

Attachment 2.05.4(2)(e)-8

Correspondence with Landowners on Post-Mining Land Use Changes



04 November 2009

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. Lance Wade, Mine Manager
Western Fuels-Colorado
P.O. Box 628

Telephone 970/864-2165
Fax 970/864-2168

RE: Notification of changes to post-mining land use at the New Horizon #2 Mine

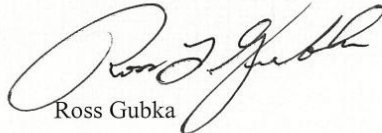
Dear Mr. Wade,

Please find enclosed the proposed revised Section 2.05.4(2)(e) with associated maps addressing the post-mine land use changes at the New Horizon #2 Mine. Changes include the re-classification of your land west of 2700 Road to Dryland Pasture.

We would like to have your written comments regarding these changes. Please send your comments to:

Ross Gubka, Chief Engineer
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424

Sincerely,


Ross Gubka

RECEIVED NOV 04 2009




04 November 2009

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. and Mrs. Frank Morgan
P.O. Box 4
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: Notification of changes to post-mining land use at the New Horizon #2 Mine

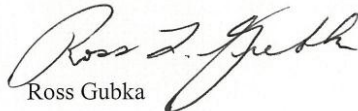
Dear Mr. and Mrs. Frank Morgan,

Please find enclosed the proposed revised Section 2.05.4(2)(e) with associated maps addressing the post-mine land use changes at the New Horizon #2 Mine. Changes include the re-classification of your land to Irrigated Cropland (60.1 acres), to the extent the 50 shares of water is available in our lease. Any leftover land has been re-classified as Potential Cropland, meaning that all the soil handling procedures for cropland and prime farmland have been employed but the land would be returned to dryland pasture use. This land could easily be returned to cropland after bond release, if the water is available.

We would like to have your written comments regarding these changes. Please send your comments to:

Ross Gubka, Chief Engineer
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424

Sincerely,


Ross Gubka



04 November 2009

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

Mr. and Mrs. Bud Benson
4101 E Ashler Hills
Cave Creek, Arizona 85331

RE: Notification of changes to post-mining land use at the New Horizon #2 Mine

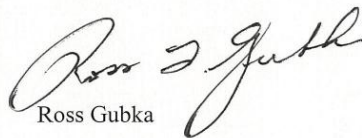
Dear Mr and Mrs. Benson,

Please find enclosed the proposed revised Section 2.05.4(2)(e) with associated maps addressing the post-mine land use changes at the New Horizon #2 Mine. Changes include the re-classification of your land west of 2700 Road to Dryland Pasture, based on the fact that no water is available for this parcel since it is being used on your east parcel. This land could easily be returned to irrigated pasture after bond release, if the water is available.

We would like to have your written comments regarding these changes. Please send your comments to:

Ross Gubka, Chief Engineer
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424

Sincerely,


Ross Gubka



04 November 2009

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. Harry Curtis Lloyd
11432 Jones Road

Telephone 970/864-2165 Berrien Springs, Michigan 49103-9659
Fax 970/864-2168

RE: Notification of changes to post-mining land use at the New Horizon #2 Mine

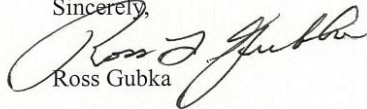
Dear Mr. Lloyd,

Please find enclosed the proposed revised Section 2.05.4(2)(e) with associated maps addressing the post-mine land use changes at the New Horizon #2 Mine. Changes include the re-classification of your land to part Irrigated Pasture (16.3 acres), based on the 24 shares of water that you have available. The irrigated pasture would utilize flood irrigation, which is the same as the pre-mine procedure. Any leftover land has been re-classified as dryland pasture use. This land could easily be returned to irrigated pasture after bond release, if the water is available.

We would like to have your written comments regarding these changes. Please send your comments to:

Ross Gubka, Chief Engineer
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424

Sincerely,


Ross Gubka



1 of 20

5 May 2010

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

Mr. & Mrs. Bud Benson
HC1 Box 942
Sonoita, AZ 85637

RE: New Horizon Mine - Permit Revision 06 Concerns

Dear Mr. Benson:

We received a copy of your concerns regarding the Permit Revision filed with the Colorado Division of Reclamation, Mining, and Safety (DRMS) for the New Horizon #2 Mine in Nucla, CO. It is our goal in this letter to answer the questions you posed regarding changes to post-mine land use at New Horizon, and respond to your concerns as well. Please read over this letter and let us know if you have any further questions or comments. You have always been a fair and reasonable person and we hope that these responses address your concerns.

Original Proposal in Permit Revision 06

The State agency, the Division of Reclamation, Mining and Safety, (DRMS) has been concerned that we have shown areas designated as irrigated pasture in the past that do not have the amount of water to sustain this level of irrigation after bond release. With the understanding that the 44 shares of water associated with your property being used on land east of 2700 Road, there was no water available to irrigate the property west of 2700 Road. Therefore, since DRMS will not allow Western Fuels to reclaim land to an irrigated land use without sufficient water attached to the property, the portion of your land west of 2700 Road was designated Dryland Pasture for reclamation. Please understand that this decision was based on the post mine land use requirements that the

State has put on the New Horizon Mine.

New Proposal to Address Post Mine Irrigation Calculations

After further discussions with you and analysis of the total water shares available to irrigate your properties, we have determined the following water distribution:

Eastern Property: 20 shares

Southern Property: 12 shares

Western Property: 12 shares

The Eastern and Southern properties are irrigated via sideroll, and as such the water there goes farther than the flood irrigation on the Western property.

Jim Boyd of the local NRCS has supplied the methodology of calculating the amount of land that can be sprinkled or flood irrigated per share of CCC ditch water. DRMS has adopted the NRCS methodology and WFC has used these calculations to determine the irrigated pasture to be reclaimed on your (Western) property. WFC first calculated the amount of CCC shares for your South field (South of BB Rd and East of 27 Rd), your East field (North of BB Rd and East of 27 Rd) and subtracted those amounts from your total shares of 44. The remaining shares of twelve (12) were then used in the gated pipe/furrow flood irrigation calculations to determine the number of irrigated acres North of BB Rd and West of 27 Rd. WFC did look at a sprinkler design but the natural fall (gravity pressure) was not sufficient to run a sideroll sprinkler. The NRCS calculations show, that if the flood irrigation is intensely managed for 7 days per week, every week, 14.5 acres of flood irrigated lands are possible. We believe that it is reasonable to assume that 1 day per week will be an off day, therefore reducing the amount to 12.4 acres, based on the 12 shares that you have and a simple ratio of 6 days/week. We will also make the same adjustment to shares applied to the reference area. The WFC calculations for your irrigated land are attached.

The attached map shows the proposed reclaimed areas and land uses for your (Western) property. The field should be approximate 900ft long (perpendicular to the slope) x 600ft wide (parallel to the slope). Exact placement will be determined at time of seeding but should be close to the 27 & BB Rd intersection, where the piped irrigation water will

be available and your fields slope downward to the west so you can increase your irrigated acreage in the future

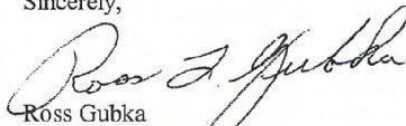
We want you to know that your land that is not on the steeper out slopes such as on the north side facing Tuttle Draw, has been retopsoiled, graded smooth and rock picked to allow better more efficient irrigation after reclamation than that which occurred in the pre-mine condition. This includes land that is marked as Dryland. If, you wish to extend the amount of irrigated acreage after WFC receives their reclamation bond back, you surely may.

Until the bond is released, WFC must follow DRMS standards. DRMS will not allow land to be reclaimed as Irrigated Pasture if there is not sufficient water to be economically managed as Irrigated Pasture permanently. This is to ensure that land is returned to a sustainable form. Once Western Fuels returns the land back to the owner, DRMS is out of the picture and then the land owner can do as he wishes to his land. He can keep it the same, increase the irrigated acres, sell the water or whatever he wishes to do.

The changes being made to the reclamation plan for the New Horizon #2 Mine are based on sound engineering and science. These changes are necessary to meet state environmental requirements, and to ensure that Western Fuels can reclaim properly and return the land to the landowners in the most sustainable condition possible.

If you have any questions or concerns, please feel free to contact myself, or Greg Lewicki, My number is 970-864-7910. Greg Lewicki can be reached at 303-346-5196.

Sincerely,



Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424

F:\Eng\DATA\WP\BUD BENSON\Benson Letter IP 5may10.wpd

**Benson Property Post Mine Land Use
Flood Irrigation Calculations**

1

SIDEROLL SPRINKLER IRRIGATION DESIGN WORKSHEET

Project Name: Benson - South - 12 Shares Section 6
 Designer: Ross Gubke Reviewed by: _____

PRELIMINARY DATA:

Design Crop: GRASS

Soil Name: _____

Town: NuckaSprinkler Lateral Slope - 0'

Minimum Pressure 35 psi available for sideroll
 (check Rainbird sprinkler model and gpm chart. Stay out of grayed out area because of insufficient pressure to mist the water stream properly)

FIELD DIMENSIONS

Length 1297 FT (L) (manifold or mainline direction)
 basically: (8) x 60 ft x (17) x (18)

WIDTH ~~1320~~ 800 ft (W) (sideroll direction)

Soil Information:

Design Group _____

Max Sprinkler App. Rate _____ inch/hr (1)

Root Depth: 3' grass & 5' Alfalfa Ft (2)Moisture Extraction: 3' grass & 5' Alfalfa ft (3)

12 shares of CCC WATER TO operate a 800' x 1320
 Sideroll

AVERAGE WATER HOLDING CAPACITY
(CIG 2-C)

Soil Depth AWC
in feet inches

1st _____
2nd _____
3rd _____
4th _____

TOTAL AVAILABLE WATER (TAW)

Recommendation from NRCS 4.0"
(grass) & 7.6" on Morgan Prime
Farmland soils. (4)

Management Allowance
Deficiency (Table CO 684.2)

50 % (5)

IRRIGATION NET APPLICATION:

= % OF Total TAW

(4) x (5) (Decimal) = (4.0) x (50%)

Net. App. = () in. 2.0 in. (6)

DAILY PEAK CONSUMPTIVE USE RATE: .21 for grass & .25 for alfalfa in/day (7)
(CO683.52)

IRRIGATION FREQUENCY:

= (Net Application) (6)
Daily Peak Consumptive Use (7)

- (2.0) (Round down to next whole number
(.21)

= 9.5

= (rounded down) days return period 9 days (8)

IRRIGATION GROSS APPLICATION

DESIGN FIELD EFFICIENCY (70% FOR SIDE ROLL SPRINKLER IRRIGATION)
(CO685.69) 70 % (9)

GROSS APP.

$$\begin{aligned} &= \frac{\text{NET App.}}{\text{Field Eff. \%}} \times 100 \quad (6) \quad = \frac{(2.0) \times 100}{(70) \%} \\ &= \underline{2.9} \text{ in.} \quad (10) \end{aligned}$$

MAX HOURLY WATER APPLICATION RATE:

MAX APP Rate w/cover
(CIG Table 6-D-1, CIG Sec 2-C) _____ in/hr (10A)

SET TIME 10 HR (11)

Normally 11 or 23 hrs/set..... (11hr for flood & 23hr for sprinkler)

CHECK POSSIBLE HOURLY APPLICATION RATES

$$= \frac{\text{Gr. App. In. (10)}}{\text{Set time (11)}} = \frac{(2.9)}{(10)}$$

$$= \text{Hourly App. Rate} = \underline{.29} \text{ in/hr}^* \quad (12)$$

USE _____ in. Gross App. On _____ hr. Sets

Sideroll Spacing:Sprinkler set spacing: 60 ft (Sm)Spacing of Nozzle Along Lateral: 40 ft (sl)

Q = Total flow rate, gpm

Number of CCC ditch shares: whatever it takes

Note: 1 share of CC water equals 450gpm/35 shares = 12.86gpm

Q = # CCC ditch shares x 12.86gpm = (13)Required Sprinkler Head Capacity:Flow at Nozzle = $\frac{\text{Hourly App. Rate (12) x (Sm) x (sl)}}{96.3 \text{ (conversion factor)}}$

$$= \frac{(1.29) \times (60) \times (40)}{96.3}$$

$$= \underline{7.22 \text{ gpm}} \text{ gpm (14) } \leftarrow$$

Selection
(see chart)

Make Rainbird Model 30PSH
 Size 1 3/4 inch
 Flow 7.08 gpm (14)
 PSI @ Nozzle 35 psi (DP)
 Dia. 2 x 51 ft.

