UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

JUL 07 2017

Ref: 8WP-SUI

Ms. Susana Lara-Mesa
Engineering Project Manager
K.P. Kauffman Company, Inc.
1675 Broadway, Suite 2800
Denver, Colorado 80202

Re: Final Major Permit Modification to Reconstruct the Suckla Farms No. 1, Weld County, Colorado, Permit No. CO10938-02115, API No. 05-123-14291

Dear Ms. Lara-Mesa:

Enclosed is your copy of the Environmental Protection Agency Region 8 Underground Injection Control (UIC) Final Major Permit Modification to reconstruct the Suckla Farms No. 1 injection well. A Statement of Basis that discusses the conditions and requirements of this EPA UIC Major Permit Modification, is also included.

The public comment period for this Final Major Permit Modification ended on **July 6, 2017**. No comments on the Draft Major Permit Modification were received during the Public Notice period; therefore, you may proceed with re-construction of the Suckla Farms No. 1 injection well. All conditions set forth herein refer to Title 40 Parts 124, 144, 146 and 147 of the Code of Federal Regulations (CFR) and are regulations that are in effect as of the Effective Date of this Major Permit Modification.

A cement bond log and a Part I Mechanical Integrity Test should be run following the completion of re-construction of the well. An updated well rework form should also be submitted for the EPA review. All testing and reporting of data shall be performed in accordance with Part II and Appendix D Permit requirements.

Please submit all data, comments and/or any questions on the enclosed information to Linda Bowling of my staff at (303) 312-6254, or toll free at (800) 227-8917, extension 312-6254.

Sincerely,

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Enclosures (2)

