction. The Council should clarify which sumps this provision is intended to cover. This BMP needs to identify its target impact and also accommodate temporary sumps and seasonality of use versus habitat occupation.*

• Clean up refuse (Bui et al. 2010).

• *When possible, l*~~L~~ocate man camps outside of priority GRSG habitats. *(The SETT, during consultation on locating man camps, should consider the purpose and need of the mining project itself and not apply the BMPs in a manner that would require the mine project proponent to locate the man camp too far from the mine so that it becomes undevelopable due to costs or access to labor. Further, the NTT Report BMPs for man camps do not apply to general habitat. The relocation should not cause additional disturbance).*

*Reclamation – PPMA and PGMA*

• *Where applicable, i*~~I~~nclude *GSG habitat*~~restoration~~ objectives *in mine closure and reclamation in mine reclamation plans*~~to meet GRSG habitat needs in reclamation practices/sites~~. *(This BMP needs to take into consideration that some locations may not be suitable for habitat restoration. It also needs to be coupled with assurance that habitat restoration results in compensation credits. )*

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs. *(This BMP needs to be subject to the post-mining land use goals established in the reclamation plan Alternate wording: Post-reclamation management objectives and practices should, where applicable, include maintenance and enhancement of Greater Sage-grouse habitat.)*

• Maximize the area of interim *and concurrent other infrastructure related disturbances through* ~~reclamation on long-term access roads and well pads including~~ reshaping*/regrading*, topsoiling and revegetating cut and fill slopes~~, and investigating the possibility of establishing fuel breaks~~. *(This BMP needs to be qualified by a recognition that it will be implemented to the extent practical. The fuel break concept should be reworded to: In coordination with appropriate agencies, evaluate, design, construct, and maintain wildfire-related features including fuel breaks, firebreaks, and staging areas.).*

• *If feasible r*~~R~~estore disturbed areas at final reclamation to pre-disturbance landform and desired plant community. *(the cost to restore landforms to pre-disturbance topography is economically prohibitive in most mine feasibility studies. Reclamation goals are set by the desired post-mining*

*land use and reclamation plan. Not all areas can be reclaimed to their pre-disturbance land form).*

• Irrigate interim reclamation as necessary during dry periods. **Define irrigate! Is this use of a water truck once per week, or installation of drip hoses. Depending on the size of the reclaimed area, it might be impossible to artificially irrigate an area. In addition, if we install irrigation pipe with sprinklers, would we need generators to run such irrigation (thus creating more noise that the sage grouse don't want). Depending on location, size, water source, water rights, and other considerations this may not be possible, let alone practical. Not comments above that this does not always work in the Great Basin.*

• *When appropriate ,* Utilize mulching techniques to expedite reclamation. *(Blanket prescriptions should be avoided as they are seldom universally applicable).*

## *Fuels and Fire Management*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.• Where appropriate and allowable, utilize livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire ~~frequency which~~*frequency, which* facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG ~~habitat which~~*habitat, which* spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.

• Remove standing and encroaching trees within at least 110 yards of occupied GRSG leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

• During periods of multiple fires, ensure line officers are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

### *Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have *stipulations, which promote* neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas. *(Exploration NOI's and Operating Permits and leases are only allowed where potential mineral concentrations of economic importance for mining can be demonstrated. This is a worthy goal, but there are many reasons to issue leases and permits and not all can produce a neutral or beneficial effect on sage-grouse habitat in and of themselves. The BLM cannot forego its obligation to manage for multiple uses*

*in favor of a single resource. Furthermore, this may improperly infringe on private property rights in a way that results in an unconstitutional taking.*

*It is unclear why the Council would include the "neutral or beneficial effects" standard here in the Proposed Design Features. Each objective or goal should be set forth in Section 3.0 of the State's plan. By introducing the new standard here, the Council is creating inconsistent or ambiguous standards for leases or permits. This begs the question of whether leases or permits must meet the "no-net-unmitigated-loss" objective in Section 3.1.1, the "neutral or beneficial effects" standard in the Proposed Design Features, or both. Further, the term "permits" could be interpreted broadly to include many or most BLM authorizations for use of public lands.*

*We recommend that this item be deleted).*

*Right-of-Ways (ROWs) (THIS SECTION NEEDS MORE EDITING AND REVISION TO ENSURE UNIFORM APPROACH, ELIMINATION OF SIMILAR OR REDUNDANT PRACTICES/REQUIREMENTS, AND CONFORMANCE WITH INTENT)*

• Work with existing rights-of-way holders ~~in an attempt~~ to *encourage* install*ation of* perch guards on all poles where existing utility poles are located within 3 miles of known leks, where necessary. Stipulate these requirements at grant renewal. *Agencies to provide funding for retrofitting structures and compensation for costs associated with de-energizing/re-energizing and loss of electrical delivery.*

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors. **this measure needs to be thought through. Rerouting a powerline in Nevada to avoid habitat loss and fragmentation could result in a 50-150 mile reroute. When is a reroute feasible, and when is it not feasible?*

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat. **Provide a measure to work in GRSG habitat in emergency conditions.*

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and *incorporate stipulations, which* minimize such impacts to the extent allowed by law. *WOULD NOT THIS BE DONE THROUGH THE ASSOCIATED NEPA ANALYSIS AND LAND USE PLAN CONFORMANCE DETERMINATION? This measure should be deleted. If a project is already approved, it should not have more restrictions attached to it in the future.*

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat. *(This is very vague).*

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy

ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts. *Again, this measure is vague. An alternative that the BLM likes may not be financially feasible to NV Energy or a mining company.*

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat. *(THE "WIND" BMPs ARE NOT UNIVERSALLY ACCEPTED NOR APPLICABLE TO ALL ROW NEEDS.*

• Evaluate and take advantage of opportunities to remove, bury, or modify existing *distribution*~~power~~ lines *with operating voltages less than 35 kV* within priority sage-grouse habitat areas.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat. *(WHO? THE PERMITTEE OR THE AGENCY?)*

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project *adjacent to or* within the existing disturbance associated with the authorized ROWs. *(See ABOVE AND IN CONSIDERATION OF OPERATIONAL REQUIREMENTS AND SAFETY).*

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary. *(IS MINIMUM DIFFERENT FROM ABSOLUTE MINIMUM?)*

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• Bury or reroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible, *(See comments on similar BMPs above).*

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines.

*Travel and Transportation*

• Establish speed limits on BLM and Forest Service-administered roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Conduct re*habilitation or reclamation*~~storation~~ of roads, primitive roads, and trails not designated in travel management plans *where such plans exist and have been approved for implementation*. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.

• When reseeding roads, primitive roads, and trails, use appropriate seed mix~~e~~*tures*~~s~~ and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives *(specify source of objectives)*. Where *undesirable*~~existing~~ annual grasses are present, *select* pre-emergent herbicides *may*~~should~~ be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the ~~absolute~~ minimum standard necessary *to support the intended use*.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road*, while providing for the intended use*.

• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development. *(might this encourage higher speeds?)*

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with plant species beneficial to sage-grouse.

*Recreation*

• Only allow special recreation permits that have *stipulations, which promote* neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

*Energy Development and Infrastructure*

*The Nevada Energy and Infrastructure Development Standards were developed in 2010. We have learned a lot since that time, both about impacts to sage grouse, and about economic impacts should the Infrastructure Development Standards be implemented as written. To adopt these standards by reference makes moot the effort to obtain feedback on State Plan Appendix A.*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29. *(Given the statement above this should be deleted.*

*Riparian Areas and Wetlands*

• A*s a goal* ~~t a minimum~~, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). Where PFC is met, strive to attain reference state vegetation relative to the ecological site description. *Where PFC is not met, emphasize rehabilitation in mitigation plans. This BMP seems out of context.*

*Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified in sage-grouse habitats.

*Livestock Grazing and Range Management*

• *Where applicable and as part of a ranch management plan, utilize*~~Adopt~~ the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In

addition, *utilize* ~~adopt~~ the recommendations additions to the standards developed by NRCS*'s* and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
  - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
  - Avoid placement where sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
- Code 533: Pumping Plant
  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
- Code 516: Livestock Pipeline
- Code 410: Grade Stabilization Structure
  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire *(per Stevenson and Reece 2012)*.

• Remove or modify existing water developments that are having a net negative impact on GRSG habitats.

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat. *(THIS IS TOO BROAD AND COULD BE REFINED)*

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

**Comment [CC5]:** In the measures above, they wanted ponds to have steep side slopes.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.

*Surface Disturbing Activities - General*

*(This needs to be consistent with above land use requirements)*

• During the period specified, manage discretionary surface disturbing activities and uses *within PPMA's* to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within four (4) miles of active GRSG leks from March 1 through June 15 *during lekking hours of 1-hour before sunrise until 10:00 am*;

-Seasonal protection of GRSG *occupied* wintering areas from November 1 through March 31;

-Seasonal protection of GRSG *occupied* brood-rearing habitat from May 15 to August 15.

*THERE NEEDS TO BE MODIFICATION TO PROVIDE FOR LONG-TERM CONSTRUCTION AND IN CONSIDERATION OF TOPOGRAPHIC BARRIERS AND FEATURES.*

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands *within a PPMA* within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations. *(Basis or citation?)*

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known *PPMA* GRSG habitat to avoid adverse impacts. *(What is an adverse impact? This BMP should be eliminated).*

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success. *(This is redundant to the seasonal protection listed above)*

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

*Miscellaneous*

**Comment [CC6]:** 4 miles is arbutary. I have seen random limits of 2, 3, 3.2, and 4 mile buffer. I have also seen the limit March 1 to June 30. Agencies are not consistent on limits. Also, they need to take into account topography and value of habitat. We cannot just place a 4 mile radius on a map and say "everything within this radius is restricted". There are other factors (e.g., topography, elevation, quality of habitat) that will affect whether sage grouse is even there and if there would be an impact.

**Comment [CC7]:** What does "seasonal protection" mean? Is this absolutely no development or activity within this time; or is it no activity from 4:00 PM to 10 AM. Basically, with these restrictions, one will be restricted between March 1 to August 15. This will absolutely "shut down" mining (and all other operations). No one can financially afford to operate with such a tight restriction!

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**Comment [CC8]:** This means you need to do biological surveys three years before you start to permit your operation (which is unfeasible). Implementing this, it would take years (5-6 years?) to permit a small operation! Again, unfeasible.

**Comment [CC9]:** What is the purpose of these surveys? What do we hope to achieve, or what is the ultimate goal? What will we do with the data? We do not want to do surveys….only to do surveys and collect data? Surveys should only be performed with an objective and purpose (e.g., if surveys find this…then you implement that; if surveys are negative, then you don't perform them again).

**Comment [CC10]:** Is this in addition to the reclamation bond that is already set??

**Comment [CC11]:** Time of day, time of year seasonal restirctions should only be set if an impact has been identified. If there is no potential impact, then no seasonal restrictions should be set. A "radius" area where seasonal restrictions apply is arbituary. Due to topography, elevation differences, and habitat quality, an impact may not be proable, even though you are within 3 miles of the lek. Is it 3.2 mile radius from the center of the lek, or center of your project?

**Comment [CC12]:** What is "long term monitoring"? 2 years, 5 years? 10 years?. Also, I have been hearing that BLM wants people to reclaim using "seedlings" of sagebrush, rather than seeding. Seedlings is really expensive, and labor intensive, and often not successful.

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage. *(DOES NOT THE WILDERNESS ACT PROVIDE FOR THE PROHIBITION OF MECHANIZED EQUIPMENT WITHIN WILDERNESS AREAS?)*

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**Acronym List:**

1 BMP: Best Management Practice

2 GRSG: Greater Sage-grouse

3 PGMA: Preliminary General Management Area

4 PPMA: Preliminary Priority Management Area

5 RDF: Required Design Feature

6 ROW: Right-of-way

7 SUA: Special Use Authorization

8 WFDSS: Wildland Fire Decision Support Tree

# Appendix A: Required Design Features/ Best Management Practices

## *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service-managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)

• Use dust abatement on roads and pads.

• Close and rehabilitate duplicate roads.

• Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• Use directional and horizontal drilling to reduce surface disturbance.

• Place infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation.

• Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors.

• Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

• Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury distribution power lines.

• Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).

• Design or site permanent structures which create movement (e.g., pump jack) to minimize impacts to GRSG.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance). *All projects within Sage-grouse Management Areas should have a noxious weed management plan in place prior to construction and operations.*

• Use only closed-loop systems for drilling operations and no reserve pits.

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

  – Overbuild size of ponds for muddy and non-vegetated shorelines.

  – Build steep shorelines to decrease vegetation and increase wave actions.

  – Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

– Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the ~~perimeter~~ of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation).

**Comment [R1]:** What does "perimeter" mean? Should this be something more definitive (i.e. within 4-miles)?

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences).

• Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011).

• Locate man camps outside of priority habitats.

*Reclamation – PPMA and PGMA*

• Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly.

• Utilize mulching techniques to expedite reclamation and to protect soils.

*Roads - PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• Use directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

*Locatable Minerals BMPs*

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.).

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages

*Operations – PPMA and PGMA*

• Cluster disturbances associated with operations and facilities as close as possible.

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury power lines.

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). • Require GRSG-safe fences around sumps.

• Clean up refuse (Bui et al. 2010).

• Locate man camps outside of priority GRSG habitats.

*Reclamation – PPMA and PGMA*

• Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites.

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes, and investigating the possibility of establishing fuel breaks.

• Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community

• Irrigate interim reclamation as necessary during dry periods.

• Utilize mulching techniques to expedite reclamation.

*Fuels and Fire Management*

- *This sections seems very light on post-fire rehabilitation. Common themes in a new subsection should include:*

1. *Reseeding key habitat as soon as possible (i.e. fall) following fire,*
2. *Use of native and non-native species to maintain site ecological function based on pre-burn conditions and anticipated threat of invasive and noxious weed establishment (use ecological site descriptions and State-and-Transition Modeling if available,*
3. *Post-fire monitoring and brush planting if required due to lack of native seed sources*

    - *It seems like there should be a similar section for vegetation management.*

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• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore *ecological function* ~~native plants~~, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.• Where appropriate and allowable, utilize livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for ~~restoration~~ *rehabilitation* when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, ~~restore~~ *rehabilitate* annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs *with the goal of establishing a functional ecological site based on state-and-transition modeling and ecological site descriptions.* ~~or one of that referenced in land use planning documentation~~.

• Emphasize the use of native plant species *where appropriate based on the probability of success*, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.

• *Based on ecological site descriptions,* ~~R~~*r*emove ~~standing and~~ encroaching trees within at least ~~110 yards~~ *4 miles* of occupied GRSG leks and other *limiting* habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

**Comment [R2]:** Full restoration of annual grassland dominated sites may be next to impossible. Rehabilitation to a functional ecological state would be a more logical goal. These projects should also be prioritized based on probability of success based on current condition, ecological site and state-and-transition modeling if available.

**Comment [R3]:** What is the significance of 110 yards? If the focus is on encroaching trees, then the lek offset should be consistent with disturbance offsets at 4 miles. If an tree ecological site is located within that buffer, then it doesn't make sense to remove those trees.

**Comment [R4]:** By adding "limiting" it seems to give a higher priority for treatment planning than simply treating all types of habitat.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of *state and local* resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a *state and/or local* resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

  – instructing resource advisors during preseason trainings;

  – qualification as resource advisors;

  – coordination with resource advisors during fire incidents;

  – contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

• During periods of multiple fires, ensure line officers*, in consultation with state and local resource advisors* are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize

noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

- *Coordinate and utilize local fire suppression resources to the maximum extent possible.*

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## *Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within ~~3~~*4* miles of known leks, where necessary. Stipulate these requirements at grant renewal.

**Comment [R5]:** Lek "offsets" should be consistent. This document has used "perimeter of leks", "110-yards from leks" and now "3 miles of known leks". The "effective" offset should be kept consistent, and my suggestion based on recent literature should be 4-miles.

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and minimize such impacts to the extent allowed by law.

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed

ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.

• Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project within the existing disturbance associated with the authorized ROWs.

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• Bury or reroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible,

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines.

*Travel and Transportation*

• Establish speed limits on BLM and Forest Service-administered roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where existing annual grasses are present, pre-emergent herbicides should be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with plant species beneficial to sage-grouse.

### *Recreation*

• Only allow special recreation permits that have neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

- *Develop trail mapping, and educational campaigns to reduce recreational impacts on Sage-grouse.*

- *Where practical, relocated trails in key grouse habitat (i.e. within 4-miles of known leks, riparian areas, etc.)*

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## *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29.

## *Riparian Areas and Wetlands*

• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). ~~Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.~~

**Comment [R6]:** This will be a very difficult goal to attain, and in many cases PFC cannot be met due to acts of nature (i.e. high flow / flood events, landslides, etc. Perhaps a minimum goal that makes more sense is those riparian areas that are not in PFC, should have an improving trend.

**Comment [R7]:** Attaining a "reference state" should never be a goal. Given land use patterns over the past decade, it is very difficult to attain a reference state, and it may not be the best for the grouse. The same principles of ecological site descriptions and state-and-transition models should be used here.

## *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues. *As soon as the population is estimated to exceed high AML, gather to low AML and implement fertility control.*

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified in sage-grouse habitats.

## *Livestock Grazing and Range Management*

• Adopt the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, adopt the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
    - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities

- Avoid placement where sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.

- Code 574: Spring Development

- Code 533: Pumping Plant

  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.

- Code 642: Water Well

- Code 516: Livestock Pipeline

- Code 410: Grade Stabilization Structure

  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.

- Code 382: Fence

  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire.

• ~~Remove~~ *Relocated* or modify existing water developments that are having a net negative impact on GRSG habitats. *Any changes to existing water developments must be conducted in accordance with State Water Law, and in close consultation with the water right owner in order to avoid a "taking" of private property water rights.*

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.

*Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within four (4) miles of active GRSG leks from March 1 through June 15;
-Seasonal protection of GRSG wintering areas from November 1 through March 31;
-Seasonal protection of GRSG brood-rearing habitat from May 15 to August 15.

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.

**Comment [R8]:** Would this be done per the conditions of the MOU the SETT, NDOW and Feds are developing? If so, it may make sense to reference that document.

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat to avoid adverse impacts.

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success.

**Comment [R9]:** This language seems to be about the best in regards to reclamation. This may be appropriate to use in terms of post-fire rehabilitation efforts as well as riparian rehabilitation discussed in previous sections.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

*Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect *or rehabilitate* areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

**Comment [R10]:** Rehabilitation in WAs / WSAs should be a MUST. There are plenty of riparian areas, old burns, etc. that could use rehabilitation!

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**Acronym List:**

BMP: Best Management Practice

GRSG: Greater Sage-grouse

PGMA: Preliminary General Management Area

PPMA: Preliminary Priority Management Area

RDF: Required Design Feature

ROW: Right-of-way

SUA: Special Use Authorization

WFDSS: Wildland Fire Decision Support Tree

# Appendix A: Required Design Features/ Best Management Practices

## *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• ~~Establish speed limits on BLM and Forest Service managed roads~~ Work with local government to enforce speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)

• Use dust abatement on roads and pads.

• Close and rehabilitate duplicate roads.

• Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• Use directional and horizontal drilling to reduce surface disturbance.

• Place infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation.

• Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors.

• Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

• Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury distribution power lines *when disturbance would be less impact than overhead lines would create*.

Comment [MSOffice1]:

• Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).

• Design or site permanent structures which create movement (e.g., pump jack) to minimize impacts to GRSG.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance).

• Use only closed-loop systems for drilling operations and no reserve pits.

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

  – Overbuild size of ponds for muddy and non-vegetated shorelines.

  – Build steep shorelines to decrease vegetation and increase wave actions.

  – Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

  – Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation).

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences). *All fences should be constructed according to NRCS Sage Grouse Initiative code 382 and be recognized as an official fence in Nevada per NRS.*

Comment [MSOffice2]:

• Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011).

• Locate man camps outside of priority habitats.

*Reclamation – PPMA and PGMA*

• Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly.

• Utilize mulching techniques to expedite reclamation and to protect soils.

*Roads - PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

~~• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.~~

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• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• Use directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

*Locatable Minerals BMPs*

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.).

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages

*Operations – PPMA and PGMA*

• Cluster disturbances associated with operations and facilities as close as possible.

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury power lines.

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). • Require GRSG-safe fences around sumps.

• Clean up refuse (Bui et al. 2010).

• Locate man camps outside of priority GRSG habitats.

*Reclamation – PPMA and PGMA*

• Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites.

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes, and investigating the possibility of establishing fuel breaks.

• Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community

• Irrigate interim reclamation as necessary during dry periods.

• Utilize mulching techniques to expedite reclamation.

## *Fuels and Fire Management*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.

• Where appropriate and allowable, utilize livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions *viable non-native fire resistant plants are more benefitial than invasive annuals*.

Comment [MSOffice3]:

• Remove standing and encroaching trees within at least 110 yards of occupied GRSG leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, targeted grazing etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

Comment [MSOffice4]:

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas. *Encourage local resources (volunteer fire departments and country equipment) to respond to initial attack efforts and further encourage these agencies to obtain required ICS training to be able to run incidents for longer periods when needed during critical fire periods.*

Comment [MSOffice5]:

• During periods of multiple fires, ensure line officers are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

## *Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have net neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within 3 miles of known leks, where necessary. Stipulate these requirements at grant renewal.

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and minimize such impacts to the extent allowed by law.

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.

• Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features, without interfering with valid pre-existing rights, and restoring the habitat.

Comment [MSOffice6]:

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project within the existing disturbance associated with the authorized ROWs.

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• Bury or reroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible,

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines.

*Travel and Transportation*

• ~~Establish speed limits on BLM and Forest Service-administered roads~~ *Work with local governments enforce speed limits in order* to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

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Comment [MSOffice7]:

• Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where existing annual grasses are present, pre-emergent herbicides should be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with plant species beneficial to sage-grouse.

### *Recreation*

• Only allow special recreation permits that have neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

### *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29.

### *Riparian Areas and Wetlands*

• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). *Where PFC is not met, condition should be trending upward.* Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.

**Comment [MSOffice8]:**

### *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-

grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria ~~identified~~ for wild horses and burros year around use and consistent with necessary rights and right of ways ~~domestic livestock identified~~ in sage-grouse habitats.

Comment [MSOffice9]:

*Livestock Grazing and Range Management*

• Adopt the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, adopt the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
  - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
  - Avoid placement where existing sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
  - Springs may be developed as long as valid water claims or rights exist and development shows a net benefit to overall habitat management within a SGMA.
- Code 533: Pumping Plant
  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
  - Wells placement shall encourage dispersion of livestock and provide for a neutral or no net negative impact to habitat within a SGMA. Further water developments will decrease concentrated livestock and wildlife use and further protect sagebrush habitats.
- Code 516: Livestock Pipeline
  - Pipelines shall be replaced as needed to provide for better dispersion of livestock.
  - Pipelines shall be replaced along existing pipelines, roadways, or fences.

Comment [MSOffice10]:

Comment [MSOffice11]:

Comment [MSOffice12]:

- Replacement and maintenance of pipelines shall use the least invasive techniques and extensive work requiring heavy equipment shall be done in a manner consistent with season of use by the Greater Sage Grouse (i.e. replacing improvements in SG winter habitat during the summer and replacing improvements in breeding and nesting habitat during the fall)
- Replacement of improvements shall be allowed in order to not jeopardize existing and valid claims and rights.

Comment [MSOffice13]:

- Code 410: Grade Stabilization Structure
  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire.

• ~~Remove or m~~*M*odify existing water developments *(including locating troughs to further disperse livestock)* that are having a net negative impact on GRSG habitats. *Use or modification of water developments must be consistent with valid and existing water rights and not jeopardize these rights.*

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Comment [MSOffice14]:

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to -*obtain.* ~~obtain.~~

*Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within four (4) miles of active GRSG leks from March 1 through June 15;
-Seasonal protection of GRSG wintering areas from November 1 through March 31;
-Seasonal protection of GRSG brood-rearing habitat from May 15 to August 15.

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the

activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat to avoid adverse impacts.

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

*Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

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**Acronym List:**

BMP: Best Management Practice

GRSG: Greater Sage-grouse

PGMA: Preliminary General Management Area

PPMA: Preliminary Priority Management Area

RDF: Required Design Feature

ROW: Right-of-way

SUA: Special Use Authorization

WFDSS: Wildland Fire Decision Support Tree

# Appendix A: Required Design Features/ Best Management Practices

## *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service-managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)

• Use dust abatement on roads and pads.

• Close and rehabilitate duplicate roads *in cooperation with landholders and where appropriate authority exists to do so*.

**Comment [NE1]:** If a duplicate road is on BLM Land or traditionally used roadways like RS 2477 or minor county roads, then I'm not sure this is doable.

• Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• Use directional and horizontal drilling to reduce surface disturbance.

• Place infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation.

• Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors.

• Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

• Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors *where feasible and where adequate spacing separation can be achieved in order to preserve grid reliability and ongoing maintenance capability*.

• Bury distribution power lines *where feasible and where ground disturbance could be minimized*.

• Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).

• Design or site permanent structures which create movement (e.g., pump jack) to minimize impacts to GRSG.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance).

• Use only closed-loop systems for drilling operations and no reserve pits.

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

  – Overbuild size of ponds for muddy and non-vegetated shorelines.

  – Build steep shorelines to decrease vegetation and increase wave actions.

– Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

– Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation).

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit *new* transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences).

• Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011).

• Locate man camps outside of priority habitats.

*Reclamation – PPMA and PGMA*

• Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly.

• Utilize mulching techniques to expedite reclamation and to protect soils.

*Roads - PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads *in cooperation with landholders and where appropriate authority exists to do so* by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• Use directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

*Locatable Minerals BMPs*

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.).

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads *in cooperation with landholders and where appropriate authority exists to do so*, by restoring original landform and establishing desired vegetation.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages

*Operations – PPMA and PGMA*

• Cluster disturbances associated with operations and facilities as close as possible.

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury power lines *where feasible and where ground disturbance could be minimized*.

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). • Require GRSG-safe fences around sumps.

• Clean up refuse (Bui et al. 2010).

• Locate man camps outside of priority GRSG habitats.

*Reclamation – PPMA and PGMA*

• Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites.

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes, and investigating the possibility of establishing fuel breaks.

• Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community

• Irrigate interim reclamation as necessary during dry periods.

• Utilize mulching techniques to expedite reclamation.

## *Fuels and Fire Management*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.• Where appropriate and allowable, utilize livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.

• Remove standing and encroaching trees within at least 110 yards of occupied GRSG leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

• During periods of multiple fires, ensure line officers are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

*Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within 3 miles of known leks, where necessary. Stipulate these requirements at grant renewal.

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and minimize such impacts to the extent allowed by law.

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.

• Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas *where feasible, taking into consideration that minimization of new and/or ongoing ground disturbance is the higher priority*.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project within the existing disturbance associated with the authorized ROWs.

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• ~~Bury or r~~*R*eroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible,

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines *where feasible, commensurate with the design of the structures*.

*Travel and Transportation*

• Establish speed limits on BLM and Forest Service-administered roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection*, with due consideration given to any historical significance of existing trails*.

**Comment [NE2]:** My point here is that we don't want to mandate restoration of the Pony Express route or something of similar historical significance.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where existing annual grasses are present, pre-emergent herbicides should be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with plant species beneficial to sage-grouse.

### *Recreation*

• Only allow special recreation permits that have neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

### *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29.

**Comment [NE3]:** Add a reference and link to this document in the "literature cited" section at the end.

### *Riparian Areas and Wetlands*

• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.

### *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-

grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified in sage-grouse habitats.

### *Livestock Grazing and Range Management*

• Adopt the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, adopt the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
  - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
  - Avoid placement where sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
- Code 533: Pumping Plant
  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
- Code 516: Livestock Pipeline
- Code 410: Grade Stabilization Structure
  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire.

• Remove or modify existing water developments that are having a net negative impact on GRSG habitats.

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.

*Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within *three*~~four~~ (*3*4) miles of active GRSG leks from March 1 through June 15;

-Seasonal protection of GRSG wintering areas from November 1 through March 31;

-Seasonal protection of GRSG brood-rearing habitat from May 15 to August 15.

**Comment [NE4]:** We need to be consistent here, since we've said 3 miles in other documents. I believe we should stick with 3 miles if there is consensus to do so.

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat to avoid adverse impacts.

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

*Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

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**Acronym List:**

1 BMP: Best Management Practice

2 GRSG: Greater Sage-grouse

3 PGMA: Preliminary General Management Area

4 PPMA: Preliminary Priority Management Area

5 RDF: Required Design Feature

6 ROW: Right-of-way

7 SUA: Special Use Authorization

8 WFDSS: Wildland Fire Decision Support Tree

# Appendix A: Required Design Features/ Best Management Practices

## *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service-managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)

• Use dust abatement on roads and pads.

• Close and rehabilitate duplicate roads.

• Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• Use directional and horizontal drilling to reduce surface disturbance.

• Place infrastructure in already disturbed locations.

• Apply a phased development approach with concurrent reclamation.

• Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors.

• Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).

• Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury distribution power lines.

• Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).

• Design or site permanent structures which create movement (e.g., pump jack) to minimize impacts to GRSG.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance).

• Use only closed-loop systems for drilling operations and no reserve pits.

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:

  – Overbuild size of ponds for muddy and non-vegetated shorelines.

  – Build steep shorelines to decrease vegetation and increase wave actions.

  – Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

  – Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation).

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences).

• Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011).

• Locate man camps outside of priority habitats.

*Reclamation – PPMA and PGMA*

• Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly.

• Utilize mulching techniques to expedite reclamation and to protect soils.

*Roads - PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• Use directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

<u>*Locatable Minerals BMPs*</u>

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.).

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages

*Operations – PPMA and PGMA*

• Cluster disturbances associated with operations and facilities as close as possible.

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury power lines.

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007). • Require GRSG-safe fences around sumps.

• Clean up refuse (Bui et al. 2010).

• Locate man camps outside of priority GRSG habitats.

*Reclamation – PPMA and PGMA*

• Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites.

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes, and investigating the possibility of establishing fuel breaks.

• Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community

• Irrigate interim reclamation as necessary during dry periods.

• Utilize mulching techniques to expedite reclamation.

## *Fuels and Fire Management*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.• Where appropriate and allowable, utilize livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.

• Remove standing and encroaching trees within at least 110 yards of occupied GRSG leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

**Comment [RB1]:** I would hate to see 100 year old historical trees taken out. Site by site determination needed in this case.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

**Comment [RB2]:** Replace wildlands with wilderness

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

**Comment [RB3]:** Implementation and maintenanceosts and who is responsible?

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors

on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

• During periods of multiple fires, ensure line officers are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

### *Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within 3 miles of known leks, where necessary. Stipulate these requirements at grant renewal.

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and minimize such impacts to the extent allowed by law.

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.

• Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project within the existing disturbance associated with the authorized ROWs.

**Comment [RB4]:** Does this apply to existing and future projects? Will old projects be Grandfathered in? On existing large transmission lines is it realistic to accomplish and maintain? Who will be responsible for costs?

**Comment [RB5]:** Cost in rate hikes to utility customers?

**Comment [RB6]:** Will old abandoned mines be included?

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts.

• Bury or reroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible,

**Comment [RB7]:** What about existing transmission lines? Will they be Grandfathered in?

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines.

**Comment [RB8]:** What about existing lines?

*Travel and Transportation*

• Establish speed limits on BLM and Forest Service-administered roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where existing annual grasses are present, pre-emergent herbicides should be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

**Comment [RB9]:** Consultation with County Government

• Identify, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.

**Comment [RB10]:** Realistic? Liability issues?

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with plant species beneficial to sage-grouse.

### *Recreation*

• Only allow special recreation permits that have neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

### *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29.

### *Riparian Areas and Wetlands*

• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.

### *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified in sage-grouse habitats.

*Livestock Grazing and Range Management*

• Adopt the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, adopt the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
  - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
  - Avoid placement where sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
- Code 533: Pumping Plant
  - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
- Code 516: Livestock Pipeline
- Code 410: Grade Stabilization Structure
  - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
  - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire.

• Remove or modify existing water developments that are having a net negative impact on GRSG habitats.

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

**Comment [RB11]:** Are you referring to strictly private land? Or are you referring to public and private land?

**Comment [RB12]:** Deal with this at the allotment level through individual grazing plans. Emphasizing season of use, rest, and any other management tools available to reach management goals.

**Comment [RB13]:** Modify or relocate existing water developments that are having a net negative impact on GRSG habitats, with no reduction or loss of certificated water rights. All should be in consultation with the permitee.

**Comment [RB14]:** Delete paragraph the pervious paragraph implies livestock ponds.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.

*Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within four (4) miles of active GRSG leks from March 1 through June 15;
-Seasonal protection of GRSG wintering areas from November 1 through March 31;
-Seasonal protection of GRSG brood-rearing habitat from May 15 to August 15.

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat to avoid adverse impacts.

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

*Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

**Comment [RB15]:** In compliance with FAA Rules, no harrassmsnt of livestock, wildlife,

**Comment [RB16]:** On some allotments this could mean certain pastures are only available in Sept. and Oct

**Comment [RB17]:** Whoo's responsible? What will it cost? Where will the money come from? How and who will differentiate the scale of projects and whether they are at an industrial scale or have an agrarian focus with existing property rights.

**Comment [RB18]:** Lack of long-term monitoring by agencies does not prohibit livestock use,

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Natural Resources Conservation Service. Code 642: Conservation Practice Standard for Water Well. Website: http://efotg.sc.egov.usda.gov/references/public/AL/tg642.pdfNatural Resources Conservation Service. Code 516: Conservation Practice Standard for Livestock Pipeline. Website: http://efotg.sc.egov.usda.gov/references/public/AL/tg516.pdf

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**Acronym List:**

BMP: Best Management Practice

GRSG: Greater Sage-grouse

PGMA: Preliminary General Management Area

PPMA: Preliminary Priority Management Area

RDF: Required Design Feature

ROW: Right-of-way

1 SUA: Special Use Authorization

2 WFDSS: Wildland Fire Decision Support Tree

COMMENTS BY MEMBER TINA NAPPE

The list of man caused interferences with the health and well-being of sage grouse and other obligate sage brush species should be complete and unabridged. The heading can be a "Check List of Developments which May Impact Sage Grouse". This is a check list of sage grouse impact interferences designed for users, agencies, and the interested public to assess whether a development or use will create an impact. I also support the categories, since most users will search by category rather than subject headings such as "water", "fences", "roads", "offroad". But maybe the list will be shorter if by subject matter allowing the public to scan more easily.

We may all have concerns about various cautionary measures listed. I, for instance, am concerned with the water list. Surface water is important for all wildlife. Wells may reduce springs. Surface water is often diverted. The use of water can result in pollution. Maintaining a water source for wildlife is important. On the positive side, shouldn't any development maintain water at the source for wildlife. Shouldn't this requirement be included? The water for wildlife must be easily accessible. While Mosquito larvae can be harmful to birds, it is an important food source. Where water is contained introducing mosquito fish may be preferable to poisoning.

Under Agriculture: While some fences may be critical. Others might be removed.

Under Recreation: Limits on off road travel does not seem to be clearly stated.

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Tina Nappe

**CHANGE ALL BMPs TO RDFs**

# Appendix A: Required Design Features/ Best Management Practices

## *Mineral Resources*

*Fluid Minerals RDFs*

*Roads - PPMA*

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Design roads to an appropriate standard, no higher than necessary, to accommodate their intended purpose.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service-managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Establish trip restrictions (Lyon and Anderson 2003) or minimization through use of telemetry and remote well control (e.g., Supervisory Control and Data Acquisition).

