COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

## PERMIT INFORMATION

| | |
|---|---|
| **Permit Number:** C-1981-028<br>**Mine Name:** Keenesburg Strip Mine<br>**Operator:** Coors Energy Company<br>**Operator Address:**<br>Mr. Ben Moline<br>PO Box 4030<br>Golden, CO 80402 | **County:** Weld<br>**Operation Type:** Surface<br>**Permit Status:** Permanent Cessation<br>**Ownership:** Private |
| | **Operator Representative Present:**<br><br>Ben Moline |
| **Operator Representative Signature: (Field Issuance Only)** | |

## INSPECTION INFORMATION

| | |
|---|---|
| **Inspection Start Date:** August 29, 2022<br>**Inspection Start Time:** 09:00<br>**Inspection End Date:** August 29, 2022<br>**Inspection End Time:** 12:45 | **Inspection Type:** Coal Partial Inspection<br>**Inspection Reason:** Surety Release Requested<br>**Weather:** Clear |
| **Joint Inspection Agency:**<br><br>None | **Joint Inspection Contacts:** |
| **Post Inspection Agency:**<br><br>None | **Post Inspection Contacts:** |

| | | |
|---|---|---|
| **Inspector(s):** | **Inspector's Signature:** | **Signature Date:** |
| Robert Zuber, P.E. | Robert D. Zuber | 8/30/2022 |

1313 Sherman St. Room 215
Denver, CO 80203
(303) 866-3567

**Inspection Topic Summary**
NOTE: **Y**=Inspected **N**=Not Inspected **R**=Comments Noted **V**=Violation Issued **NA**=Not Applicable

**N** - Air Resource Protection
**N** - Availability of Records
**NA** - Backfill & Grading
**NA** - Excess Spoil and Dev. Waste
**NA** - Explosives
**N** - Fish & Wildlife
**Y** - Hydrologic Balance
**Y** - Gen. Compliance With Mine Plan
**N** - Other
**NA** - Processing Waste
**NA** - Roads
**Y** - Reclamation Success
**N** - Revegetation
**NA** - Subsidence
**Y** - Slides and Other Damage
**N** - Support Facilities On-site
**N** - Signs and Markers
**NA** - Support Facilities Not On-site
**NA** - Special Categories Of Mining
**NA** - Topsoil

## COMMENTS

This inspection, conducted by Rob Zuber of DRMS, was prompted by a Coors Energy Company (CEC) application for a Phase I bond release (SL-11). Ben Moline represented CEC during the inspection. Other participants included Dan MacKinnon and D.J. Cunningham of the Office of Surface Mining (U.S. Department of the Interior).

The weather was hot and clear, and the ground was dry.

The application requests Phase I release for eight areas:

- Areas 35, 43, and 44 are basically the reclaimed B Pit.
- Areas 36 and 37 generally include the reclaimed Long Term Spoil Area and Topsand Pile A-3.
- Area 38 is the location where Topsand Piles A-1 and B-1 existed prior to reclamation.
- Area 42 consists of reclaimed roads as well as a storage area west of Sediment Pond 2.
- Area 45 includes the perimeter ditch that extends from near the northwest corner of the site to Sediment Pond 2.

Please see Figure 1 from the application (below).

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0

## LEGEND

- CEC PERMIT BOUNDARY TR 46
- SECTION LINE/1/4 SECTION LINE
- PROPERTY BOUNDARY (VERIFIED 2006)
- EXISTING PAVED ACCESS ROAD
- EXISTING LIGHT DUTY ROAD OR EQUIPMENT ACCESS
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING POWER POLE
- EXISTING LIGHT POLE
- EXISTING & POST–MINING GROUND CONTOUR
- PERMIT POST–MINING GROUND CONTOUR
- EXISTING "PINNED" HORIZONTAL & VERTICAL CONTROL POINT
- OTHER AREA/NATURAL UNDISTURBED
- NATURAL UNDISTURBED AREA
- ENTRY ROAD
- EXISTING RECLAIMED AREA (SEEDED ONCE)
- EXISTING RECLAIMED AREA (RESEEDED – INTERSEEDED)
- **Phase I bond release areas**
- **Phase II bond release areas**
- **Phase III bond release areas**
- **Permanent Features**

