



C-147 Registration Packet for Rosa Recycling Containment

**Section 30, T31N, R5W
Rio Arriba County, New Mexico**

State of New Mexico
Energy Minerals and Natural Resources
Department Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

Recycling Facility and/or Recycling Containment

Type of Facility: [X] Recycling Facility [X] Recycling Containment*
Type of action: [X] Permit [X] Registration
[] Modification [] Extension
[] Closure [] Other (explain)

* At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1. Operator: LOGOS Operating, LLC (For multiple operators attach page with information) OGRID #: 289408
Address: 2010 Afton Place, Farmington, NM 87401
Facility or well name (include API# if associated with a well): Rosa Recycling Facility
OCD Permit Number: 3RF-57 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr SW/4 SE/4 Section 30 Township 31N Range 05W County: Rio Arriba
Surface Owner: [X] Federal [] State [] Private [] Tribal Trust or Indian Allotment

2. [X] Recycling Facility: Location of recycling facility (if applicable): Latitude 36.877084 Longitude -107.3984050_NAD83
Proposed Use X Drilling X Completion* X Production X Plugging *
*The re-use of produced water may NOT be used until fresh water zones are cased and cemented
[] Other, requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.
[X] Fluid Storage
[X] Above ground tanks [X] Recycling containment [] Activity permitted under 19.15.17 NMAC explain type
[] Activity permitted under 19.15.36 NMAC explain type: [] Other explain
[] For multiple or additional recycling containments, attach design and location information of each containment
[] Closure Report (required within 60 days of closure completion): [] Recycling Facility Closure Completion Date:

3. [X] Recycling Containment:
[] Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)
Center of Recycling Containment (if applicable): Latitude 36.877125 Longitude -107.398656 NAD83
[] For multiple or additional recycling containments, attach design and location information of each containment
[X] Lined [] Liner type: Thickness 45 mil [X] LLDPE [] HDPE [] PVC [] Other
[X] String-Reinforced
Liner Seams: [X] Welded [] Factory [] Other Volume: 83,000 bbl Dimensions: L_Circle 223' x W 223' x D 223'
[] Recycling Containment Closure Completion Date:

4.

Bonding:

Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC (These containments are limited to only the wells owned or operated by the owners of the containment.)

Bonding in accordance with 19.15.34.15(A)(1). Amount of bond \$ _____ (work on these facilities cannot commence until bonding amounts are approved)

Attach closure cost estimate and documentation on how the closure cost was calculated.

5.

Fencing:

Four foot height, four strands of barbed wire evenly spaced between one and four feet

Alternate. Please specify _____

6.

Signs:

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation.

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

General siting	
Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain. FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

9.

Recycling Facility and/or Containment Checklist:

Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

- Design Plan - based upon the appropriate requirements.
- Operating and Maintenance Plan - based upon the appropriate requirements.
- Closure Plan - based upon the appropriate requirements.
- Site Specific Groundwater Data -
- Siting Criteria Compliance Demonstrations -
- Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

10.

Operator Application Certification:

I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.

Name (Print): Vanessa Fields Title: Regulatory Manager
 Signature: *Vanessa Fields* Date: March 21 2023
 e-mail address: vfields@logosresourcesllc.com Telephone: 505-320-1243

11.

OCD Representative Signature: *Victoria Venegas* Approval Date: 04/18/2023

Title: Environmental Specialist OCD Permit Number: 3RF-57

- OCD Conditions _____
- Additional OCD Conditions on Attachment

Contents

Introduction 2

Geologic Setting of the Regional Fresh-Water Bearing Formations 3

Distance to Groundwater Depth of Groundwater 4

Groud Bed Drilling Log 5

Water Table Elevation..... 6

Distance to Surface Water 7

Distance to Permanent Residence or Structures 7

Site Layout..... 8

Distance to Non-Public Water Supply..... 9

Distance to Municipal Boundaries and Fresh Water Fields 10

Distance to Wetlands..... 11

Distance to Subsurface Mines..... 12

Stability of Containment Area and Distance to High or Critical Karst..... 13

Distance to 100-Year Floodplain 14

Surface Plat 15

Firm Map..... 17

Site Plan 18

Design Plan..... 19

Leak Detection 24

Design and Construction Plan..... 25

Variance Request 28

LOGOS Inspection Plan 30

LOGOS Closure Plan 31

Introduction

LOGOS is proposing to install one single AST containment of 80,000 BBL capacity Poseidon Tank in the former Rosa Pond Containment area. LOGOS believes that this area will provide better protection to human health and the environment by using the existing disturbance and containment area to place the tank.

Prepared by:

Vanessa Fields

Vanessa Fields

Regulatory Manager

Email: vfields@logosresourcesllc.com

Office: 505-787-2218

Cell: 505-320-1243

Geologic Setting of the Regional Fresh-Water Bearing Formations

The proposed containment site is in the southeast portion of the Colorado Plateau, in the northern San Juan LOGOS. The area of the project is characterized by high mesas cut by numerous arroyos and canyons. North of the project area is Navajo Lake, a reservoir that flooded a deep canyon of the San Juan River. The project area lies within the Laguna Seca drainage, a northwest- to west-flowing dry arroyo and canyon system about 6 miles in length. Laguna Seca Mesa, the highest mesa within the drainage LOGOS, is 6779 feet (SE $\frac{1}{4}$ Section 20 T31N R5W) and the water level elevation of the Navajo Lake ranges between 6030-6050 feet above sea level (asl) throughout the year. Thus, the total relief within the Laguna Seca drainage is about 750 feet.

The containment location lies on an outcrop of the Eocene (Tertiary) San Jose Formation, a fluvial unit composed of more than 2000 feet of sandstone and conglomerate interbedded with mudstone. The San Jose formation overlies the Nacimiento Formation to the south and west and the Animas Formation to the northeast. The Llaves (predominantly sandstone) and/or Tapicitos (predominantly mudstone) Members of the San Jose crop out in the general area of the containment, as they do around Navajo Lake.

Many authors report interbedding of sandstone and mudstone units complicate mapping efforts. Inter tongue with the Regina Member of the San Jose Formation. A laterally persistent sheet sandstone characterizes the upper portion of the Llaves Member and we believe the exposed sandstone of the hills around the containment area is this same unit. The Tapicitos Member is composed of red mudrock and pink sandstone and overlies the Llaves and/or Regina Members as shown in the schematic cross-section from this same publication. Thus, in the area of the containment, the Tapicitos Member has been removed by erosion, as suggested in the NW side of schematic cross section.