STOP HERE - WE ONLY NEED TO KNOW THE QUANTITY OF WATER
 TO OPERATE A 800 FT LONG SIDEROLL

$$\text{Conclusion: } \frac{800 \text{ FT}}{40 \text{ FT/sprinkler}} + 1 = 21 \text{ Nozzles}$$

$$21 \text{ Nozzles} \times 7.08 \text{ gpm} = 149.68 \text{ gpm}$$

$$149.68 \text{ gpm} \times \frac{35 \text{ shares}}{449 \text{ gpm}} = 11.6 \text{ shares} \Rightarrow \boxed{\text{USE 12 SHARES}}$$

SIDEROLL SPRINKLER IRRIGATION DESIGN WORKSHEET

Project Name: BENSON - EAST - 20 Shores Section 3/
 Designer: Ross Gubler Reviewed by: _____

PRELIMINARY DATA:

Design Crop: GRASS

Soil Name: _____

Town: _____

Sprinkler Lateral Slope -0

Minimum Pressure 35 psi available for sideroll
 (check Rainbird sprinkler model and gpm chart. Stay out of grayed out area because of insufficient pressure to mist the water stream properly)

FIELD DIMENSIONS

Length 917 FT (L) (manifold or mainline direction)
 basically: (8) x 60ft x (17) x (18)

WIDTH 1320 1400 ^{Actual} ft (W) (sideroll direction)

Soil Information:

Design Group _____

Max Sprinkler App. Rate _____ inch/hr (1)

Root Depth: 3' grass & 5' Alfalfa Ft (2)Moisture Extraction: 3' grass & 5' Alfalfa ft (3)

Need 20 Shores of
 WATER TO OPERATE THIS
 Sideroll

AVERAGE WATER HOLDING CAPACITY
(CIG 2-C)

	Soil Depth in feet	AWC inches
1 st	_____	_____
2 nd	_____	_____
3 rd	_____	_____
4 th	_____	_____

TOTAL AVAILABLE WATER (TAW)

Recommendation from NRCS 4.0"
(grass) & 7.6" on Morgan Prime
Farmland soils (4)

Management Allowance
Deficiency (Table CO 684.2)

50 % (5)

IRRIGATION NET APPLICATION:

= % OF Total TAW

(4) x (5) (Decimal) = (4.0) x (50%)

Net. App. = () in. 2.0 in. (6)

DAILY PEAK CONSUMPTIVE USE RATE: .21 for grass & .25 for alfalfa in/day (7)
(CO683.52)

IRRIGATION FREQUENCY:

= (Net Application) (6)
Daily Peak Consumptive Use (7)

= (2.0) (Round down to next whole number)
(.21)

= 9.5

= (rounded down) days return period 9 days (8)

IRRIGATION GROSS APPLICATION

DESIGN FIELD EFFICIENCY (70% FOR SIDE ROLL SPRINKLER IRRIGATION)
(CO685.69) 70 % (9)

GROSS APP.

$$\begin{aligned} \text{Field Eff. \%} &= \frac{\text{NET App.}}{\text{Field Eff. \%}} \times 100 \quad (6) \\ &= \frac{(2.0)}{(70)} \times 100 \\ &= \underline{2.9} \text{ in.} \quad (10) \end{aligned}$$

MAX HOURLY WATER APPLICATION RATE:

MAX APP Rate w/cover
(CIG Table 6-D-1, CIG Sec 2-C) .50 in/hr (10A)

SET TIME 10 HR (11)

Normally 11 or 23 hrs/set.... (11hr for flood & 23hr for sprinkler)

CHECK POSSIBLE HOURLY APPLICATION RATES

$$\text{Hourly App. Rate} = \frac{\text{Gr. App. In. (10)}}{\text{Set time (11)}} = \frac{(2.9)}{(10)}$$

$$\text{Hourly App. Rate} = \underline{.29} \text{ in/hr}^* \quad (12)$$

USE _____ in. Gross App. On _____ hr. Sets

Sideroll Spacing:Sprinkler set spacing: 60 ft (Sm)Spacing of Nozzle Along Lateral: 40 ft (s1)

Q = Total flow rate, gpm

Number of CCC ditch shares: whatever it takes

Note: 1 share of CC water equals 450gpm/35 shares = 12.86gpm

Q = # CCC ditch shares x 12.86gpm = (13)Required Sprinkler Head Capacity:Flow at Nozzle = $\frac{\text{Hourly App. Rate (12) x (Sm) x (s1)}}{96.3 \text{ (conversion factor)}}$

$$= \frac{(.29) \times (60) \times (40)}{96.3}$$

$$= 7.22 \text{ gpm (14)}$$

Selection
(see chart)

Make Rainbird Model 30 PSH
 Size 1 3/4" x 0 inch
 Flow 7.08 gpm (14)
 PSI @ Nozzle 35 psi (DP)
 Dia. 2 x 5' ft.

$$\frac{1400 \text{ ft}}{40 \text{ ft/nozzle}} + 1 = 36 \text{ nozzles}$$

$$36 \text{ nozzles} \times 7.08 \text{ gpm} = 255 \text{ gpm}$$

$$255 \text{ gpm} \times \frac{35 \text{ shares}}{449} = 19.9 \text{ shares}$$

USE 20 shares

36 nozzle for 1400' system

Number of Nozzles (33 nozzles for a full 1320ft side roll system)

$$= (13) / (14)$$

$$= (\quad) / (\quad)$$

$$= \underline{\hspace{2cm}} \text{ (Round down)}$$

$$= \underline{\hspace{2cm}} \dots \text{Use} = \underline{\hspace{2cm}} \text{ (15)}$$

Number of 1280ft sideroll systems = # of nozzles (15) / 33

$$= (\quad) / 33$$

$$= \underline{\hspace{2cm}} \text{ (15a)}$$

$$\text{Total area of system(s):} = \frac{[(15) \times 40\text{ft}] \times [(8) \times 60\text{ft}]}{43560}$$

$$= \frac{[(36) \times 40\text{ft}] \times [(9) \times 60\text{ft}]}{43560}$$

$$= \underline{17.9} \text{ acres (16)} \quad \underline{\text{set}}$$

$$\frac{29.6}{17.9} = 1.65$$

NEED 29.6 ac

SYSTEM EFFICIENCY (maintenance, cleaning head gate, checking water, farmer needed time off) ... = $\frac{15}{18} = 83\%$?/(8)(n out of total potential /shifts-days of irrigation). (17)

$$\frac{15}{18} = 83\% \quad \frac{14}{18} = 78\% \quad \frac{6 \text{ days}}{7} = 86\%$$

NUMBER OF SETS PER DAY:

$$= 24 / (11)$$

$$= 24 / \underline{2}$$

$$= \underline{\hspace{2cm}} \text{ (rounded down)} = \underline{2} \text{ (18)}$$

NET EFFECTIVE ACREAGE WATERED.

$$= (16) \times (17) \% \times (18)$$

$$= (17.9) \times \left(\frac{15}{18}\right) \times (2)$$

$$= 29.8 \text{ ACRES}$$

Good - STOP here

NUMBER OF SIDE ROLL SYSTEMS (full or parcel)

$$= \text{Number of Nozzles (15)} / 33$$

$$= (\quad) / 33$$

$$= \text{_____ (round up) _____ (19)}$$

DETERMINE SIDEROLL HEADLOSS: *This system is under a Diesel Pump so sideroll pressure*
Spec. Allows a variation of up to +/- 10% of the design pressure without special design. *is no problem*

MULTIPLE OUTLET FACTOR = _____ (F)

(Table CO685.72)

use # outlets per sideroll

LATERAL SIZE = Use 5 in. Dia Aluminum Pipe
(sideroll pipe)

FLOW PER SIDEROLL(s) = {# HEADS (15)} X {NOZZLE FLOW (16)}

$$= (\quad) \times (\quad)$$

$$= \text{_____ (20a)}$$

SIDEROLL HEADLOSS PER 100LF =

(Table CO685.73)

for 40 ft pipe lengths

SIDEROLL LENGTH SRL = _____ FT/100FT (18)

FLOOD IRRIGATION DESIGN WORKSHEET

GATED

Project Name: Benson - West - Flood IRRIGATION Section 36Designer: Ross Gubka Reviewed by: _____

PRELIMINARY DATA:

Design Crop: GRASS

Soil Name: _____

Town: _____

Root Depth: 3' ft. (2)Moisture Extraction: 3' ft (3)

$$A) \frac{900' \text{ Long} \times 600' \text{ FT}}{43560} = 12.4 \text{ ac}$$

$$B) 2 \text{ sets/day}$$

$$C) 15 \text{ out of } 18 \text{ sets } \left(\frac{6 \text{ days}}{\text{wk}} \right)$$

$$D) 155 \text{ gpm} = 12 \text{ shares}$$

AVERAGE WATER HOLDING CAPACITY
(CIG 2-C)

Soil Depth in feet AWC inches

1 st	_____
2 nd	_____
3 rd	_____
4 th	_____

TOTAL AVAILABLE WATER (TAW)*

Recommendation from NRCS 4.0" (grass) & 7.6" on Morgan Prime Farmland soils (4)

total only to moisture extraction depth.

Management Allowance
Deficiency (Table CO 684.2)50 % (5)

IRRIGATION NET APPLICATION:

= % OF Total TAW

$$(4) \times (5) \text{ (Decimal)} = (4.0) \times (50)$$

$$\text{Net. App.} = () \text{ in. (6)} \quad \underline{2.0} \text{ in.}$$

DAILY PEAK CONSUMPTIVE USE RATE:

$$\underline{.21} \text{ in/day}$$

(CO683.52)

IRRIGATION FREQUENCY:

$$= \frac{(\text{Net Application}) \quad (6)}{\text{Daily Peak Consumptive Use}} \quad \frac{(2.0)}{(2.1)}$$

$$= \text{days return period} \quad (7) \quad 9.5 \text{ days (round down)} = 9 \quad (7)$$

IRRIGATION GROSS APPLICATION

DESIGN FIELD EFFICIENCY (50-60% For Corrugate flood irrigation)
(CO685.69) 55 % (8)

GROSS APPLICATION

$$= \frac{\text{NET App.} \quad (6)}{\text{Field Eff. \%} \quad (8)} \times 100 = \frac{(2.0) \times 100}{(.55 \%)} = 3.6 \text{ in.} \quad (9)$$

MAX HOURLY WATER APPLICATION RATE:

MAX APP Rate w/cover
(CIG Table 6-D-1, CIG Sec 2-C) .50 in/hr (10)

SET TIME: 10 HR (11)

Normally 11 or 23 hrs/set..... (11hr for flood irrigation is recommended by NRCS)

CHECK POSSIBLE HOURLY APPLICATION RATES

$$= \frac{\text{Gr. App. In.} \quad (9)}{\text{Set time} \quad (11)} = \frac{(3.6)}{(9)} = .40 \text{ in/hr}^* \quad (12)$$

USE _____ in. Gross App. On _____ hr. Sets

$$\begin{aligned}
 \text{Gross Irrigation Application (inches)} &= \frac{Q \times T}{450 \times A} \\
 &= \frac{(14) \times (11)}{450 \times (15)} \\
 &= \frac{(155) \times (9)}{450 \times (.83)} \\
 &= \underline{3.7} \quad (13)
 \end{aligned}$$

Gross Application (9): 3.6 inch

Q = Total flow rate, gpm

Number of CCC ditch shares: 44 - (20 + 12) = 12 shares

Note: 1 share of CC water equals 450gpm/35 shares = 12.86gpm

Q = # CCC ditch shares x 12.86gpm = 12 x 12.9 = 155 gpm (14)

T = length of application, hours (NRCS recommends 11 hr sets for flood irrigation) 9 (11)

A = area being irrigated, acres

450 is a conversion constant:
450 gpm = 1 acre-inch/hr

the area being irrigated, A, is determined using the following formula:

A = Set size or area (acres) =

$$\begin{aligned}
 &= \frac{N \times R \times L}{43560} \\
 &= \frac{(19) \times (20) \times (21)}{43560} \\
 &= \frac{(24) \times (2.5) \times (600)}{43560} \\
 &= \underline{.83} \quad (15)
 \end{aligned}$$

N = number of wetting furrows = Q (total gpm) / corrugate flood rate (start with 7gpm per gate, then round up to the next even number of sections of pipe)

flow per gate: $\frac{155}{7} = 22.14$ (7gpm 1" try) (16) $\frac{155}{24 \text{ gates}} = 6.45 \text{ gpm/gate}$

*gated pipe comes in 30ft lengths @ 2.5ft spacings per gate = 12 gates per pipe section

N = 1st Estimated number of gates = (14) / (16) (Not final number)

$\frac{155}{7} = 22$ (17) \Rightarrow USE 24 gates = 2 pipes @ 12 $\frac{30 \text{ ft}}{\text{Pipe}} = 60 \text{ ft}$

Estimated Number of 30ft gated pipe:

$= (17) / 12 = \frac{22}{12} = 1.8$ Rounded up to whole number = 2 (18)

Net number of Gates

N = (18) x 12

$= 216 = 24$ (19)

R = width between wetting furrows, feet (30inch or 2.5ft) (20)

L = row length, feet (NRCS recommends 400-600ft)... use: 600 (21)

NUMBER OF SETS PER DAY:

$= 24 / (11)$

$= 24 / 9$

$= 2.7$ (rounded down) = 2 (22)

