



# *SandRidge Compliance Reclamation and Stormwater Issues*

.....



**COLORADO**  
Department of Natural Resources



# Rules Associated With Topsoil

1002. b. (2) --Soil removal and segregation on non-cropland

- Topsoil was not separated and stored properly.
- Topsoil stockpile was not marked or documented.

1002. c. - Protection of soils

Topsoil was not protected from wind and water erosion, weed establishment and becoming a pollutant source.



# Non-Compliance with Rules Associated With Topsoil

## 1002. c. – Protection of soils

- Topsoil was not protected from wind and water erosion, and weed establishment.





1002. c. - Protection of soils Mutual LOC# 324757 -Topsoil was not protected from wind and water erosion, and weed establishment



# Non-Compliance with Rules Associated Surface Disturbance Minimization

1002. e.(1)





# Non-Compliance with Rules Associated Surface Disturbance Minimization

1002. e.(1)





# Non-Compliance with Rules: Stormwater management

## 1002. f.(2) Site Degradation





# Non-Compliance with Rules: Stormwater management

## 1002. f.(2) Site Degradation





# Non-Compliance with Rules: Stormwater management

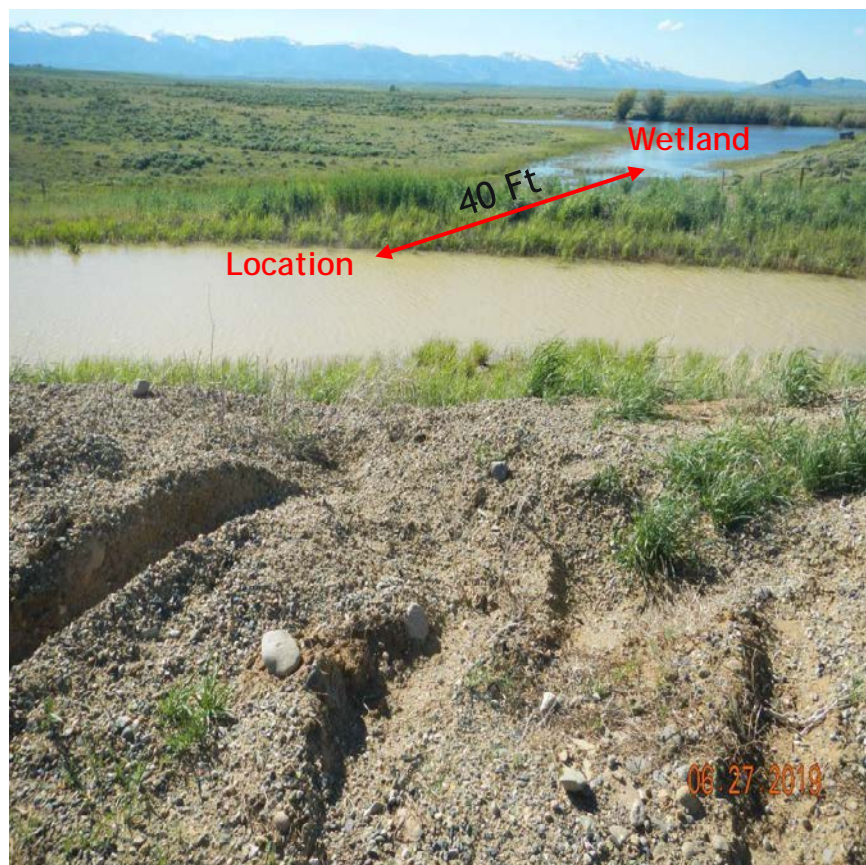
## 1002. f.(2) Site Degradation





# Non-Compliance with Rules: Surface Disturbance Minimization

1002. e.(2)




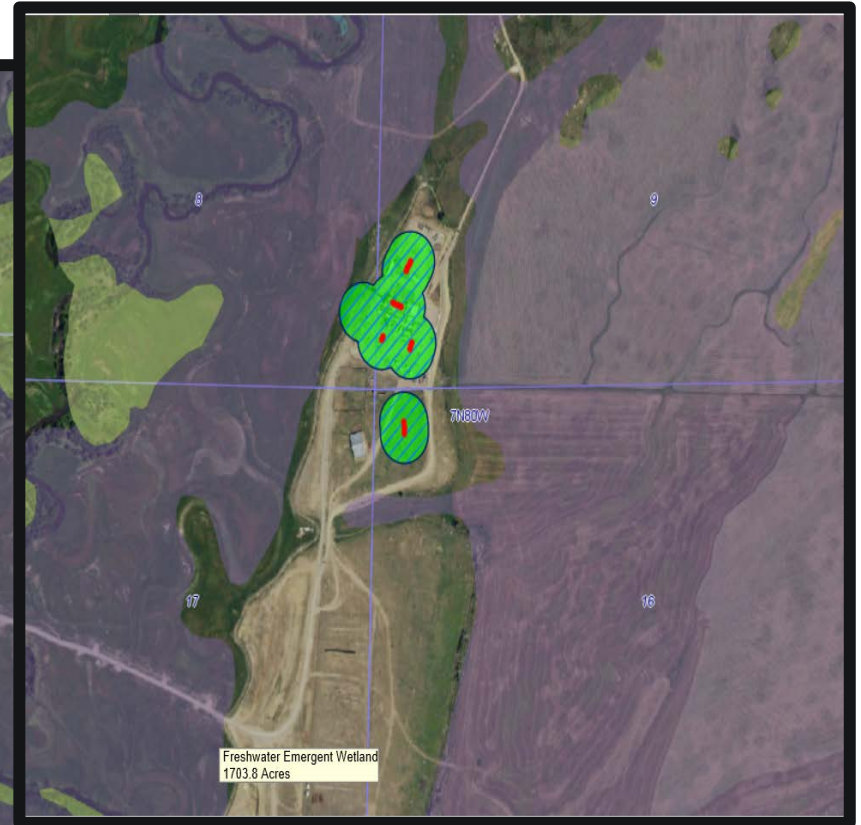


# Non-Compliance with Rules: Surface Disturbance Minimization

1002.e.(2)

 = Freshwater Forested/Shrub

 = Freshwater Emergent Wetlands





# Non-Compliance with Rules: Surface Disturbance Minimization

1002. e. (4)





## Non-Adherence to 2A BMP Construction COA:

No construction or routine maintenance activities will be performed during periods when the soil is too wet to adequately support construction equipment.