Distance to Groundwater Depth of Groundwater

Water Table Elevation

The three closest cathodic protection wells to the proposed containment location are:

- Misc-243 - groundwater encountered at 6121 feet asl south of the site
- Misc-254 - groundwater encountered at 6242 feet asl southwest of the site
- Misc-247 - groundwater encountered at 5895 feet asl northwest of the site

Miscellaneous wells 243 and 254 are depicted on the cross section above. We conclude that the shallowest groundwater encountered by the driller in Misc-254 is a localized groundwater zone that is perched above a regional water table. Perhaps the uppermost sandstone observed in Misc-246 (elevation 6260-6310) is hydraulically connected to the uppermost sandstone in well Misc-254 (top sandstone elevation 6250). It is possible that this sandstone hydro-stratigraphic unit receives some recharge from the drainage system that lies between Misc-246 and Misc-254 at an elevation of 6310 or from Laguna Seca Draw to the north. This recharge could be sufficient to cause the driller to observe groundwater in this cathodic protection well at the elevation of 6242. This groundwater zone is not observed in Misc-243 or Misc-247 but is observed in Misc-256. As shown in the table below, the first groundwater is encountered more than 100 feet below land surface in 18 of 21 cathodic protection wells.

While one or more localized and relatively shallow groundwater zones are observed in the area at depths of 60-80 feet from ground surface, the preponderance of data allow a conclusion that the distance between the uppermost groundwater zone and the bottom of the proposed containment will be greater than 100 feet.

Groud Bed Drilling Log

Company: Williams Production Co.		Ground Bed Drilling Log		Date: 5/18/05
Location: Sec. 30 T31N R5W		Well: Rosa Unit 223 QA		State: NM
Ground Bed Depth: 480'		Duel Well:		
Indicate Water Zone Depth: 80'		Diameter: 6 3/4"		
Isolation Plugs Set: NO		If So Where:		
Coke:	Type: Loresco SWS	Total Weight: 2200 lbs.		
Anodes:	Type: Silicon Iron Type D	Weight: 45 lbs.		
Power Source: Battery	Volts: 13.8	Amps: 16.3	Resistance: 0.847	

Depth Ft	Drilling Log	Logged	Anodes Log Coked	Depth	Remarks
0'-20'	Casing				8" PVC SCH 40
20'- 80'	Shale				
80'- 160'	Sand Stone				
160'- 260'	Sandy Shale				
260'- 360'	Shale				
360'	"	2.0			
370'	"	2.1	4.2	370'	#10
380'	"	2.3	4.6	380'	#9
390'	Sandy Shale	0.9			
400'	Shale	1.8	3.6	400'	#8
410'	"	2.2	4.3	410'	#7
420'	"	2.7	5.4	420'	#6
430'	"	2.5	5.0	430'	#5
440'	"	2.7	5.4	440'	#4
450'	"	3.0	6.0	450'	#3
460'	"	2.8	5.6	460'	#2
470'	"	2.0	3.9	470'	#1
480'	"	2.0			

Water Table Elevation

Misc #	Gas Well Name	Date Measured	Location	Flow Rate	Surface Elevation	Depth to First Water	Total Depth	Groundwater Elevation
251	Rosa Unit 005B	4/9/2002	26;T31N.R06W		6309	260	500	6049
244	Rosa Unit 008A	7/2/1994	26; T31N.R06W		6274	200	500	6074
248	Rosa Unit 014A	4/17/2000	23;T31N.R06W		6273	260	500	6013
252	Rosa Unit 014B	9/5/2005	23;T31N.R06W		6285	160	500	6125
259	Rosa Unit 014C	10/6/2007	23;T31N.R06W		6275	140	500	6135
245	Rosa Unit 018A	7/9/1994	22; T31N.R06W		6303	220	500	6083
242	Rosa Unit 019A	5/24/1957	24; T31N.R06W		6304	200	460	6104
250	Rosa Unit 019B	10/28/2001	24;T31N.R06W		6320	200	500	6120
260	Rosa Unit 019D	8/25/2009	24;T31N.R06W		6311	180	500	6131
253	Rosa Unit 021C	6/14/2005	23;T31N.R06W	1 GPM	6216	140	500	6076
247	Rosa Unit 159A	5/10/2000	19;T31N.R05W		6307	180	500	6127
249	Rosa Unit 163A	5/19/2000	24;T31N.R06W		6064	280	500	5784
258	Rosa Unit 163C	5/9/2007	24;T31N.R06W		6302	160	500	6142
246	Rosa Unit 165A	7/24/1999	25; T31N.R06W		6370	260	500	6110
257	Rosa Unit 206A	6/8/2005	24;T31N.R06W	1 GPM	6302	100	500	6202
256	Rosa Unit 209A	6/23/2004	23;T31N.R06W		6312	80	480	6232
255	Rosa Unit 213A	6/5/2004	23;T31N.R06W		6247	60	440	6187
243	Rosa Unit 223	9/15/1990	30; T31N.R05W		6361	240	500	6121
254	Rosa Unit 223A	5/27/2004	30;T31N.R05W		6322	80	480	6242
N-Sect	Rosa Unit 256A	4/28/2005	30;T31N.R06W	Wet Sand	6404	200	500	6204
N-Sect	Rosa Unit 165D	5/19/2010	30;T31N.R06W		6403	170	500	6233
N-Sect	Rosa Unit 165B	7/9/2002	30;T31N.R06W		6311	100	500	6211

Distance to Surface Water

Data and analysis demonstrate that the containment is not within 300 feet of a continuously flowing watercourse, or any other active significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

The discussion at the end of this section provides an analysis of this "blue-line arroyo" that, in part, supported the opinion from the Army Corps of Engineers in Appendix A and reproduced in part below:

"The U.S. Army Corps of Engineers (Corps) is in receipt of a request made by the Bureau of Land Management (BLM) and WPX Energy for an approved jurisdictional determination (JD), dated March 24, 2015, for property located at latitude 36.87686, longitude -107.40052, in Rio Arriba County, New Mexico...

Based on the information provided, we have determined that the site contains no waters of the United States.

