

## **1.0 POISON SPIDER RECLAMATION PLAN**

Rockwell Petroleum (RWP) proposes to develop underground access oil production in the Poison Spider Oil Field while reclaiming the existing surface disturbance and production areas. Poison Spider Oil Field is 100% federally owned minerals and surface managed by the Bureau of Land Management. This plan is a discussion of the reclamation of the project area including the proposed new disturbances required to facilitate the underground access development and the reclamation of the existing surface disturbances in the Poison Spider Oil Field.

### **1.1 Reclamation Requirements**

BLM's reclamation requirements include the following primary goals:

- Recontour the land surface and implement other soil conservation and water management techniques to minimize erosion and sedimentation in order to protect surface and ground water resources;
- Revegetate disturbed areas to establish self-perpetuating native plant communities capable of supporting existing and future land uses; and
- Minimize visual contrasts.

BLM Reclamation Standards are the tool to assess whether or not reclamation practices at Poison Spider have been successful. These standards include:

- No contaminated materials will be left at or near the surface, and all such buried materials would be encapsulated in impermeable material and covered with at least 4 feet of soil material;
- The subsurface would be stabilized, and holes would be plugged and no indications of subsidence, slumping and/or significant downward movement of surface soil materials would be visible;
- Reclaimed areas would be free of trash, debris and other solid wastes;
- Reclaimed areas would be free of rills or gullies, perceptible soil movement, head cutting in drainages, or slope instability on or adjacent to reclaimed areas;
- Soil surfaces would have adequate surface roughness to reduce runoff and to capture rainfall and snowmelt;
- Vegetative canopy cover, production, and species diversity would approximate the surrounding undisturbed areas. Vegetation will help stabilize the site, support post-disturbance land uses, and would be self-sustaining. Revegetated areas would be as free as practicable from noxious, non-native, and invasive species;

- The reclaimed landscape would approximate the visual quality of adjacent areas with regard to line, form, texture, contour, color, and orientation of major landscape features and would support pre-disturbance land uses.

## **1.2 Areas of Disturbance**

The Poison Spider Field encompasses 560 acres of which 31.5 acres have been previously disturbed. Disturbed areas include the Poison Spider Camp (Oil Camp), 15 well sites with associated drill pads, production and produced water discharge pits, production tank battery, shop, an area previously impacted by oil spills, and access roads. Proposed new disturbances will encompass approximately 12.3 acres that will include the underground access area (Shaft Area) and the Service Area as depicted on Figure 1-3 of the Environmental Assessment.

Underground access will be accomplished by boring a vertical shaft then excavating approximately 7,000 feet of horizontal tunnel(s) beneath the pay zones. The Shaft Area, encompassing 7.5 acres, will contain the shaft and headframe (support structure for the underground hoist conveyance), cuttings pit, equipment lay-down area, equipment storage area (ready line), hard line lay-down and storage area, spoils stockpile, topsoil stockpile, fuel storage, portable light plant, temporary power generation plant, a pad mount transformer, a temporary exhaust fan, spare parts storage, and a water disposal well (WD2). The Service Area, encompassing approximately 4 acres, will contain a shop/office building, parking area, change room/dry, a crude oil and produced water tank battery, a produced water injection plant, a water disposal well (WD1) and other infrastructure. A short pipeline corridor, approximately 900 feet long by 10 feet wide (200' X 10' or 0.05 acres of new disturbance) will connect the Shaft Area to the tank battery located in the Service Area.

The Oil Camp Road will be widened from the current 20 foot usable width to a 36 foot width to accommodate equipment hauling spoils material and topsoil to stockpiles located in the Oil Camp area. The usable width of the road will be 30 feet with the additional 6 feet used for drainage ditches. A total of 0.6 acres (16' X 1700') of new disturbance will be required for the upgrade of the Oil Camp Road.

A pipeline corridor for water lines leading to the injection wells WD3 and WD4 will also parallel the road. Total temporary disturbance associated with the pipeline corridor will be approximately 0.4 acres (10' X 1700') with reclamation completed concurrently with pipeline installation.

Designated existing roads, located within the previously disturbed Oil Camp, will be maintained in order to access the vent raise and the injection wells (WD3 and WD4). These roads have a usable width of approximately 10 feet and will be reclaimed at the end of the project. There will be no new disturbance associated with these roads.