cc: Jim Annable
Bureau of Land Management
jannable@blm.gov

July 7, 2017

Darcy O'Connor
Assistant Regional Administrator
Office of Water Protection

Date

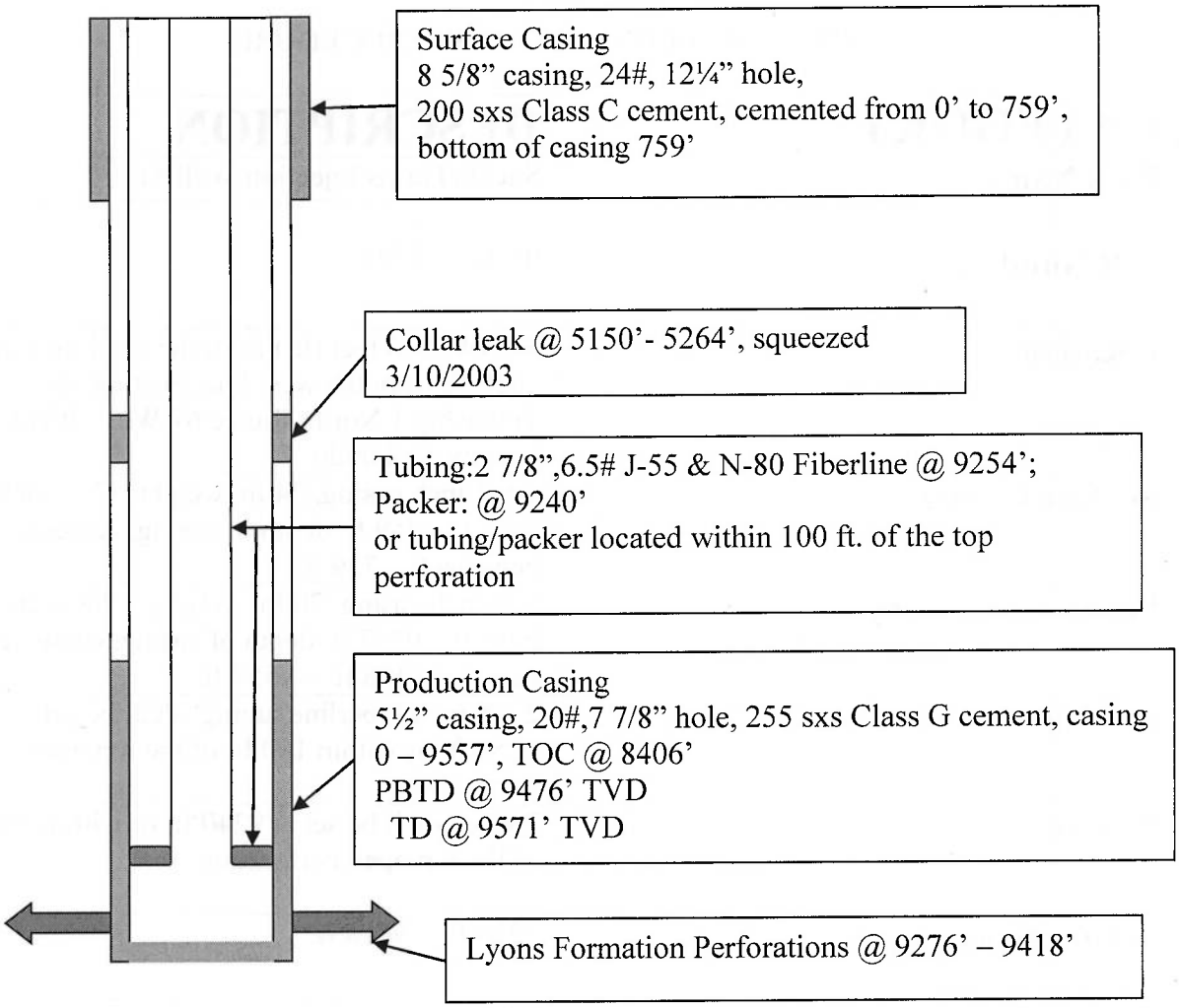
FINAL MAJOR MODIFICATION
for
APPENDIX A CONSTRUCTION PROCEDURE

Original Language
The construction procedures for the SUCKLA FARMS INJECTION WELL #1, are presented below.

APPENDIX A CONSTRUCTION PROCEDURE

CATEGORY	DESCRIPTION
Well Name	Suckla Farms Injection Well #1
API Number	05-123-14291
Location	SENW, 500 feet (ft.) from the south line and 2020 ft. from the west line, Section 10, Township 1 North, Range 67 West, Weld County, Colorado
Surface Casing	8 5/8-inch casing, 24 lb. weight, 12 ¼ inch hole, 0 – 759 ft. depth of casing, cemented between 0 – 759 ft.
Production Casing	5 ½ inch casing, 20 lb. weight, 7 7/8-inch hole, 0 – 9557 ft. depth of casing, cemented between 8406 ft. – 9557 ft.
Tubing	2 7/8 inch Fiberline tubing, shall be set at 9254 ft. or within 100 ft. of the top open perforation
Packer	Packer shall be set at 9240 ft. or within 100 ft. of the top open perforation
Perforations	9276 ft. – 9418 ft.
Top of Cement	8406 ft.
Total Depth	9571 ft.
Plug Back Total Depth	9476 ft.

Original Diagram
Suckla Farms #1 Disposal Well
SENW, 500 feet (ft.) from the south line and 2020 ft. from the west line, Section 10, Township 1 North, Range 67 West, Weld County, Colorado
API No. 05-123-14291