• Do not issue ROWs or SUAs to counties on newly constructed energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (using signage, gates, etc.)

• Use dust abatement on roads and pads.

• Close and rehabilitate duplicate roads.

• Cluster disturbances, operations (fracture stimulation, liquids gathering, etc.), and facilities.

*Operations - PPMA*

• Use directional and horizontal drilling to reduce surface disturbance.

- Place infrastructure in already disturbed locations.
- Apply a phased development approach with concurrent reclamation.
- Place liquid gathering facilities outside of priority areas. Have no tanks at well locations within priority habitat areas to minimize truck traffic and perching and nesting sites for ravens and raptors.
- Pipelines must be under or immediately adjacent to the road (Bui et al. 2010).
- Use remote monitoring techniques for production facilities and develop a plan to reduce the frequency of vehicle use (Lyon and Anderson 2003).
- Restrict the construction of tall facilities and fences to the minimum number and amount needed.
- Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.
- Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.
- Bury distribution power lines.
- Co-locate power lines, flow lines, and small pipelines under or immediately adjacent to existing roads (Bui et al. 2010).
- Design or site permanent structures which create movement (e.g., pump jack) to minimize impacts to GRSG.
- Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.
- Equip tanks and other above-ground facilities with structures or devices that discourage nesting of raptors and corvids.
- Control the spread and effects of non-native plant species (Evangelista et al. 2011) (e.g., by washing vehicles and equipment, minimize unnecessary surface disturbance).
- Use only closed-loop systems for drilling operations and no reserve pits.
- Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).
- Remove or re-inject produced water to reduce habitat for mosquitoes that vector West Nile virus. If surface disposal of produced water continues, use the following steps for reservoir design to limit favorable mosquito habitat:
    - Overbuild size of ponds for muddy and non-vegetated shorelines.
    - Build steep shorelines to decrease vegetation and increase wave actions.

– Avoid flooding terrestrial vegetation in flat terrain or low lying areas.

– Construct dams or impoundments that restrict down slope seepage or overflow.

– Line the channel where discharge water flows into the pond with crushed rock.

– Construct spillway with steep sides and line it with crushed rock.

– Treat waters with larvicides to reduce mosquito production where water occurs on the surface.

• Limit noise to less than 10 decibels above ambient measures (20-24 dBA) at sunrise at the perimeter of a lek during active lek season (Patricelli et al. 2010, Blickley et al. In preparation). **MAXIUM NOISE LEVEL FOR ALL ACTIVITIES WILL NOT EXCEED 34 DECIBELS.**

- **AMBIENT NOISE LEVELS ARE CUMMULATIVE, AND ARE NOT TO BE RECALCUATED FOLLOWING NEW DEVELOPMENTS OR ACTIVITIES.**

• Require noise shields when drilling during the lek, nesting, brood-rearing, or wintering season.

• Fit transmission towers with anti-perch devices (Lammers and Collopy 2007).

• Require GRSG-safe fences (e.g. marked fences).

• Locate new compressor stations outside priority habitats and design them to reduce noise that may be directed towards priority habitat.

• Clean up refuse (Bui et al. 2011).

• Locate man camps outside of priority habitats.

*Reclamation – PPMA and PGMA*

• Include objectives for ensuring habitat restoration to meet GRSG habitat needs in reclamation practices/sites (Pyke 2011). Address post reclamation management in reclamation plan such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads, including reshaping, topsoiling and revegetating cut-and-fill slopes.

• Restore disturbed areas at final reclamation to the pre-disturbance landforms and desired plant community.

• Irrigate interim reclamation if necessary for establishing seedlings more quickly.

• Utilize mulching techniques to expedite reclamation and to protect soils.

*Roads - PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purpose.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, **PREVENT** ~~avoid~~ constructing roads within riparian areas and ephemeral drainages.

• Do not issue ROWs or SUAs to counties on energy development roads, unless for a temporary use consistent with all other terms and conditions included in this document.

• Establish speed limits to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossings at right angles to ephemeral drainages and stream crossings.

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads by restoring original landform and establishing desired vegetation.

*Operations – PGMA*

• Cluster disturbances, operations (fracturing stimulation, liquids gathering, etc.), and facilities.

• Use directional and horizontal drilling to reduce surface disturbance.

• Clean up refuse (Bui et al. 2010).

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Cover (e.g., fine mesh netting or use other effective techniques) all drilling and production pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above-ground facilities with structures or devices that discourage nesting by raptors or corvids.

• Use remote monitoring techniques for production facilities and develop a plan to reduce vehicular traffic frequency of vehicle use.

• Control the spread and effects from non-native plant species. (e.g., by washing vehicles and equipment.)

• Restrict pit and impoundment construction to reduce or eliminate augmenting threats from West Nile virus (Doherty 2007).

*Locatable Minerals* ~~*BMPs*~~ *RDFs*

*Roads – PPMA and PGMA*

• Design roads to an appropriate standard no higher than necessary to accommodate their intended purposes.

• Locate roads to avoid important areas and habitats.

• Coordinate road construction and use among ROW or SUA holders.

• Construct road crossing at right angles to ephemeral drainages and stream crossings.

• Establish speed limits on BLM and Forest Service managed roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Do not issue ROWs or SUAs to counties on mining development roads, unless for a temporary use consistent with all other terms and conditions including this document.

• Restrict vehicle traffic to only authorized users on newly constructed routes (e. g., use signing, gates, etc.).

• Use dust abatement practices on roads and pads.

• Close and reclaim duplicate roads, by restoring original landform and establishing desired vegetation.

• Do not construct new roads when there are existing roads that could be used or upgraded to meet the need.

• Where possible, avoid constructing roads within riparian areas and ephemeral drainages

*Operations – PPMA and PGMA*

• Cluster disturbances associated with operations and facilities as close as possible.

• Place infrastructure in already disturbed locations where the habitat has not been restored.

• Restrict the construction of tall facilities and fences to the minimum number and amount needed.

• Site and/or minimize linear ROWs or SUAs to reduce disturbance to sagebrush habitats.

• Place new utility developments (power lines, pipelines, etc.) and transportation routes in existing utility or transportation corridors.

• Bury power lines.

• Cover (e.g., fine mesh netting or use other effective techniques) all pits and tanks regardless of size to reduce GRSG mortality.

• Equip tanks and other above ground facilities with structures or devices that discourage nesting of raptors and corvids.

• Control the spread and effects of non-native plant species (Gelbard and Belnap 2003, Bergquist et al. 2007).

• Restrict pit and impoundment construction to reduce or eliminate threats from West Nile virus (Doherty 2007).

• Require GRSG-safe fences around sumps.

• Clean up refuse (Bui et al. 2010).

• Locate man camps outside of priority GRSG habitats.

*Reclamation – PPMA and PGMA*

• Include restoration objectives to meet GRSG habitat needs in reclamation practices/sites.

• Address post reclamation management in reclamation plans such that goals and objectives are to protect and improve GRSG habitat needs.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes, and investigating the possibility of establishing fuel breaks.

• Restore disturbed areas at final reclamation to pre-disturbance landform and desired plant community

• Irrigate interim reclamation as necessary during dry periods.

• Utilize mulching techniques to expedite reclamation.

## *Fuels and Fire Management*

• Fire and fuels operations should focus on protecting and enhancing occupied GRSG habitats. This includes taking into account the feasibility and cost of future rehabilitation efforts during WFDSS planning and general fire operations in all occupied GRSG habitats

*Fuels Management*

• Where applicable, design fuels treatment objective to protect existing sagebrush ecosystems, modify fire behavior, restore native plants, and create landscape patterns which most benefit GRSG habitat.

• Provide training to fuels treatment personnel on GRSG biology, habitat requirements, and identification of areas used locally.

• Use burning prescriptions that minimize undesirable effects on vegetation or soils (e.g., minimize mortality of desirable perennial plant species and reduce risk of annual grass invasion).

• Ensure proposed sagebrush treatments are planned with full interdisciplinary input pursuant to NEPA and coordination with NDOW and SETT, and that treatment acreage is conservative in the context of surrounding GRSG seasonal habitats and landscape.

• Where appropriate, ensure that treatments are configured in a manner that promotes use by GRSG.

• Where applicable, incorporate roads and natural fuel breaks into fuel break design.

• Where appropriate and allowable, utilize **supervised** livestock grazing as a tool to reduce fuels and control non-native species.

• Power-wash all vehicles and equipment involved in fuels management activities prior to entering the area to minimize the introduction of undesirable and/or invasive plant species.

• Design vegetation treatments in areas of high fire frequency which facilitate firefighter safety, reduce the potential acres burned, and reduce the fire risk to GRSG habitat. Additionally, develop maps for GRSG habitat which spatially display existing fuels treatments that can be used to assist suppression activities.

• For implementing specific GRSG habitat restoration projects in annual grasslands, first give priority to sites which are adjacent to or surrounded by PPMA or that reestablish continuity between priority habitats. Annual grasslands are a second priority for restoration when the sites are not adjacent to PPMA, but within two miles of PPMA. The third priority for annual grassland habitat restoration projects are sites beyond two miles of PPMA. The intent is to focus restoration outward from existing, intact habitat.

• As funding and logistics permit, restore annual grasslands to a species composition characterized by perennial grasses, forbs, and shrubs or one of that referenced in land use planning documentation.

• Emphasize the use of native plant species, recognizing that non-native species may be necessary depending on the availability of native seed and prevailing site conditions.

• Remove standing and encroaching trees within at least ~~**110 yards**~~ **1 kilometer** of occupied GRSG leks and other habitats (e.g., nesting, wintering and brood rearing) to reduce the availability of perch sites for avian predators, as resources permit.

• Protect wildland areas from wildfire originating on private lands, infrastructure corridors, and recreational areas.

• Reduce the risk of vehicle- or human-caused wildfires and the spread of invasive species by installing fuel breaks and/or planting perennial vegetation (e.g., green-strips) paralleling road rights-of-way. Strategically place and maintain pre-treated strips/areas (e.g., mowing, herbicide application, etc.) to aid in controlling wildfire, should wildfire occur near PPMA or important restoration areas (such as where investments in restoration have already been made).

*Fire Management*

• Compile District/Forest level information into state-wide GRSG tool boxes. Tool boxes will contain maps, listing of resource advisors, contact information, local guidance, and other relevant information for each District/Forest, which will be aggregated into a state-wide document.

• Provide localized maps to dispatch offices and extended attack incident commanders for use in prioritizing wildfire suppression resources and designing suppression tactics.

• Assign a resource advisor with GRSG expertise, or who has access to GRSG expertise, to all extended attack fires in or near GRSG habitat. Prior to the fire season, provide training to GRSG resource advisors on wildfire suppression organization, objectives, tactics, and procedures to develop a cadre of qualified individuals. Involve state wildlife agency expertise in fire operations through:

– instructing resource advisors during preseason trainings;

– qualification as resource advisors;

– coordination with resource advisors during fire incidents;

– contributing to incident planning with information such as habitat features or other key data useful in fire decision making.

• On critical fire weather days, pre-position additional fire suppression resources to optimize a quick and efficient response in GRSG habitat areas.

• During periods of multiple fires, ensure line officers are involved in setting priorities.

• To the extent possible, locate wildfire suppression facilities (i.e., base camps, spike camps, drop points, staging areas, heli-bases, etc.) in areas where physical disturbance to GRSG habitat can be minimized. These include disturbed areas, grasslands, near roads/trails or in other areas where there is existing disturbance or minimal sagebrush cover.

• Power-wash all firefighting vehicles, to the extent possible, including engines, water tenders, personnel vehicles, and all-terrain vehicles (ATV) prior to deploying in or near GRSG habitat areas to minimize noxious weed spread. Minimize unnecessary cross-country vehicle travel during fire operations in GRSG habitat.

• Minimize burnout operations in key GRSG habitat areas by constructing direct fire line whenever safe and practical to do so.

• Utilize retardant, mechanized equipment, and other available resources to minimize burned acreage during initial attack.

• As safety allows, conduct mop-up where the black adjoins unburned islands, dog legs, or other habitat features to minimize sagebrush loss.

• Adequately document fire operation activities in GRSG habitat for potential follow-up coordination activities.

## *Lands and Realty*

*Leases and Permits*

• Only allow permits and leases that have neutral or beneficial effects sage-grouse and their habitat in sage-grouse habitat management areas.

*Right-of-Ways (ROWs)*

• Work with existing rights-of-way holders in an attempt to install perch guards on all poles where existing utility poles are located within ~~3 miles~~ **4 miles** of known leks, where necessary. Stipulate these requirements at grant renewal.

• Use existing utility corridors and consolidate rights-of-way to reduce habitat loss, degradation, and fragmentation. Whenever possible, install new power lines within existing utility corridors.

• Where GRSG conservation opportunities exist, BLM field offices and Forests should work in cooperation with rights-of-way holders to conduct maintenance and operation activities, authorized under an approved ROW grant, to avoid and minimize effect on GRSG habitat.

• When renewing or amending ROWs, assess the impacts of ongoing use of the ROW to GRSG habitat and minimize such impacts to the extent allowed by law.

• Work with applicants to minimize habitat loss, fragmentation, and direct and indirect effects to GRSG and its habitat.

• Conduct pre-application meetings with the BLM or Forest Service and SETT for all new ROW proposals consistent with the ROW regulations (43 CFR 2804.10) and consistent with current renewable energy ROW policy guidance (WO-IM-2011-061, issued February, 2011). Assess the impact of the proposed ROW on GRSG and its habitat, and implement the following: Ensure that reasonable alternatives for siting the ROW outside of GRSG habitat or within a BLM designated utility corridor are considered and analyzed in the NEPA document; and identify technically feasible best management practices, conditions, (e.g., siting, burying power lines) that may be implemented in order to eliminate or minimize impacts.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

• Authorize ROWs by applying appropriate BMPs (BLM Wind Energy Development EIS, June 2005), land use restrictions, stipulations, and mitigation measures. The BLM will document the reasons for its determination and require the ROW holder to implement these measures to minimize impacts to sage grouse habitat.

• Evaluate and take advantage of opportunities to remove, bury, or modify existing power lines within priority sage-grouse habitat areas.

• Where existing leases or rights-of-way (ROWs) have had some level of development (road, fence, well, etc.) and are no longer in use, reclaim the site by removing these features and restoring the habitat.

• Within designated ROW corridors encumbered by existing ROW authorizations: new ROWs should be co-located to the extent practical and feasible with the entire footprint of the proposed project within the existing disturbance associated with the authorized ROWs.

• Subject to valid, existing rights, where new ROWs associated with valid existing rights are required, co-locate new ROWs within existing ROWs or where it best minimizes sage-grouse impacts. Use existing roads, or realignments as described above, to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then build any new road constructed to the absolute minimum standard necessary.

• Upon project completion, roads used for commercial access on public lands would be reclaimed, unless, based on site-specific analysis, the route provides specific benefits for public access and does not contribute to resource conflicts. **Require a Reclamation Bond for all projects within SGMAs.**

• Bury or reroute power lines outside of sage-grouse habitat wherever possible. If power lines cannot be sited outside of sage-grouse habitat, site power lines in the least suitable habitat possible,

• Remove power lines that traverse important sage-grouse habitats when facilities being serviced are no longer in use or when projects are completed.

• Install anti-perching and anti-nesting measures on tall structures, such as power lines.

*Travel and Transportation*

• Establish speed limits on BLM and Forest Service-administered roads to reduce vehicle/wildlife collisions or design roads to be driven at slower speeds.

• Conduct restoration of roads, primitive roads, and trails not designated in travel management plans. This also includes primitive route/roads that were not designated in wilderness study areas and within lands managed for wilderness characteristics that have been selected for protection.

• When reseeding roads, primitive roads, and trails, use appropriate seed mixes and consider the use of transplanted sagebrush in order to meet sage-grouse habitat restoration objectives. Where existing annual grasses are present, pre-emergent herbicides should be used to enhance the effectiveness of any seeding and to also establish islands of desirable species for dispersion.

• Use existing roads, or realignments to access valid existing rights that are not yet developed. If valid existing rights cannot be accessed via existing roads, then any new roads would be constructed to the absolute minimum standard necessary.

• Allow no upgrading of existing routes that would change route category (road, primitive road, or trail) or capacity unless the upgrading would have minimal impact on sage-grouse habitat, is necessary for motorist safety, or eliminates the need to construct a new road.

• **Work with BLM to identify**, map, quantify, and evaluate impacts of existing roads, including 2-tracks, in relation to known lek locations and sage-grouse winter ranges.

• Consider the use of speed bumps where appropriate to reduce vehicle speeds near leks, such during oil and gas development.

• Manage on-road travel and OHV use in key grouse areas to avoid disturbance during critical times such as winter and nesting periods.

• Consider road removal, realignment, or seasonal closures where appropriate to avoid degradation of habitat.

• Reclaim closed roads with **native** plant species beneficial to sage-grouse.

### *Recreation*

• Only allow special recreation permits that have neutral or beneficial effects to sage-grouse and their habitat in sage-grouse habitat management areas.

• Issue special recreation permits with appropriate distance and timing restrictions to minimize impacts to seasonal sage-grouse habitat.

### *Energy Development and Infrastructure*

• Adopt standards outlined in *Nevada Energy and Infrastructure Development Standards to Conserve Greater Sage-grouse Populations and Their Habitats,* April 2010, pgs 25-29.

### *Riparian Areas and Wetlands*

• At a minimum, all riparian areas and wet meadow brood rearing habitat should meet proper functioning condition (PFC). Where PFC is met, strive to attain reference state vegetation relative to the ecological site description.

### *Wild Horses and Burros*

• Prioritize gathers in sage-grouse habitat, unless removals are necessary in other areas to prevent catastrophic environmental issues.