The basis for this approved JD (Appendix A) is that the project site contains an abandoned drainage, which currently functions as an erosional feature."

The proposed stockpile of excavated earth is not within 100 feet of a significant watercourse.

Distance to Permanent Residence or Structures

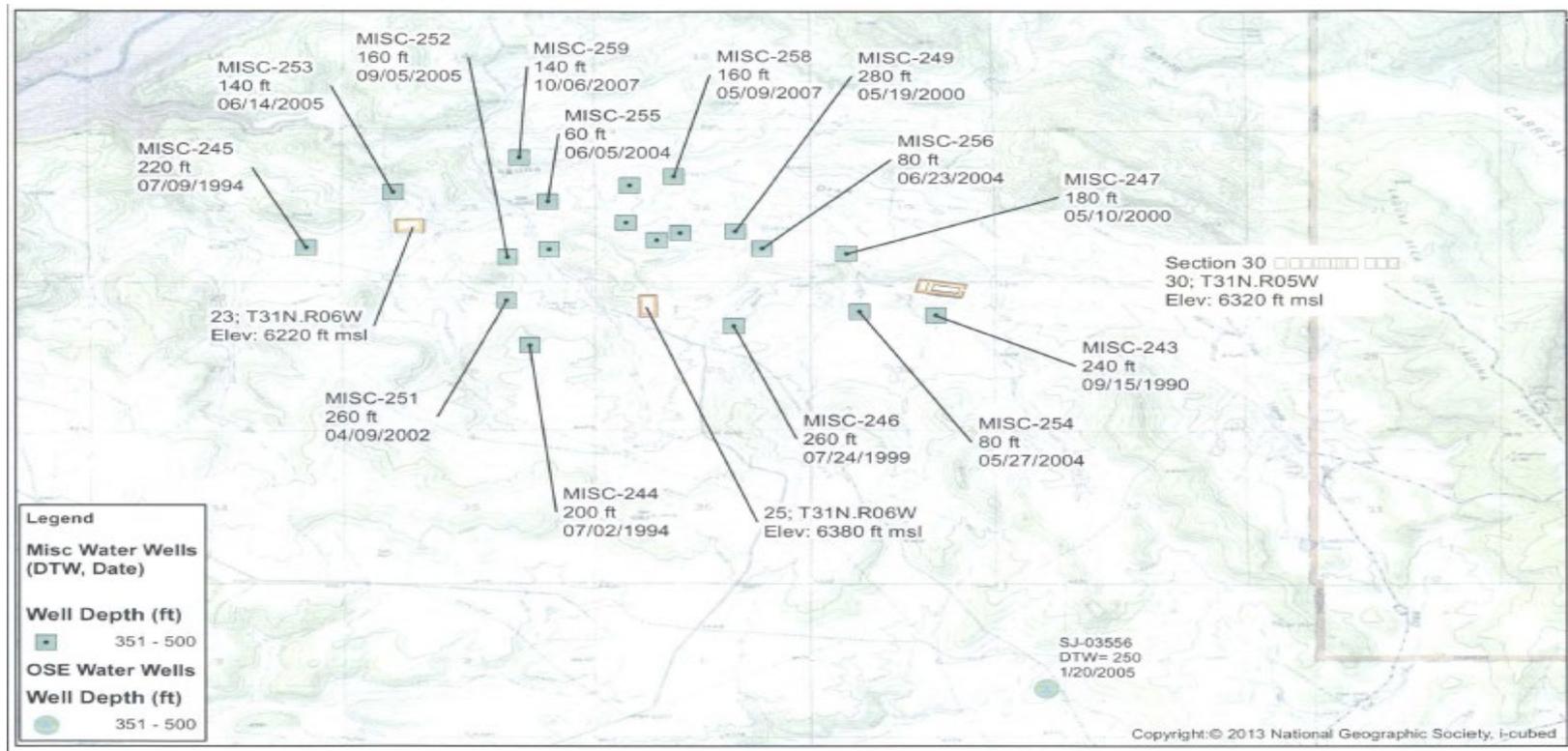
The location is not within 300 feet from a permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application.

Site Layout



Distance to Non-Public Water Supply

the location is not within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring,