## Non-Adherence to 2A BMP Construction COA:

No construction or routine maintenance activities will be performed during periods when the soil is too wet to adequately support construction equipment.





# Rules Associated to Presentation Stormwater Issues

1002. f.(2) A. – Covering materials and activities and stormwater diversions

1002. f.(2) B. – Materials handling and spill prevention procedures and practices

1002. f. (2) C. – Erosion controls- Insufficient stormwater controls along roads and roadside ditches

1002. f. (2) D --BMP Maintenance

1002. f. (2) E -Spill response procedures

1002. f. (2) F.-- Vehicle tracking and fugitive dust



*Culverts: Improperly sized and installed culverts -1002.f.(2) C.*

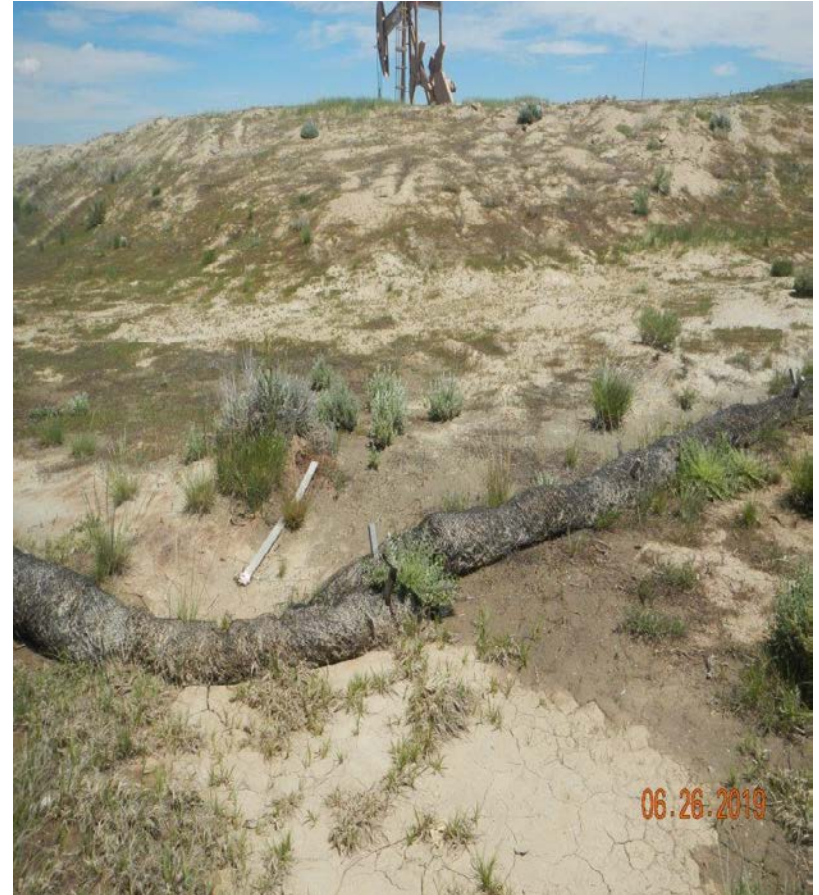


## Cut and fill slopes not properly stabilized - 1002 f.(2)





Cut and fill slopes not properly stabilized – 1002 f.(2)





*Cut and fill slopes not properly stabilized – 1002 f.(2)*





## Lack of BMPs on Access Roads – 1002 f.(2)





# Unconsolidated materials without BMPs

*Soil is a pollutant source.*





Wattle Installation:  
*Inadequate or improper installation of BMPs.*





## Drainage off pad:

Inadequate BMPs causing significant erosion and sediment deposition





French Drain: Inadequate or improper installation of BMP.  
Washout occurred when dewatering BMP installed on pad perimeter, failed.





*Silt Fence installation: Inadequate or improper installation of BMPs.*





*BMP Not Well Designed or Sufficient:*  
*Conveyance not properly designed, installed or maintained.*





## Sediment deposition:





# *Top Ten Common Stormwater Issues*

1. Insufficient size or improperly installed culverts.
2. Well pad cut and fill slopes not properly stabilized.
3. Insufficient or lack of stormwater controls along roads and roadside ditches to de-energize high energy flows.
4. Unconsolidated materials without BMPs.
5. Improper wattle installation and used in inappropriate situations.
6. Well pads with improper BMPs to control erosion.
7. Vehicle tracking and dust control inadequate.
8. BMPs designs that are difficult to maintain.
9. Sediment deposition through lack of good sediment controls.
10. Unconsolidated Berms and no BMPs before construction begins.

# Interim Reclamation: Areas No Longer needed for use 1003.b.





# Interim Reclamation: Weeds, Noxious & Debris

1003.f. 1003.a.



CDOT BMP Manual -

<https://www.google.com/#q=cdot+stormwater+bmp>manual>