The vent raise will also be located in a previously disturbed area near the junction of the western entrance of the Oil Camp Road and Poison Spider Road. The vent raise will be adjacent to the road so new disturbances will be minimal; however, a small portion of the west road (100') will not be reclaimed until the end of the project in order to access the vent raise.

Stockpiles for salvaged topsoil and material excavated from the underground development (spoils) will be located within the Shaft Area as well as within the Oil Camp. The topsoil stockpile located within the Oil Camp area will be used to store all topsoil salvaged from the Shaft Area, Service Area, and the widened Oil Camp Road. Spoils material excavated from the underground development and the cuttings pit will be placed in stockpiles located within the Shaft Area and the Oil Camp (3.1 acres) and will be used to reclaim well pads, drill roads, and the Oil Camp area itself. The Oil Camp spoils stockpile will be constructed towards the end of tunnel development or when the Shaft Area stockpile has reached its design capacity. A total of 10,200 cy of topsoil will be salvaged with a total stockpile capacity of approximately 12,700 cy. Spoils excavated from the underground development, the cuttings pit, and the vent raise will total approximately 75,000 cy. The total spoils stockpile capacity will be approximately 113,200 cy. Material derived from the shaft boring will be pumped as a slurry to the cutting pit where it will remain. This material does not factor into the materials balance.

Figure 1-2 of the EA depicts the proposed new disturbance areas as well as the areas previously disturbed. Table 1 summarizes the proposed new disturbance areas as well as the acreages and timetable for reclamation of these areas.

**Table 1  
Proposed Disturbances**

<b>Location</b>	<b>Long Term Disturbance Areas (acres)</b>	<b>Long-Term Reclamation Timeframe</b>	<b>Short Term Disturbance Areas (acres)</b>	<b>Short-Term Reclamation Timeframe</b>
Shaft Area	3.5	End of Project (2027)	4.0*	Stabilize & Seed @ End of UG Development
Topsoil Stockpile		End of Project (2027)		Interim Reclamation – 1 <sup>st</sup> Year
Spoils Stockpile – Including Cuttings Pit Material**		End of Project (2008-2027)		Stabilize & Seed - Utilize Throughout Life-of-Project
Cuttings Pit Stockpile		End of Project (2027)		Interim Reclamation – 1 <sup>st</sup> Year
Pipeline Corridors		End of Project (2027)	0.6 (2500 ft X 10 ft)	Interim Reclamation – 1 <sup>st</sup> Year
Service Area	4.0	End of Project (2027)	4.0	
Road (Oil Camp)	0.6	End of Project (2027)	0.6	
Oil Camp Stockpiles (Spoils & Topsoil)		2007-2027	3.1	Stabilize & Seed - Utilize Throughout Life-of-Project
Vent Raise & Road	0.3	End of Project (2027)	1.0	
Injection well sites	0.2		0.2	
<b>Total</b>	<b>8.6</b>		<b>13.5</b>	

\*Approximation of reclaimed Shaft Area after underground development is completed.

\*\* Material stockpiled from the tunnel excavation will be utilized as growth medium and backfill throughout the life of the project.

## **2.0 RECLAMATION OF PROPOSED DISTURBANCES**

Reclamation for most of the proposed project areas will not occur until the end of the project; however, portions of the Shaft Area will be reclaimed once full oil production begins in about year 3. Additionally, some interim reclamation will occur in order to stabilize select cut slopes, fill slopes, pipeline corridors, and stockpiles. A Wyoming Department of Environmental Quality Construction Storm Water Pollution Prevention Permit (WDEQ SWPPP) will be obtained for the project and the appropriate BMP's (Best Management Practices) implemented throughout the life of the project and continued until final stabilization has been achieved.

## **2.1 Site Preparation**

Site preparation will involve grading the Shaft Area and Service Area to the desired final elevation and configuration. Prior to that, topsoil will be salvaged and separately stockpiled. Additional topsoil material will be salvaged (approximately 500 cy) prior to widening the Oil Camp Road. Vegetation will be salvaged and stockpiled with the topsoil to incorporate native seeds and organic matter into the soil. The total volume of topsoil salvaged will not be known until construction operations begin, but it is anticipated that a minimum 6 inches of topsoil will be salvaged which equates to approximately 10,200 cy of material over the 12.3 acres of new disturbance. The salvaged topsoil will be stockpiled separately and signed accordingly.