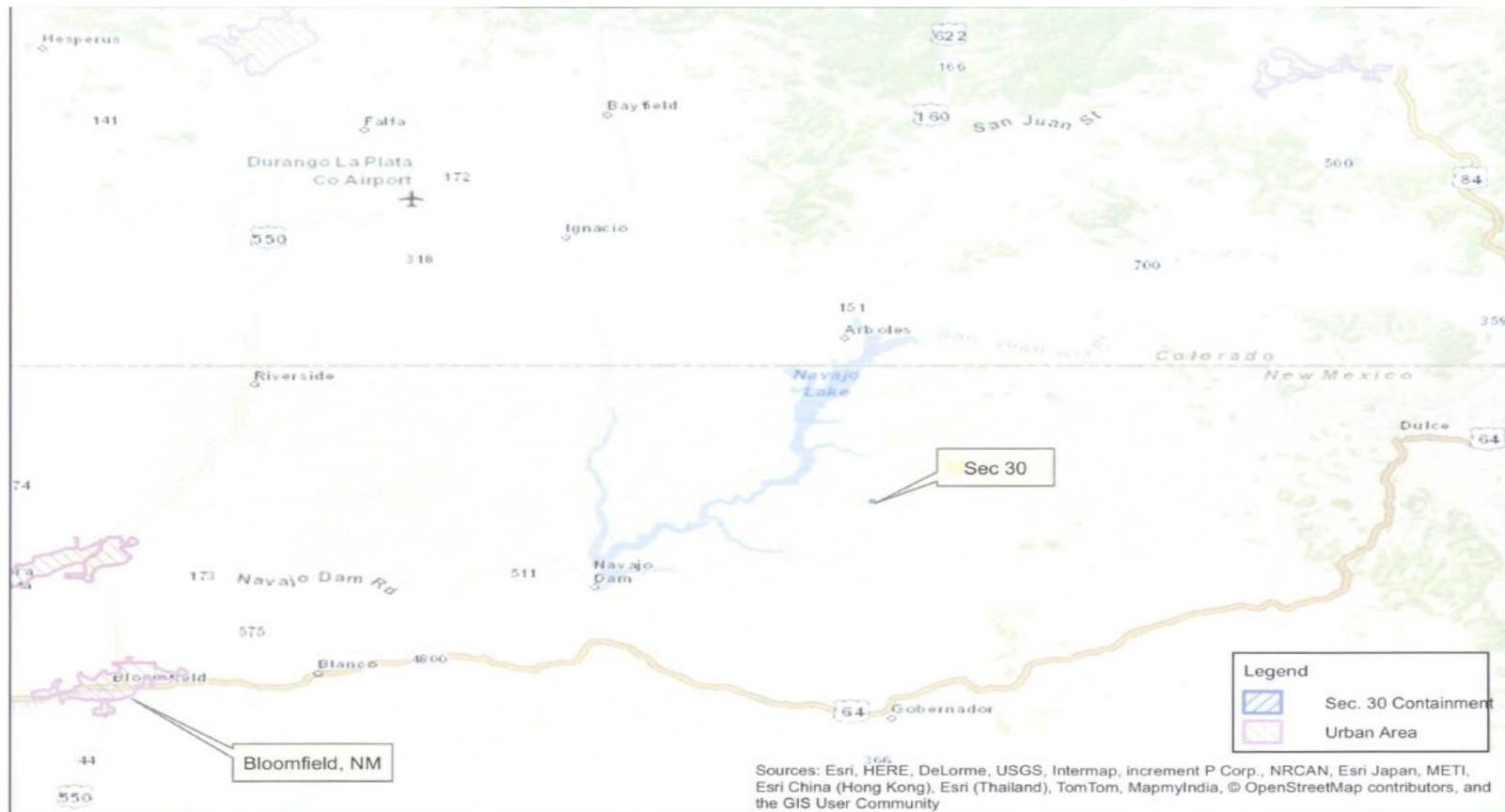


Distance to Municipal Boundaries and Fresh Water Fields

the location is not within incorporated municipal

boundaries or defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

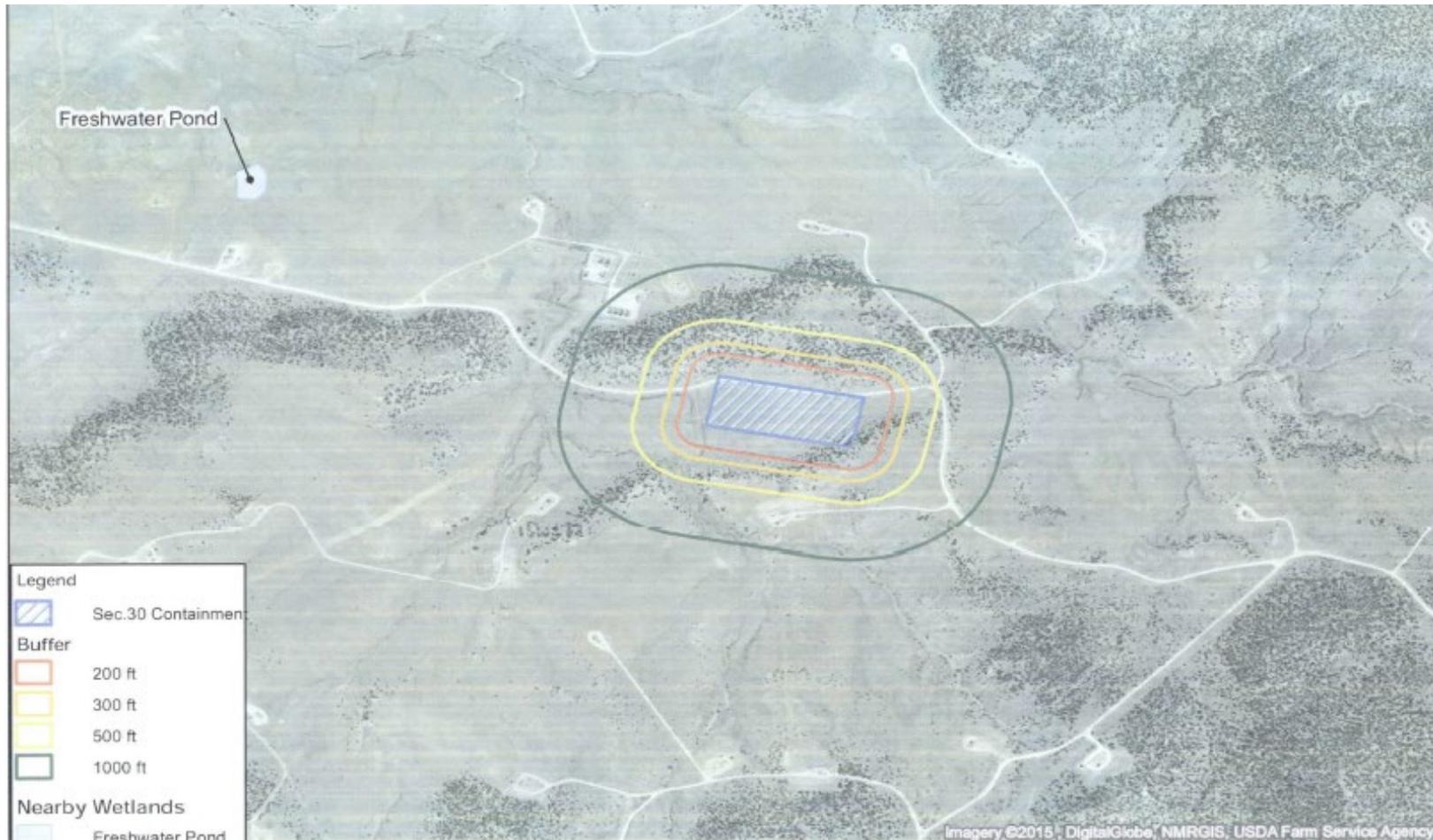
- The closest municipality is Bloomfield, NM approximately 30 miles to the Southwest. The containment is not located within a municipal fresh water well field.