*1999* — ORIGINAL SEEDING YEAR
23 — AREA REFERENCE NUMBER
2.6 AC. — AREA ACRES AFFECTED
**INTERSEEDED 2002** — ADDITIONAL ACTION TAKEN & YEAR

STORMWATER DRAINAGE AREA
45 — 3.41 AC — SEEDED 2019

NATURAL UNDISTURBED AREA

B — 23.56 AC. TECHNICAL REVISION LIMITS

1995 — 24 — 7.43 AC.

D — 0.44 AC.

43 — 8.3 AC — SEEDED 2019 — REVEG MORE ESTABLISHED

44 — 9.95 AC — SEEDED 2019

37 — 22.55 AC — SEEDED 2019 — MERGED WITH PART OF AREA 44 AND RESEEDED 2022

35 — B-PIT — 9.67 AC — SEEDED 2020

36 — 25.10 AC — SEEDED 2020 — PARTIALLY RESEEDED 2022 — LONG-TERM SPOIL AREA

2016 — 32 — 5.54 AC.

2009 — 31 — 11.89 AC. — FROM 10.29 AC. IN B PIT — FROM 1.6 AC. OUTSIDE

2015 — 33 — 12.39 AC.

2006 — 30 — 9.68 AC. — FROM 8.87 AC. IN B PIT — FROM 0.81 ACRES OUTSIDE

2003 — 29 — 8.31 AC. — FROM 7.27 AC. IN B PIT — FROM 1.03 ACRES OUTSIDE

2002 — 23 — 0.67 AC.

Z — 3.63 AC. — BOND RELEASED AREAS

STORMWATER DRAINAGE AREA
45 — 3.41 AC — SEEDED 2019

1995 — 28 — 1.36 AC.

B — NATURAL UNDISTURBED AREA

42 — 11.28 AC — SEEDED 2020 — RESEEDED 2022

40 — 3.19 AC — PERMANENT SEDIMENT POND 2

1995 — 26 — 5.56 AC. — INTERSEEDED 1998

1995 — 27 — 3.14 AC.

1997 — 25 — 12.61 AC. — RESEEDED 2012 — INTERSEEDED 2014

2016 — 41 — 3.05 AC — OFFICE AND MAINTENANCE BUILDING

PERMANENT DIKE/CUT POND

1997 — 2 — 1.96 AC. — RESEEDED 1998 — INTERSEEDED 1998

39 — 2.94 AC.

38 — 10.92 AC — TOPSAND PILES — SEEDED 2020 — RESEEDED/EXPANDED 2022

34 — 6.92 AC. — SEEDED 2016

P1 — 4.4 AC.

SEE PERMIT AREA MAP, APPENDIX A-1 FOR EXTENDED BOUNDARY

P2 — 41.31 AC.

NW COR, SEC. 25 T 3 N, R 64 W
N 1/4 COR, SEC. 25 T 3 N, R 64 W
NE COR, SEC. 25 T 3 N, R 64 W
W 1/4 COR, SEC. 25 T 3 N, R 64 W
E 1/4 COR, SEC. 25 T 3 N, R 64 W
SW COR, SEC. 25 T 3 N, R 64 W
S 1/4 COR, SEC. 25 T 3 N, R 64 W
SE COR, SEC. 25 T 3 N, R 64 W
W 1/4 COR, SEC. 36 T 3 N, R 64 W
C 1/4 COR, SEC. 36 T 3 N, R 64 W
E 1/4 COR, SEC. 36 T 3 N, R 64 W