## **2.2 Shaft Area**

Reclamation of the Shaft area will occur at the end of the project, although some reclamation may be completed within the Shaft Area (~ 4 acres) at the end of underground development and may include the area immediately surrounding the shaft, portions of the lay-down area, and areas around the cutting pit. The cuttings pit, utilized during the shaft boring, will remain to be used during production drilling for recycling water then reclaimed at the end of the project. The spoil stockpile will be graded to a nominal 2:1 slope for stability purposes then seeded with an approved interim seed mixture. To further protect the stockpile, erosion control BMPs will be installed that may include mulch and/or erosion control matting over the seeded areas and sediment control fence or weed-free straw bales along the toe of each stockpile. The erosion control BMPs would be installed in accordance with the WDEQ SWPPP.

It is anticipated that the spoil material from the underground excavation (approximately 43,600 cy) will be utilized as backfill and growth medium. The material will be used for backfilling the shaft at the end of the project, backfilling along cut slopes within the Shaft Area and Service Area, and as growth medium for reclamation of the Shaft Area, Service Area, and the previously disturbed areas within and around the Oil Camp. Spoils material will be added to the stockpiles and removed throughout the development period to be used for interim and final reclamation in designated areas. Although the stockpiles will be constantly changing in size, RWP will maintain them with 2:1 sideslopes for stability and will apply an interim seed mix and erosion control BMPs whenever possible. At the end of the project, any remaining spoil material left in the stockpile will be re-contoured, amended as required, and seeded with the appropriate seed mix. Erosion

control BMPs will be installed as necessary. Prior to use as a growth medium, RWP will determine the agronomic and physical characteristics of the spoil material and amend the material as necessary to achieve the desired soil chemistry.

At the end of the project, the shaft, measuring 12.5 feet in diameter and 1600 feet deep, will be plugged using the spoils material. Reclamation of the shaft will involve backfilling the raise to within 20 feet of the surface then installing a concrete plug from the top of the backfill to the surface. Backfilling will require approximately 7,300 cy of material. All surface facilities associated with the shaft will be removed.

The lined cuttings pit will be reclaimed first by dewatering either by removing or by evaporation, any liquids and slurry material remaining in the pit. Prior to backfilling the pit, the liner may be perforated, depending on BLM preferences, to allow for natural infiltration of precipitation. A minimum of 20,000 cy of spoil material will be placed into the pit in such a way (slightly mounded) as to approximate original contour, to allow for settling, and to achieve positive drainage off the mound to prevent standing water. The liner will remain buried.

The Shaft Area will be scarified to a depth of 1-2 feet to improve aeration, water infiltration, and root penetration. Topsoil plus whatever required amount (if any) of amended spoil material or other appropriate growth medium will be placed over the area to a minimum depth of 6-inches of topsoil mixture then seeded using a BLM approved seed mix. Mulch will be applied to the seeded areas and other erosion control BMPs will be installed as necessary.

All structures associated with shaft and tunnel excavation, and oil production will be removed with construction materials buried on-site with BLM approval, disposed of in an appropriate off-site disposal facility, or reused on future projects.

### **2.3 Service Area**

Reclamation of the Service Area, which encompasses 4.0 acres, will occur at the end of the project, although some interim reclamation will be completed. Topsoil salvaged from the service area will be placed in the stockpiles located in the portal area.

At the end of the project, the service area will be scarified to a depth of 1-2 feet to improve aeration, water infiltration, and root penetration. The stockpiled topsoil plus whatever required amount (if any) of amended spoil material or other appropriate growth medium will be placed over the area to a minimum depth of 6-inches of topsoil mixture then seeded using a BLM approved seed mix. Mulch will be applied to the seeded areas and other erosion control BMPs will be installed as necessary.

All buildings, tank batteries, and associated facilities will be removed with construction materials buried on-site with BLM approval, disposed of in an appropriate off-site disposal facility, or reused on future projects.

## **2.4 Roads**

The Oil Camp Road will be widened and improved to be utilized as a haulage road to build the proposed stockpiles located within the Oil Camp area and to access the vent raise and injection wells via previously existing roads within the camp area. The access roads and the vent raise will be reclaimed at the end of the project with the roads reclaimed in the same manner as the well pad roads described below.

