



Nicholson GeoSolutions LLC

3433 East Lake Drive
Centennial, CO 80121

February 23, 2017

Mr. Terry Pape
HRM Resources, LLC
410 17th Street, Suite 1600
Denver, CO 80202

**Subject: Ann Allison No. 1 Outfall Area Reclamation
COGCC Remediation # 8309**

Dear Mr. Pape:

Nicholson GeoSolutions LLC conducted reclamation activities at the Ann Allison No. 1 lease in Washington County, Colorado during the period February 7-10, 2017. The reclamation of the outfall was in accordance with the Form 27 submitted for COGCC Remediation #8309 by Ritchie Exploration, Inc., the previous operator of the lease.

Reclamation activities were conducted in accordance with the Colorado Oil and Gas Conservation Commission (COGCC) Series 1000 Rules by H2 Enterprises of Keenesburg, Colorado with oversight by Nicholson GeoSolutions. The additional reclamation activities consisted of deep ripping of the disturbed areas below the former produced water outfall, amendment of impacted soils with 14 tons of solution-grade gypsum, reseeding of the area, and placement and crimping of hay mulch. Figure 1 provides the location of the former outfall and extent of the reclamation area. Photographs that document the reclamation activities are contained in Appendix A.

Table 1 provides the seed mix details. Two seed mixes were used. Following seeding, hay mulch was spread on the area at the rate of 2.0 tons per acre and crimped into place using a hay spreader, tractor, and disc attachment.

The site will be inspected in June 2017 to evaluate the reclamation progress.

Nicholson GeoSolutions LLC

David K. Nicholson, P.G.
Principal Geologist

Table 1 Seed Mix Details

Species	Variety	% Pure	Germ %	Origin
Seed Mix 1 – Dryland Pasture Mix (Sharp Bros. Seed Company)				
Dahurian Wildrye	VNS	24.22	96	Canada
Forage per Ryegrass	Amazon	19.38	90	Oregon
Russian Wildrye	Bozoisky	14.80	92	Wyoming
Orchardgrass	Profile	14.73	98	Kansas
Smooth Brome	VNS	14.01	98	Oregon
Intermediate Wheatgrass	Rush	9.65	98	Wyoming
Other Crop			0.98	
Inert Matter			2.10	
Weed Seed			0.13	
Seed Mix 2 – Sandy Soils Mix (Arkansas Valley Seed)				
Annual Ryegrass		17.87	99	Oregon
Slender Wheatgrass		13.54	98	Washington
Pubescent Wheatgrass		11.17	95	Montana
Canada Bluegrass		10.17	87	Washington
Hard Fescue		9.51	93	Oregon
Mountain Bromegrass		9.21	96	Wyoming
Sideoats Grama		5.71	93	Minnesota
Big Bluestem		5.59	95	Minnesota
Switchgrass		5.20	85	Minnesota
Blue Grama		4.76	93	New Mexico
Other Crop			0.60	
Inert Matter			5.71	
Weed Seed			0.05	



Figure 1

February
2017

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Legend

Reclamation Area (6.2 Acres)

0 100 200 400 Feet 1" = 200'

HRM Resources II, LLC

Ann Allison Lease
Reclamation Area Below Outfall

Appendix A

Photographs



Former outfall area prior to reclamation



Gypsum and reseeding equipment



Former outfall area prior to reclamation



Deep ripping of impacted soils



Tilling of ripped soils



Reclamation area after ripping



Reclamation area after ripping



Application of solution grade gypsum



Former outfall area after gypsum spreading



Tilling of gypsum into soil



Application of gypsum on lower areas



Former outfall area after reseeding



Application of hay mulch



Lower outfall area after reclamation



Crimping of hay mulch



Upper outfall area after reclamation