• Within sage-grouse habitat, develop or amend herd management area (HMAs) plans to incorporate sage-grouse habitat objectives and management considerations for all HMAs. For all HMAs within sage-

grouse habitat, prioritize the evaluation of all appropriate management levels based on indicators that address structure/condition/composition of vegetation and measurements specific to achieving sage-grouse habitat objectives.

• When conducting NEPA analysis for wild horse and burro management activities, water developments or other rangeland improvements for wild horses in sage-grouse habitat, address the direct and indirect effects to sage-grouse populations and habitat. Implement any water developments or rangeland improvements using the criteria identified for domestic livestock identified in sage-grouse habitats.

### *Livestock Grazing and Range Management*

• Adopt the Natural Resource Conservation Service (NRCS) Conservation Practice Standards and Specification listed below. In addition, adopt the recommendations additions to the standards developed by NRCS and NDOW as part of NRCS' Sage-grouse Initiative

- Code 645: Upland Wildlife Habitat Management
- Code 528: Prescribed Grazing
    - Emphasize rest periods when appropriate as part of the grazing management plan and restoration.
- Code 614: Water Facilities
    - Avoid placement where sagebrush cover will be reduced near a lek, in nesting habitat, or winter habitat whenever possible. NDOW recommends structures be at least 1 mile from a lek.
- Code 574: Spring Development
- Code 533: Pumping Plant
    - NDOW recommends the structure should not be placed within 3 miles of a lek to avoid disturbance to nesting sage-grouse.
- Code 642: Water Well
- Code 516: Livestock Pipeline
- Code 410: Grade Stabilization Structure
    - If possible, avoid the installation of these structures during the late summer brood rearing period. NDOW recommends structure placement in mid-September through late November.
- Code 382: Fence
    - If possible, fencing should not be constructed near a lek and should be avoided in winter habitats near ridges. To make a fence more visible, use white tipped metal fence posts, securing flagging or reflectors to the top fence wires, or slide sections of PVC pipe over the top wire.

• Remove or modify existing water developments that are having a net negative impact on GRSG habitats.

• Remove, relocate, or modify livestock ponds built in perennial channels that are having a net negative impact on riparian habitat, either directly or indirectly. Development of new livestock ponds should be designed to have neutral or positive impacts to GRSG habitat.

• All troughs should be outfitted with the appropriate type and number of wildlife escape ramps.

• All field and district offices should apply BLM IM 2013-094 or similar methodology until superseded related to drought management planning.

• Use aircraft to check livestock in areas where consistent trespass has been noted and access/manpower is difficult to obtain.

*Surface Disturbing Activities - General*

• During the period specified, manage discretionary surface disturbing activities and uses to prevent disturbance to GRSG during life cycle periods. Seasonal protection is identified for the following:

-Seasonal protection within four (4) miles of active GRSG leks from March 1 through June 15;
-Seasonal protection of GRSG wintering areas from November 1 through March 31; **[SPECIFY DISTANCES]**
-Seasonal protection of GRSG brood-rearing habitat from May 15 to August 15. **[SPECIFY DISTANCES]**

• For any surface-disturbing activities proposed in sagebrush shrublands, the Proponent will conduct clearance surveys for GRSG breeding activity during the GRSG's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 3.0 miles of the proposed activities. Three surveys would be conducted every season during pre-planning operations. In areas found to have probable GRSG activity, surveys should continue during project operations. These surveys should be conducted as part of a monitoring program to inform an adaptive management framework for required design features and operations.

• Ensure that all authorized ground disturbing projects have vegetation reclamation standards suitable for the site type prior to construction and ensure that reclamation to appropriate GRSG standards are budgeted for.

• Implement appropriate time-of-day and/or time-of year restrictions for future construction and/or maintenance activities in known GRSG habitat to avoid adverse impacts.

• Reseed all areas requiring reclamation with a seed mixture appropriate for the soils, climate, and landform of the area to ensure recovery of the ecological processes and habitat features of the potential natural vegetation, and to prevent the invasion of noxious weeds or other exotic invasive species. Long-term monitoring is required to determine success.

• Maximize the area of interim reclamation on long-term access roads and well pads including reshaping, topsoiling and revegetating cut and fill slopes.

**MONITOR THE RECLAMATION/RESTORATION OF ALL SURFACE DISTURBING ACTIVITES FOR A MINIMUM OF 3 YEARS FOLLOWING PROJECT COMPLETION.**

*Miscellaneous*

• On BLM and Forest Service-administered Wilderness and Wilderness Study Areas (WSAs), mechanized equipment may be used to protect areas of high resource concerns or values; however, the use of mechanized equipment will be evaluated against potential long-term resource damage.

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Natural Resources Conservation Service. Code 642: Conservation Practice Standard for Water Well. Website: http://efotg.sc.egov.usda.gov/references/public/AL/tg642.pdfNatural Resources Conservation Service. Code 516: Conservation Practice Standard for Livestock Pipeline. Website: http://efotg.sc.egov.usda.gov/references/public/AL/tg516.pdf

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**Acronym List:**

BMP: Best Management Practice

GRSG: Greater Sage-grouse

PGMA: Preliminary General Management Area

PPMA: Preliminary Priority Management Area

RDF: Required Design Feature

ROW: Right-of-way

SUA: Special Use Authorization

WFDSS: Wildland Fire Decision Support Tree

11/17/13
To the Sagebrush Ecosystem Council

From Karen Boeger, NV Chapter Backcountry Hunters and Anglers*
* BHA advocates for conservation and restoration of the "backcountry": big, wild, unfragmented wildlife habitat =
The best habitat for wildlife, fish and traditional hunters and anglers.

Comments on proposed BMPs:

Fuels management, p 7:
1. Re use of livestock grazing as a tool, ADD: only with use of intensive management. (Timing is everything. Without daily monitoring and management oversight, the situation could be worsened rather than improved.)
2. ADD: any treatment project must include a post treatment management plan, timely monitoring and implementation of adaptive management when indicated by monitoring.

Fire management, p8:
1. WSAs and Wilderness areas must have site specific management plans

ROWs, p 10:
1. Re reclamation of project roads for commercial access, unless specific benefits for public access: ADD: not if within SGMA. No new roads.

Travel &transportation, p 11
1. Re public safety exception to no upgrading provision: beware. This can have the opposite effect as speeds will increase with increased standard. A "difficult" road can actually increase safety by forcing appropriate speed and increasing caution. Note 1 BMP suggests water bars to decrease speeds.
2. Re evaluation of impacts of existing routes to leks and SG winter range: ADD: if impacts are unacceptable level, adaptive management action will be taken, including closing routes entirely or seasonally.
3. Re seasonal closure to avoid degradation of habitat, ADD: and or to avoid disturbance during critical times. ADD: provision to entirely close routes in priority habitat when deemed best long term benefit to SG.
4. ADD: BLM & FS must prioritize route designation in SGMAs and travel be restricted to designated routes. Where route designation process already completed, a new look must be taken with SG habitat health given higher priority and revisions made where appropriate.

RIparian areas & wetlands, p 12
1. ADD: timely monitoring, followed by adaptive management action where indicated. If not at PFC,. Management plan must assure trend will be upward and consequences for downward trend.

Livestock grazing and management, p 12, 13
1. See # 1 above

2. Consequences for unmet utilization standards have been removed. What assurance for adaptive management changes on a timely basis (6 mos - 1 yr) ?
3. Often a change of season of use can reduce existing impacts, is this practice a part of the NRCS/NDOW standards?
4. Have the standards and guides developed years ago by the No. NV and E NV RACs been incorporated into the NRCS/NDOW standards?

Thank you for consideration of these comments.

BRIAN SANDOVAL
*Governor*

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**STATE OF NEVADA**
**Sagebrush Ecosystem Program**

**SAGEBRUSH ECOSYSTEM COUNCIL**
**STAFF REPORT**
**MEETING DATE: December 18, 2013**

**DATE:** December 13, 2013

**TO:** Sagebrush Ecosystem Council Members

**FROM:** Sagebrush Ecosystem Technical Team
Telephone: 775-684-8600,

**THROUGH:** Tim Rubald, Program Manager, State Lands,
Telephone: 775-684-8600, Email: timrubald@sagebrusheco.nv.gov

**SUBJECT:** Recommendation of Habitat Objectives to be included in the State Plan

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## SUMMARY

This item presents the concept of habitat objectives and a proposed section to be added to the State Plan that presents habitat objectives specific to Nevada to be used in management of sage-grouse habitat within the state. The technical aspects of the new section have been reviewed by the Science Work Group.

## PREVIOUS ACTION

**March 27, 2013.** The Council directed the SETT to meet with USFWS and NDOW staffs to discuss the USFWS comments on the Nevada State Plan and report back to the Council.

**April 22, 2013.** The Council directed the SETT to further develop the Nevada State Plan and the EIS Alternative to incorporate the concerns expressed by the USFWS.

## DISCUSSION

Habitat objectives do not define what is and is not habitat. Instead, habitat objectives summarize the composition, structure and other components that would identify "ideal" habitat. What does the habitat need to be in order to provide the best chance of success for sage grouse in terms of selection and fitness?

Determination of habitat objectives for sage-grouse habitat in Nevada is a valuable management tool as it establishes consistent guidelines to manage sage-grouse habitat. Establishing habitat objectives will provide some additional specificity that the State Plan needs, as identified by the USFWS and the BLM. The 2012 State Plan does not currently outline habitat objectives for sage-grouse in Nevada.

The BLM and USFS invited the SETT to provide review on the habitat objectives that are included in the northern California/Nevada sub-regional EIS. An interagency team developed these objectives for the BLM for inclusion in the sub-regional EIS. The team included representatives from USGS, USFWS, BLM, USFS, and NDOW. The team started with the Connelly et al 2000 guidelines and revised them as appropriate to meet the current understanding of habitat requirements in Nevada. The USGS was primarily responsible for much of the synthesis and in translating the complex habitat relationships and sage-grouse responses into the habitat objectives which are thus summarized and can be applied on the ground.

The BLM, USFS and SETT agree that the BLM, USFS and the State should be consistent in habitat objectives so that management is consistent across agency jurisdiction. To this end, the SETT, BLM and USFS took the proposed objectives to the December 5, 2013 Science Work Group meeting for additional review. The SWG generally agreed with the objectives put forward, but provided feedback on refinements to objectives for "All life stages", regarding tall structures, as well as additional points of clarification.

As the concept of habitat objectives is new to the State Plan, the SETT has outlined this section as a draft Section 4.0 (See Attachment 1). The changes recommended by the SWG have been partially incorporated in Table 4-1 that is presented in Attachment 1. The BLM and USFS are currently working to further incorporate changes. The SETT will bring any revisions to Table 4-1 to the Council for further approval.

Section 4.0 would be a new section - not replacing any existing sections. Subsequent sections would be renumbered. As the SETT continues to refine the 2012 State Plan, it will be reviewed for consistency with the habitat objectives and references to the habitat objectives will be included as needed.

**FISCAL IMPACT**

There is no fiscal impact at this time.

**RECOMMENDATION**

Staff recommends that the 2012 State Plan be revised to include habitat objectives as presented in the new draft Section 4.0 Habitat Objectives (Attachment 1).

**POSSIBLE MOTION**

Should the Council agree with the staff recommendations, possible motions would be:

> "Motion to approve the proposed addition of Section 4.0 Habitat Objectives to the 2012 State Plan."
> or
> "Motion to approve the proposed additions of Section 4.0 to the 2012 State Plan on condition of specific revisions."

**Attachments:**

**1:** Section 4.0: Habitat Objectives for Greater Sage-grouse in Nevada *and* Appendix B: Development Process and Justification for Habitat Objectives for Greater Sage-grouse in Nevada

## Literature Cited

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ln:TR

# Attachment 1: Proposed Addition of "Section 4.0 Habitat Objectives for Greater Sage-grouse Habitat in Nevada" to the 2012 State Plan

## 4.0 Habitat Objectives for Greater Sage-grouse in Nevada

The purpose of the habitat objectives for sage-grouse is to describe what is generally considered to be the highest quality seasonal habitat for greater sage-grouse, specific to Nevada. The objectives do not outline what is and what is not habitat, but depict the characteristics of seasonal habitats that sage-grouse in Nevada are using most successfully, based on research in Nevada. The objectives are appropriate at the site-scale and do not address landscape-scale patterns and characteristics.

The State of Nevada will work to maintain and manage sage-grouse habitat to meet these objectives across the sagebrush ecosystem in the state. The habitat objectives will be used to evaluate management actions that are proposed in sage-grouse habitat to ensure that 1) habitat conditions are maintained if currently meeting objectives, or 2) habitat conditions move toward these objectives if the current conditions do not meet these objectives. All proposed sage-grouse habitat mitigation, restoration, reclamation, or enhancement projects will incorporate these characteristics as project habitat objectives and will be the basis for determining success of these projects through long-term monitoring and adaptive management. When habitat within the state is identified as not meeting these objectives, the State will work with land managers to recommend adjustments in management to work towards these objectives, including an assessment of the causal factors. The proposed habitat objectives themselves are not regulatory, but are intended to help guide planning and adaptive management.

These objectives were developed by a team consisting of representatives from the USFWS, NDOW, USFS, USGS and BLM. The team reviewed and the Connelly et al. (2000) guidelines adding considerable detail and making adjustments based on regionally and locally derived data and analysis by the USGS. The State of Nevada's Science Work Group also reviewed these objectives before they were included in the State Plan. These habitat objectives are specific to Nevada and based on research conducted within the State. Additional information on the development of these objectives in provided in Appendix B.

The State of Nevada recognizes that a resilient and resistant sagebrush ecosystem should be heterogeneous across the landscape and that achievement of these objectives resulting in a large-scale homogenous landscape is not desirable within the State of Nevada. These objectives are intended to be used as guidelines at the site-level and do not apply as objectives at the landscape-level.

### Table 4-1. Habitat Objectives for Greater Sage-Grouse

| Life Requisite | Habitat Indicator | Objective | Citations |
|---|---|---|---|
| **GENERAL** | | | |
| All life stages | Rangeland Health Indicator Assessment | Meeting all standards[1] | |
| **LEK** | | | |
| Cover | Availability of sagebrush cover | Has adjacent sagebrush cover | Connelly et al. 2000<br>Blomberg et al. 2012 |
| Security | Proximity of trees > 1 meter above shrub canopy | Within 1.86 miles (3 km): | Connelly et al. 2000 (modified) |

| Life Requisite | Habitat Indicator | Objective | Citations |
|---|---|---|---|
| | | • none within line of sight of the lek | |
| | Tree cover | Within 1.86 miles (3 km):<br>• <3.5% conifer land cover | |
| **NESTING** | | | |
| Cover | Sagebrush canopy cover (%) | ≥20 | Kolada et al. 2009a<br>Kolada et al. 2009b |
| | Sagebrush species present | Includes *Artemesia tridentata* subspecies | Coates et al. 2011<br>Kolada et al. 2009a<br>Kolada et al. 2009b |
| | Residual and live perennial grass cover (%) | ≥10 if shrub cover <25[2] | Coates et al. 2011<br>Coates and Delehanty 2010 |
| | Annual grass (%) | <5 | Blomberg et al. 2012 |
| | Total shrub cover (%) | ≥30 | Coates and Delehanty 2010<br>Kolada et al. 2009a<br>Lockyer et al. In review |
| | Conifer encroachment (%) | <5 | Casazza et al. 2011<br>Coates et al. In prep (A) |
| Security | Proximity of tall structures | None within 3 miles (5km) | Coates et al. 2011 |
| **BROOD-REARING/SUMMER** | | | |
| Cover | Sagebrush canopy cover (%) | ≥10 | Connelly et al. 2000 |
| Cover and Food | Perennial forb canopy cover (%) | >5 arid<br>>15 mesic | Casazza et al. 2011<br>Lockyer et al. In review |
| Food | Riparian Areas/Meadows | Manage for PFC | |
| | Perennial forb availability (riparian areas/meadows) | ≥ 5 plant species present[3] | Casazza et al. 2011 |
| Security | Conifer encroachment (%) | <3 phase I (>0% to <25% cover)<br>No phase II (25 – 50% cover)<br>No phase III (>50% cover)<br>within 0.53-mile (850-meter) buffer of microhabitat plot | Casazza et al. 2011<br>Coates et al. In prep (A) |
| | Riparian Area/Meadow Interspersion with adjacent sagebrush | Perimeter to area ratio of 0.15 within 522-foot (159-meter) buffer of the microhabitat plot | Casazza et al. 2011 |
| **WINTER** | | | |
| Cover and Food | Sagebrush canopy cover (%) | ≥10 | Connelly et al. 2000 |
| | Sagebrush height in centimeters(cm) | ≥25 | Connelly et al. 2000 |
| | Conifer encroachment (%) | <5 phase I (>0% to <25% cover) | Coates et al. In prep (A)<br>Coates et al. In prep (B) |

| Life Requisite | Habitat Indicator | Objective | Citations |
|---|---|---|---|
| | | No phase II (25 – 50% cover)<br>No phase III (>50% cover)<br>within 0.53-mile (850-meter) buffer of microhabitat plot | |
| | Sagebrush extent (%) | >85% sagebrush land cover within 0.53-mile (850-meter) buffer of the microhabitat plot | Coates et al. In prep (B) |
| | Sagebrush species comp (%) | *A. t. tridentata* sites >50%<br>*A. arbuscula* sites >25%<br>*A. t. vaseyana* sites >25% | Coates et al. In prep (B) |

[1]Upland standards are based on indicators for canopy and ground cover, including litter, live vegetation, and rock, appropriate to the ecological potential of the site. The Rangeland Health Indicator Assessment is already implemented on BLM lands. The assessment process will not trigger specific land use decisions, but instead will provide information to determine if further action is necessary.

[2]Assumes upland rangeland health standards are being met.

[3]Standard considered in addition to PFC. Measured ESD/Daubenmire (25cm x 50cm frame). Includes all mesic plant species, not only perennial forbs.