SECTION 25
SECTION 36

N89°04'57"E 2637.03'
5274.06'
N89°07'15"E 2635.63'
N89°09'35"E 2634.25'
N89°012'46"E 2630.55'
S89°07'15"W 2635.64'
N00°04'35"W 5272.26'
S00°32'57"E 2639.70'
N00°04'35"W 2636.15'
S00°04'57"E 2641.13'
N00°04'35"W 586.15'
S00°04'57"E 586.19'
N00°34'44"W 2638.64'

0 100 200 400
APPROXIMATE SCALE (FEET)
CONTOUR INTERVAL = 2

The October 2012 Aerial survey of Keenesburg Mine was compiled and triangulated on Colorado State Plane North (surface) and reprojected to Local Mine Datum ruining the following report:

Horizontal Repletion to Local Mine Datum:
Translation north: -1,282,156.5640 ft.
Translation east: -3,240,307.3930 ft.
Rotation: 0°01'39.45"
Original north: 1,318,616.5640 ft.
Original east: 3,280,875.3930 ft.
Scale factor: 1.00148829949

Vertical Reprojection to Local Mine Datum:
Note: There is a vertical plane between the New Vertical Datum and the Local Mine Datum.
The following points where best fit to match Local Mine Datum.
X 36,620.749 - Y 28,971.406 -3.834 ft. at power pole
X 36,498.977 - Y 36,412.435 -0.25 ft. at control point 1101
X 40,568.000 - Y 36,460.000 1.273 ft. at control point 1103
X 41,733.435 - Y 28,217.937 -1.834 ft. at power pole

REFERENCE: COOPER AERIAL, TUSCON, AZ. 11/20/20

FIGURE - 1

COORS ENERGY COMPANY
BOND RELEASE FINAL AREAS GRADING

| | |
|---|---|
| CLIENT: COORS ENERGY COMPANY (KEENESBURG, COLORADO) | |
| PROJECT: BOND RELEASE | |
| PROJECT NO: COORS ENERGY | DATE COMPLETED: 04/2022 |
| DESIGNED BY: AEC | APPROVED BY: CJA |
| DRAWN BY: JGN | DWG NAME:COORS BOND RELEASE SITE MAP REV APRIL 2022 |
| REVISION: | REVISED BY: CJA DATE: 4-2021 |
| 0 ISSUED FOR BOND RELEASE 2021 | |

AEC AMERICAN ENVIRONMENTAL CONSULTING, LLC.

The drainage patterns for seven of the eight areas match the reclamation plan for the site, including Appendix Q-1 in the Permit Application Package. The observed drainage patterns are as follows:

- Within Areas 35, 43, and 44, the general drainage pattern is to the northeast. On the west side of these areas, however, there is a swale that drains to the north and then east across the north portion of Area 43.
- Areas 36 and 37 drain to the northeast.
- Most of Area 42 is essentially flat. The "steepest" portion, the reclaimed road west of the Dugout Pond, drains to the north at approximately a 1% slope.
- The ditch in Area 45 drains to the southeast and then east to Sediment Pond 2.

Area 38, the possible exception to the paragraph above, requires further discussion between DRMS and CEC. This will be part of the adequacy review for SL-11.

No problems were identified with erosion at any of the eight areas. The channel in Area 45 appears to be functioning well, as there is no sign of water flowing over the banks, and years of inspecting this channel have not indicated problems.

To further assess the topography at the site, two methods were employed:

- Calculation of slopes in certain areas with a rangefinder, a tool which uses laser technology to determine horizontal and vertical distances.
- GPS technology, utilizing a smart phone (iPhone 8) in communication via Bluetooth to a GNSS receiver. The receiver that was used is an Arrow Gold, manufactured by Eos Positioning Systems. Point data was collected at both ends of cross-sections A-A' and D-D' from the application.