Reclamation of the Oil Camp Road would involve pulling up any surplus material along the sides of the road into the road bed. Prior to salvaging any surplus material or placing amended growth medium on the road, the “blacktop” comprising the surface of the road will be excavated and used as backfill for the portal culvert. Any storm water culverts or other solid materials would be removed from the site. Drainage crossings would be restored to approximate the original channel configuration including the channel banks, bottom, and gradient. The road bed would be ripped to a depth of 1-2 feet then covered with a minimum depth of 6-inches of topsoil or other growth medium. The road bed and side slopes would be seeded with an appropriate and approved seed mixture, fertilized if necessary, and mulched. Erosion control matting would be placed where necessary.

## **2.5 Pipeline Corridors**

The surface disturbance created by the installation of the pipelines, both for produced liquids and produced water will be reclaimed immediately after the pipeline installations are completed. The produced liquids pipeline corridor will encompass an area approximately 900 feet long by 10 feet wide all within the Portal Area and Service Area with the exception of approximately 200 ft where it crosses the Oil Camp Road. The produced water pipeline corridor will encompass an area of approximately 2300 feet long by 10 feet wide between the Service Area (water separation equipment) and injection wells WD3 and WD4. The pipeline to injection well WD1 will be completely within the Service Area and the pipeline to WD2 will be located within the same corridor as the produced liquids pipeline.

Topsoil will be removed to a depth of approximately 6 inches and rolled to the side separate from the material removed from the pipeline trench. The pipe will be bedded with sand and backfilled with the removed soil to approximate the original contour. Soil will be mounded over the trench to accommodate future settling. Once installation is complete the topsoil will be re-spread and seeded with a BLM approved seed mixture. When the project is over the pipeline will be purged, all connections cut off below ground level, capped, and abandoned in place.

## **2.6 Vent Raise**

A vent raise, located at the west end of Oil Camp Road and within the previously disturbed area, will be constructed to supply ventilation to the mine as well as provide an emergency escapeway from the mine. The vent raise will be 6 feet in diameter and 1400

feet deep. Reclamation of the vent raise will involve backfilling the raise to within 10 feet of the surface then installing a concrete plug from the top of the backfill to the surface. Backfilling will require approximately 1400 cy of material.

### 3.0 RECLAMATION OF PRE-EXISTING DISTURBANCES

Reclamation of some of the previously existing disturbed areas will commence within 1 year of initiating the tunnel excavation. Producing oil well sites will not be abandoned until the underground oil recovery operation is in full production, approximately 2-3 years after commencing tunnel construction. A vent raise and three proposed new injection wells and the existing injection well will be maintained and used throughout the life of the project. Figure 1-2 of the EA depicts previously disturbed areas and Table 2 lists the previously disturbed areas, their acreages and a timetable for reclamation.

**Table 2  
Previously Disturbed Areas**

<b>Location</b>	<b>Disturbance Area (acres)</b>	<b>Reclamation Timeframe</b>
Poison Spider Camp	16.83	2009-2010
Well Pads	1.12	2009-2010
Well Pad Roads	4.94	2009-2010
Impacted Slope	8.48	2007-2008
<b>Total</b>	<b>31.51</b>	

#### 3.1 Wells & Well Pads

There are currently 15 well sites 13 of which will be reclaimed. These sites encompass approximately 1.12 acres, within the Poison Spider field with one well already abandoned (Figure 1-2). All wells will be abandoned in accordance with BLM and Wyoming Oil and Gas Conservation Commission (WOGCC) regulations. Underground pipelines would be purged, cut off below ground, capped and abandoned in place. All surface facilities (pumping units) would be removed and either reused or recycled. Pit reclamation will be completed in accordance with the WOGCC guidelines for production pits and as approved by BLM. Reclamation could include removal and disposal of liquids followed by backfilling or in place solidification. Contaminated soil associated with historic field operations will be tested and managed pursuant to WOGCC regulations and BLM approval.

Well pads will be reclaimed by re-contouring the area to blend with pre-existing topography. The compacted well pad areas would be scarified to a depth of 1-2 feet to improve aeration, water infiltration, and root penetration. Amended growth medium or topsoil, if available, would be placed over the area to a depth of 6-inches. The area would

be seeded with the appropriate BLM approved seed mixture, fertilized if necessary, and mulched. Erosion control matting will be placed where necessary.