# Appendix B

## Development Process and Justification for Habitat Objectives for Greater Sage-grouse in Nevada

# Greater Sage-Grouse Proposed Habitat Objectives

## Questions and Answers

1. How were the Proposed Habitat Objectives for GRSG developed?

   The proposed habitat objectives are a synthesis of existing data across the state of Nevada and portions of the Bi-State in California. The U.S. Geological Survey was primarily responsible for much of the synthesis and in translating often complex habitat relationships and GRSG responses into the proposed habitat objectives which could be summarized and applied on the ground. A team consisting of representatives from the U.S. Fish and Wildlife Service, BLM, Nevada Department of Wildlife, and U.S. Forest Service reviewed the Connelly et al. 2000 guidelines and also reviewed a bibliography of Nevada-based research made available by the U.S. Geological Survey. The team then went through each Connelly et al. 2000 guideline and reviewed it with respect to localized data. The Connelly et al. 2000 guidelines remained as a default unless refined by new information.

2. Why are the Proposed Habitat Objectives for GRSG different from Connelly et al. 2000 guidelines?

   The Connelly et al. 2000 guidelines were a strong synthesis of research until that time. The guidelines themselves suggest that studies which define GRSG habitat on a more region-specific basis should be used where supported by research. These proposed habitat objectives respond to more localized data than the Connelly et al. 2000 guidelines, which relied heavily on data from the eastern half of the range of GRSG where a perennial grass component is more dominant, and where large-scale ecological changes such as invasive grasses and conifer encroachment are largely absent. The proposed habitat objectives reflect those differences.

3. What are the differences between the Proposed Habitat Objectives for GRSG and Connelly et al. 2000 guidelines?

   While numerous differences exist, they are driven primarily by three elements: 1) the reduced role of perennial grasses for nest concealment as revealed by many nesting habitat studies throughout Nevada; 2) the increased habitat fragmentation and degradation as a result of invasive grasses and conifer encroachment; and 3) the elevated importance of late-summer brood-rearing habitats in the lower precipitation zones of Nevada. The proposed habitat objectives also reflect recent research into more complex aspects of habitat juxtaposition, such as the interspersion of meadow habitat with adjacent sagebrush cover, and the attempt to quantify other scale-dependent relationships such as the degree of conifer encroachment.

4. Are the Proposed Habitat Objectives for GRSG supported by science?

   The proposed habitat objectives are supported by numerous studies throughout Nevada from the Bi-State area in southwestern Nevada and California through the Elko District into northeastern Nevada. Much of the synthesis of research which resulted in these proposed habitat objectives for GRSG was conducted by the U.S. Geological Survey.

5. Are the Proposed Habitat Objectives for GRSG consistent with the BLM National Technical Team report (NTT)?

The NTT report suggests the use of local and state seasonal GRSG habitat objectives when they are available and references the habitat recommendations from Connelly et al. 2000 if they are not.

6. What is the rationale for eliminating the residual cover standard (7 in/18cm) from GRSG nesting habitat?

Localized data indicate that sagebrush canopy cover was the primary indicator of nesting success within Nevada. Research indicates that the primary deterrent to successful nesting was predation, specifically by common ravens, an aerial predator. Thus, the research demonstrated that overhead concealment was the primary indicator of nesting success and that the lateral concealment component of perennial grasses drove nesting success only when sagebrush canopy was deficient.

7. What is the difference between tall trees and powerlines?

These differ in degree of impact. Generally, powerlines are larger and have much greater visibility. They contribute to fragmentation and provide potential predators with larger scale, more pervasive access to habitats.

1

## Table 4-1. Habitat Objectives for Greater Sage-Grouse

| Life Requisite | Habitat Indicator | Objective | Notes | Remarks |
|---|---|---|---|---|
| **GENERAL** | | | | |
| All life stages | Rangeland Health Indicator Assessment | Meeting all standards[1] | | 1 |
| **LEK** | | | | |
| Cover | Availability of sagebrush cover | Has adjacent sagebrush cover | Connelly et al. 2000<br>Blomberg et al. 2012 | 2 |
| Security | Proximity of trees > 1 meter above shrub canopy | Within 1.86 miles (3 km):<br>• none within line of sight of the lek | Connelly et al. 2000 (modified) | 3 |
| | Tree cover | Within 1.86 miles (3 km):<br>• <3.5% conifer land cover | | |
| **NESTING** | | | | |
| Cover | Sagebrush canopy cover (%) | ≥20 | Kolada et al. 2009a<br>Kolada et al. 2009b | 5 |
| | Sagebrush species present | Includes *Artemesia tridentata* subspecies | Coates et al. 2011<br>Kolada et al. 2009a<br>Kolada et al. 2009b | 6 |
| | Residual and live perennial grass cover (%) | ≥10 if shrub cover <25[2] | Coates et al. 2011<br>Coates and Delehanty 2010 | 7 |
| | Annual grass (%) | <5 | Blomberg et al. 2012 | 8 |
| | Total shrub cover (%) | ≥30 | Coates and Delehanty 2010<br>Kolada et al. 2009a<br>Lockyer et al. In review | 9 |
| | Conifer encroachment (%) | <5 | Casazza et al. 2011<br>Coates et al. In prep (A) | 10 |
| Security | Proximity of tall structures | None within 3 miles (5km) | Coates et al. 2011 | 4 |
| **BROOD-REARING/SUMMER** | | | | |
| Cover | Sagebrush canopy cover (%) | ≥10 | Connelly et al. 2000 | 11 |
| Cover and Food | Perennial forb canopy cover (%) | ≥5 arid<br>≥15 mesic | Casazza et al. 2011<br>Lockyer et al. In review | 12 |
| Food | Riparian Areas/Meadows | Manage for PFC | | 13 |
| | Perennial forb availability (riparian areas/meadows) | ≥ 5 plant species present[3] | Casazza et al. 2011 | 14 |
| Security | Conifer encroachment (%) | <3 phase I (>0% to <25% cover)<br>No phase II (25 – 50% cover)<br>No phase III (>50% cover)<br>within 0.53-mile (850-meter) buffer of microhabitat plot | Casazza et al. 2011<br>Coates et al. In prep (A) | 15 |
| | Riparian Area/Meadow | Perimeter to area ratio | Casazza et al. 2011 | 16 |

| Life Requisite | Habitat Indicator | Objective | Notes | Remarks |
|---|---|---|---|---|
| | Interspersion with adjacent sagebrush | of 0.15 within 522-foot (159-meter) buffer of the microhabitat plot | | |
| **WINTER** | | | | |
| Cover and Food | Sagebrush canopy cover (%) | ≥10 | Connelly et al. 2000 | 17 |
| | Sagebrush height in centimeters(cm) | ≥25 | Connelly et al. 2000 | 18 |
| | Conifer encroachment (%) | <5 phase I (>0% to <25% cover)<br>No phase II (25 – 50% cover)<br>No phase III (>50% cover)<br>within 0.53-mile (850-meter) buffer of microhabitat plot | Coates et al. In prep (A)<br>Coates et al. In prep (B) | 19 |
| | Sagebrush extent (%) | >85% sagebrush land cover within 0.53-mile (850-meter) buffer of the microhabitat plot | Coates et al. In prep (B) | 20 |
| | Sagebrush species comp (%) | *A. t. tridentata* sites >50%<br>*A. arbuscula* sites >25%<br>*A. t. vaseyana* sites >25% | Coates et al. In prep (B) | 21 |

[1]Upland standards are based on indicators for canopy and ground cover, including litter, live vegetation, and rock, appropriate to the ecological potential of the site. The Rangeland Health Indicator Assessment is already implemented on BLM lands. The assessment process will not trigger specific land use decisions, but instead will provide information to determine if further action is necessary.

[2]Assumes upland rangeland health standards are being met.

[3]Standard considered in addition to PFC. Measured ESD/Daubenmire (25cm x 50cm frame). Includes all mesic plant species, not only perennial forbs.

## Remarks

1. This objective was added to respond to the elimination of a grass requirement for nesting Greater Sage-Grouse (GRSG) habitat where sagebrush canopy is greater or equal to 25 percent, as explained in 7 below. With this general standard in place, it is assumed that the ecological site potential is not overlooked (i.e., that ground cover, including litter, live vegetation and rock, appropriate to the ecological site potential are included). During the process of conducting an allotment evaluation, one would not consider GRSG habitat objectives to be met when grass cover consistent with the upland Rangeland Health Indicator Standard was absent.
2. Leks are typically open areas where GRSG want to maximize their visibility during display. Thus, there are no vegetation parameters identified for leks. Connelly et al. (2000) identifies leks as the approximate center of nesting activities (i.e. within various buffer widths), particularly for non-migratory populations. Blomberg (2012) demonstrated higher nesting success where leks are surrounded with sagebrush as compared to those surrounded by exotic species such as cheatgrass.

Adjacent sagebrush also provides escape cover in the vicinity of a lek. The availability of sagebrush cover near leks is of demonstrated importance.

3. Studies have shown that GRSG avoid areas where tall trees/structures are present; a conditioned response to the use of these structures by perching raptors and their subsequent predation and or harassment of GRSG. Connelly et al. (2000) establishes a guideline of 3 kilometers for "powerlines or other tall structures". Subsequent research and published guidelines indicate that this may be sufficient for tall trees (Phase 2 and 3 juniper [tree stages where the understory is degraded or even absent]), but that the effect of powerlines extends to 5 kilometers.
4. See 3.
5. Previous guidelines described a range of sagebrush canopy from 15-25 percent and an accompanying standard for perennial grass cover. The guideline was supported by a synthesis of data from the eastern half of GRSG range. Data specific to Nevada and the Bi-State population in California indicate that GRSG are selecting the highest sagebrush canopy available on the landscape and that nesting success is directly linked to sagebrush canopy. The selection is indicated by the predominance of raven predation as opposed to ground predators such as badgers, ground squirrels, etc. Ravens are targeting GRSG nests based on observations of GRSG movements to and from the nesting areas. The more aerial concealment available the better nesting success.
6. Presence of sagebrush species in nesting habitat was an active variable in all studies of GRSG nesting.
7. As noted in 5, above, and as provisioned by 1above, perennial grass cover did not contribute to nesting success in dense sagebrush stands selected for nesting. Where sagebrush canopy cover declined below 25 percent, perennial grasses began to show a direct effect on nesting success. It should be noted that nesting success in instances of lower sagebrush canopy closure was always lower than in habitats with lower canopy cover and higher perennial grass cover. Perennial grass cover is a positive indicator of nesting success but does not improve nesting success as well as high brush canopy.
8. Annual grass in nesting habitat always exerts a negative impact to nest success. It provides neither a cover nor a food component for GRSG. It is also a vector for fire increasing the loss of good nesting habitat.
9. Where sagebrush canopy cover is high, other brush species play a positive role. Total canopy cover of all species is a positive attribute for nest success. The highest densities of total shrub cover yields highest nesting success.
10. This standard reflects the direct negative correlation between conifer encroachment and nesting success.
11. Immediately upon leaving the nest, cover requirements are secondary to a viable food resource for brood survival. Sagebrush remains important as a cover component, but is greatly reduced from that required for nesting.
12. With an emphasis of food resources in brood-rearing habitat, a well-represented forb component is the primary habitat component affecting brood persistence in both upland/arid and mesic settings. Data indicate that there is a direct correlation between the number of forb species present and GRSG persistence.
13. While there are specific variables for wetland and riparian habitat suitability for GRSG (e.g., perennial forb diversity) riparian and wetland functionality must be in place. The habitat must have the ability to store water in sufficient quantity to stimulate and maintain productivity. Additionally, grazing utilization must be maintained at levels to promote both functionality and species diversity. Proper

Functioning Condition (PFC) as an objective is considered a minimum standard. The primary standard for brood persistence is noted in 14 below.

14. Forb diversity is a direct measure of riparian and meadow productivity and has been directly linked to brood persistence. A study by Cassazza (2011) indicates that the presence of 5 forb species on mesic sites is a threshold for maximizing brood persistence. Sites with a lower number of species present yielded lower persistence for GRSG while sites with higher forb diversity were only marginally more productive. Forb species diversity tends to provide a more persistent food resource throughout the brood-rearing period. It is suspected that overgrazed systems are likely to fall below this diversity standard, and that completely ungrazed systems will likewise fall below the standard over time as well. Riparian and meadow systems are regarded as a focal point for establishing appropriate grazing levels with respect to GRSG persistence. Methodologies for managing grazing intensities and for measuring riparian and meadow system responses are key.
15. Numerous studies (Casazza et al. 2011; Coates et al. In prep A) indicate that conifer (juniper or pinyon) presence in the vicinity of any GRSG seasonal range is always negative, and that GRSG tolerance for trees is very low. Conifer affects GRSG habitat in two ways: 1) it provides a perching substrate for raptors and, 2) over time, as conifer encroachment moves from Phase I to III it reduces and eventually eliminates favorable shrub, grass, and forb components from the habitat. Studies by Casazza et al. (2011) and Coates et al. (In prep A) indicate only a slight tolerance of Phase I (bush stage where other habitat components remain unaffected) and no tolerance for Phase II and III at the scales noted.
16. This objective highlights the type of meadow system selected by GRSG. The interface between the sagebrush and meadow edge is the most highly forb-productive area for GRSG, and provides immediate available escape cover. Thus, smaller meadow systems with a high rate of interspersion with adjacent sagebrush habitats is preferred, as opposed to larger, open riparian and meadow systems, including agricultural lands. This objective and objective 13 combined gives a complete picture of late-summer brood-rearing scenarios for GRSG and indicate both type and quality of vegetation required along with the challenge of managing those dispersed, small-scale spring and seep meadows which dot the landscape.
17. As with brood-rearing habitat, sagebrush canopy cover is of reduced importance as compared to sagebrush presence and availability. Again, food availability is the primary variable in winter habitat. Sagebrush height, allowing access to the resource in harsh winter conditions, is of importance.
18. See 17.
19. See 15.
20. Connelly et al. (2000) guidelines had previously expressed this percentage at 80, but did not specify the scale for measurement. Subsequent data (Coates et al., In prep B) refine the guidelines and apply it at the scale at which GRSG are exercising habitat selection.
21. This objective highlights species diversity as an influence in current data. Species diversity provides varying scenarios for GRSG survival under varying seasonal conditions.

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**STATE OF NEVADA**
**Sagebrush Ecosystem Program**

**SAGEBRUSH ECOSYSTEM COUNCIL**
**STAFF REPORT**
**MEETING DATE: November 18, 2013**

**DATE:** December 12, 2013

**TO:** Sagebrush Ecosystem Council Members

**FROM:** Sagebrush Ecosystem Technical Team
Telephone: 775-684-8600

**THROUGH:** Tim Rubald, Program Manager
Telephone: 775-684-8600, Email: timrubald@sagebrusheco.nv.gov

**SUBJECT:** Discussion and possible consideration of proposed revisions to Section 3.0: Goals and Objectives of the 2012 State Plan.

## SUMMARY

This item presents revisions to Section 3.0: Goals and Objectives of the 2012 State Plan. This item was originally presented at the July 30, 2013 SEC meeting. The SEC provided direction to the SETT on how to proceed with this item at the September 12, October 10, and November 12, 2013 SEC meetings, which has been incorporated into this document. The purpose of this item is to update the 2012 State Plan in order to address concerns expressed by the USFWS and provide sufficient detail for BLM to analyze it as an alternative in their EIS.

## PREVIOUS ACTION

**March 27, 2013.** The Council directed the SETT to meet with USFWS and NDOW staffs to discuss the USFWS comments on the Nevada State Plan and report back to the Council.

**April 22, 2013.** The Council directed the SETT to further develop the Nevada State Plan and the EIS Alternative to incorporate the concerns expressed by the USFWS.

**July 30, 2013.** The Council adopted the Sagebrush Ecosystem Strategic Detailed Timeline, which included revision of the State Plan/ EIS Alternative.

**July 30, 2013.** The SETT presented proposed revisions to the 2012 State Plan. The Council assigned the SETT to address Council comments, questions, and concerns on the revisions for the following Council meeting.

**September 12, 2013.** The Council approved a definition for "avoid", to include no new mandatory set-aside areas or exclusion zones and directed the SETT to develop a proposal for the "avoid process."

**October 10, 2013.** The Council approved the following items related to the proposed revisions to the 2012 State Plan: any proposed anthropogenic disturbance within SGMAs will trigger SETT consultation; the proposed "avoid process"; revisions to the "Acts of Nature" objectives section; and indirect impacts should be evaluated for all disturbances within SGMAs.

**October 10, 2013.** The Council directed the SETT to work with the Science Work Group on questions related to maximum allowable disturbance (MAD) and directed the SETT to develop Best Management Practices (BMPs) for the "minimize" policy for Council consideration.

**November 18, 2013.** The Council further discussed revisions to the 2012 State Plan and provided direction to the SETT on revisions.

## DISCUSSION

At the direction of the SEC, the SETT first presented proposed revisions to Section 3.0 of the 2012 State Plan at the July 30, 2013 SEC meeting to address USFWS' concerns and provide sufficient detail for the BLM to analyze as an alternative in their EIS. The SEC continued to discuss and consider the proposed revisions at their successive September, October, and November meetings and provided direction to the SETT on how to proceed with the revisions.

This revision of Section 3.0 compiles all revisions that the SETT has made following direction from the SEC since it was originally presented at the July 30, 2012 SEC meeting. In the Proposed Revisions to Section 3.0 of the 2012 State Plan (Attachment 1), additional revisions since the November 18, 2013 meeting are highlighted as comments with a specific explanation to assist the Council's review of the document. The following revisions were made by the SETT since the November meeting and are being presented for SEC consideration and possible approval:

- The section on cumulative impacts has been withdrawn. The proposed policy triggers a "soft cap" of an increased mitigation rate, instead of a "hard cap" of disallowing further development. Since the contract with Environmental Incentives, LLC to develop the Conservation Credit System (CCS) is underway; the SETT recommends that the SEC direct the SETT to work with the CCS contractor to consider cumulative impacts on sage-grouse habitat at the population level in the development of the CCS metrics.
- Proposed detail on the structure of CCS has also been withdrawn for the reasons stated in the previous bullet. Instead, the SETT recommends that the SEC direct the SETT to work with the CCS contractor to consider proposed CCS structure and policies in the development of the CCS.
- Conservation policies specific to the invasive species threat have been developed by the SETT to address the concerns expressed by Council Member Koch. In addition, the threat of "fire and invasive species" has been re-categorized to "invasive species and fire" to more accurately depict the primary threat to sage-grouse habitat in the state of Nevada.