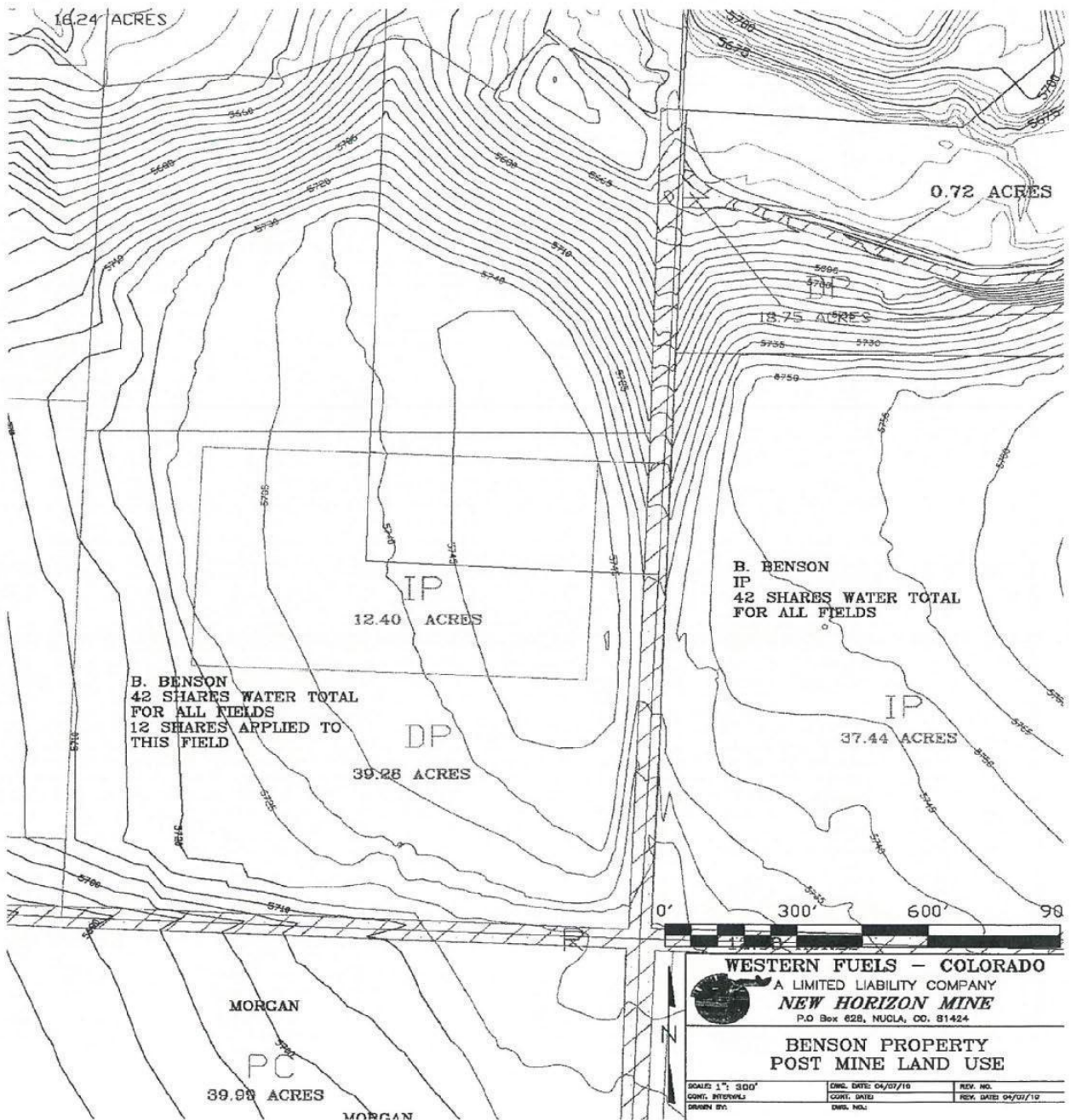
SYSTEM EFFICIENCY (maintenance, cleaning head gate, checking water, farmer needed time off) ... = $\frac{15}{18} = 83\%$ basic water 6 days $\frac{6 \text{ days}}{\text{wk}} =$

NET EFFECTIVE ACREAGE WATERED.

$= (15) \times (22) \times (7) \times (23)$

$= (.83) \times (2) \times (9) \times (\frac{15}{18})$

$= \frac{1250 \times \frac{15}{18}}{12.81 \times \frac{6 \text{ days}}{\text{wk}}}$ ACRES



SENDER: COMPLETE THIS SECTION		COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none"> Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 		A. Signature <i>Teresa Benson</i> <input type="checkbox"/> Agent <input checked="" type="checkbox"/> Addressee	
1. Article Addressed to: <p>Mr. & Mrs. Bud Benson HC 1 Box 942 Sonoita, AZ 85637</p>		B. Received by (Printed Name) C. Date of Delivery TERESA BENSON 5/6/10	
		D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input checked="" type="checkbox"/> No	
		3. Service Type <input type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.	
		4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes	
2. Article Number (Transfer from service label)		7009 2250 0003 2432 4254	

PS Form 3811, February 2004

Domestic Return Receipt

102595-02-M-15

U.S. Postal Service TM	
CERTIFIED MAILTM RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)	
For delivery information visit our website at www.usps.com	
OFFICIAL USE	
Postage	\$ 4.50
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 9.60
Sent To	Mr. & Mrs. Bud Benson
Street, Apt. No., or PO Box No.	HC 1 Box 942
City, State, ZIP+4	Sonoita, AZ 85637
PS Form 3800, Aug.	Instructions

7009 2250 0003 2432 4254



SENDER: COMPLETE THIS SECTION		COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none"> Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 		<p>A. Signature <input checked="" type="checkbox"/> <i>Bud Benson</i> <input checked="" type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) <i>PAUL DAVIES</i></p> <p>C. Date of Delivery <i>5/12/10</i></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>	
<p>1. Article Addressed to:</p> <p>Mr. & Mrs. Bud Benson HC 1 Box 942 Sonoita, AZ 85637</p>		<p>3. Service Type</p> <p><input type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p>	
<p>2. Article Number (Transfer from service label)</p>		<p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>	
<p>7009 2250 0003 2432 4292</p>		<p>PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540</p>	

U.S. Postal Service TM	
CERTIFIED MAILTM RECEIPT (Domestic Mail Only; No Insurance Coverage Provided)	
For delivery information visit our website at www.usps.com .	
<p><i>Prob - Dryland Seed Mix Change</i></p>	
Postage	\$ <i>1.22</i>
Certified Fee	<i>2.50</i>
Return Receipt Fee (Endorsement Required)	<i>2.30</i>
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ <i>6.32</i>
<p><i>Notice</i></p> <p>NUCLA, CO 81424 MAY 6 2010 USPS</p>	
<p>Sent To</p> <p>Street, Apt. No., or PO Box No. City, State, ZIP+4</p> <p>Mr. & Mrs. Bud Benson HC 1 Box 942 Sonoita, AZ 85637</p>	
<p>PS Form 3800, August 2005 See reverse for instructions</p>	



1 of 8

5 May 2010

Western Fuels-Colorado
P.O. Box 523
Hucia, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

Mr. & Mrs. Bud Benson
HC1 Box 942
Sonoita, AZ 85637

RE: New Horizon Mine - Permit Revision 06 Concerns

Dear Mr. and Mrs. Bud Benson:

This letter is to inform you of proposed changes we would like to make to the proposed seed mix for dryland pasture. The northern portion of your property will be planted with the agreed dryland pasture mix.

The currently approved seed mix is included below:

Seed Mix #8 - Dryland Pasture

<u>Drilled Rate</u> <u>Species</u>	<u>Cultivar</u>	<u>PLS/Acre**</u>
Fairway Crested Wheatgrass	Ephriam	0.8
Pubescent Wheatgrass	Luna	2.3
Russian Wildrye	Bozoisky	1.3
*RS Wheatgrass	Newhy	0.8
Alfalfa	Spreador 2	<u>0.5</u>
		5.7

*If RS Wheatgrass is not available, increase Pubescent Wheatgrass by 1.0 pound/acres.

**Broadcast rate is double the drilled rate

Site Variation Adaptability of Seed Mix 8:

Dry Sites:	All species.
Moist Sites:	Agropyron hybrid, Medicago.
Cool Season:	Agropyron, Elyrnus,.
Warm Season:	Medicago.
Fine Textured Sites:	Agropyron hybrid, Elyrnus, Medicago.
Coarse Textured Sites:	All species except Medicago.

The proposed seed mix is included below:

This revised mix was recommended by DRMS, in its review of our Permit Revision #6 submittal months ago. Since certain landowners have expressed desire for no shrubs in the reclaimed pasture, DRMS wants to make sure that our addition of Forage Kochia and Fourwing Salt Bush to the mix is explained. The Forage Kochia is not the Kochia weed that many people are familiar with.

Drilled Rate

<u>Species</u>	<u>Cultivar</u>	<u>PLS/Acre**</u>
Fairway Crested Wheatgrass	Ephriam	0.6
Thickspike wheatgrass	Critana	1.4
Russian Wildrye	Bozoisky	1.0
Alfalfa	Spreador 2	0.6
Western Wheatgrass	Arriba	1.6
Forage Kochia** (broadcast)	Immigrant	0.4
Fourwing Saltbush	Rincon	<u>0.3</u>
	Total	5.9

**Broadcast rate is doubled what would normally be used and is shown as such. Forage Kochia will only be applied through broadcast seeding therefore, its application rate is double that shown above.

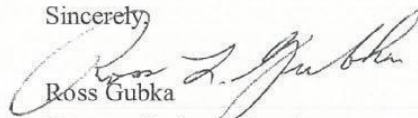
The reasons for the addition of the 2 shrubs in the seed mix for dryland pasture are given below:

- 1) Both shrubs are very palatable to grazing animals, which is desirable for forage, which fits the use of dryland pasture.
- 2) The shrubs provide shade which allows the grasses to grow better around the shrubs.
- 3) The shade lessens the evaporation from the grass plants, which results in a better grass stand.
- 4) Better plant diversity in the field.
- 5) Since the shrubs grow taller, they should actually increase the forage in the field.
- 6) DRMS and NRCS also concurs that these are good additions for the dryland pasture mix.

See the attached sheets from the University of Nevada on the benefits of Forage Kochia.

If you have any questions or concerns, please feel free to contact myself, Ross Gubka or Greg Lewicki. My number is 970-864-7910. Greg Lewicki can be reached at 303-346-5196. You can also contact DRMS directly through Marcia Talvitie at 970-247-1184.

Sincerely,



Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424

**Fact Sheet on Forage Kochia
from the University of Nevada**



COOPERATIVE EXTENSION

Bringing the University to You

Fact Sheet 98-48

Forage Kochia

Roby Kettle, Extension Educator, Humboldt County
Jay Davison, Plant and Soil Specialist, Central Area

"Immigrant" forage kochia (*Kochia prostrata*) has had much publicity in recent years. Its name "Immigrant" forage kochia lends itself to much misunderstanding about the plant. The word immigrant implies to many people that the plant is one that spreads rapidly. The most common fallacy is that it is an invasive, aggressive invader like annual kochia (*Kochia scoparia*) that invades croplands, roadsides, and disturbed sites throughout the United States.

Nevada has several million acres of rangeland that is dominated by cheatgrass and other annuals. This acreage is expanding every year with the major contributing factor being rangeland wildfires. Many rangeland managers thought that if given time and protection from grazing, native grasses would again dominate cheatgrass infested ranges. However, on low elevation rangelands (that comprised of Wyoming big sage before burning), cheatgrass has remained the dominant plant. Forage kochia can be an important tool for competing with cheatgrass, providing forage and habitat diversity for wildlife and livestock, and helping to control fire.

Forage Kochia or Annual Kochia

Despite the positive beneficial impacts of forage kochia, many people are skeptical, fearing that forage kochia will be similar to annual kochia. There are some key differences between forage kochia and annual kochia:

Forage Kochia

1. Belongs to a group of plants that consist of many valuable arid and rangeland species like saltbush, and winter fat.
2. Is a perennial shrub.
3. Does not establish in a site unless specifically planted, with little to no movement outside of the area of establishment (Clements 1997).
4. Is readily consumed by livestock and wildlife.

Annual Kochia:

1. Is an annual weed.
2. Establishes in disturbed sites throughout the United States.
3. Invades millions of acres of cropland.
4. Is rarely found on rangelands unless the area has been completely reduced to bare soil.
5. Is not a preferred forage plant for livestock or wildlife.

Forage Kochia as Livestock and Wildlife Forage

Forage kochia makes excellent feed for both wildlife and livestock. During winter periods or dry seasons the protein content of grass drops below the typical required 8 percent level required by most animals. Shrubs, such as forage kochia, are generally higher in protein than grasses. Forage kochia's protein content runs from 8-14 percent depending upon the time of year (Welch 1984). Its protein level peaks in August around 14.7 percent and drops to a low of 8.9 percent in March (Davis 1979 & 1985). Between August and March is when grasses are at their lowest protein levels; thus forage kochia used with grasses at this time can complement the nutritional levels required by livestock.