Distance to Wetlands

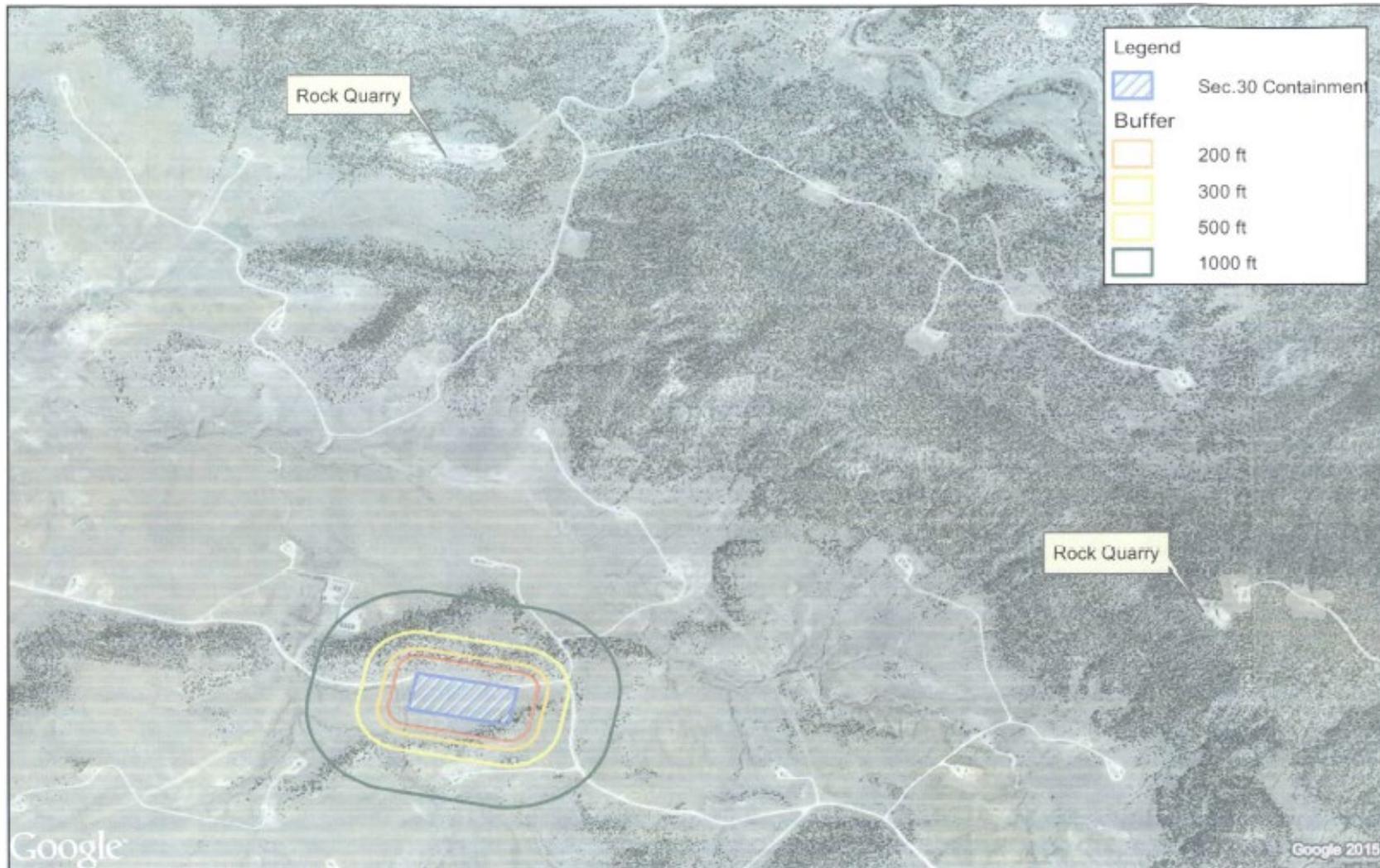
The location is not within 300 feet of wetlands.

The nearest designated wetlands is a "Freshwater Pond" located about 0.75 miles to the northwest of the containment.