- The term "Site Specific Consultation-Based Design Features" has replaced the terms "Required Design Features" and "Best Management Practices" as directed by the SEC at the November 18, 2013 meeting.

The following revisions were already presented at the November 18, 2013 meeting, but are provided again for reiteration and are still presented as track changes in Attachment 1:

- A definition of "anthropogenic disturbances" is proposed, as well as a list of "projects" that will trigger SETT consultation.
- In order to address USFWS concerns regarding how sage-grouse habitat outside of SGMAs will be managed, a voluntary SETT consultation is proposed.
- Incorporation of the SEC approved "avoid process". Definitions for management categories still need to be developed.
- Inclusion of the revisions to the "Acts of Nature" section approved by the SEC at the October 10, 2013 SEC meeting. In addition, edits provided by Council Member McAdoo are included.

Note that definitions for management categories for the avoid process are still outstanding. The SETT met with the USGS and NDOW to define the management categories, but additional meetings will be had in early January 2014 to flesh out the definitions. The SETT will bring these definitions to the SEC when drafted.

## FISCAL IMPACT

There is no fiscal impact at this time.

## RECOMMENDATION

Staff recommends the SEC:

1. approves the proposed revisions to Section 3.0 of the 2012 State Plan or provides direction to staff on how to revise it further;
2. direct the SETT to work with the CCS contractor to consider cumulative impacts on sage-grouse habitat at the population level in the development of the CCS metrics; and
3. direct the SETT to work with the CCS contractor to consider proposed CCS structure and policies in the development of the CCS.

## POSSIBLE MOTION

Should the Council agree with the staff recommendations, possible motions would be:

1. "Motion to approve the proposed revisions to Section 3.0 of the 2012 State Plan."
   or
   "Motion to approve the proposed revisions to Section 3.0 of the 2012 State Plan on condition of specific revisions."
2. "Motion to direct the SETT to work with the CCS contractor to consider cumulative impacts on sage-grouse habitat at the population level in the development of the CCS metrics"

3. "Motion to direct the SETT to work with the CCS contractor to consider proposed CCS structure and policies in the development of the CCS"

**Attachments:**

1. Proposed Revisions to Section 3.0 of the 2012 State Plan

mf: TR

# Attachment 1: Proposed Revisions to Section 3.0 of the 2012 State Plan

Revised Section 3.0

## 3.0 CONSERVATION GOALS AND *OBJECTIVES*~~STRATEGIES~~

The State's goal for the conservation of sage-grouse in the state of Nevada is to provide for the long-term conservation of sage-grouse by protecting the sagebrush ecosystem upon which the species depends. Redundant, representative, and resilient populations of sage-grouse will be maintained through amelioration of threats; *enhancement and/ or* protection of key habitats; mitigation for loss of habitat due to anthropogenic disturbances; and restoration or rehabilitation of habitat degraded or lost due to Acts of Nature.

The State's goal for the conservation of sage-grouse will provide benefits for the sagebrush ecosystem and for many other sagebrush obligate species. Sage-grouse are known to be an "umbrella species" for many sagebrush obligate and associated species. The enhancement and restoration measures that bring resiliency and restore ecological functions to sagebrush ecosystems will also serve to ensure quality habitat for sage thrasher, sage sparrow, Brewer's sparrow, sagebrush vole, pygmy rabbit, pronghorn antelope, mule deer, and many other species.

The State's goal will be met through ~~the~~ conservation objectives *for anthropogenic disturbances and Acts of Nature* ~~of 1) no net unmitigated loss of habitat due to anthropogenic disturbances and 2) reducing the rate of loss of habitat due to Acts of Nature~~, principally ~~large acreage wildland fires and subsequent~~ invasion by non-natives species *following large acreage wildland fires*. This combined strategy creates the regulatory framework through which sage-grouse habitat can be conserved and the decline of sage-grouse populations can be stopped in the state of Nevada. This section of the Plan details related polices and an adaptive management approach that will provide guidance to achieve these ~~two~~ objectives.

**Comment [MF1]:** Modified to address the concerns of Council Member Koch.

The guiding principles that create the balanced foundation and vision for a coordinated, management approach for conservation of sage-grouse and the sagebrush ecosystem in Nevada are as follows:

- Conserve sage-grouse and their habitat in Nevada while maintaining the economic vitality of the State.
- Due to the broad reach of sage-grouse habitat, effective management and implementation of sage-grouse conservation actions must be conducted through a collaborative, interagency approach that engages private, non-governmental, local, state, Tribal and federal stakeholders to achieve sufficient conservation of the sage-grouse and their habitat.
- Adaptive management will be employed at all levels of management in order to acknowledge potential uncertainty upfront and establish a sequential framework in which decision making will occur in order to learn from previous management actions.

### 3.1 Anthropogenic Disturbances

*3.1.1 Conservation Objective – No net unmitigated loss due to anthropogenic disturbances*

The overarching objective of Nevada's plan is to achieve conservation through no net unmitigated loss of sage-grouse habitat due to anthropogenic disturbances within Sage-Grouse Management Areas (SGMAs) in order to stop the decline of sage-grouse populations. No net unmitigated loss is defined as the State's objective to maintain the current quantity of quality of sage-grouse habitat within SGMAs at

the state-wide level by protecting existing sage-grouse habitat or by mitigating for loss due to anthropogenic disturbances. ~~Quality~~ *Mitigation requirements are* ~~of sage-grouse habitat is~~ determined by the Conservation Credit System. This objective will be measured by the credit to debit ratio.

*Anthropogenic disturbance is defined here as any human-caused activity or action and/ or human-created physical structures that may have adverse impacts on sage-grouse and/ or their habitat. The term anthropogenic disturbance and its associated conservation policies will include, but not limited to the following project categories: mineral development and exploration and its associated infrastructure; renewable and non-renewable energy production, transmission, and distribution and its associated infrastructure; paved and unpaved roads and highways; cell phone towers; landfills; pipelines; residential and commercial subdivisions; special use permits; right-of-way applications; and other large-scale infrastructure development. Livestock operations and agricultural activities and infrastructure related to small-scale ranch and farm businesses (e.g. water troughs, fences, etc.) are not included in this definition, though Section 6.5 and Appendix A address how to minimize impacts to sage-grouse and their habitat from these activities.*

*3.1.2 Conservation Policies – "Avoid, Minimize, Mitigate"*

***The state of Nevada's overriding policy for all management actions in SGMAs is to "avoid, minimize, and mitigate" impacts to sage-grouse habitat.***

This is a fundamental hierarchical decision process that seeks to:

**Avoid** – Eliminate conflicts by relocating disturbance activities outside of sage-grouse habitat in order to conserve sage-grouse and their habitat. Avoidance of a disturbance within sage-grouse habitat is the preferred option.

**Minimize** –If impacts are not avoided, the adverse effects will need to be both minimized and mitigated. Impacts will be minimized by modifying proposed actions and/ or developing permit conditions to include measures that lessen the adverse effects to sage-grouse and their habitat. This will be accomplished through *Site S*~~s~~pecific *Consultation-Based* Design Features ~~(DFs)~~, such as reducing the disturbance footprint, seasonal use limitations, co-location of structures, etc. Minimization does not preclude the need for mitigation of a disturbance. Any disturbance in habitat within a SGMA will require both minimization and mitigation.

**Comment [MF2]:** As directed by the SEC at the 11/18/13 meeting

**Mitigate** – If impacts are not avoided, after required minimization measures are specified, residual adverse effects on designated sage-grouse habitat are required to be offset by implementing mitigation actions that will result in replacement or enhancement of the sage-grouse habitat to balance the loss of habitat from the disturbance activity. This will be accomplished through the Conservation Credit System.

~~Any~~ ~~P~~proposed ~~action~~ *anthropogenic disturbances* within a~~n~~ SGMA will trigger consultation with the SETT for assessment of impacts to sage-grouse and their habitat and compliance with SEC and other relevant agency policies. *Project proponents considering projects in sage-grouse habitat not located within SGMAs are encouraged to contact the SETT for voluntary project planning guidance to avoid, minimize, and mitigate potential disturbances. Specifics of the SETT consultation are detailed in a Memorandum of Understanding (MOU) in Appendix XX. SETT consultation is designed to provide a*

*regulatory mechanism to ensure that sage-grouse conservation policies are applied consistently throughout the State and streamline the federal permitting process.*

Determination of sage-grouse habitat will be based on the USGS Habitat Suitability Map (Figure XX). At the onset of a proposed project, *habitat evaluations or "ground-truthing" of* ~~the SETT or its designee shall ground-truth~~ the project site and its surrounding areas *shall be conducted by a qualified biologist with sage-grouse experience* using methods as defined in Stiver et al (2010) to confirm habitat type. *Evaluations can be conducted by the SETT or NDOW at the request of the project proponent.*

The specific steps for the implementation of the "avoid, minimize, mitigate" policy are as follows:

***Avoid***

Project proponents must first seek to avoid disturbance in sage-grouse habitat within SGMAs. If the project is located entirely outside of habitat*, but within a SGMA* it will still be analyzed for indirect effects, such as noise and visual impacts. A project will only be considered to have avoided impacts if it is physically located in non-habitat and it is determined to have no indirect impacts effecting designated habitat *within SGMAs*. If this is determined, no further consultation with the SETT is required.

It is important to note that the avoid step is not an "all or nothing" concept. If the entirety of a project cannot be relocated to non-habitat, alternatives ~~should~~ *will* be explored to relocate portions of the project to non-habitat. (For example, if a mine cannot be relocated into non-habitat, power distribution lines associated with the project may be relocated to non-habitat.) This may reduce minimization and mitigation requirements for the project proponent.

*Anthropogenic disturbances should be avoided within SGMAs.* If avoidance is not possible, the project proponent must demonstrate why it is not possible in order for the SETT to consider minimization and mitigation alternatives. *The process to demonstrate that avoidance is not possible (the "avoid process") is determined by four management categories, which consider both sage-grouse breeding population density and habitat suitability within SGMAs. This approach was taken in order to conserve large and functioning sage-grouse populations, as well as the habitat needed to support sage-grouse survival.*

The burden of proof ~~for this~~*to demonstrate that avoidance is not possible within SGMAs* will be on the project proponent and will require the project proponent to demonstrate *the specified criteria listed in Table 3-1 as determined by the management categories the proposed project is located in. Exemptions to the avoid policy will be granted if all the criteria in Table 3-1 is met. A higher burden of proof is set for project proponents to demonstrate that avoidance is not possible in areas that have higher densities of sage-grouse populations and highly suitable habitat.*~~both that the 1) purpose and need of the project could not be accomplished outside of an SGMA or within non-habitat in an SGMA and 2) that the project would not be economically feasible to complete in an alternate location.~~

*"High Population Density" Management Areas*[1]

*The "High Population Density" Management Areas support the highest breeding densities of sage-grouse in the State of Nevada. These areas include approximately X% of the breeding male sage-grouse counted during lek surveys and encompass approximately X% of the known leks in the State of Nevada. These areas represent the strongholds (or "the best of the best") for sage-grouse populations in the State of*

[1] *Exact terminology to be defined with input from USGS and NDOW.*

**Comment [MF3]:** Changed from management areas to categories at the recommendation of Council Member Drew.

**Comment [MF4]:** Changed from management areas to categories at the recommendation of Council Member Drew.

*Nevada and support the highest density of breeding populations. Thus, the management strategy is to conserve these areas by avoidance of anthropogenic disturbances in order to maintain or improve current sage-grouse population levels.*

*Project proponents must seek to avoid disturbances within SGMAs. If the project proponent wishes to demonstrate that avoidance is not possible within these areas, exemptions will be granted to this restriction as part of the SETT consultation. The project proponent must demonstrate that all of the following criteria listed below (also see Table 3-1) are met as part of the SETT consultation process in order to be granted an exemption:*

- *Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;*
- *Demonstrate that the individual and cumulative impacts of the project would not result in habitat fragmentation or other impacts that would cause sage-grouse populations to decline through consultation with the SETT;*
- *Demonstrate that sage-grouse population trends within the SGMA are stable or increasing over a 10-year rolling average;*
- *Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible;*
- *Develop Site Specific Consultation-Based Design Features to minimize impacts through consultation with the SETT; and*
- *Mitigate unavoidable impacts through compensatory mitigation via the Conservation Credit System. Mitigation rates will be higher for disturbances within this category.*

**Comment [MF5]:** As directed by the SEC at the 11/18/13 meeting

*"Habitat Suitability Category A" Management Areas*[1]

*"Habitat Suitability Category A" Management Areas are areas that are determined to be highly suitable habitat for sage-grouse by the USGS Habitat Suitability Model, but are not contained within the "High Population Density" Management Areas.*

*Management in these areas provide more flexibility to project proponents, though avoidance in these areas is still the preferred option and project proponents are encouraged to develop outside of these areas whenever possible. Anthropogenic disturbances will be permitted in these areas if the criteria listed below (also see Table 3-1) are met as part of the SETT consultation process:*

- *Demonstrate that the project cannot be reasonably or feasibly accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;*
- *Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible. If co-location is not possible, siting should reduce individual and cumulative impacts to sage-grouse and their habitat;*
- *Demonstrate that the project should not result in unnecessary and undue habitat fragmentation that may cause declines in sage-grouse populations within the SGMA through consultation with the SETT;*

[1] *Exact terminology to be defined with input from USGS and NDOW.*

- *Develop Site Specific Consultation-Based Design Features to minimize impacts through consultation with the SETT; and*
- *Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System.*

*"Habitat Suitability Category B" Management Areas*[1]

*"Habitat Suitability Category B" Management Areas are areas determined to be suitable habitat for sage-grouse, though less suitable than "Habitat Suitability Category A" Management Areas and are not contained within the "High Population Density" Management Areas. Management of these areas provides the greatest flexibility to project proponents. Anthropogenic disturbances will be permitted in if the criteria listed below (also see Table 3-1) are met as part of the SETT consultation process:*

- *Demonstrate that the project cannot be reasonably or feasibly accomplished elsewhere – the purpose and need of the project could not be accomplished in an alternative location;*
- *Demonstrate that project infrastructure will be co-located with existing disturbances to the greatest extent possible;*
- *Develop Site Specific Consultation-Based Design Features to minimize impacts through consultation with the SETT; and*
- *Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System.*

*Non-Habitat Management Areas*

*Non-Habitat Management Areas are areas determined to be unsuitable for sage-grouse by the USGS Habitat Suitability Model. As specified above, all proposed projects within SGMAs, including in non-habitat within SGMAs must conduct habitat evaluation or ground-truthing to confirm presence or absence of sage-grouse habitat. If areas are confirmed by habitat evaluations to be non-habitat, an analysis for indirect impacts on sage-grouse within~~on~~ their habitat ~~with~~in SGMAs will be required to determine if Site Specific Consultation-Based Design Features to minimize impacts and compensatory mitigation are necessary as part of the SETT consultation process (also see Table 3-1).*

***Minimize***

If a project cannot avoid adverse effects (direct or indirect) to sage-grouse habitat within SGMAs, the project proponent will be required to implement *Site Specific Consultation-Based Design Features* ~~DFs~~ that minimize the project's adverse effects to sage-grouse habitat.

Minimization will include consultation with the SETT to determine which *Site Specific Consultation-Based Design Features* ~~specified DFs~~ would be most applicable to the project when considering site conditions, types of disturbance, etc. Some general examples ~~of DFs~~ could include: reducing the footprint of the project, siting infrastructure in previously disturbed locations with low habitat values, noise restrictions near leks during breeding season, and washing vehicles and equipment to reduce the spread of invasive species. Land use specific *Site Specific Consultation-Based Design Features* ~~DFs~~ are included in Appendix ~~XX~~*A*.

[1] *Exact terminology to be defined with input from USGS and NDOW.*

**Comment [MF6]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF7]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF8]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF9]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF10]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF11]:** As directed by the SEC at the 11/18/13 meeting

A list of *Site Specific Consultation-Based Design Features* ~~required DFs~~ for the project must be specified and agreed upon by the SETT and project proponent prior to the start of the project and will become part of the permit/ contract requirements issued for the project. The project proponent will be required to implement, maintain, and monitor the required DFs in good working order throughout the duration of the project.

~~The SETT or its designee will conduct unannounced site visits during the duration of the project to ensure that required DFs are being properly implemented and maintained.~~

***Mitigate***

Mitigation involves the successful restoration or enhancement of sage-grouse habitat and is designed to offset the negative impacts caused by an anthropogenic disturbance. Mitigation will be required for all anthropogenic disturbances impacting sage-grouse habitat within SGMAs. Mitigation requirements will be determined by the State's Conservation Credit System (Section 8.0).

~~Under the Conservation Credit System, specific mitigation will not be identified to offset a specific anthropogenic disturbance. Instead, once the cost of mitigation as determined by scientifically based metrics in the Conservation Credit System is paid, the project proponent will be permitted to proceed with their project, which will include minimization requirements. The State believes that this policy will achieve the objective of no *net* unmitigated loss because the State will be able to track the "debits" and "credits" accrued as a "common currency", as defined by the Conservation Credit System, at a state-wide scale. The funds produced through the Conservation Credit System will be multiplied in value by leveraging funds from grants and partner agencies. Over time, the State believes this will lead to a positive credit to debit ratio.~~

Options for mitigation will be identified in the State's Strategic Action Plan for Mitigation. The State's Strategic Action Plan for Mitigation will identify prioritized areas on public and private lands to implement a landscape scale restoration effort. This will *spatially identify where the primary threats to sage-grouse habitat are located throughout the State and provide management guidance for how to ameliorate these based on local area conditions and ecological site descriptions*~~include specific locations and actions to be completed~~. The prioritization includes efforts to use mitigation funding in areas where sage-grouse will derive the most benefit, even if those areas are not adjacent to or in the vicinity of impacted populations. ~~While research will not be considered a mitigation option, the SETT will emphasize collaboration with academic institutions around the Great Basin to conduct research on mitigation projects.~~ This Strategic Action Plan for Mitigation will be updated at least every five years to reflect improvements in understanding and technology for mitigation activities.