Forage kochia is palatable to livestock yearlong. A study comparing the winter diets of sheep grazing forage kochia and crested wheatgrass, and winter fat and crested wheatgrass found forage kochia amounted to 51.1 percent of the diet on the first year and 44.6 percent of the diet on the second year. Winterfat, a well-known, highly palatable shrub, was 27 and 19 percent of the diet in each of the years. In part the higher consumption of forage kochia can be explained by the greater amount of forage produced by forage kochia, but it also shows its high palatability (McKell, 1990). As long as adequate amounts of forage kochia are available, it will provide adequate protein to meet the needs of grazing animals during the late season (McKell, 1990).

In the Dunphy Hills area (Elko BLM District) forage kochia, grasses and shrubs were seeded on degraded rangeland that was considered "critical" winter habitat for mule deer. The first year after seeding, annual plants still dominated, however forage kochia was evident. Forage kochia becomes a stronger part of the plant complex, and after four years, evidence of Wyoming big sage, thickspike wheatgrass, and other native bunchgrasses and forbs were becoming visible. As a consequence mule deer fawn ratios have increased in recent year (Clements, 1994).

Replacing Cheatgrass on Nevada Rangelands

Cheatgrass is a winter annual. If adequate moisture is available, it will germinate in the fall or late winter. If winter moisture is inadequate it germinates in early spring. Cheatgrass grows very quickly in the spring, uses available water, forms seeds, and then dries out in early summer. The mature seeds are deposited on the ground and are ready to grow with adequate moisture. Cheatgrass can start growth earlier in the spring than the natives can. This usually results in cheatgrass out-competing the seedlings of perennial plants on the low precipitation/elevation rangelands in Nevada.

Fire is a recurring event on many rangelands in Nevada. Fires burn every 50-110 years in native range, while cheatgrass invaded ranges often burn every 3-5 years (Whisenant, 1990). Cheatgrass dries out early in the season, and forms an even blanket of fuel, which often allows fires to start and burn. This constant burning eliminates the range of woody plant species and decreases perennial forbs and grasses. The result is a replacement of the native vegetation with cheatgrass.

Cheatgrass provides a very limited grazing season for livestock and wildlife. Its seeds produce stiff awns that make the plant unpalatable once the seed has dried. Its palatable season is short, providing a brief grazing season for livestock and wildlife of only 4-5 weeks.

Because of cheatgrass's competitiveness for moisture early in the spring, it is difficult to get perennial grasses and shrubs established in cheatgrass dominated areas. However, forage kochia has been found to be extremely competitive on cheatgrass ranges. Forage kochia is one of the few plants found that can be seeded into cheatgrass ranges, establish itself, and over time out-compete cheatgrass.

Forage Kochia's Role in Fire Suppression

Forage kochia stays green most all of the year depending upon moisture levels in the soil. That provides two advantages. First, it is very palatable and nutritious for livestock and wildlife when grass and forbs have dried up. Second, it is green, and does not have volatile oils in its leaves, which reduces its flammability.

Forage kochia grows in bunches with bare soil in between the plants; it does not provide a continuous fuel, which slows down fire and makes it difficult to burn. Ranges seeded with forage kochia and other perennial bunch grasses are far less likely to burn than cheatgrass rangelands.

Forage kochia is an excellent plant to use in firebreaks. It has been effectively used as a greenstrip to help protect native shrub communities or private dwellings from fire. A greenstrip sometimes will stop a fire from burning through it. Fires can and do burn through greenstrips, however the fire is usually slowed down, which gives fire fighters a greater chance to control it. If forage kochia does burn, it has a high survival rate.

Forage Kochia Establishment

At the current time, seed for forage kochia is \$8-\$9 per pound. This price is expected to drop as more seed is produced. Typical seeding rates are from 0.5 – 3.0 pounds per acre Pure Live Seed (PLS) (PLS = Purity x Germination) depending whether it is seeded by itself or with grasses or shrubs. A common mixture is 1 pound of forage kochia with 5 pounds of crested wheatgrass or other perennial bunch grass. To establish a pure stand of forage for grazing would require 2-3 pounds PLS per acre.

Seeding

Research shows that forage kochia should be seeded in the late fall or early winter. Generally the months of November and December have proven to be the most successful time for dryland plants. Spring seedings, after mid-January, are not recommended. Spring seedings are often done after the peak moisture, which the new seedling does not get to take advantage of. In addition, later planting gives the seed longer to break the utricule that surrounds the seed and time for the embryonic plant to uncoil in preparation for growth.

Forage kochia should be drilled to a depth of 1/8 of an inch below the soil surface. Tilling and harrowing prior to seeding has produced slightly higher plant densities when compared to no seedbed preparation, but the additional cost is not economically feasible on large acres (Page, 1994). Care should be taken not to plant the seed too deep. If the seed is planted too deep emergence and survival is much lower or not at all. Forage kochia is adapted to dry sites, and will

establish in sites with as little as 5 inches of rainfall per year. It also establishes well in alkaline and saline sites.

Forage kochia can also be successfully established with broadcast seeding (Page, 1994). If the seed is broadcast, it is essential that it be done in the early winter before the majority of the winter snow is on the ground (November is optimal). This will allow snow, rain, and the freeze/thaw action of the soil during winter to lightly cover the kochia seeds.

Seed Viability

Proper storage of forage kochia seed can be difficult. Large reductions in germination rate can occur in a single year if the seed is not stored correctly (Young, 1981). The seed should be dried and stored under dry cool conditions to maintain adequate germination. Seed is normally harvested in October or November, making it difficult to dry enough for proper storage. Because of storage difficulties it is best to plant the current year's seed. Forage kochia seed will have the best germination if it is planted within a few months after harvest (November-December).

If forced to buy seed that is a year old, try to buy seed that has been stored in a cool, dry place. It is best if the seed has been stored at 50 degrees or less. A CURRENT germination test should be done on the seed and it should be purchased on a Pure Live Seed (PLS) basis. This is important as a germination rate of 50 percent or less is common in older seed.

Conclusion

Forage kochia has proven to be an adapted, highly palatable forage species for livestock and wildlife. It is competitive with cheatgrass and much more fire resistant. It provides diversity and cover when seeded with crested wheatgrass. With all things considered, forage kochia deserves greater use when seeding Nevada rangelands.

Literature Cited:

- Davis, A.M. 1979. Forage quality of Prostrata Kochia compared with three browse species. *Agronomy Journal*. 71:822-824.
- Davis, J.N. and B.L. Welch. 1985. Winter preference, nutritive value, and other range characteristics of Kochia prostrata (L.) Schrad. *Great Basin Naturalist*. 45:778-783.
- McKell, C.M., R.M. Otsyina and J. Malechek. 1990. Diets of sheep grazing forage kochia and winterfat mixed grass pasture in late fall. *Proceedings - Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management*. Pg. 310-316.
- Page, R.J., V.P. Rasmussen, H.H. Horton, R.L. Newhall, D.E. Wilson, G.W. Kidd and T.C. Roberts. 1994. White Rocks Road Immigrant Forage Kochia Trial Seeding. *Rangelands*. Pg. 167-168.
- Stevens, R.K., R. Jorgensen, E.D. McArthur and J.N. Davis. 1985. "Immigrant" Forage Kochia. *Range*. 7(1):22-23.
- Welch, B.L. and S.D. Monsen. 1984. Winter Nutritive value of accessions of fourwing saltbush (*Atriplex canescens* (Prush.) Nutt.) grown in a uniform garden.
- Whisenant, S.G. 1990. Changing Fire Frequencies on Idaho's Snake River Plains: Ecological and Management Implications. *Proceeding - Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management*. Pg. 4-10.
- Young, J.A., R.A. Evans, R. Stevens and R.L. Everett. 1981. Germination of Kochia prostrata Seed. *Agronomy Journal*. Vol. 73, Nov-Dec. Pg. 957-961.

UNIVERSITY
OF NEVADA
RENO

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, or sexual orientation, in any program or activity it operates. The University of Nevada employs only United States citizens and those aliens lawfully authorized to work in the United States.



5 May 2010

Western Fuels-Colorado
P.O. Box 628
Nuclo, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

Mr. Harry C. Lloyd
11432 Jones Road
Berrien Springs, Michigan 49103-9659

RE: New Horizon Mine - Permit Revision 06 Concerns

Dear Mr. Harry C. Lloyd:

This letter is to inform you of proposed changes we would like to make to the proposed seed mix for dryland pasture. The northern portion of your property will be planted with the agreed dryland pasture mix.

The currently approved seed mix is included below:

Seed Mix #8 - Dryland Pasture

<u>Drilled Rate</u> <u>Species</u>	<u>Cultivar</u>	<u>PLS/Acre**</u>
Fairway Crested Wheatgrass	Ephriam	0.8
Pubescent Wheatgrass	Luna	2.3
Russian Wildrye	Bozoisky	1.3
*RS Wheatgrass	Newhy	0.8
Alfalfa	Spreador 2	<u>0.5</u>
		5.7

*If RS Wheatgrass is not available, increase Pubescent Wheatgrass by 1.0 pound/acres.

****Broadcast rate is double the drilled rate**

Site Variation Adaptability of Seed Mix 8:

Dry Sites:	All species.
Moist Sites:	Agropyron hybrid, Medicago.
Cool Season:	Agropyron, Elyrnus,.
Warm Season:	Medicago.
Fine Textured Sites:	Agropyron hybrid, Elyrnus, Medicago.
Coarse Textured Sites:	All species except Medicago.

The proposed seed mix is included below:

This revised mix was recommended by DRMS, in its review of our Permit Revision #6 submittal months ago. Since certain landowners have expressed desire for no shrubs in the reclaimed pasture, DRMS wants to make sure that our addition of Forage Kochia and Fourwing Salt Bush to the mix is explained. The Forage Kochia is not the Kochia weed that many people are familiar with.

Drilled Rate

<u>Species</u>	<u>Cultivar</u>	<u>PLS/Acre**</u>
Fairway Crested Wheatgrass	Ephriam	0.6
Thickspike wheatgrass	Critana	1.4
Russian Wildrye	Bozoisky	1.0
Alfalfa	Spreador 2	0.6
Western Wheatgrass	Arriba	1.6
Forage Kochia** (broadcast)	Immigrant	0.4
Fourwing Saltbush	Rincon	<u>0.3</u>
	Total	5.9

****Broadcast rate is doubled what would normally be used and is shown as such. Forage Kochia will only be applied through broadcast seeding therefore, its application rate is double that shown above.**

The reasons for the addition of the 2 shrubs in the seed mix for dryland pasture are given below:

- 1) Both shrubs are very palatable to grazing animals, which is desirable for forage, which fits the use of dryland pasture.
- 2) The shrubs provide shade which allows the grasses to grow better around the shrubs.
- 3) The shade lessens the evaporation from the grass plants, which results in a better grass stand.
- 4) Better plant diversity in the field.
- 5) Since the shrubs grow taller, they should actually increase the forage in the field.
- 6) DRMS and NRCS also concurs that these are good additions for the dryland pasture mix.

See the attached sheets from the University of Nevada on the benefits of Forage Kochia.

If you have any questions or concerns, please feel free to contact myself, Ross Gubka or Greg Lewicki. My number is 970-864-7910. Greg Lewicki can be reached at 303-346-5196. You can also contact DRMS directly through Marcia Talvitie at 970-247-1184.

Sincerely,



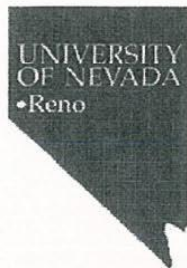
Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424

**Fact Sheet on Forage Kochia
from the University of Nevada**



COOPERATIVE EXTENSION

Bringing the University to You

Fact Sheet 98-48

Forage Kochia

Roby Kettle, Extension Educator, Humboldt County
Jay Davison, Plant and Soil Specialist, Central Area

"Immigrant" forage kochia (*Kochia prostrata*) has had much publicity in recent years. Its name "Immigrant" forage kochia lends itself to much misunderstanding about the plant. The word immigrant implies to many people that the plant is one that spreads rapidly. The most common fallacy is that it is an invasive, aggressive invader like annual kochia (*Kochia scoparia*) that invades croplands, roadsides, and disturbed sites throughout the United States.

Nevada has several million acres of rangeland that is dominated by cheatgrass and other annuals. This acreage is expanding every year with the major contributing factor being rangeland wildfires. Many rangeland managers thought that if given time and protection from grazing, native grasses would again dominate cheatgrass infested ranges. However, on low elevation rangelands (that comprised of Wyoming big sage before burning), cheatgrass has remained the dominant plant. Forage kochia can be an important tool for competing with cheatgrass, providing forage and habitat diversity for wildlife and livestock, and helping to control fire.

Forage Kochia or Annual Kochia

Despite the positive beneficial impacts of forage kochia, many people are skeptical, fearing that forage kochia will be similar to annual kochia. There are some key differences between forage kochia and annual kochia:

Forage Kochia

1. Belongs to a group of plants that consist of many valuable arid and rangeland species like saltbush, and winter fat.
2. Is a perennial shrub.
3. Does not establish in a site unless specifically planted, with little to no movement outside of the area of establishment (Clements 1997).
4. Is readily consumed by livestock and wildlife.

Annual Kochia:

1. Is an annual weed.
2. Establishes in disturbed sites throughout the United States.
3. Invades millions of acres of cropland.
4. Is rarely found on rangelands unless the area has been completely reduced to bare soil.
5. Is not a preferred forage plant for livestock or wildlife.