### **3.2 Well Pad Roads**

Reclamation of the well pad access roads, which includes approximately 4.94 acres of disturbance, would involve pulling up any surplus material along the sides of the road into the road bed. Prior to salvaging any surplus material or placing amended growth medium on the road, the “blacktop” comprising the surface of some sections of road will be excavated and used as backfill or buried pending BLM approval. Any culverts or other solid materials would be removed from the site. Drainage crossings would be restored to approximate the original channel configuration including the channel banks, bottom, and gradient. The road bed would be ripped to a depth of 1-2 feet then covered with a minimum depth of 6-inches of amended growth medium. The road bed and side slopes would be seeded with an appropriate and approved seed mixture, fertilized if necessary, and mulched. Erosion control matting will be placed where necessary.

Roads accessing the vent raise and the injection wells will be reclaimed in the same manner at the end of the project.

### **3.3 Poison Spider Camp**

The area designated as the Poison Spider Camp, encompassing approximately 16.83 acres, will be reclaimed by removing all houses, out buildings, tank batteries and other miscellaneous structures. Buildings will be demolished (or removed intact) with all the materials removed to an approved disposal site. Concrete foundations will be broken-up and removed to an approved off-site disposal facility or buried on-site. BLM approval would be obtained prior to any burial of material. Disturbed areas within the camp would be reclaimed by scarifying the areas to a depth of 1-2 feet then covered with a minimum depth of 6-inches of amended growth medium obtained from the spoils and topsoil stockpiles located in the Oil Camp. The areas would be seeded with an appropriate and approved seed mixture, fertilized if necessary, and mulched. Erosion control matting would be placed where necessary.

The area immediately adjacent to the vent raise will be reclaimed in a similar manner at the end of the project.

### **3.4 Impacted Slope**

The slope immediately below the Oil Camp to the southwest has areas of disturbance as well as areas that have been impacted by previous oil spills. The disturbed and impacted slope encompasses approximately 8.48 acres.

RWP will reclaim the disturbed portions of the slope in a similar fashion as the other disturbed areas. The areas will be scarified then topsoil or amended growth medium will be placed to a minimum depth of 6-inches, then seeded with a BLM approved seed mixture, then mulch or erosion control matting will be installed.

For the oil impacted areas, RWP will determine the depth and lateral extent of the Petroleum Contaminated Soil (PCS). Although the overall scope of this remedial investigation has not been fully developed, conceptually it would involve the utilization of a truck-mounted Geoprobe that would collect “push” samples of the soil for analysis. It is anticipated that when the extent of the PCS has been delineated, RWP would submit the appropriate Notice of Intent (NOI) to the BLM and WOGCC detailing proposed clean-up activities. PCS may be treated in place or excavated for ex-situ treatment. Any excavated areas would be backfilled with the spoil material and the area would be reclaimed similar to the other disturbed areas.

#### **4.0 MATERIALS BALANCE**

##### Salvaged Topsoil (6” salvage depth)

Shaft Area (7.5 acres) – 6,050 cy

Shop/Office Area (4.0 acres) – 3,200 cy

Oil Camp Road (0.6 acres) – 500 cy @ 6” salvage depth

Pipeline Corridors (2500’ X 10’ X 0.5’) – 463 cy @ 6” salvage depth

Previously Disturbed Area (31.3 acres) – assume no salvageable growth medium

Spoil Material from Tunnel Excavation (12’ X 14’ X 7,000’) – 43,600 cy

Shaft (12.5’ diameter X 1600’) – 7,300 cy (withheld in Cuttings Pit; not included in Total)

Cuttings Pit (200’ X 200’ X 20’ with 1:1 sideslopes) – 30,000 cy

Vent Raise (6’ diameter X 1400’) – 1,500 cy

**SALVAGED OR EXCAVATED TOTAL – 85,300 cy**

##### Material Required for Backfill

Shaft Backfill – 7,300 cy

Cuttings Pit – 20,000 cy\*\*

Vent Raise – 1,500 cy

Cut Slopes – 5000 cy

##### Material Required for Reclamation (6” reclamation cover)\*

Shaft Area (7.5 acres) – 6,050 cy (includes cut slopes)

Service Area (4.0 acres) – 3,200 cy

Previously Disturbed Areas (31.5 acres) - 25,300 cy

**BACKFILL & RECLAMATION TOTAL – 68,350 cy**

\* soil volumes do not factor in swell

\*\* Material from the shaft boring and on-going production drilling will fill the pit to approximately 1/3 by the end of production.