~~*Maximum Allowable Disturbance*~~

~~While this plan does not identify maximum disturbance thresholds, thus allowing for greater land-use flexibility, it does require a higher mitigation rate, as determined by the Conservation Credit System, in areas with five percent or greater total disturbance within a "project area of influence". *Mapped habitat will be determined by the USGS habitat suitability map.* The reason for higher mitigation rates in areas with five percent or greater total disturbance is to provide a regulatory mechanism to account for additive impacts to sage-grouse that result from cumulative habitat degradation and fragmentation from both anthropogenic disturbances and Acts of Nature at the landscape-scale.~~

**Comment [MF12]:** As directed by the SEC at the 11/18/13 meeting

**Comment [MF13]:** The SETT recommends that the SEC provides direction to the SETT to work with the CCS contractor to consider this policy in the development of the CCS.

**Comment [MF14]:** The SETT recommends that the SEC provides direction to the SETT to work with the CCS contractor to consider this policy in the development of the CCS.

**Comment [MF15]:** The SETT recommends the SEC provides direction to the SETT to work with the CCS contractor to consider the concept of cumulative impacts in the development of the CCS.

~~The process for determining the project area of influence (hereafter referred to as "DDCT examination area") and the percent of disturbance will use the Density/ Disturbance Calculation Tool (DDCT) developed by the state of Wyoming (https://ddctwygisc.org). The detailed DDCT process will be outlined in the State of Nevada's DDCT Manual, still to be developed. The DDCT general process is as follows:~~

~~Determine all leks within a SGMA that may be affected by the project by placing a four-mile buffer around the project boundary, as defined by the proposed area of disturbance related to the project. All active, pending active and inactive leks located within the four-mile buffer and within a SGMA will be identified as "affected" by the project for the purpose of the tool.~~

~~A four-mile buffer will then be placed around the perimeter of each affected lek. The buffers surrounding identified leks will be added to the four-mile buffer around the project boundary, which creates the DDCT examination area for each individual project. Disturbance will be examined for the DDCT examination area as a whole and for each individual affected lek within the DDCT examination area. Any portion of the DDCT examination area occurring outside of SGMA will be removed from the examination area.~~

~~If there are no affected leks within the four-mile buffer around the project boundary, the DDCT examination area will be just that portion of the four-mile buffer around the project boundary within the SGMA.~~

~~Total disturbance acres within the DDCT examination area will be calculated through an evaluation of: existing disturbance; approved permits, which have approval for on the ground activity, but have not yet been implemented; and the proposed disturbance. Existing disturbance includes sage-grouse habitat that is disturbed due to anthropogenic activity and wildfire. Following wildfire, lands shall be considered "disturbed" pending an implemented management plan with trend data showing the area returning to functional sage grouse habitat.~~

~~If the total disturbance is determined to be five percent or greater of sage-grouse habitat within the DDCT examination area, then a higher mitigation rate will be assessed.~~

~~*Exemption*~~
~~While the State Plan outlines "avoid" and "minimize" guidelines for livestock grazing, it is exempt for the "mitigate" policy. Proper livestock grazing guidelines provided will ensure that grazing permits maintain or enhance sage-grouse habitat within SGMAs.~~

*3.1.3 Adaptive Management*

The SETT, in close coordination with applicable federal and state agencies will evaluate and assess the effectiveness of these policies at achieving the objective of no net unmitigated loss and will provide a report to the SEC annually. The objective will be considered to have been met if there is a positive credit to debit ratio within the Conservation Credit System on an annual basis. The State acknowledges that this may be difficult to achieve within the first five years of the Conservation Credit System due to an initial lag in the start of the program, but by leveraging funds, credits should outweigh debits over time.

If the State falls short of its objective, the SEC will reassess and update polices and management actions based on recommendations from the SETT using the best available science to adaptively manage sage-grouse habitat.

**3.2 Acts of Nature –** ~~**Fire and Invasive Species**~~***Invasive Species and Fire***

*3.2.1 Conservation Objectives –*

*The overarching objectives of Nevada's plan is to achieve conservation through the following short and long term objectives for Acts of Nature in order to stop the decline of sage-grouse populations and restore and maintain a functioning sagebrush ecosystem:*

*Short Term:*

- *Reduce the amount of sage-grouse habitat loss due to invasion by non-native species and large acreage wildfires* ~~*and invasion by non-native species.*~~

*Long Term:*

- *Maintain an ecologically healthy and intact sagebrush ecosystem that is resistant to the invasion of non-native species and resilient after disturbances, such as wildfire.*

- *Restore* ~~*naturally occurring*~~ *wildfire return intervals to within a* ~~*healthy*~~ *spatial and temporal range of variability that supports sustainable populations of sage-grouse and other sagebrush obligate species.*

The Greater Sage-grouse Advisory Committee, using the best available science, identified *invasive species, principally cheatgrass, and* fire ~~and invasive species, principally cheatgrass,~~ as the primary threat to sage-grouse and their habitat in the state of Nevada. The State acknowledges these threats must be adequately addressed in order to achieve the conservation goal for sage-grouse within the state of Nevada; however, it is not economically or ecologically feasible to restore all fire damaged or invasive species dominated landscapes at this point, nor is it possible to prevent all fires. The State will put forth a best faith effort to reduce the rate of sage-grouse habitat loss due to ~~fire and~~ invasive species *and fire*. This objective will be measured by evaluating the *amount*~~rate~~ of habitat lost due to ~~fire and subsequently~~ inva*sion*~~ded~~ by non-native species *following fire* over a five year period.

*3.2.2a Conservation Policies – Invasive Species: Prevent, Control, Restore, and Monitor*

*While wildfire is commonly the vector for the spread of invasive species, such as cheatgrass, invasive species are currently widespread throughout the Great Basin and can spread without the aid of wildfire. In order to address the general threat of invasive species, the State proposes a policy of Prevent, Control, Restore, and Monitor. These policies include:*

1. ***Prevent*** *the establishment of invasive species into uninvaded sage-grouse habitat. This will be achieved by conducting systematic and strategic detection surveys, data collection, and mapping of these areas and engaging in early response efforts if invasion occurs. This will be achieved by further developing federal and state partnerships and working with local groups, such as Weed Control Districts, Cooperative Weed Management Areas, and Conservation Districts. This is the highest priority for the state of Nevada.*

**Comment [MF16]:** Added to address the concerns of Council Member Koch.

**Comment [MF17]:** As amended by the SEC at the 11/18/13 SEC meeting.

**Comment [MF18]:** Modified to address the concerns of Council Member Koch.

**Comment [MF19]:** Modified to address the concerns of Council Member Koch.

**Comment [MF20]:** Modified to address the concerns of Council Member Koch.

**Comment [MF21]:** Changed to be more congruous with objective

**Comment [MF22]:** Modified to address the concerns of Council Member Koch.

**Comment [MF23]:** Modified to address the concerns of Council Member Koch.

2. ***Control*** *invasive species infestations in sage-grouse habitat already compromised by invasion. Control techniques may include: biomass removal by means such as strategic and targeted grazing, mowing, or using herbicides. In addition, the State will continue to support research in the development of biological control agents and deploy emerging technologies in Nevada as they become available.*
3. ***Restore*** *ecologically functioning sagebrush ecosystems in sage-grouse habitat already compromised by invasion. Restoration may include revegetating sites with native plants cultivated locally or locally adapted, non-native plant species where appropriate. Control of invasives must be accompanied by ecosystem restoration.*
    a. *Ecological site descriptions and associated state and transition models will be used to identify target areas for resiliency enhancement and/ or restoration. Maintaining and/or enhancing resilience should be given top priority. In the Great Basin sagebrush-bunchgrass communities, invasion resistance and successional resilience following disturbance are functions of a healthy perennial bunchgrass component. Therefore a combination of active and passive management will be required to ensure this functionality. Areas that are in an invaded state that will likely transition to an annual grass monoculture if a disturbance occurs and are located within or near sage-grouse habitat should be prioritized for restoration efforts to increase resistance and resilience.*
4. ***Monitor*** *and adaptively manage to ensure effectiveness of efforts to prevent, control and restore.*

**Comment [MF24]:** Added to address the concerns of Council Member Koch.

*3.2.2b Conservation~~s~~ Policies – Fire ~~and Invasive Species~~Management: Paradigm Shift*

**Comment [MF25]:** Organizational change

In order to address the threat of *invasive species and* fire ~~and invasive species~~, which has long challenged land managers throughout the western United States, the State proposes a paradigm shift. This would entail a more proactive, rather than reactive approach, to stop the dominance of invasive species and restore fire to within *a* ~~its natural~~ range of variability *to support sustainable populations of sage-grouse*. These policies include:

**Comment [MF26]:** Modified to address the concerns of Council Member Koch.

1. A shift in focus and funding from wildland fire suppression to pre-suppression.
    a. Dedicate federal, state, and local funding for pre-suppression activities separate from funding for suppression and post-fire rehabilitation activities. Post fire rehabilitation/restoration funding should be available for up to three years following each incident in order to monitor effectiveness and to accommodate for poor initial success.
    b. "Hold the line" against *invasive species and* fire ~~and invasive species~~ near priority sage-grouse habitat. Develop a prioritized pre-suppression plan that focuses on priority sage-grouse habitat, similar to the Wildland Urban Interface planning analysis.
    c. Emphasize "Strategic Fuels Management". Location of fuels management projects should be identified at the broad landscape level to provide protections to areas of sage-grouse habitat that have compromised resilience, resistance, and heterogeneity. They should also be implemented to protect against catastrophically large wildfires and allow for repeated attempts to suppress active fires. Provide consistent funding for maintenance of fuels management projects. Establish effective monitoring plans to learn from implementation of these tools and subsequent effectiveness during

**Comment [MF27]:** Modified for consistency with the second long term objective.

**Comment [MF28]:** Modified to address the concerns of Council Member Koch.

suppression. Fuels management tools may include: fuels reduction treatments, *including proper livestock grazing*; greenstripping; ~~,~~ brownstripping; ~~,~~ and maintaining riparian areas as natural fuels breaks by managing for Proper Functioning Condition (PFC).

2. Wildland fire should be used strategically and should not be suppressed in all instances. Allow fires to burn naturally if ~~they occur~~*located* in areas that may benefit sage-grouse habitat and would not risk the spread of invasive species, *but only* if *human* lives and property are not at risk. Continue to suppress wildland fires that may cause the spread of invasive species into sage-grouse habitat. Use ecological site descriptions and associated state and transition models to identify such areas.
3. Manage wildland fires in sage-grouse habitat to retain as much habitat as possible. Interior islands of vegetation in areas of habitat should be protected through follow-up mop-up of the island's perimeter and interior, when fire crew safety and welfare are not at risk.
4. Post-fire rehabilitation efforts should be collaborative and strategic in approach. A wide variety of agencies, representing multiple disciplines should be involved in order to leverage funding opportunities and provide knowledge on appropriate site-specific treatments. Rehabilitation efforts should focus on preventing the spread of invasive species, particularly in or near sage-grouse habitat.

~~5. Subsequent shrub seeding or live plantings may need to occur once native or locally adapted grasses and forbs species are established initially. This will encourage more significant and timely recruitment and transition into a grass-shrub community.~~

~~6. Ecological site descriptions and associated state and transition models will be used to identify target areas for resiliency enhancement and/ or restoration. Maintaining and/or enhancing resilience should be given top priority. In Great Basin sagebrush-bunchgrass communities, invasion resistance and successional resilience following disturbance are functions of a healthy perennial bunchgrass component. Therefore a combination of active and passive management will be required to ensure this functionality. Areas that are in an invaded state that will likely transition to a cheatgrass monoculture if a disturbance occurs and are located within or near sage-grouse habitat should be prioritized for restoration efforts to increase resistance and resilience.~~

~~7.~~*5.* Emphasize continued research and provide funding to enhance knowledge and understanding of how to prevent catastrophic wildfire, the invasion of cheatgrass, and reclamation/ restoration techniques.

*3.2.3 Adaptive Management*

Fire and the subsequent reestablishment of plant species (native or not) is a natural process, and consequently this threat is extremely challenging across the western United States as humans are still limited in our ability to directly control this cycle. However, scientific understanding of ecological processes and resource management techniques continue to improve. A commitment by the State to address this issue through adaptive management will lead to a greater understanding of the ecological mechanisms that drive these processes and will subsequently lead to improvements in resource management practices that prevent *the invasion of cheatgrass following* catastrophic wildfire~~s and the subsequent invasion of cheatgrass~~.

The SETT will evaluate and assess the effectiveness of these policies at achieving the stated *short and long term* objective~~s of reducing the rate of loss of sage-grouse habitat due to fire and invasive species~~

**Comment [MF29]:** As amended by the SEC at the 11/18/13 SEC meeting.

**Comment [MF30]:** This is addressed in point 1c.

**Comment [MF31]:** Moved above

**Comment [MF32]:** Modified to address the concerns of Council Member Koch.

and will provide a report to the SEC annually. The objective*s* will be met if there is a decrease or leveling off of the ~~rate~~ *amount* of habitat loss due to ~~fire and subsequent~~ invasion by annual grasses *following wildfire* over a five year period. If the State and federal agencies fall short of this objective, the SEC will reassess and update polices and management actions based on recommendations from the SETT using the best available science to adaptively manage sage-grouse habitat.

**Comment [MF34]:** Modified to address the concerns of Council Member Koch.

**Citations**

Stiver, S.J., E.T Rinkes, and D.E. Naugle. 2010. Sage-grouse Habitat Assessment Framework. U.S. Bureau of Land Management. Unpublished Report. U.S. Bureau of Land Management, Idaho State Office, Boise, Idaho.

## Table 3-1. The "Avoid Process" for Proposed Anthropogenic Disturbances within SGMAs

Anthropogenic disturbances should be avoided within SGMAs. If project proponents wish to demonstrate that a disturbance cannot be avoided, exemptions will be granted if the criteria listed in the table can be met for the applicable management category.

| ***Management Category**** | **High Population Density ("best of the best")** | **Habitat Suitability Category A** | **Habitat Suitability Category B** | **Non-habitat (within SGMAs)** |
|---|---|---|---|---|
| ***Required Avoid Criteria*** | • Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished ~~and/ or it would not be economically feasible to complete~~ in an alternative location;<br>•Demonstrate that the individual and cumulative impacts ***of the project*** would not result in habitat fragmentation or other impacts that would cause sage-grouse populations to decline ***through consultation with the SETT*** ;<br>• Demonstrate that sage-grouse population trends within the SGMA are stable or increasing over a ~~five-year period~~ ***ten-year rolling average*** ***;***<br>• ***Demontstrate that project infrastructure will be*** ~~C~~***c*** o-locate***d*** with existing disturbances to the greatest extent possible;<br>• Develop BMPs to minimize impacts ***through consultation with the SETT*** ; and<br>• Mitigate unavoidable impacts through compensatory mitigation via the Conservation Credit System. Mitigation rates will be higher for disturbances within this category. | • Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished ~~and/ or it would not be economically feasible to complete~~ in an alternative location;<br>• ***Demontstrate that project infrastructure will be*** ~~C~~***c*** o-locate***d*** ~~the project~~ with existing disturbances to the greatest extent possible. If co-location is not possible, siting should reduce individual and cumulative impact to sage-grouse and their habitat;<br>• Demonstrate that the project should not result in unnecessary and undue habitat fragmentation that may cause declines in sage-grouse populations within the SGMA ***through consultation with the SETT*** ***;***<br>• Develop BMPs to minimize impacts ***through consultation with the SETT*** ; and<br>• Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System. | •Demonstrate that the project cannot be reasonably accomplished elsewhere – the purpose and need of the project could not be accomplished ~~and/ or it would not be economically feasible to complete~~ in an alternative location;<br>***• Demontstrate that project infrastructure will be*** ~~C~~***co-located with existing disturbances to the greatest extent possible;***<br>• Develop BMPs to minimize impacts ***through consultation with the SETT*** ***;*** and<br>• Mitigate for unavoidable impacts through compensatory mitigation via the Conservation Credit System. | • ***Demonstrate that the project will not have*** ~~An analysis for~~ indirect impacts to sage-grouse and their habitat within SGMAs. ***If it cannot be demonstrated, the project proponent*** will be required to ~~determine if~~ ***develop*** BMPs to minimize impacts and compensatory mitigation will be required. |

* Exact terminology to be defined with input from USGS and NDOW upon Council direction

# SUGGESTION FOR CONSIDERATION

[as part of SEC Agenda Item #7]

**Submitted by Leo Drozdoff**

**Possible Council Policy Statement:**

If there are competing interests or multiple interests over time, in a PMU within an SGMA, consideration will be based on cumulative impacts when determining mitigation requirements.