Forage Kochia as Livestock and Wildlife Forage

Forage kochia makes excellent feed for both wildlife and livestock. During winter periods or dry seasons the protein content of grass drops below the typical required 8 percent level required by most animals. Shrubs, such as forage kochia, are generally higher in protein than grasses. Forage kochia's protein content runs from 8-14 percent depending upon the time of year (Welch 1984). Its protein level peaks in August around 14.7 percent and drops to a low of 8.9 percent in March (Davis 1979 & 1985). Between August and March is when grasses are at their lowest protein levels; thus forage kochia used with grasses at this time can complement the nutritional levels required by livestock.

Forage kochia is palatable to livestock yearlong. A study comparing the winter diets of sheep grazing forage kochia and crested wheatgrass, and winter fat and crested wheatgrass found forage kochia amounted to 51.1 percent of the diet on the first year and 44.6 percent of the diet on the second year. Winterfat, a well-known, highly palatable shrub, was 27 and 19 percent of the diet in each of the years. In part the higher consumption of forage kochia can be explained by the greater amount of forage produced by forage kochia, but it also shows its high palatability (McKell, 1990). As long as adequate amounts of forage kochia are available, it will provide adequate protein to meet the needs of grazing animals during the late season (McKell, 1990).

In the Dunphy Hills area (Elko BLM District) forage kochia, grasses and shrubs were seeded on degraded rangeland that was considered "critical" winter habitat for mule deer. The first year after seeding, annual plants still dominated, however forage kochia was evident. Forage kochia becomes a stronger part of the plant complex, and after four years, evidence of Wyoming big sage, thickspike wheatgrass, and other native bunchgrasses and forbs were becoming visible. As a consequence mule deer fawn ratios have increased in recent year (Clements, 1994).

Replacing Cheatgrass on Nevada Rangelands

Cheatgrass is a winter annual. If adequate moisture is available, it will germinate in the fall or late winter. If winter moisture is inadequate it germinates in early spring. Cheatgrass grows very quickly in the spring, uses available water, forms seeds, and then dries out in early summer. The mature seeds are deposited on the ground and are ready to grow with adequate moisture. Cheatgrass can start growth earlier in the spring than the natives can. This usually results in cheatgrass out-competing the seedlings of perennial plants on the low precipitation/elevation rangelands in Nevada.

Fire is a recurring event on many rangelands in Nevada. Fires burn every 50-110 years in native range, while cheatgrass invaded ranges often burn every 3-5 years (Whisenant, 1990). Cheatgrass dries out early in the season, and forms an even blanket of fuel, which often allows fires to start and burn. This constant burning eliminates the range of woody plant species and decreases perennial forbs and grasses. The result is a replacement of the native vegetation with cheatgrass.

Cheatgrass provides a very limited grazing season for livestock and wildlife. Its seeds produce stiff awns that make the plant unpalatable once the seed has dried. Its palatable season is short, providing a brief grazing season for livestock and wildlife of only 4-5 weeks.

Because of cheatgrass's competitiveness for moisture early in the spring, it is difficult to get perennial grasses and shrubs established in cheatgrass dominated areas. However, forage kochia has been found to be extremely competitive on cheatgrass ranges. Forage kochia is one of the few plants found that can be seeded into cheatgrass ranges, establish itself, and over time out-compete cheatgrass.

Forage Kochia's Role in Fire Suppression

Forage kochia stays green most all of the year depending upon moisture levels in the soil. That provides two advantages. First, it is very palatable and nutritious for livestock and wildlife when grass and forbs have dried up. Second, it is green, and does not have volatile oils in its leaves, which reduces its flammability.

Forage kochia grows in bunches with bare soil in between the plants; it does not provide a continuous fuel, which slows down fire and makes it difficult to burn. Ranges seeded with forage kochia and other perennial bunch grasses are far less likely to burn than cheatgrass rangelands.

Forage kochia is an excellent plant to use in firebreaks. It has been effectively used as a greenstrip to help protect native shrub communities or private dwellings from fire. A greenstrip sometimes will stop a fire from burning through it. Fires can and do burn through greenstrips, however the fire is usually slowed down, which gives fire fighters a greater chance to control it. If forage kochia does burn, it has a high survival rate.

Forage Kochia Establishment

At the current time, seed for forage kochia is \$8-\$9 per pound. This price is expected to drop as more seed is produced. Typical seeding rates are from 0.5 – 3.0 pounds per acre Pure Live Seed (PLS) (PLS = Purity x Germination) depending whether it is seeded by itself or with grasses or shrubs. A common mixture is 1 pound of forage kochia with 5 pounds of crested wheatgrass or other perennial bunch grass. To establish a pure stand of forage for grazing would require 2-3 pounds PLS per acre.

Seeding

Research shows that forage kochia should be seeded in the late fall or early winter. Generally the months of November and December have proven to be the most successful time for dryland plants. Spring seedings, after mid-January, are not recommended. Spring seedings are often done after the peak moisture, which the new seedling does not get to take advantage of. In addition, later planting gives the seed longer to break the utricule that surrounds the seed and time for the embryonic plant to uncoil in preparation for growth.

Forage kochia should be drilled to a depth of 1/8 of an inch below the soil surface. Tilling and harrowing prior to seeding has produced slightly higher plant densities when compared to no seedbed preparation, but the additional cost is not economically feasible on large acres (Page, 1994). Care should be taken not to plant the seed too deep. If the seed is planted too deep emergence and survival is much lower or not at all. Forage kochia is adapted to dry sites, and will

establish in sites with as little as 5 inches of rainfall per year. It also establishes well in alkaline and saline sites.

Forage kochia can also be successfully established with broadcast seeding (Page, 1994). If the seed is broadcast, it is essential that it be done in the early winter before the majority of the winter snow is on the ground (November is optimal). This will allow snow, rain, and the freeze/thaw action of the soil during winter to lightly cover the kochia seeds.

Seed Viability

Proper storage of forage kochia seed can be difficult. Large reductions in germination rate can occur in a single year if the seed is not stored correctly (Young, 1981). The seed should be dried and stored under dry cool conditions to maintain adequate germination. Seed is normally harvested in October or November, making it difficult to dry enough for proper storage. Because of storage difficulties it is best to plant the current year's seed. Forage kochia seed will have the best germination if it is planted within a few months after harvest (November-December).

If forced to buy seed that is a year old, try to buy seed that has been stored in a cool, dry place. It is best if the seed has been stored at 50 degrees or less. A CURRENT germination test should be done on the seed and it should be purchased on a Pure Live Seed (PLS) basis. This is important as a germination rate of 50 percent or less is common in older seed.

Conclusion

Forage kochia has proven to be an adapted, highly palatable forage species for livestock and wildlife. It is competitive with cheatgrass and much more fire resistant. It provides diversity and cover when seeded with crested wheatgrass. With all things considered, forage kochia deserves greater use when seeding Nevada rangelands.

Literature Cited:

- Davis, A.M. 1979. Forage quality of Prostrata Kochia compared with three browse species. *Agronomy Journal*. 71:822-824.
- Davis, J.N. and B.L. Welch. 1985. Winter preference, nutritive value, and other range characteristics of Kochia prostrata (L.) Schrad. *Great Basin Naturalist*. 45:778-783.
- McKell, C.M., R.M. Otsyina and J. Malechek. 1990. Diets of sheep grazing forage kochia and winterfat mixed grass pasture in late fall. *Proceedings - Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management*. Pg. 310-316.
- Page, R.J., V.P. Rasmussen, H.H. Horton, R.L. Newhall, D.E. Wilson, G.W. Kidd and T.C. Roberts. 1994. White Rocks Road Immigrant Forage Kochia Trial Seeding. *Rangelands*. Pg. 167-168.
- Stevens, R.K., R. Jorgensen, E.D. McArthur and J.N. Davis. 1985. "Immigrant" Forage Kochia. *Range*. 7(1):22-23.
- Welch, B.L. and S.D. Monsen. 1984. Winter Nutritive value of accessions of fourwing saltbush (*Atriplex canescens* (Pursh.) Nutt.) grown in a uniform garden.
- Whisenant, S.G. 1990. Changing Fire Frequencies on Idaho's Snake River Plains: Ecological and Management Implications. *Proceeding - Symposium on Cheatgrass Invasion, Shrub Die-off, and Other Aspects of Shrub Biology and Management*. Pg. 4-10.
- Young, J.A., R.A. Evans, R. Stevens and R.L. Everett. 1981. Germination of Kochia prostrata Seed. *Agronomy Journal*. Vol. 73, Nov-Dec. Pg. 957-961.

UNIVERSITY
OF NEVADA
RENO

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, or sexual orientation, in any program or activity it operates. The University of Nevada employs only United States citizens and those aliens lawfully authorized to work in the United States.

7008 3230 0000 0022 9001

U.S. Postal Service™	
CERTIFIED MAIL™ RECEIPT	
(Domestic Mail Only; No Insurance Coverage Provided)	
For delivery information visit our website at www.usps.com	
Permit Revision 06 concerns	
Postage	\$ 1.39
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 6.49
Sent To Harry C. Lloyd	
Street, Apt. No., or PO Box No. 11432 Jonas Road	
City, State, ZIP+4 Berrien Springs, Michigan 49103	
PS Form 3800, August 2006	
See Reverse for Instructions	





22 April 2010

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Telephone: 970/864-2165
Fax: 970/864-2168

Mr. Harry C. Lloyd
11432 Jones Road
Berrien Springs, Michigan 49103-9659

RE: New Horizon Mine - Permit Revision 06 Concerns

Dear Mr. Harry C. Lloyd:

We received a copy of your concerns regarding the Permit Revision filed with the Colorado Division of Reclamation, Mining, and Safety (DRMS) for the New Horizon #2 Mine in Nucla, CO. It is our goal in this letter to answer the questions you posed regarding changes to post-mine land use at New Horizon, and respond to your concerns as well. Please read over this letter and let us know if you have any further questions or comments. You have always been a fair and reasonable person and we hope that these responses clarify your questions.

Clarification Points

Your letter identified 3 points of clarification regarding your land within the WFC permit area. The responses below address those points of clarification.

1. We do not dispute that you have leased approximately 80 acres to WFC and that the north part of your property had some irrigated fields where different crops such as

corn, oats or wheat was grown some time in the past. We also acknowledge that you leased the property to Gordon Smith who planted wheat in one or two fields at the north end of the property for several years.

2. We apologize for the incorrect statement that there has not been any active farming on the property for 15 years. We now understand that any sort of irrigation, farming, ranching activity on land can be considered farming. According to the mining agency rules, we needed to conduct a pre-mine land use study to establish what the pre-mine uses of the land are prior to mining. This was done for your property in 1999 and was approved as part of the permit. It does show that the majority of your land was irrigated to some level at that time. It is not possible for any mining company to conduct extensive historical studies of land use on properties.

3. WFC also acknowledges that you were able to irrigate all of the more level ground on the south 3/4 of the property as well as the field by Tuttle Draw. We believe by aerial photographs that Gordon Smith was able to irrigate this area with the same 24 shares of CCC ditch water that still exists on the property.

We acknowledge all of the above items in your letter and we wish we could irrigate just as you did and not have to worry about any standards. It is important for you to know that WFC has a State approved Irrigated Pasture reference area with approved ratio of CCC water shares per acre, for all irrigated pasture lands to be reclaimed. In order for us to get our reclamation passed by the State Regulatory Agent (DRMS), we must show that the vegetation cover and vegetation production per acre on the reclaimed lands closely matches the same levels of the reference area. Both reference area and reclaimed lands must be managed/ watered the same.

Original Proposal in Permit Revision 06 (now withdrawn)

The revegetated irrigated pasture on reclaimed lands must be studied in years 9 and 10

after reclamation in order to get the land released from reclamation bond. Since the reference area is 6.8 acres and has historically had 10 shares of water using flood irrigation, we used the same ratio to determine the amount that could be irrigated on your property in order to have a similar water usage per acre. If we use any less, we will likely not pass our bond release standards. The State agency, the Division of Reclamation, Mining and Safety, (DRMS) has been concerned that we have shown areas designated as irrigated pasture in the past that do not have the amount of water to sustain this level of irrigation after bond release. Please understand that we must abide by their rules. The calculations in determining your amount of irrigated pasture in the reclamation are based on the following:

Reference area: $10 \text{ shares} / 6.8 \text{ acres} = 1.47 \text{ shares per acre}$.

Your total shares (24) was divided by this ratio of 1.47 shares per acre to get the amount of land which could be irrigated, which is 16.32 acres.

New Proposal to Address Post Mine Irrigation Calculations

Jim Boyd of the local NRCS has supplied more precise calculations for the amount of land that can be gated/furrowed, flood irrigated per share of CCC Ditch water. DRMS has adopted these calculations as the method WFC should use to determine the amount of acres of irrigated pasture per share of water. WFC has used these calculations to determine the irrigated pasture to be reclaimed on your property. These calculations in fact do substantially increase the amount of land that can be flood irrigated on your property. The NRCS calculations show that if the flood irrigation is intensely managed for 7 days per week, every week, 29.8 acres of flood irrigated lands are possible. We believe that it is reasonable to assume that 1 day per week will be an off day, therefore reducing the amount to 25.5 acres, based on the 24 shares that you have and a simple ratio of 6 days/week. We will also make the same adjustment to shares applied to the reference area. The WFC calculations for your irrigated land are attached.