The results of using the rangefinder show that slopes at the site (estimated by DRMS) are generally in agreement with slopes in the application:

- The Area 35 slope to the northeast (approximately transect A-A' in the application) of approximately 5% is somewhat above the slope indicated on the cross-section in the application, approximately 3%.
- Area 38 slopes to the southwest (approximately transect B-B' in the application) at 1.8%. A comparison cannot be made to the application data at this time. Details on the topography of Area 38 need to be developed during the adequacy portion of the review of this application.
- The portion of Area 42 that is due west of the Dugout Pond slopes to the north at 1.3%. This is close to the slope of 1.1% estimated from the map in the application.
- Area 44 slopes to the northeast at approximately 3.3%. This is close to the slope of 2.6% estimated from the map in the application.

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The GPS data also suggest that the slopes of cross-sections in the application are in agreement with DRMS estimates. However, the DRMS elevation data collected with GPS is somewhat suspect for two reasons:

- During collection of data in the field by DRMS, at some of the points, the software indicated that the accuracy was as poor as 0.7 meter.
- The elevations collected by DRMS do not match the elevations in the application, and the differences vary from approximately 0.2 feet to six feet.

Staff at the Office of Surface Mining are further analyzing the data for the source of errors (and possible correction), and this analysis may inform the forthcoming adequacy review by DRMS.