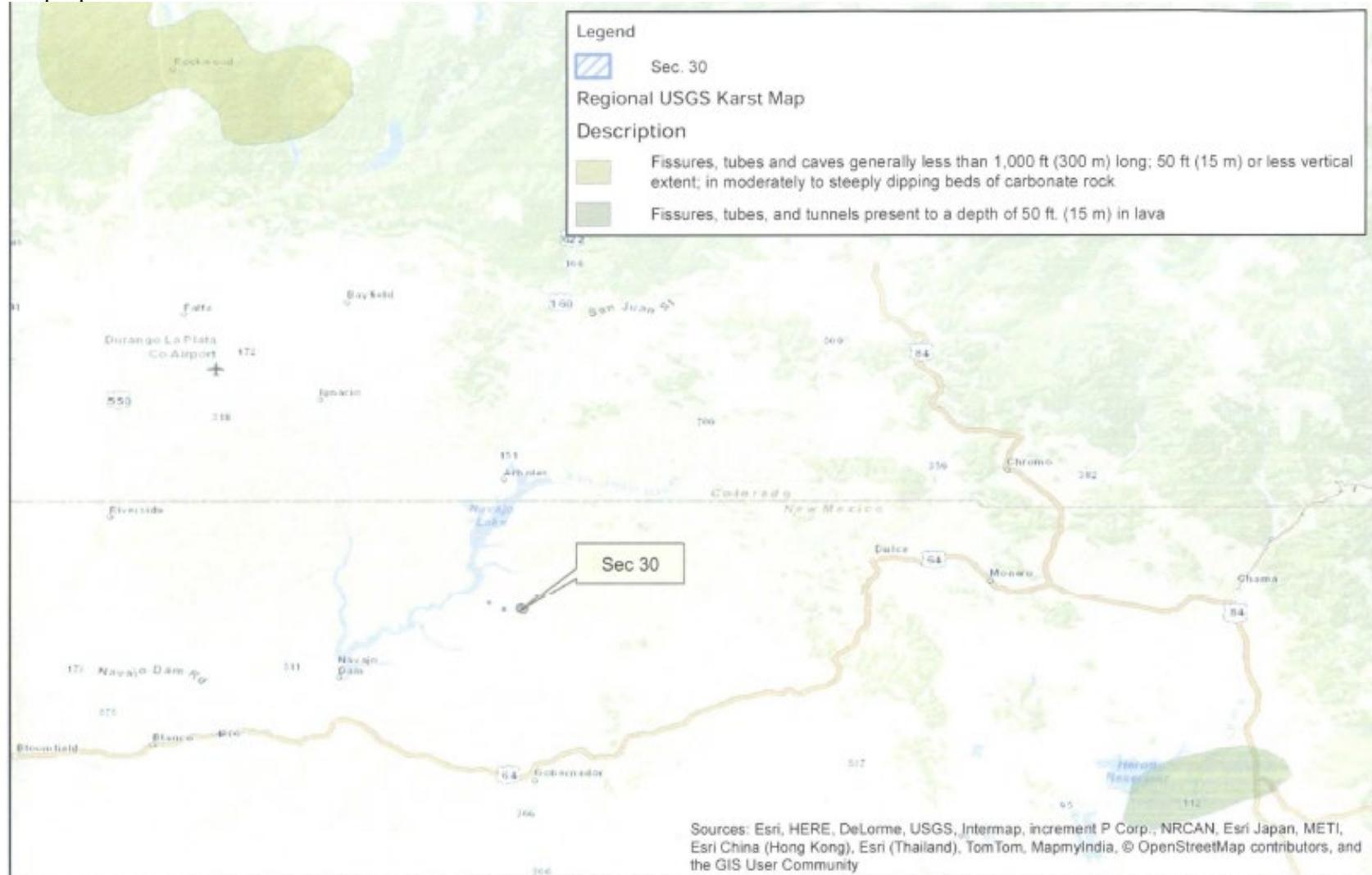
Distance to Subsurface Mines

The nearest rock quarry is located approximately 1.3 miles to the north and east of the containment.



Stability of Containment Area and Distance to High or Critical Karst

The proposed containment is not located within a karst area as defined by the USGS. The nearest karst area is located approximately 40 miles northwest and southeast of the proposed containment.

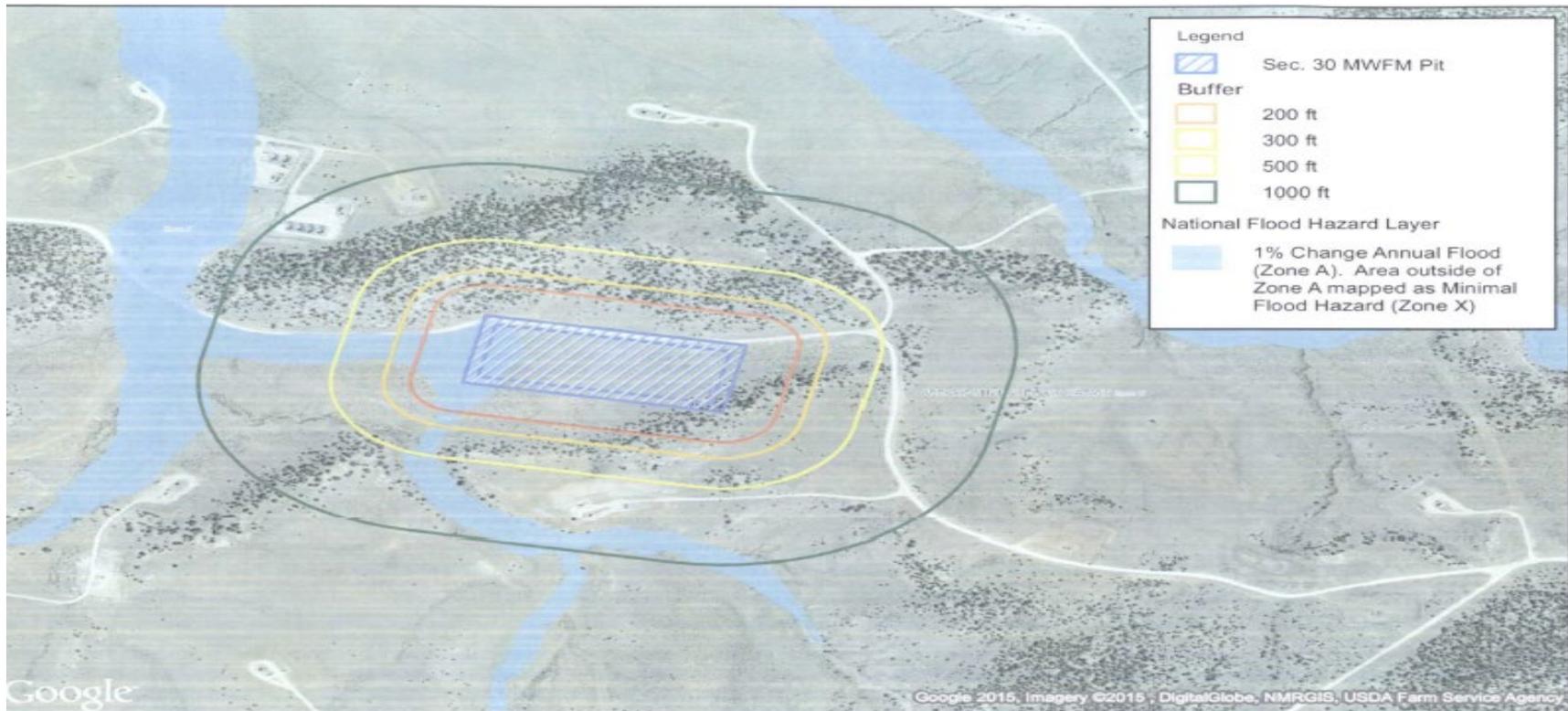


Distance to 100-Year Floodplain

the western third of the Containment is located within an area that has a 1% annual chance of flood (Zone A) as mapped by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