The attached map shows the proposed reclaimed areas and land uses for your property.

We want you to know that WFC has attempted to level and flatten your land as much as practical to maximize the amount of gently sloping, and farmable land as possible. These gently sloping fields have been retopsoiled, disced, leveled, rockpicked and smoothed to allow more efficient and productive irrigation after reclamation than that which occurred in the pre-mine condition. The steeper out slopes that face Tuttle Draw have been topsoiled, smoothed and furrowed to accommodate a dryland vegetation cover and to control ground erosion. Rock picking was not done on these steeper slopes in the belief that the coarse rock fragments would assist with erosion control plus help establish shrub vegetation growth.

Until the reclamation bond is released, we must follow DRMS strict standards. DRMS will not allow WFC to reclaim land as Irrigated Pasture if there is not sufficient water to be economically managed as Irrigated Pasture permanently. Once WFC gets their reclamation bond money back and the land is returned to the Land Owner, then DRMS is out of the picture and no longer has authority to decide how the land should be managed. At that time, the Land Owner is free to do whatever they want with their land. You could take your 24 shares of water and sell it, do nothing with the land, make a parking lot out of the land or irrigate double/triple the irrigated acreage, your call.

Specific Questions Asked in the January 17, 2010 Letter to DRMS

1. The calculations of the evapotransmissivity of the alfalfa at New Horizon were done using values from the Californian interior. The area selected in California has a similar climate and elevation as Nucla. The values for Mesa, AZ that you refer to were not used, as that area is not analogous to Nucla.
2. Reclamation has either already commenced or been completed on Burbridge, Garvey, and Goforth's properties. The DRMS requirement for the area of Irrigated Pasture to be determined by the water shares available is being added to

the New Horizon Mine permit by this revision, and therefore was not applied to previously reclaimed properties. The Benson property immediately east of your property is being held to the same requirements by DRMS.


3. WFC must obtain from the water court the right to store water (in Sediment Pond 012 for your purpose). This water right is called conditional until the storage actually occurs. Once the water storage has occurred, the amount of water stored is deemed to be put to beneficial use and this amount of water right is then called absolute. The water source going into Pond 012 can be from: a) surface water run off from a thunder storm, b) snow melt, c) rain fall, d) irrigation water run off, e) or pit pumping. The primary water beneficial use for WFC during the process of mining and reclamation is for water quality (sediment control) that is mandated by the Colorado Department of Health and the Division of Reclamation, Mining and Safety. We have also stated in our application other possible beneficial uses, such as dust suppression via water trucks, and livestock/wildlife use. We, as a company, can not store water in any sediment pond without this legal action. When mining and reclamation is completed on your land, WFC will remove Pond 012 per your request. The removal of Pond 012 will eliminate WFC ability to store any source of water from your land and thus the filing will be no longer applicable to your land and whatever water runs off/from it. WFC does have the right to transfer the water rights (the ability to store water and use that water for a beneficial use) to another location, or transfer those water rights to the Land Owner.
4. All reclaimed areas in the New Horizon mine will have to meet a standard for release based on a reference area approved by DRMS. Three areas were identified by Western Fuels and approved by DRMS that were representative of each type of land use: Dryland Pasture, Irrigated Pasture, and Irrigated Cropland. In the case of Dryland Pasture, the reclaimed area must have at least 90% of the cover as the reference area. Irrigated Pasture must meet a cover requirement and

a field production requirement of at least 90% of the reference area. Irrigated Cropland must meet production requirements based on a reference area or a standard, but for a longer period of time. Details on the differences in topsoil replacement and other specifics of the reclamation plan can be found in Section 2.05.4(2)(c)- Backfilling and Grading, 2.05.4(2)(d) -Topsoil Redistribution and 2.05.4(2)(e) Revegetation.

The changes being made to the reclamation plan for the New Horizon #2 Mine are based on sound engineering and science. These changes are necessary to meet State environmental requirements, and to ensure that Western Fuels can reclaim properly and return the land to the landowners in the most sustainable condition possible.

If you have any questions or concerns, please feel free to contact myself or Greg Lewicki. My number is 970-864-7910. Greg Lewicki can be reached at 303-346-5196.

Sincerely,



Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424

7006 3230 0003 3829 8484

U.S. Postal Service™	
CERTIFIED MAIL™ RECEIPT	
(Domestic Mail Only; No Insurance Coverage Provided)	
For delivery information visit our website at www.usps.com	
Permit Revision 06 concerns	
Postage	\$ 1.39
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 6.49
Postmark APR 22 2003	
Sent To Harry C. Lloyd	
Street, Apt. No., or PO Box No. 11432 Jonas Road	
City, State, ZIP+4 Berrien Springs, Michigan 49103	

PS Form 3800, August 2006 See Reverse for Instructions

FLOOD IRRIGATION DESIGN WORKSHEET

Project Name: LLOYD

24 Shore & 25.5 ft

Designer: Ross Gubka

Reviewed by: _____

PRELIMINARY DATA:

Design Crop: Grass

24 Shore work
2 sets - 6 days
dry week
25.5 ft

Soil Name: _____

1860 ft x 60 ft = 25.5 ft

Town: Nucle

62 50 ft @ 30 ft
well

Root Depth: _____ ft. (2)

Moisture Extraction: _____ ft (3)

AVERAGE WATER HOLDING CAPACITY
(CIG 2-C)

Soil Depth AWC
in feet inches

1 st	_____
2 nd	_____
3 rd	_____
4 th	_____

TOTAL AVAILABLE WATER (TAW)*

Recommendation from NRCS 4.0" (grass) & 7.6" on Morgan Prime Farmland soils (4)

total only to moisture extraction depth.

Management Allowance

Deficiency (Table CO 684.2) 50 % (5)

IRRIGATION NET APPLICATION:

= % OF Total TAW

(4) x (5) (Decimal) = (4.0) x (50%)

Net. App. = () in. (6) 2.0 in.

DAILY PEAK CONSUMPTIVE USE RATE: .21 for grass & .25 for alfalfa in/day
(CO683.52)

IRRIGATION FREQUENCY:

= (Net Application) (6) (2.0)
Daily Peak Consumptive Use) (.21)

= days return period (7) 9.5 days (round down) = 9 (7)

IRRIGATION GROSS APPLICATION

DESIGN FIELD EFFICIENCY (50-60% FOR CORRUGATE FLOOD IRRIGATION)
(CO685.69) 55 % (8)

GROSS APPLICATION

= NET App. X 100 (6) = (2.0) x 100
Field Eff. % (8) (.55) %

= 364 in. (9)

MAX HOURLY WATER APPLICATION RATE:

MAX APP Rate w/cover
(CIG Table 6-D-1, CIG Sec 2-C) 1.0 in/hr (10)

SET TIME: 9 HR (11)

Normally 11 or 23 hrs/set..... (11hr for flood irrigation is recommended by NRCS)

CHECK POSSIBLE HOURLY APPLICATION RATES

= Gr. App. In. (9) = (364)
Set time (11) (9)

= Hourly App. Rate = 0.40 in/hr* (12)

USE 0.40 in. Gross App. On 9 hr. Sets

$$\begin{aligned}
 \text{Gross Irrigation Application (inches)} &= \frac{Q \times T}{450 \times A} \\
 &= \frac{(14) \times (11)}{450 \times (15)} \\
 &= \frac{() \times ()}{450 \times ()} \quad \frac{310 \times 9}{450 \times 1.65} = \\
 &= \underline{3.76} \quad (13)
 \end{aligned}$$

Gross Application (9): 3.64

Q = Total flow rate, gpm

Number of CCC ditch shares: 24

Note: 1 share of CC water equals 450gpm/35 shares = 12.86gpm

$$Q = \# \text{ CCC ditch shares} \times 12.86\text{gpm} = \underline{24 \times 12.9} = \underline{310\text{gpm}} \quad (14)$$

T = length of application, hours (NRCS recommends 11 hr sets for flood irrigation) 9 (11)

A = area being irrigated, acres

450 is a conversion constant:

$$450 \text{ gpm} = 1 \text{ acre-inch/hr}$$

the area being irrigated, A, is determined using the following formula:

A = Set size or area (acres) =

$$= \frac{N \times R \times L}{43560}$$

$$= \frac{(19) \times (20) \times (21)}{43560}$$

$$\frac{49 \times 2.5 \times 600}{43560} = 1.65$$

$$= \frac{(\quad) \times (\quad) \times (\quad)}{43560}$$

$$= \underline{1.65} \quad (15)$$

N = number of wetting furrows = Q (total gpm) / corrugate flood rate (start with 7gpm per gate, then round up to the next even number of sections of pipe)

flow per gate: 7 (7gpm 1st try) (16) $\frac{3108 \text{ gpm}}{7} = 44 \text{ GATES Round up to}$

*gated pipe comes in 30ft lengths @ 2.5ft spacings per gate = 12 gates per pipe section 48 GATES

N = 1st Estimated number of gates = (14) / (16) (Not final number)

$$= \frac{310}{7} = \underline{44} \quad (17)$$

Estimated Number of 30ft gated pipe:

$$= (17) / 12 = \frac{44}{12} = 3.67 \text{ Rounded up to whole number} = \underline{4 \text{ pipes}} \quad (18)$$

Net number of Gates

$$N = (18) \times 12$$

$$= \underline{4 \times 12 = 48 \text{ gates}} \quad (19)$$

R = width between wetting furrows, feet (30inch or 2.5ft) (20)

L = row length, feet (NRCS recommends 400-600ft)... use: 600ft (21)

NUMBER OF SETS PER DAY:

$$= 24 / (11)$$

$$= 24 / 9$$

$$= \underline{2.67} \text{ (rounded down)} = \underline{2 \text{ sets per day}} \quad (22)$$

SYSTEM EFFICIENCY (maintenance, cleaning head gate, checking water, farmer needed time off) ... = (23)

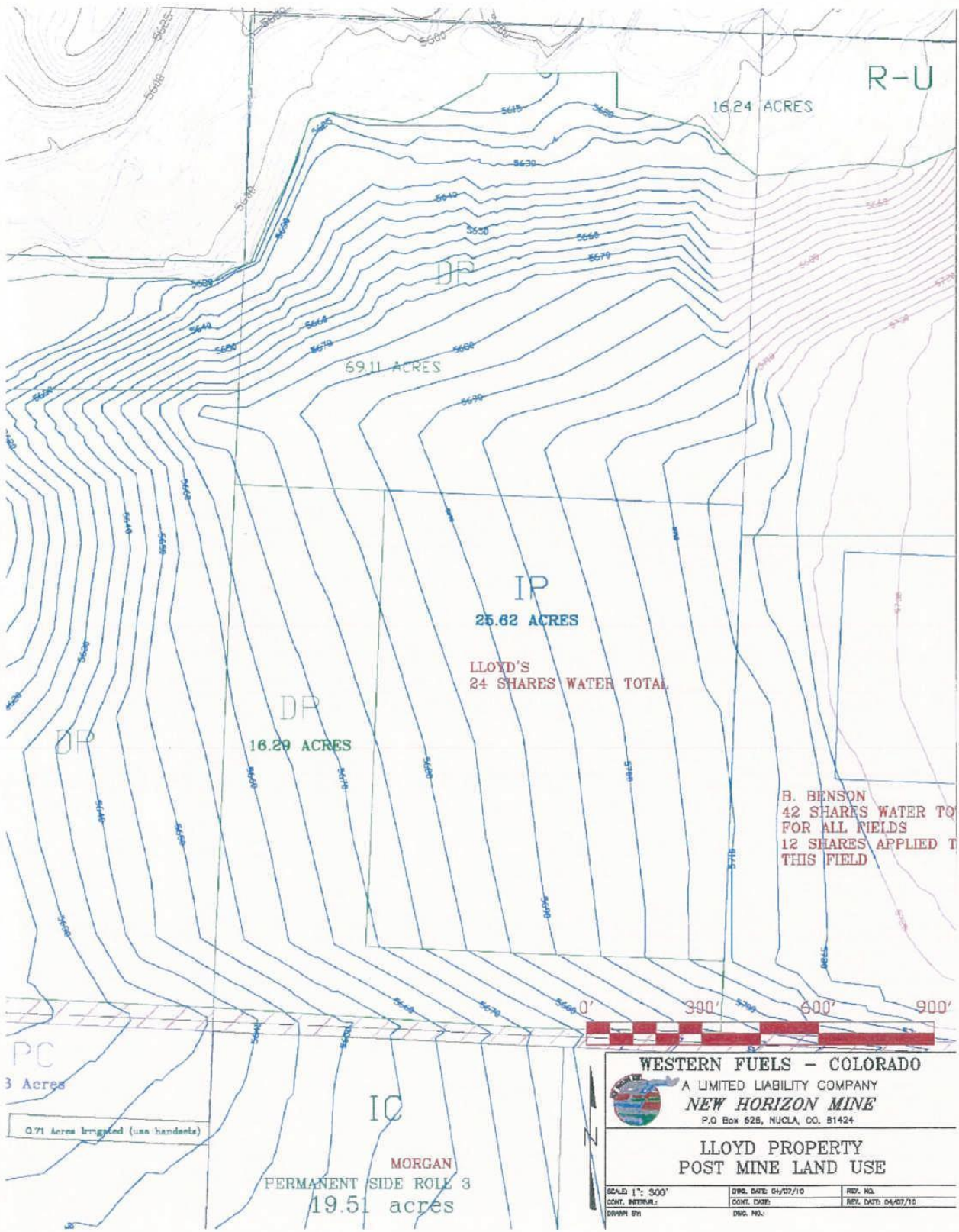
$$\frac{6 \text{ days}}{\text{WEEK}} = 86\%$$

NET EFFECTIVE ACREAGE WATERED.

$$= (15) \times (22) \times (7) \times (23)$$

$$= (1,65) \times (2) \times (9) \times \left(\frac{6}{7}\right)$$

$$= \underline{25.54} \text{ ACRES}$$



R-U

16.24 ACRES

69.11 ACRES

IP
25.62 ACRES

LLOYD'S
24 SHARES WATER TOTAL

DP
16.29 ACRES

B. BENSON
42 SHARES WATER TO
FOR ALL FIELDS
12 SHARES APPLIED TO
THIS FIELD

PC
3 Acres

0.71 Acres Irrigated (use handsets)

IC
MORGAN
PERMANENT SIDE ROLL 3
19.51 acres

WESTERN FUELS - COLORADO

A LIMITED LIABILITY COMPANY

NEW HORIZON MINE

P.O. Box 628, NUCLA, CO. 81424

LLOYD PROPERTY
POST MINE LAND USE

SCALE 1" = 300'

CONT. INTERVAL

DIVISION

DWG. DATE 04/07/10

DWT. DATE

DWT. NO.