**DOCUMENTS RECEIVED - none**

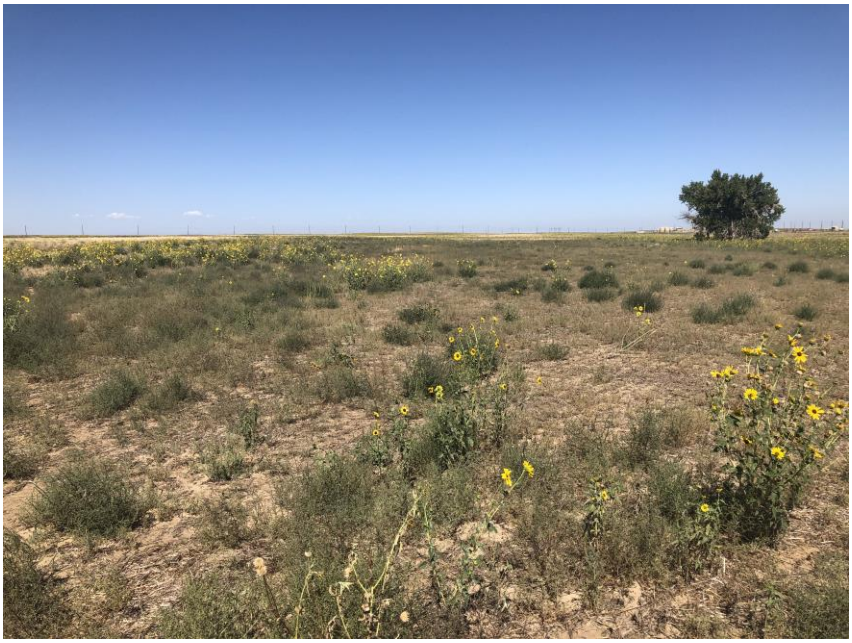
**OTHER (SPECIFY) - none**

## ENFORCEMENT ACTIONS/COMPLIANCE

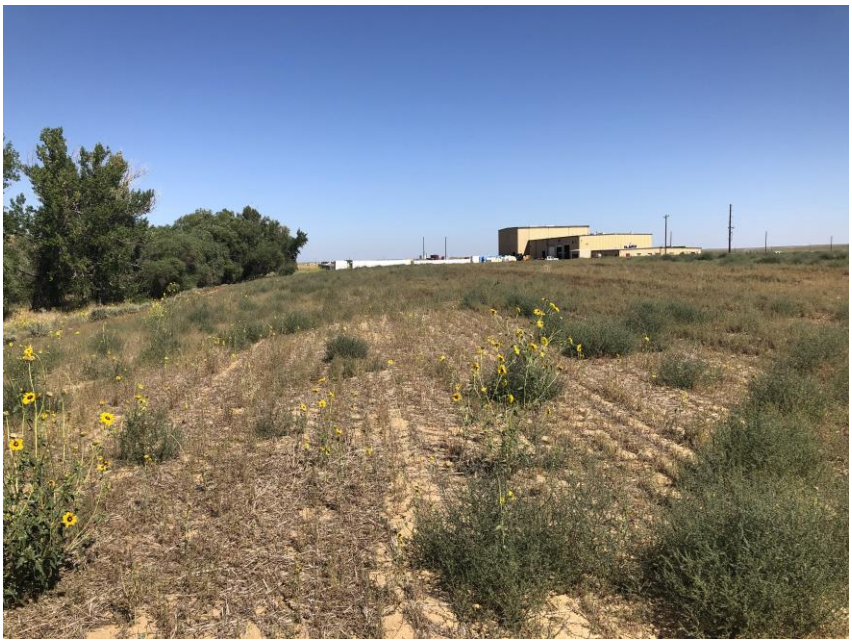
No enforcement actions were initiated as a result of this inspection, nor are any pending.