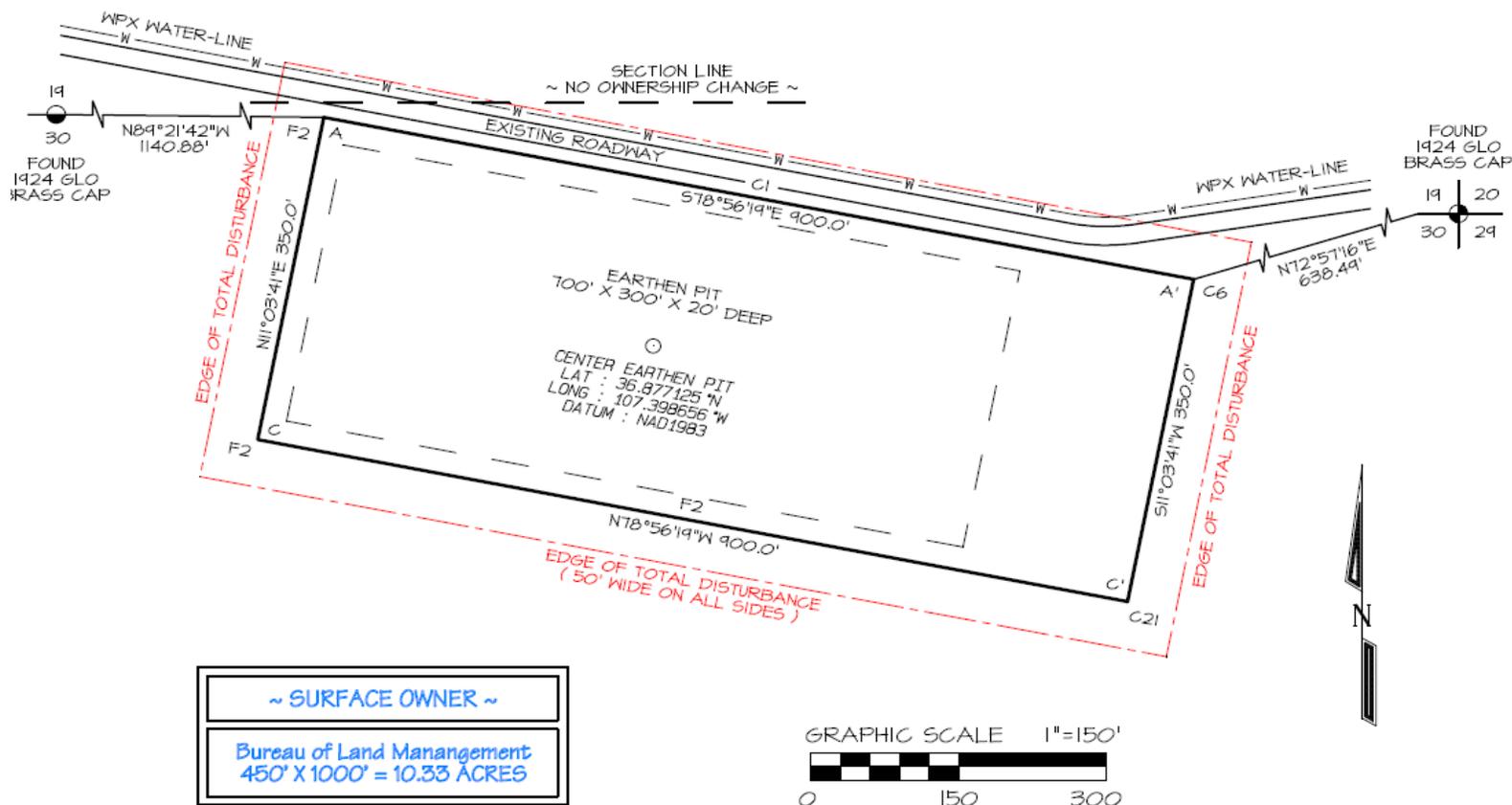
The finding by FEMA is clearly based upon an conclusion that the "blue line arroyo" on the USGS 1982 USGS topographic maps of Gomez Ranch and Bancos Mesa. Based upon the evaluation of this area by the Army COE and the evidence presented below, the FEMA map is clearly incorrect. Therefore, we conclude that the 100-year floodplain exists near the active arroyo that lies about 500 feet south of the containment.

Previously approved in permit 3RF-3



Surface Plat

SECTION 30 RECYCLING CONTAINMENT
LOCATED IN SW/4 SE/4 SECTION 19 & N/2 NE/4 SECTION 30, T31N, R5W
N.M.P.M., RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6328'
LAT: 36.877084°N LONG: 107.398405°W DATUM: NAD1983



~ SURFACE OWNER ~
 Bureau of Land Management
 450' X 1000' = 10.33 ACRES



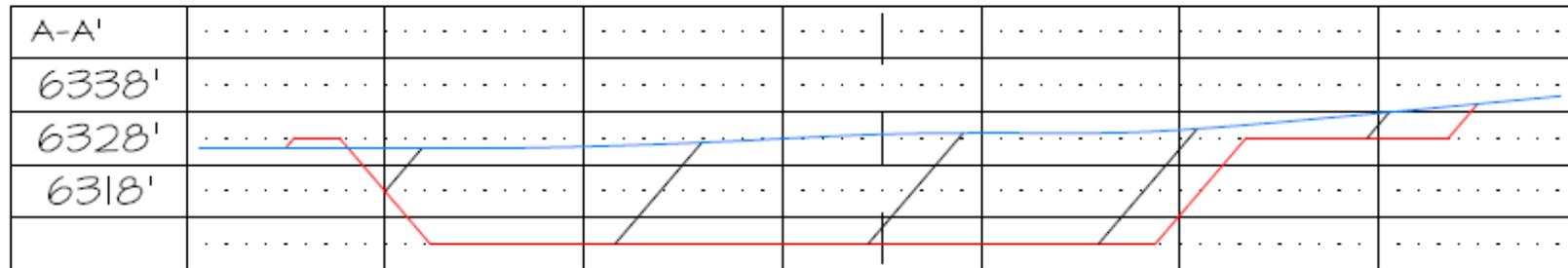
Steel T-Posts have been set to define the Edge of Disturbance limits which are 50' offset from the edge of the staked multi-well fluids management system.

SECTION 30 RECYCLING CONTAINMENT
LOCATED IN SW/4 SE/4 SECTION 19 & N/2 NE/4 SECTION 30, T31N, R5W
NMPM, RIO ARriba COUNTY, NEW MEXICO ELEVATION: 6328'