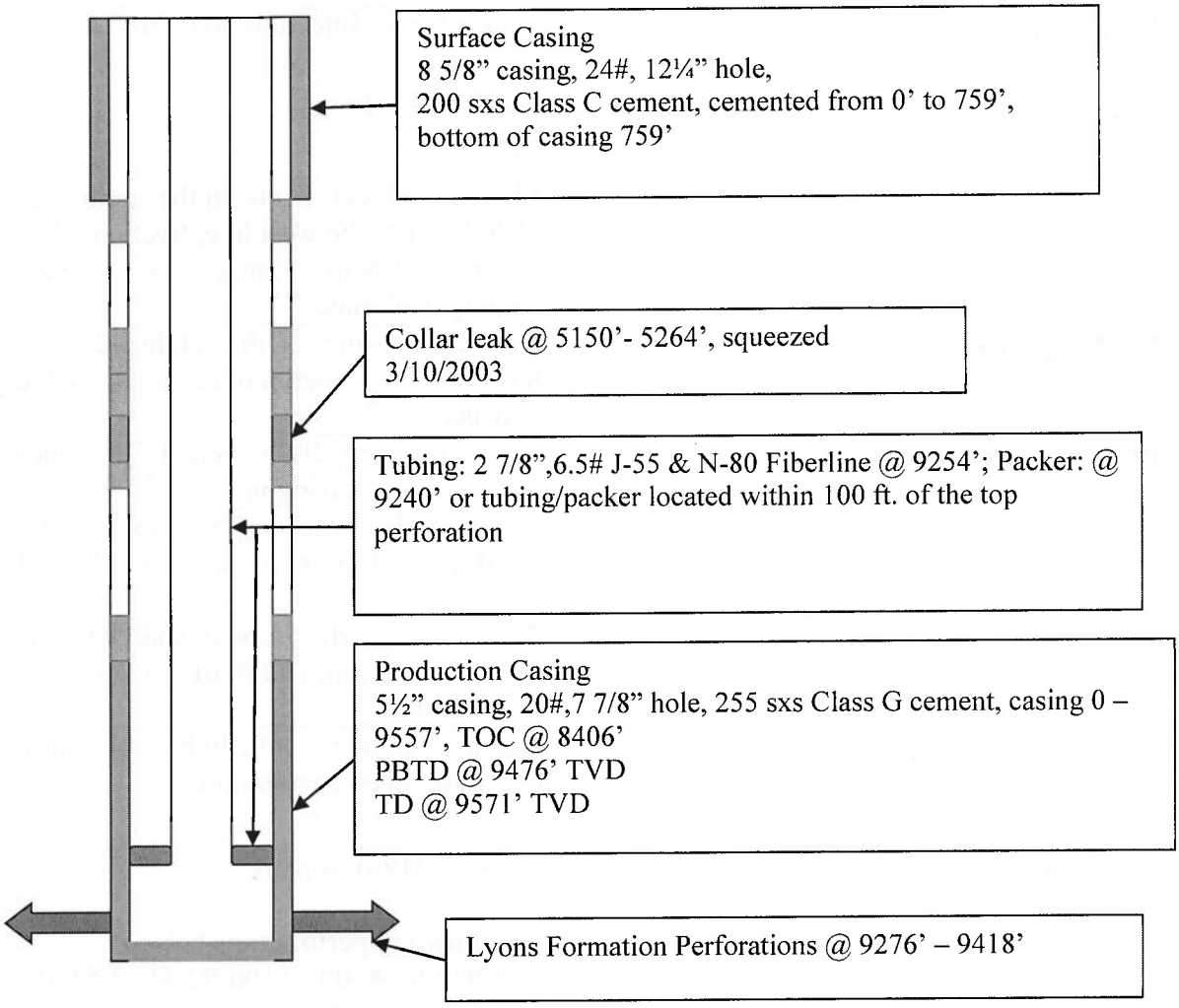


APPENDIX A CONSTRUCTION PROCEDURE

Modified Language
The construction procedures for the SUCKLA FARMS INJECTION WELL #1, are presented below.

CATEGORY	DESCRIPTION
Well Name	Suckla Farms Injection Well #1
API Number	05-123-14291
Location	SENW, 500 feet (ft.) from the south line and 2020 ft. from the west line, Section 10, Township 1 North, Range 67 West, Weld County, Colorado
Surface Casing	8 5/8-inch casing, 24 lb. weight, 12 ¼ inch hole, 0 – 759 ft. depth of casing, cemented between 0 – 759 ft.
Production Casing	5 ½ inch casing, 20 lb. weight, 7 7/8-inch hole, depth of casing is 0 – 9557 ft.
	Cemented Intervals are 759-935 ft.; 4500-5100 ft.; 5150-5400 ft.; and 7100-9571 ft.
Tubing	2 7/8 inch Fiberline tubing, shall be set at 9254 ft. or within 100 ft. of the top open perforation
Packer	Packer shall be set at 9240 ft. or within 100 ft. of the top open perforation
Perforations	9276 – 9418 ft. (open) All squeezed perforations below: 759-935 ft.; 4500 - 5100 ft.; 5150-5400 ft.; and 7100-8406 ft.
Top of Cement	759 ft.
Total Depth	9571 ft.
Plug Back Total Depth	9476 ft.
Depths are approximate and will be verified with a Cement Bond Log (CBL) following the completion of all well reconstruction activities. A well completion form and Part I mechanical integrity test results will also be required.	

Modified Diagram
Suckla Farms #1 Disposal Well
SENW, 500 feet (ft.) from the south line and 2020 ft. from the west line, Section 10, Township 1 North, Range 67 West, Weld County, Colorado
API No. 05-123-14291



Cemented Intervals are 759-935 ft.; 4500-5100 ft.; 5150-5400 ft.; and 7100-9571 ft.

STATEMENT OF BASIS

Final Major Permit Modification

Suckla Farms #1 Underground Injection Well
SENW, 500 feet (ft.) from the south line (FSL) and 2020 ft. from the west line (FWL)
Section 10, Township 1 North, Range 67 West
Weld County, Colorado

EPA PERMIT NO. CO10938-02115

COMMERCIAL NON-HAZARDOUS
CLASS I DISPOSAL FACILITY

WELD COUNTY, COLORADO

Wattenberg Disposal, LLC
1675 Broadway, Suite 2800
Denver, Colorado 80202

Dated: July 2017

CONTACT: Linda Bowling
U. S. Environmental Protection Agency Region 8
Office of Water Protection; 8WP-SUI
1595 Wynkoop Street
Denver, Colorado 80202-1129
Telephone: 800-227-8917, extension 312-6254

This **STATEMENT OF BASIS** gives the derivation of site-specific UIC Permit conditions and reasons for them. Referenced sections and conditions correspond to sections and conditions in the Permit.