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0

## PHOTOGRAPHS

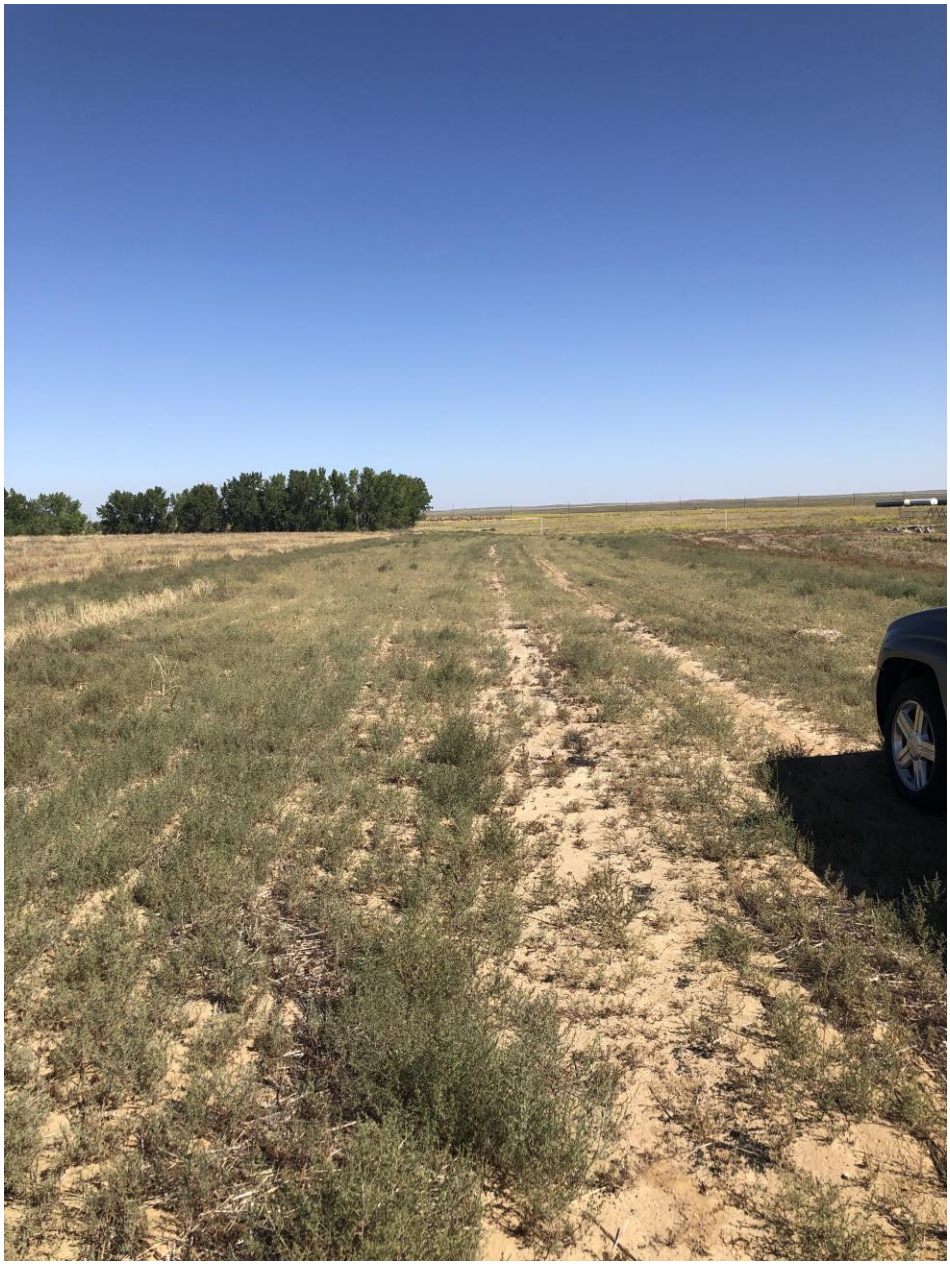


**Area 37, east end, looking north**



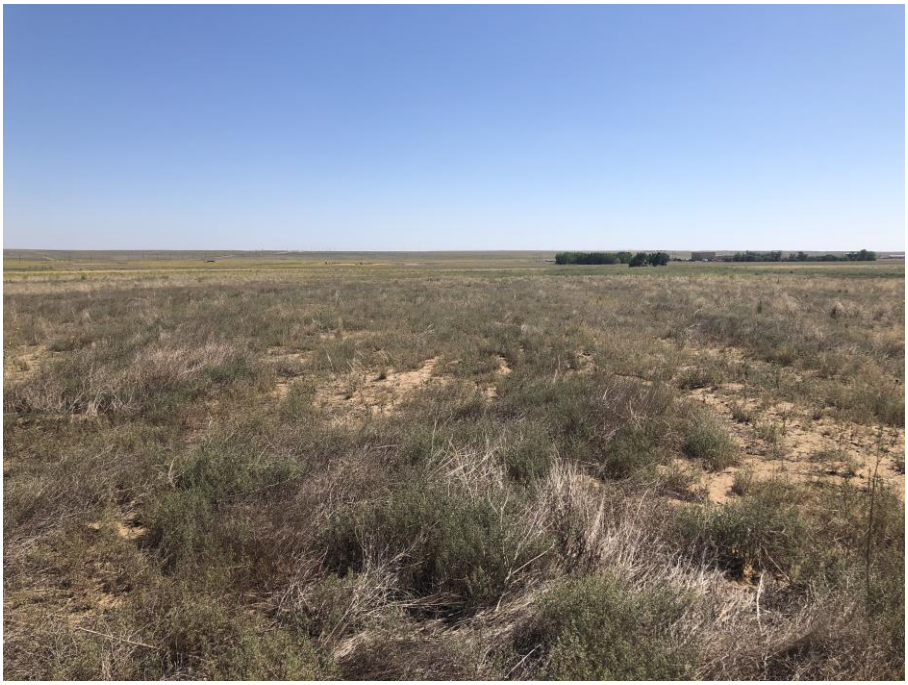
**Area 38, looking north toward facilities**