There is an estimated **16,950 cy** of surplus material that is primarily spoil material; however, should any of the spoil material not be suitable as amended growth medium, material can be obtained from a small borrow pit located immediately west of the existing tank battery. Soil suitability analyses will be conducted on this material and the appropriate soil amendments will be incorporated.

## **5.0 REVEGETATION**

### **5.1 Growth Medium Suitability**

RWP will utilize the spoil material as a growth medium pending suitability and fertility determinations. The suitability criteria, as presented on Table 3, will indicate the amount and types of amendments required for the spoil material. In addition, samples will be collected to determine what the best mix of fertilizer would be for a given soil type.

**Table 3  
Soil Suitability Criteria**

<b>Parameter</b>	<b>Criteria*</b>
USDA Texture	Loam or Sandy Loam
Organic Matter	>3.0%
pH	5.5-8.5
Conductivity	<4 ms/cm
Cation Exchange Capacity	>10
Sodium Adsorption Ratio	<12
Saturation Percentage	25-85%
Boron	<5 ppm
Nitrogen	
Phosphate	
Potassium (K20)	
Field Capacity	High
Wilting Point	Low

\* Environmental Protection Agency Established Criteria (1998)

### **5.2 Seeding**

Based on site-specific information supplied by the BLM, there are four main soil types and seed mixes for the Poison Spider area. They are loamy, saline upland, saline lowland, and sandy type soils. Depending on the soil types, which RWP will determine in the portal area, the shop/office/tank battery area and the previously disturbed areas, the following seed mixes and rates will be applied, and the application procedures will be followed as described by BLM guidance.

Loamy:

Seed mixture:

Slender wheatgrass	2 lbs PLS/acre
Thickspike wheatgrass	2 lbs PLS/acre
Western wheatgrass	2 lbs PLS/acre
Bottlebrush squirreltail	1 lbs PLS/acre
Sandberg bluegrass	1 lbs PLS/acre
American vetch	2 lbs PLS/acre
Hairy vetch	1 lbs PLS/acre
Blue flax	1 lbs PLS/acre
Purple prairie clover	0.5 lbs PLS/acre
Scarlet globemallow	0.5 lbs PLS/acre

Sandy:

Seed mixture:

Slender wheatgrass	2 lbs PLS/acre
Thickspike wheatgrass	2 lbs PLS/acre
Western wheatgrass	2 lbs PLS/acre
Indian ricegrass	1 lbs PLS/acre
American vetch	2 lbs PLS/acre
Hairy vetch	1 lbs PLS/acre
Blue flax	2 lbs PLS/acre
Purple prairie clover	0.5 lbs PLS/acre
Scarlet globemallow	0.5 lbs PLS/acre

Saline Upland, Saline Lowland & Imperious Clay Range Sites:

Seed mixture:

Western wheatgrass	2 lbs PLS/acre
Indian ricegrass	2 lbs PLS/acre
Needle-and-thread	2 lbs PLS/acre
Bottlebrush squirreltail	2 lbs PLS/acre
Slender wheatgrass	2 lbs PLS/acre
American vetch	2 lbs PLS/acre
Gardner saltbush	1 lbs PLS/acre

Should any of the above prescribed seed species be unavailable at the time of seeding operation the BLM Authorized Officer shall be contacted to allow for the approval of a change in seed mixture.

The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS) per acre. There shall be NO primary or secondary noxious weed seed in the seed mixture. The seed mixture must be certified weed free and the mixture will be no more than 0.5 percent by weight free of other weeds which includes cheat grass. Seed shall be tested and the viability testing of seed shall be done in accordance with State law and within 9 months prior to purchase. Commercial seed shall be either certified or registered seed. The seed mixture container shall be tagged in accordance with State law and available for inspection by the authorized officer.

Fall seeding must be completed after September 1 and prior to ground frost. Spring seeding must be completed after the frost has left the ground and prior to May 15.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area at a depth not greater than one-half inch. Smaller/heavier seeds have a tendency to drop to the bottom of the drill and are planted first; the holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer.