This Major Modification contains the following changes:

- Table 2.1 Geological Setting of the Statement of Basis. Identification of the Pierre Shale Formation as both a USDW and other portions as a confining zone.
- Table 2.4 Underground Sources of Drinking Water (USDW) of the Statement of Basis. Identification of portion of the Pierre Shale Formation as a USDW.
- Table 3.1 Well Construction Requirements Suckla Farms Injection Well No. 1 of the Statement of Basis. The cemented interval has been revised to identify additional depths to which the longstring casing will be perforated to squeeze cement behind pipe.
- Appendix A Construction Procedure of the Permit has been altered to identify the placement of cement behind pipe for the Pierre Shale, Codell, and Niobrara Formations.

PART II. Permit Considerations (40 CFR 146.24)

Geologic Setting (TABLE 2.1)

TABLE 2.1
GEOLOGIC SETTING
SUCKLA FARMS INJECTION WELL No. 1

FORMATION NAME	GEOLOGICAL DESCRIPTION	TOP DEPTH, ft.	BOTTOM DEPTH, ft.	TDS mg/l	ZONE TYPE
Arapahoe	Sandstone, siltstone and shale	350		< 10,000 mg/l	USDW
Laramie	Sandstone, mudstone, clay and coal	unknown		< 10,000 mg/l	USDW
Fox Hills	Sandstone, siltstone and shale	650		< 10,000 mg/l	USDW
Pierre Shale	Shale	700			Upper Portion is a USDW and remainder is a Major confining zone
Niobrara Shale	Shale	7362			Confining zone
Codell	Silty, shaley and fine-grained sandstone	7694		unknown	Geological Setting

J Sand	Sandstone, Siltstones and shale	8133		unknown	Geological Setting
Dakota Sandstone	Sandstone and shale	8281		unknown	Geological Setting
Lakota Sandstone	Sandstone	8368		unknown	Geological Setting
Morrison	Mudstone, sandstone, siltstone and limestone	8404			Confining zone
Entrada	Sandstone	8562		unknown	Geological Setting
Harriman Shale (Forell)	Shale	9069	9139		Confining zone
Blaine Salt	Anhydrite and Shale	9143	9274		Confining Zone
Lyons Sandstone	Sandstone	9274	9422	33,000 mg/l	Injection zone
Santanka Shale	Shale	9422			Confining zone

The upper portion of the Pierre Shale has been identified as an Underground Source of Drinking Water.

Underground Sources of Drinking Water (USDWs) (TABLE 2.4)
Aquifers or the portions thereof which contain less than 10,000 mg/l total dissolved solids (TDS) and are being or could in the future be used as a source of drinking water are considered to be USDWs. The USDWs in the area of this facility are identified in TABLE 2.4.

TABLE 2.4
UNDERGROUND SOURCES OF DRINKING WATER (USDW)

FORMATION NAME	GEOLOGICAL DESCRIPTION	TOP DEPTH, ft.	BOTTOM DEPTH, ft.	TDS mg/l	ZONE TYPE
Arapahoe	Sandstone, siltstone, and shale	350		<10,000 mg/l	USDW
Laramie	Sandstone, mudstone, clay and coal			<10,000 mg/l	USDW
Fox Hills	Sandstone, siltstone and shale	650		<10,000 mg/l	USDW
Pierre Shale	Sandstone	700	885	<10,000 mg/l	USDW

The upper portion of the Pierre Shale is used to recover water for domestic use and is considered a USDW.

PART III. Well Construction (40 CFR 146.22)

TABLE 3.1
WELL CONSTRUCTION REQUIREMENTS
SUCKLA FARMS INJECTION WELL #1

Casing Type	Hole Size (in.)	Casing Size (in.)	Cased Interval (ft.)	Cemented Interval (ft.)
Surface	12 ¼	8 5/8	0 – 759	0 – 759
Longstring	5 ½	7 7/8	0 – 9557	759-935; 4500- 5100 5150-5400; 7100-9571

The approved well completion plan will be incorporated into the Permit as APPENDIX A and will be binding on the Permittee. Modification of the approved plan is allowed under 40 CFR 144.52(a)(1) provided written approval is obtained from the Director prior to actual modification.

Casing and Cementing (TABLE 3.1)
Cement will be added behind pipe to comply with requirements to protect underground sources of drinking water (USDWs). The additional cement will be placed to prevent contaminants from migrating into USDWs due to hydraulic fracking activities proposed in a nearby location. The Operator shall run a cement bond log and perform a Part I (Internal) Mechanical Integrity Test following the completion of re-construction activities. The Operator shall also update and provide a well completion form to identify all changes made to the Suckla Farms Injection Well.