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General understanding of the process and tools the policy statement would inform:

***Process Overview***

*The multi-agency SETT will provide a state-level evaluation and consultation, utilizing input from sources such as state wildlife specialists and conservation districts staff with local knowledge, in cooperation and coordination with the applicable federal landowners based on property ownership in a process to determine appropriate mitigation on project locations with single, competing or multiple interests.*

***Process Tools***

*The SETT will bring to bear and apply the metrics of the Conservation Credit System and utilize the most current Habitat Suitability Mapping and other information available at the time of the specific mitigation discussion. Habitat types and their importance to bird populations in the PMU will be addressed in the application of these tools.*

## USGS Nevada Habitat Mapping Update

To: Sage-Grouse Ecosystem Technical Team

From: USGS Western Ecological Research Center, Dixon Field Station

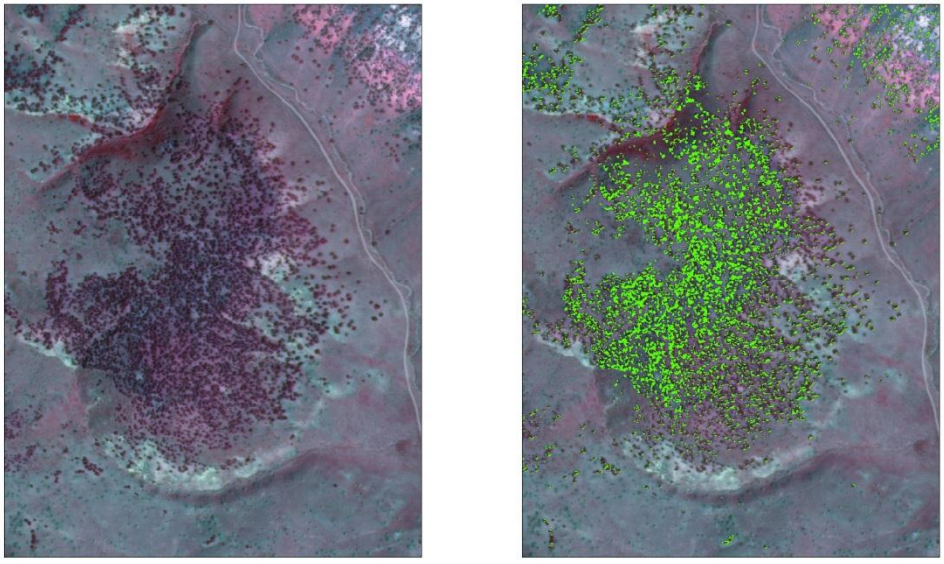
This document does not represent a completed data analysis and findings. Inferences should not be made from this document because it may not accurately reflect final conclusions.

Summary of Employment: The USGS has employed a total of 27 employees to work on various tasks related to the Nevada sage-grouse mapping project. We hired 10 GIS specialist's employees during FY13 for GIS analytical tasks within Western Ecological Research Center. Two GIS leads have worked part and full time, respectively, on managing the project and securing data. Approximately 8 of the GIS specialists were tasked with conifer extraction to complete a 1-m resolution state-wide map. See progress on conifer extraction below. Two of the GIS specialists are currently tasked with data compilation and layer preparation. Two statisticians have been working part time in calculating utilization distributions for regions of the state based on VHF and GPS telemetry data. We have now included a component of density index approximation using Kernel estimators to help delineate priority habitat. In the field season of FY13, approximately 15 employees were tasked with ground truthing the GIS layers used in the habitat modeling analysis. We ground-truthed >700 point locations within the state boundaries.

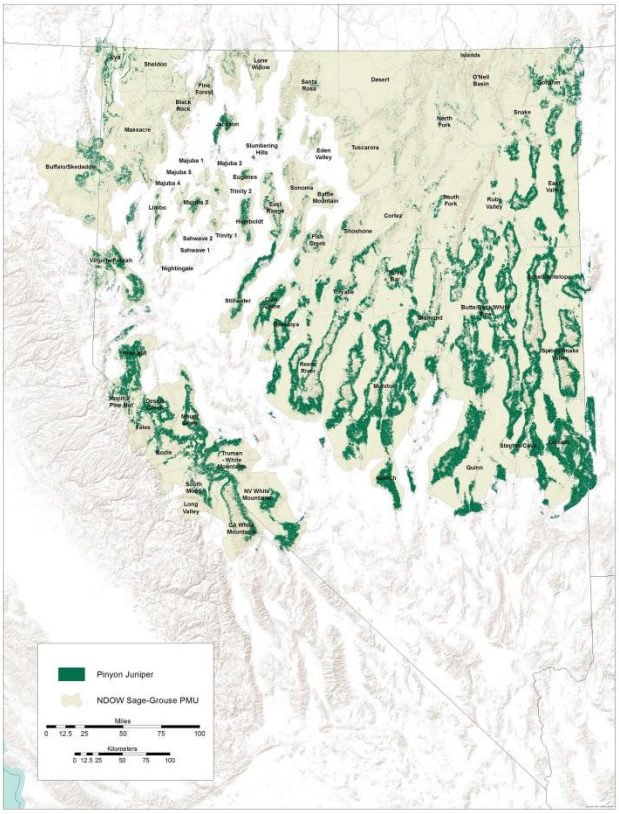
Bulleted Update of Progress:

Conifer Extraction:

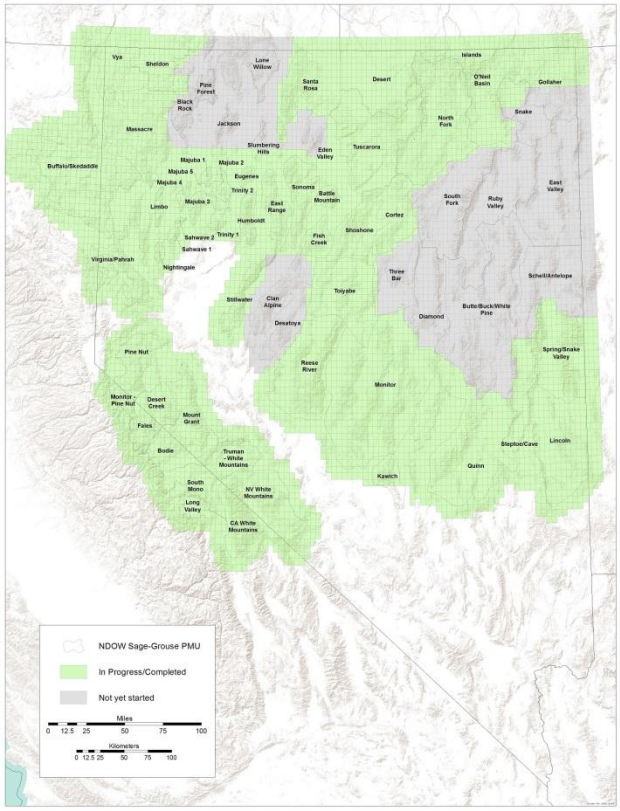
- 5272/7000 tiles completed or currently in progress.



An example of 1-m resolution conifer extraction. National Agriculture Imagery Program (left) and overlay of conifer extraction using Feature Analyst (right).



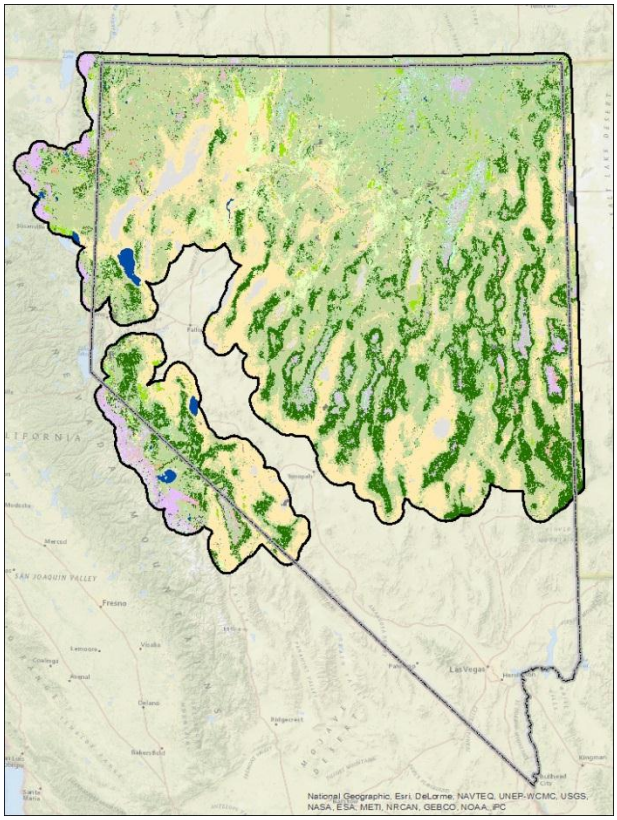

Conifer classification based on Nevada Synthesis Map. Green represents areas that will be completed as 1-m resolution.




Progress of conifer extraction. Green represents areas either completed or in progress

RSF Preparation:

- Reclassified the NV SynthMap into new generalized land cover categories and created individual binary rasters (right image).
- Collected and prepared multiple project-wide datasets, including:
    - Elevation (elevation, roughness, and slope)
    - Distance to water (intermittent and perennial streams, water bodies, springs and seeps)
    - Distance to roads (local, minor, primary, and secondary)
    - Distance to land cover types (wet meadows, urban areas, agricultural fields, water)
    - NDOW Telemetry
    - BLM Fire polygons (1999-2008)



WERC Website:

- Draft project page created at: http://www.werc.usgs.gov/project.aspx?projectID=251
- We will be adding more content to this page soon.

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# Office of the Governor

November 18, 2013

The Honorable Sally Jewell
Secretary, U.S. Department of Interior
1849 C Street, N.W., Room 6151
Washington, DC 20240

Dear Secretary Jewell:

I am deeply disappointed and concerned about the U.S. Fish and Wildlife Service's proposal to list the Bi-State Distinct Population Segment (DPS) of greater sage-grouse as threatened under the Endangered Species Act (ESA). It is especially troubling that this listing has been proposed in the face of more than a decade of conservation and restoration initiatives, and in spite of the fact that over the last twelve years, sage-grouse populations in the Bi-State DPS have exhibited a stable-to-increasing trend in Nevada, and monitored leks in California have displayed record- to near-record-high numbers.

Through this proposal, more than 1.8 million acres of habitat could be declared "critical" under the ESA. If ultimately approved, the listing could result in gratuitous impediments for Nevada ranchers, renewable energy companies, and everyday citizens who enjoy access to our beautiful public lands. Beyond these unwarranted impacts, proposing this listing – in light of all the work that has been done – raises serious concerns about the sincerity of the USFWS in working with states to develop programs that can help protect species, while avoiding the need to list under the ESA.

The Bi-State Local Area Working Group (LAWG), comprised of local, state, and federal partners as well as the private and non-profit sector, has been working for more than a decade to develop and implement strategies to conserve the Bi-State DPS. In 2002, the group began work on a conservation plan that was approved in 2004 and has been implemented over the course of the past decade; it has yielded significant results for the Bi-State DPS.

Since the 2004 plan was approved, 298 projects aimed at conserving, expanding and improving habitat for sage-grouse have been implemented in both Nevada and

California by various agencies. Conservation easements have been established on more than 16,000 acres; more than 7,000 acres of important seasonal sage-grouse habitats have been acquired; greater than 16,000 acres of encroaching pinyon and juniper have been removed; grazing management strategies aimed at improving habitat on more than one million acres have been instituted through permit terms and conditions modifications. Again, these actions have yielded meaningful results for the Bi-State DPS: population trends are stable-to-increasing in Nevada and biologists have observed record and near-record lek attendance in California.

Recognizing the need for continued focus, the 2004 conservation plan was reviewed in 2011. In 2012, the 2012 Bi-State Action Plan was endorsed by the Bi-State Executive Oversight Committee, which includes state and federal resource agency directors. The 2012 Bi-State Action Plan is currently being implemented by private, state and federal entities. Notably, the efforts of the Natural Resources Conservation Service to secure conservation easements are proving to be successful in providing habitat protection that is beneficial to sage-grouse.

The value of the 2012 Action Plan, as well as the work of the LAWG, cannot be understated; it is a model effort, demonstrating consistent engagement and presenting a comprehensive set of objectives, strategies, and actions to accomplish specific goals. The conservation actions that have occurred to date, coupled with the 2012 Action Plan and measure that will be implemented are effective for the long-term conservation of the Bi-State DPS. Unfortunately, the USFWS has chosen to cast aside these important efforts and meaningful, measurable outcomes, instead opting to propose listing the species.

Moreover, through the 4(d) special rule, the listing proposal essentially endorses the Action Plan and the work of the Natural Resources Conservation Service's Sage Grouse Initiative. It is my understanding that our Action Plan may likely serve as the foundation – if not the entirety – of the recovery plan that the USFWS must develop after listing the species. The proposed listing will not enhance or expedite conservation actions for the Bi-State DPS; it will call for the same conservation measures we have already identified. What then will the federal government accomplish through this proposed listing, other than alienating the groups who have been working so diligently on this issue for more than a decade and taking management responsibility of this species away from the states?

Finally, although viewed biologically as distinct from the greater sage-grouse, the Bi-State DPS has important policy implications for the greater sage-grouse. States across the West are currently engaged in unprecedented efforts to develop plans to address the potential listing of the greater sage-grouse. Many parallels can be drawn between the significant effort and action that has gone into addressing the Bi-State DPS and the initiatives also underway for the greater sage-grouse. In light of all the work that has been done, this proposed listing puts into question the USFWS's sincerity in promising to work with states and to truly value and honor our efforts.

Madam Secretary, Nevada remains committed to protecting, restoring and enhancing habitat for the Bi-State DPS. We will continue to implement the strategies identified in our 2012 Action Plan. I respectfully urge you to work with the USFWS and BLM, as well as with your partner agencies at the USDA, to help identify ways to support the implementation of the 2012 Action Plan, while protecting local economies and land users. It is my hope that with your full support, we can preclude the need to list the Bi-State DPS.

Should you wish to discuss this matter further, please do not hesitate to contact me at (775) 684-5670, or Mr. Tony Wasley, Director of the Nevada Department of Wildlife at (775) 684-1599.

Sincere regards,

BRIAN SANDOVAL
Governor

CC: Bi-State Local Area Working Group
Carson City Board of Supervisors
Lyon County Commission
Mineral County Commission
Esmeralda County Commission
Douglas County Commission
Nevada Congressional Delegation
California Governor Jerry Brown
Honorable Tom Vilsack, Secretary, USDA
Jason Weller, Chief, NRCS
Bruce Petersen, State Conservationist, NRCS
Bill Dunkelberger, Forest Supervisor, Humboldt-Toiyabe National Forest
Dan Ashe, Director, USFWS
Ren Lohoefener, Regional Director, USFWS
Ted Koch, State Director, USFWS
Principal Deputy Director Neil Kornze, BLM
Amy Lueders, State Director, BLM

U.S. House of Representatives
Committee on Natural Resources
Washington, DC 20515



**Opening Statement of**

# Chairman Doc Hastings

**Committee on Natural Resources**
**1324 Longworth House Office Building**
**Full Committee Hearing on**
***"ESA Decisions by Closed-Door Settlement: Short-Changing Science, Transparency, Private Property, and State & Local Economies"***
**December 12, 2013 at 10am**

Two years ago, the Obama Administration's Interior Department signed settlement agreements with two litigious groups, in their words, "to make implementation of the ESA less complex, less contentious and more effective."

In August, the Director of the Fish and Wildlife Service testified before this Committee that "settlement agreements are often in the public's best interest because [the Service] has no effective legal defense to most deadline cases, and because settlement agreements facilitate issue resolution as a more expeditious and less costly alternative to litigation."

This raises several questions: are these ESA settlements, and others negotiated by federal agencies behind closed doors with certain groups, truly in the public's *"best interest?"* Have they made implementation of ESA "less contentious" and "less costly?" Are "expeditious" ESA listings allowing adequate involvement of states, local governments, and private landowners or aiding efforts to avoid listings or to delist species? Have they encouraged use of transparent and best science and commercial data in ESA decisions? Have they led to robust economic impact analyses of ESA listings on communities? Have they discouraged litigation?

Here are some facts of what these settlements *have* produced in just two years:

- The current number of proposed and final ESA listings has increased by 210, and the amount of proposed and final critical habitat has increased by more than 2 million acres and more than 2,000 river miles nationwide.

- The Interior Department has accepted 85 percent of the new listing petitions it received, including petitions seeking more than 140 new listings to the Fish and Wildlife Service, and the National Marine Fisheries Service.

- Selective use of ESA data and science and peer review conflicts of interest has clouded the Obama Administration's adherence to data quality and transparency requirements.

- New executive orders and regulations are reducing robust economic impact analyses, and could alter how critical habitat is analyzed.

- Litigants to the settlements are continuing to file lawsuits. In just the past year, the Center for Biological Diversity has threatened or filed over a dozen new lawsuits against the Interior Department, either because they didn't list fast enough, or because the Center for Biological Diversity didn't agree with Interior's decision not to list.

Undoubtedly, some believe cramming hundreds of obscure species onto the ESA list under deadlines and blocking off huge swaths of land because of the settlements are "successes," but many areas of the country tell a different account of how these policies are impacting their communities, their economies, and ultimately, the species.

While the Service recently "endorsed" a plan submitted by Texas, Oklahoma, Kansas, Colorado and New Mexico to conserve the Lesser Prairie Chicken, there is little assurance that the Service won't list the prairie chicken anyway. The Service has refused requests by dozens of counties and other interests for additional time to factor new data and review other plans, insisting it must stick to its self-imposed settlement deadline of March 2014.

In coming months, according to settlement-imposed deadlines, the Bureau of Land Management and Forest Service will submit plans covering over 250,000 square miles in 11 Western states to the Service to decide whether they are adequate to avoid listing of the Greater Sage Grouse. These plans are based on seriously flawed federal technical documents that lack transparency. Nevertheless, the Service has charged ahead with proposing listing of sage grouse in portions of Nevada, California, Colorado and Utah.

Over 2,000 river miles in a dozen mid-western and southern states are likely to be impacted as a result of the Service's listing of mussels and other fish species. These listings will impact over 40 percent of Arkansas alone, including agriculture, timber, and energy producers, and other small businesses.

In Washington, listing is imminent for a plant called the bladderpod, though DNA shows it is not warranted, and proposed gopher listings are impacting local economies and one of the largest military installations in the world.

These are some impacts from the settlements. The "listing-by-litigation" approach is not working for people and species. I look forward to hearing from our witnesses and to continuing a frank and open discussion on how to improve this law.

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