REV. NO.

REV. DATE 04/07/10



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7586

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. & Mrs. Bud Benson
HC 1 Box 942
Sonoita, AZ 85637

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Benson:

In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use.

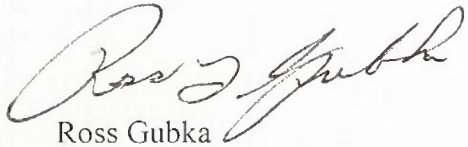
Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Pastureland - Dry	38.7 acres
Reclaimed Irrigated Pastureland	57.8 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ross Gubka".

Ross Gubka
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7982

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. Dirk Richards
P.O. Box 153
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Richards:

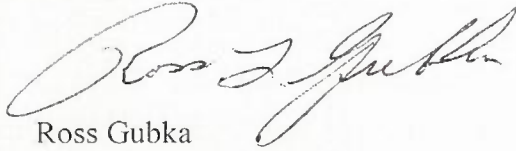
In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Pastureland - Dry	33.6 acres
-------------------	------------

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in black ink, appearing to read "Ross Gubka". The signature is fluid and cursive, with the first name "Ross" and last name "Gubka" clearly distinguishable.

Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7975

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. & Mrs. Ward Burbridge
P.O. Box 92
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Burbridge:

In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Pastureland - Dry	4.5 acres
Reclaimed Irrigated Pastureland	43.5 acres
Ponds	2.4 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ross Gubka".

Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7999

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. Lester Goforth
P.O. Box 541
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Goforth:

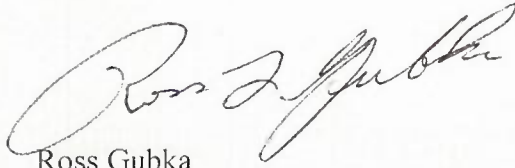
In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Pastureland - Dry	10.1 acres
Reclaimed Irrigated Pastureland	18.4 acres
Ponds	0.3 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in black ink, appearing to read "Ross Gubka". The signature is fluid and cursive, with the first name "Ross" and last name "Gubka" clearly distinguishable.

Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7814

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. & Mrs. Michael Moore
P.O. Box 326
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Moore:

In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Pastureland - Dry	5.3 acres
Reclaimed Irrigated Pastureland	5.0 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ross Gubka".

Ross Gubka
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7007 3020 0001 5760 7821

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mr. & Mrs. Melvin Staats
P.O. Box 10
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

Dear Mr. Staats:

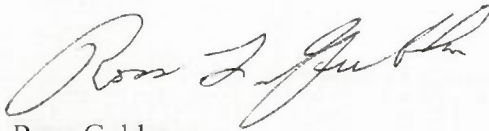
In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Reclaimed Irrigated Pastureland 17.7 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in black ink, appearing to read "Ross Gubka". The signature is fluid and cursive, with the first name "Ross" being more prominent than the last name "Gubka".

Ross Gubka
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424



June 23, 2010

CERTIFIED MAIL NO. 7009 2250 0003 2432 3998

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

San Miguel Power Association
P.O. Box 817
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

To Whom It May Concern:

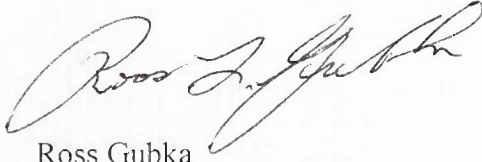
In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use. Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Reclaimed Irrigated Pastureland	71.9 acres
Commercial Facilities	5.7 acres
Ponds	3.9 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ross Gubka".

Ross Gubka
Western Fuels - Colorado
PO Box 628
Nucla, CO 81424



June 23, 2010

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Western Fuels-Colorado
P.O. Box 628

Telephone 970/864-2165
Fax 970/864-2168

RE: New Horizon Mine Reclamation Plan

To Whom It May Concern:

In order to comply with Rule 2.05.5(1)(b), Colorado Division of Reclamation, Mining, and Safety (DRMS) requirements for landowner notification, this letter is to confirm the post-mine land use of your land. It is emphasized that this post-mining land use has been in the approved permit for years and there are no changes to the land use or any part of the reclamation plan on your property. This is simply a notification of that use.

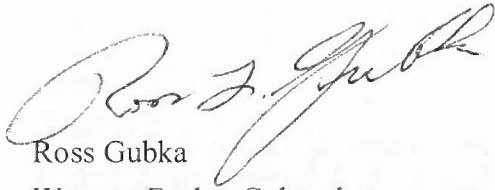
Based on our information, your land in the new Horizon Mine consists of approximate acres. The designated post-mine land use for your property is:

Reclaimed Irrigated Pastureland 51 acres

This can all be seen on the attached Map 2.05.4-5. The entire permit is available at the County Annex in Nucla for your review. The pertinent sections are Section 2.05.4(2)(d) Topsoil Redistribution and Section 2.05.4(2)(e) Revegetation.

If you have any questions, comments or concerns, please feel free to contact me at 970-864-7910. Our consulting engineer, Greg Lewicki, can be reached at 303-346-5196.

Sincerely,

A handwritten signature in black ink, appearing to read "Ross Gubka", written in a cursive style.

Ross Gubka

Western Fuels - Colorado

PO Box 628

Nucla, CO 81424



RETURN RECEIPT REQUESTED

June 21, 2010

Mike Morgan
P.O. Box 346
Nucla, CO 81424

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

Dear Mike:

This is to put on record our meeting of June 16, 2010, and our telephone conversation of June 17, 2010. On the morning of June 16 I picked you up at your house and we drove and walked around the Morgan property for about an hour. JoEllen was invited but declined in order to spend time with her granddaughter.

You expressed several concerns. First is the rocks in the mixed topsoil. Some of the mixed topsoil will take significant work to get the rocks out of it. The mixed topsoil that has been re spread has only been rough spread with a dozer and has not yet been checked for depth or final grade. It will take several iterations with a dozer, grader and land plane before it is finished. As you said, rocks in the A and B topsoil lifts and in the Bench 1 that is being used for suitable subsoil substitute are always an issue and we must keep them to a minimum.

Your second concern was the elevation of the backfill along portions of the south permit fence. Part of this is obviously too low and needs to be brought up to grade with the finer, less rocky Bench 1 before topsoil can be replaced. You also showed me an area that you believe needs more topsoil over the 26" pipeline to give a full 30" of cover over the pipeline.

Another of your concerns was the shallow depression that is developing in the backfill where Ramp 1 has been backfilled. We will need to continue to monitor this and keep bringing it up to grade with the finer Bench 1 material until it has stabilized so that topsoil can be replaced.

You also asked what the field ditches were for on the latest post mine reclamation map. I told you that I thought they were irrigation tail water return ditches (if that is the proper terminology). I can have Ross discuss those with you if you would like.

One of my concerns that we discussed is your insistence that all of the Bench 1 material that is stripped from Morgan's remain on Morgan's. I told you that we can do that, but it will mean stockpiling any excess material on Morgan's until it is needed. You indicated that you did not want to have to

RETURN RECEIPT REQUESTED

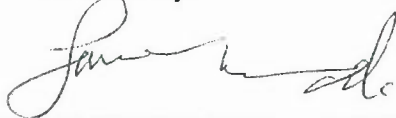
look at any more stockpiles but that you understand the need for them. The excess material that is stockpiled will then be used to cover the backfill in the final cut.

We also discussed the weeds in the mixed topsoil that has been re spread and that we will need to disc that area again before the remaining weeds go to seed. I leave that to your judgment as to timing.

I telephoned you on June 17 because I had forgotten to ask you about the replacement water well. You wondered if the permit for the old well could be transferred to the new one near your house. Western Fuels in Westminster did some research and discovered that the old well on the Sunshine Corner place was not permitted or at least there is no record of it at the State Engineer's office. The new well will require a new permit. Western Fuels can start the paperwork for you or help you with the paperwork to file a permit in your name or whoever's name you want it in once you decide on a location. Just let me know.

Mike, thank you for your time. I hope that we can continue to have these meetings on a regular basis and that JoEllen can come along next time. If I missed anything, please let me know.

Yours truly,

A handwritten signature in dark ink, appearing to read 'R. Lance Wade', written in a cursive style.

R. Lance Wade
Mine Manager

Xc: Ross Gubka
DRMS



24 June 2010

Western Fuels-Colorado
P.O. Box 628
Nuclo, Colorado 81424

To: File

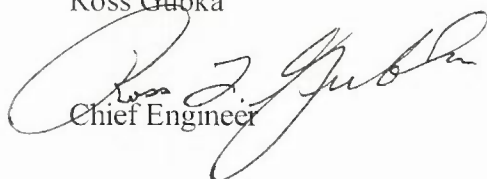
From: R. L. Gubka

Telephone 970/864-2165
Fax 970/864-2168

RE: Draft Proposal of Topsoil Redistribution on Morgan Prime Farmland

I called Mike Morgan on 24 June 2010 at approximate 3:15pm to ask if he was available so I could present him with a draft proposal on how WFC would like to redistribute the prime farmland soils on Morgan land. He said he was available and he would be at his shop. I drove over and met with him at approximate 3:45 pm. We exchanged greetings and I asked if JoEllen was around. Mike said she was in Grand Junction at a doctors appointment. I then proceeded to pull out the map and letter from the envelope to spread on the front bumper of the Ford farm tractor to describe the topsoil redistribution plan. I went over the letter describing the plan plus showing him the calculations and areas on the map so he could follow along with my calculations and logic. I asked him several times during and after the discussion if he could follow and understand the logic in the topsoil redistribution plan. Mike said he thought he did and at the time, seemed to not have any questions. I asked him to take the papers home and discuss it with JoEllen and the Family and to contact me if he had any questions. I also mentioned to him that I was working on writing up this plan to insert it into PR-06 permit renewal that was due the end of June 2010. We finished up the meeting on good spirits and I left.

Ross Gubka



Chief Engineer



June 24, 2010

Hand Delivered

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

Mike Morgan & JoEllen Turner
P. O. Box 346
Nucla, CO 81424

Telephone 970/864-2165
Fax 970/864-2168

RE: Draft Proposal of Topsoil Redistribution on Morgan Prime Farmland

Dear Mike & JoEllen:

I have come to you in good faith to present a Draft Proposal of how WFC and DRMS would like to redistribute the prime farmland topsoils that are currently in Lift A, B, and Mixed stockpiles plus what is still in front of the pit. DRMS has given WFC engineering guidelines that are acceptable to them and will satisfy all State and Federal Rules and Regulations on handling Prime Farmland soils. Briefly, the guidelines are a) use 33 inches as the thickness for Lift B. Spread Lift B back to the east until we run out. Keep all of Lift A topsoil on the acreage that was not disturbed as of 2008. Evenly spread out all of the A/B Mixed Topsoil over what isn't covered by Lift A.