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0

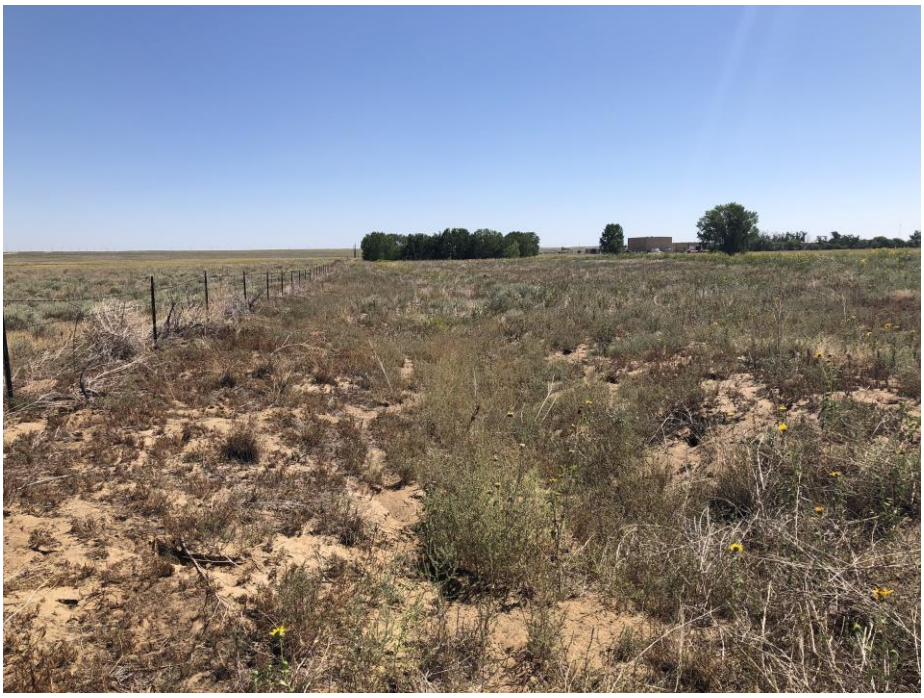


**Area 42, west of Dugout Pond, looking north**

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0

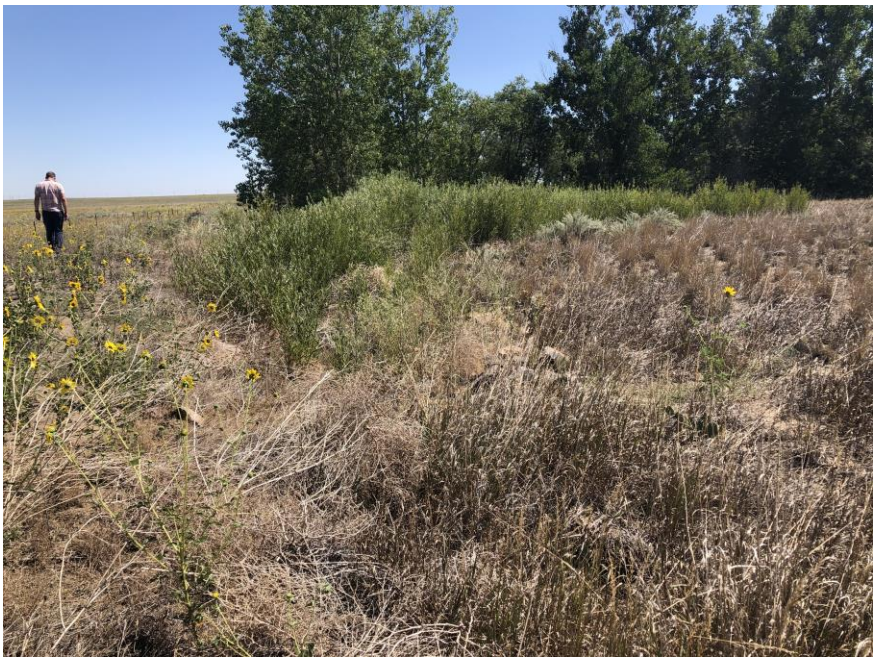


**Area 44, looking east**



**Area 45, looking east toward Sediment Pond 2**

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0



**Area 45, east end of channel, above Sediment Pond 2**

Number of Partial Inspection this Fiscal Year: 2
Number of Complete Inspections this Fiscal Year: 0