### **5.3 Mulch**

Mulching will be applied to all reclaimed and seeded areas using certified weed-free hay or straw at a rate of approximately 2 tons/acre. Mulch would be crimped into the soil 2 to 4 inches. Crimping will be done on the contour. On steeper slopes (greater than 4%) erosion control matting would be installed.

### **5.4 Erosion Control**

In addition to erosion control BMPs such as installation of matting on select seeded areas, other erosion control BMPs will be installed as necessary. BMPs may include water bars, silt fence, or energy dissipators on the steeper slopes or drainages. Installation of BMPs would be in accordance with the WDEQ SWPPP and BLM specifications.

### **5.5 Weed Control**

RWP will be responsible for the control of non-native, invasive, and noxious weeds during the life of the project and during post-reclamation. Weed control may include cultural controls such as use of weed-free mulch, physical controls such as mowing, or chemical controls or the use of herbicides. If herbicides are used, a Pesticide Use

Proposal (PUP) would be submitted to the BLM for approval and any applicator will have a Commercial Pesticide Applicator License. Weed control activities will be coordinated with the Natrona County Weed and Pest office.

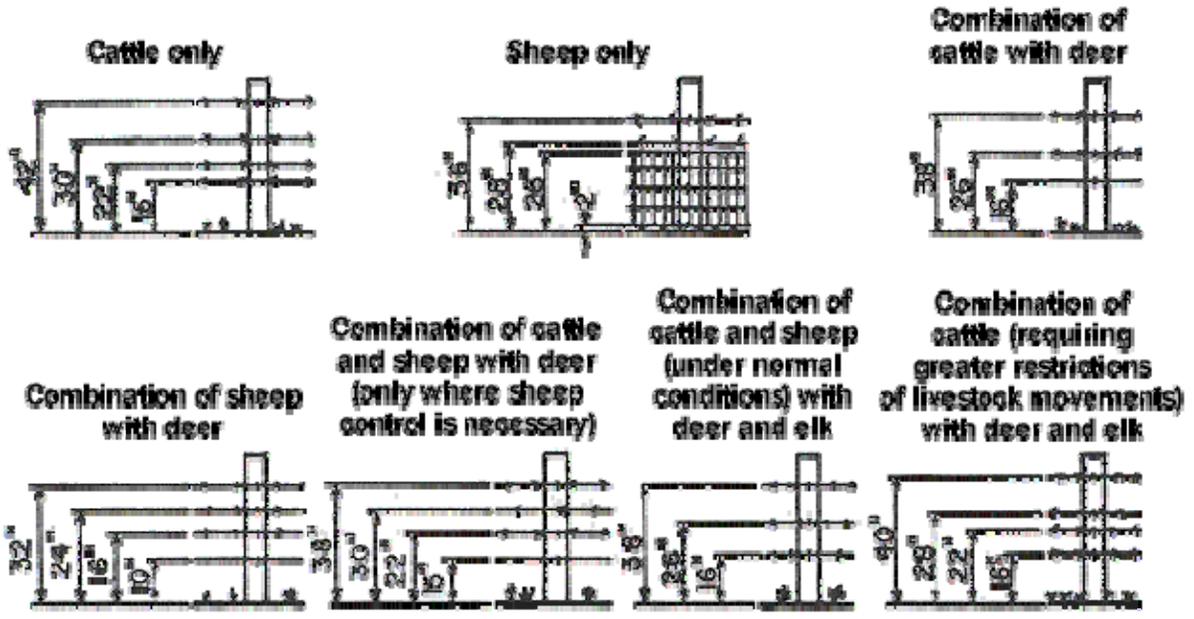
## **5.6 Fencing**

A “Sheep Only” fence, as depicted in the following illustration, will be installed around the perimeter of the portal area and the office/shop area. The Sheep Only fence will prevent antelope from entering the work areas.

### Wire Spacing Standards for Wildlife

#### Compatible Livestock Fences

The illustration below is a modified version of Illustration 2 from the Bureau of Land Management Fencing Manual Handbook H-1741-1, 1989. The illustration depicts wire spacing standards to be used for livestock fences in areas occupied by deer and elk. The illustration is not to scale.



## 5.7 Reclamation Monitoring

Interim and final reclamation will be monitored on an annual basis and would include visual inspections for vegetation establishment, soil stability, the effectiveness of erosion control BMPs, and weed control.