I have utilized the guidelines to the best of my ability considering the short amount of time I've had to work on it. The concepts in this proposal I would like to present to you are:

- **Field 5** is the semi circle that WFC is currently mining around and that has not been stripped of any soils. I have included this area so all areas will total to 107.96 acres.
- **Field 4** contains 54.33 acres and will receive all of the projected recovered *Lift A* topsoils. approximate **25** inches are anticipated to be replaced. Field 4 will also receive a predetermined average of **33** inches of Lift B topsoil. The 33 inches is a number DRMS provided. Total topsoil replacement thickness will average 58 inches. The 54.33 acres is close to the acreage of what the undisturbed land

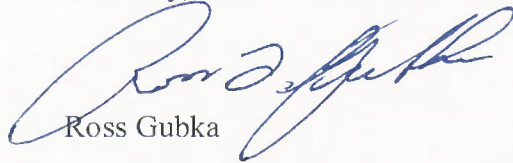
was back in 2008.

- **Field 3** size was determined by using the excess Lift B topsoil from stockpiles and future stripping that would be left over after placement of Lift B in Field 4. Again, **Lift B topsoil** will average 33 inches in Field 3. DRMS directed WFC to then take all of the A/B Mixed stockpile and evenly spread it over Field 3, 2 and 1. That A/B thickness is calculated to be approximately **21 inches**. In conclusion, Field 3 will receive 33" of Lift B topsoil plus 21" of A/B Mixed topsoil for a combined 54".
- **Field 2** is 7.84 acres. **OB1 topsoil substitute** material that has to meet all of Lift B topsoil chemical and physical values will have to be used for Lift B topsoil. Thickness will be greater than 33". WFC actually tested *OB1 substitute* to 48" and we know it is thicker than that. A/B Mixed topsoil will then be placed over the OB1 substitute Lift B topsoil and it will average 21 inches. So combined, there will be 54" plus of topsoil and topsoil substitute.
- **Field 1** is 12.21 acres. The underlying foot print of this area consists of OB1 substitute Lift B soils. Again, the thickness of this zone will be 33" plus. Again, A/B Mixed topsoil will have to be used for the top Lift of topsoil. As mentioned above, an average of 21 inches will be placed for Lift A. As mentioned above, there has been some pushing and some rough spreading of Lift A/B mixed topsoil in Field 1. Past measurements say the upper topsoil lift is presently 17 inches thick. WFC will go back in and put more Lift A/B Mixed topsoil to raise the already existing 17 inches to a total of 22" of Lift A/B topsoil.
- In conclusion, there will be $7.58\text{ac} + 12.21\text{ac} = 20.01\text{ acres}$ of suitable OB1 substitute topsoil and A/B Mixed topsoil IC land. Field 1-5 adds up to 107.96 acres.
- WFC will have to stockpile a sizeable (132,222cy) amount of OB1 material for the final pit cut(s). This can be seen on the attachment. Also, three different stockpiles will need to be made over in the area of Pond 011. One will contain OB1 fill for the bottom of Pond 011 and two other piles of Lift A and Lift B topsoil to cap over 011 Pond.

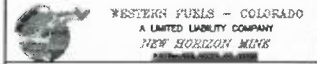
This is a very good plan and I hope you can be happy with it. Please review my work and give me your opinions as soon as you can. As you may be aware, WFC is in a very tight schedule with DRMS to resolve all of PR-06 questions and concerns.

Thank you for your time.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ross Gubka", written in a cursive style.

Ross Gubka



MAP 2.05.4-7
MORGAN TOPSOIL REPLACEMENT PLAN
AS OF JUNE 2010
LOCATED IN SECTION 1, T46N, R16W

FIELD 1	ACRES	FIELD 2	ACRES	FIELD 3	ACRES
FIELD 4	ACRES	FIELD 5	ACRES		

TOPSOIL REPLACEMENT- FIELD 4
LIFT A AREA
AT 25" ave THICKNESS
54.33 ACRES

TOPSOIL REPLACEMENT- FIELD 4
LIFT B AREA
54.33 AC
AT 33" ave THICKNESS

TOPSOIL REPLACEMENT- FIELD 3
LIFT B AREA
31.68 AC
AT 33" ave THICKNESS

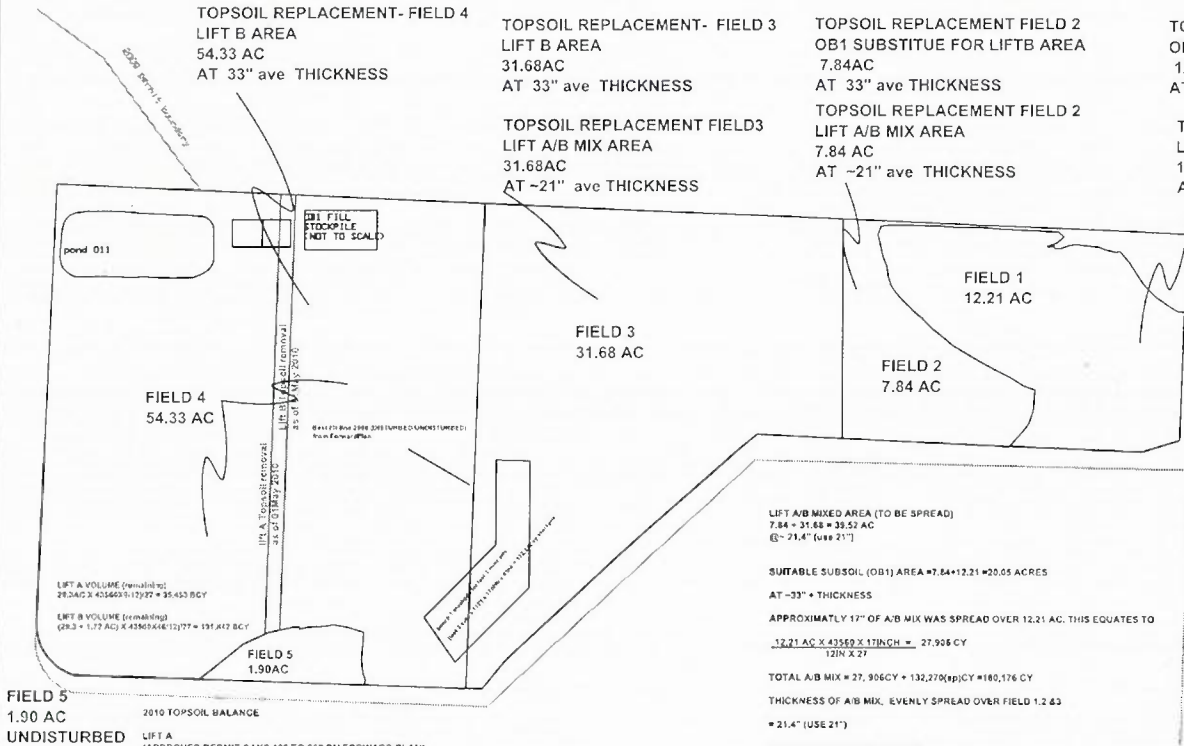
TOPSOIL REPLACEMENT FIELD 3
LIFT A/B MIX AREA
31.68 AC
AT -21" ave THICKNESS

TOPSOIL REPLACEMENT FIELD 2
OB1 SUBSTITUTE FOR LIFTB AREA
7.84 AC
AT 33" ave THICKNESS

TOPSOIL REPLACEMENT FIELD 2
LIFT A/B MIX AREA
7.84 AC
AT -21" ave THICKNESS

TOPSOIL REPLACEMENT FIELD 1
OB1 SUBSTITUTE FOR LIFTB AREA
12.21 AC
AT 33" ave THICKNESS

TOPSOIL REPLACEMENT FIELD 1
LIFT A/B MIX AREA
12.21 AC
AT -21" ave THICKNESS



FIELD 5
1.90 AC
UNDISTURBED
BECAUSE OF
BLASTING

2010 TOPSOIL BALANCE

LIFT A
(APPROVED PERMIT SAYS 12" TO 26" ON FORWARD PLAN)
181,790 CY X 27 X 12 IN FT X (100 % - 7 %) = 24.9" (USE 25" ave)
54.33 AC X 43560

LIFT B
(APPROVED PERMIT SAYS 30" TO 40" ON FORWARD PLAN - per Marcia Talavera from DRMS, use 33" of LIR B topsoil)
413,358 CY X 27 CF/CY X 12 IN FT X (100 % - 7 %) = 54.9"
54.33 AC X 43560

LIR B - make LIR B a fixed 33" ave thick (USE LIR B PLAN)
413,358 CY X 27 X 12 IN FT X (100 % - 7 %) = 86.5 acres (USE 86.01 ACRES)
33" X 43560

MIXED
(APPROVED PERMIT SAYS 22" ON BACKWARD PLAN)

DRMS Plan (JUNE 10 PLAN)
180,176 CY X 27 CF/CY X 12 IN FT X (100 % - 7 %) = 21.4" (USE 21")
31.68 + 7.84 + 12.21 AC X 43560

SEE MAP 2.05.4-7 FOR LOCATION OF DIFFERENT AREAS.

CONCLUSION:

LIFT A - FIELD 4 @ 25" ave = 54.33 ACRES
LIFT A/B MIX - FIELD 3 & 2 @ 21" ave TO BE SPREAD = 31.68 + 7.84 AC = 39.52 ACRES
LIFT A/B MIX - FIELD 1 @ 17" THAT HAS BEEN SPREAD BUT NEEDS 4.2" MORE OF A/B MIX TO GET 21" ave = 12.21 ACRES
AREA THAT HAS NOT BEEN DISTURBED - FIELD 5 = 1.90 ACRES
LIFT B - FIELD 4 @ 33" ave = 54.33 ACRES
LIFT B EXCESS - FIELD 3 @ 33" ave = 31.68 ACRES
OB1 SUBSTITUTE FOR LIFT B - FIELD 2 & 1 @ 33" THICK 7.84 + 12.21 AC = 20.05 ACRES
AREA THAT HAS NOT BEEN DISTURBED - FIELD 5 = 1.90 ACRES
= 107.96 ACRES

LIFT A VOLUME (remaining)
28.2 AC X 43560 (9227) = 35,453 BCY
LIFT B VOLUME (remaining)
(28.3 + 1.72 AC) X 43560 (61727) = 191,842 BCY

2010 Topsoil Thickness used for the yet to be disturbed land west of the active pit area. As of 01 May 10 (Western portion of Field 5)

Sample No.	LIR A (inch)	LIR B (inch)
#19	9	44
#20	9	39
#21	9	52
#22	9	52
#23	9	36
#24	9	53
AVE	9	46

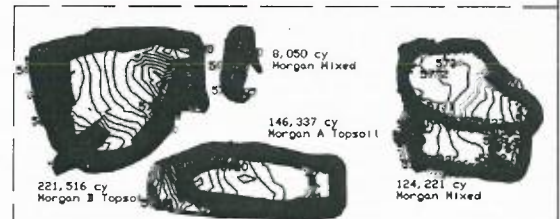
Note: If there is more LIR A & B that what is shown above, it will be salvaged

TOPSOIL MASS BALANCE

2010 MIXED 132,271 CY (STOCKPILE) SP DECREASED FROM 2008 BECAUSE OF DOZER PUSH-SPREADING

2010 LIFT A 146,337 (STOCKPILE) + 35453 (AHEAD OF PIT) = 181,790 CY (100 % recovery)

2010 LIFT B 221,516 (STOCKPILE) = 191,842 (AHEAD OF PIT) + 413,358 (AHEAD OF PIT) CY (100 % recovery)



MORGAN TOPSOIL STOCK PILE TOTALS (cuyd's)

124,221 MIXED
8,050 MIXED
132,271 MIXED (NOTE: 159,980 CY FROM 2008 SURVEY. SOME AMOUNT WAS PUSHED AND SPREAD AFTER 2008, THUS TOTAL STOCKPILE MIXED EQUALS 132,271 CY)
146,337 A TOPSOIL
221,516 B TOPSOIL
AS OF APRIL 27, 2010



24 May 2010

Western Fuels-Colorado
P.O. Box 628
Nucla, Colorado 81424

CERTIFIED MAIL NO. 7007 3020 0001 5760 7487
Mr. & Mrs. Frank Morgan
P.O. Box 4
Nucla, Colorado 81424

Telephone 970/864-2165
Fax 970/864-2168

CERTIFIED MAIL NO. 7007 3020 0001 5760 7494
Ms JoEllen Turner
Mr. Michael Morgan
P.O. Box 346
Nucla, Colorado 81424

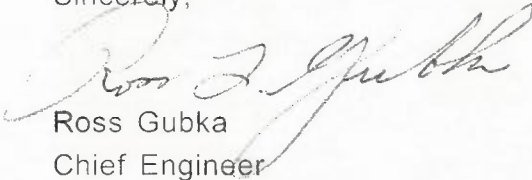
RE: Land Use Change for Morgan Property.

Dear Mr. and Mrs. Frank Morgan, Michael Morgan and Ms. JoEllen Turner:

Per Section 2.05.5(1)(b) of the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining, Western Fuels is notifying you that the entire (107.96 MOL acres) of the Morgan property within the WFC Mine Permit Boundary will be reclaimed to Prime Farmland Irrigated Cropland (alfalfa). The only exception would be any area falling within the BB Road West ROW. WFC has put **AV120 alfalfa** seed variety into the PR-06 application. We can all hope that the Division of Reclamation Mining and Safety will approve AV120. As you know, PR-06 has not been approved.

If you agree with this land use change as stated above, then you do not have to respond

Sincerely,


Ross Gubka
Chief Engineer