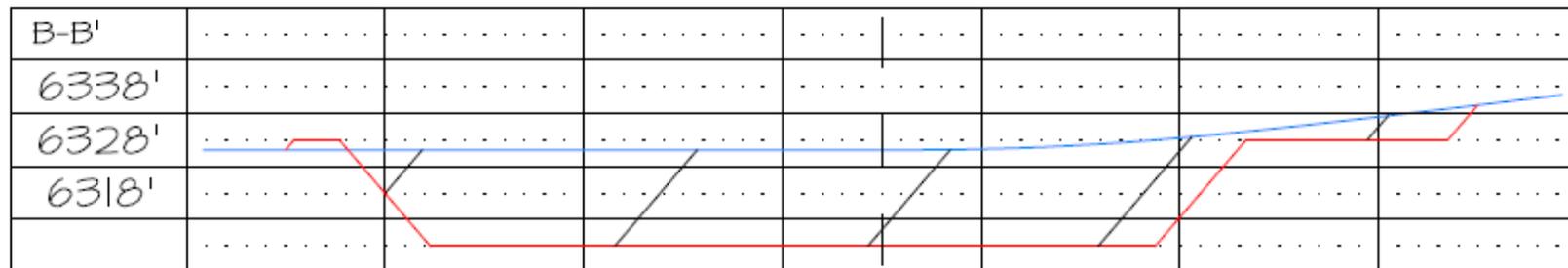
HORIZONTAL SCALE 1"=120'

C/L

VERTICAL SCALE 1"=30'



C/L



C/L



NCE SURVEYS IS NOT LIABLE FOR LOCATION OF UNDERGROUND UTILITIES OR PIPELINES.
 CONTRACTOR SHOULD CONTACT ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED UNDERGROUND
 UTILITIES OR PIPELINES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO WORKING DAYS PRIOR TO CONSTRUCTION.

Firm Map

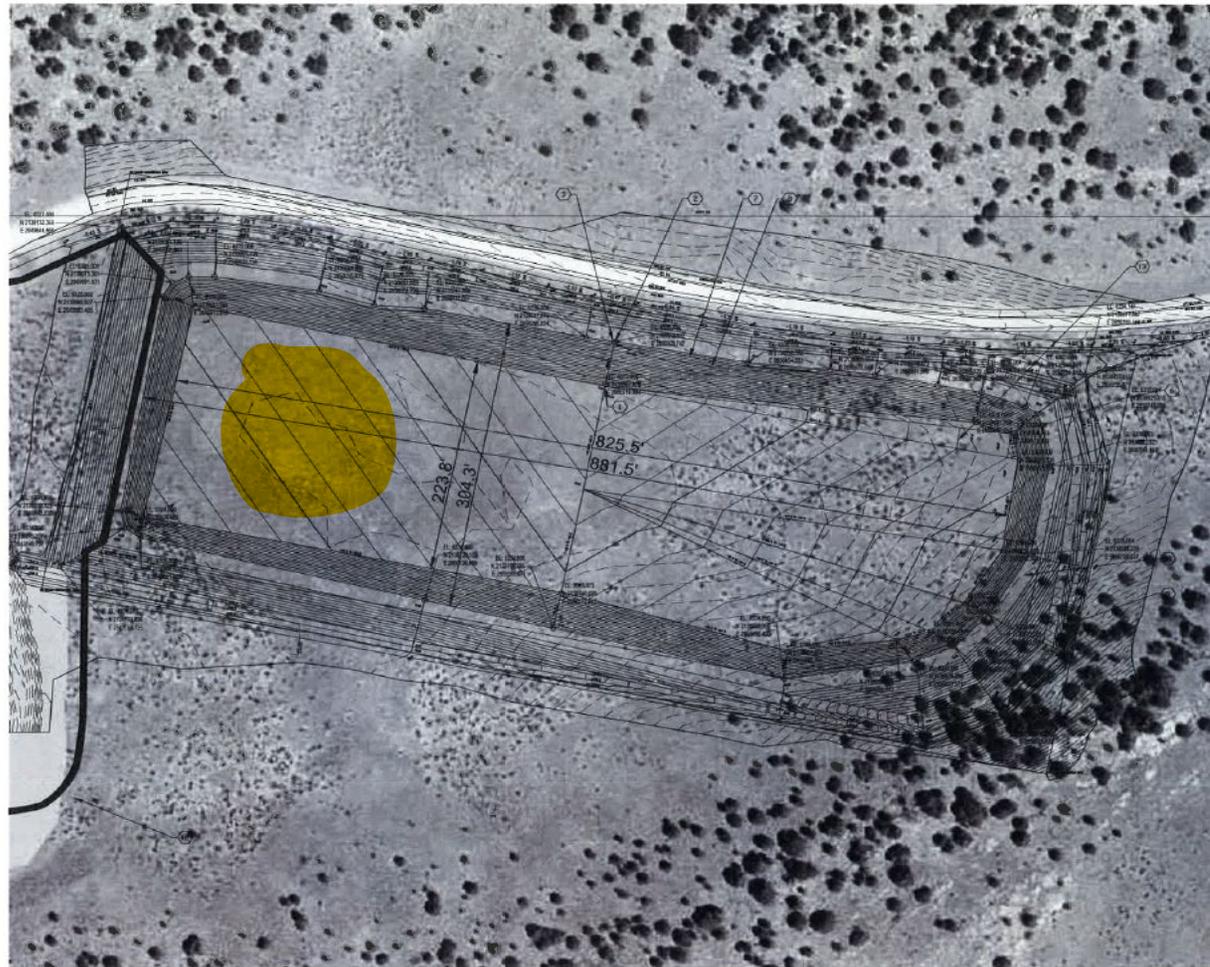


<p>PIN</p> <ul style="list-style-type: none"> Approximate location based on user input and does not represent an authoritative property location <p>MAP PANELS</p> <ul style="list-style-type: none"> Selected FloodMap Boundary Digital Data Available No Digital Data Available Unmapped <p>OTHER AREAS</p> <ul style="list-style-type: none"> NO SCREEN Area of Minimal Flood Hazard Zone X Effective LOMRs Area of Undetermined Flood Hazard Zone D Otherwise Protected Area Coastal Barrier Resource System Area 	<p>SPECIAL FLOOD HAZARD AREAS</p> <ul style="list-style-type: none"> Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Regulatory Floodway Zone AE, AO, AH, VE, AR <p>OTHER AREAS OF FLOOD HAZARD</p> <ul style="list-style-type: none"> 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X Future Conditions 1% Annual Chance Flood Hazard Zone X Area with Reduced Flood Risk due to Levee. See Notes. Zone X Area with Flood Risk due to Levee Zone D 	<p>OTHER FEATURES</p> <ul style="list-style-type: none"> 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation 17.5 Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature <p>GENERAL STRUCTURES</p> <ul style="list-style-type: none"> Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
--	---	---

Site Plan

Original Design of the containment area. LOGOS will only be utilizing the existing disturbance to set the (1) Poseidon tank inside the referenced area.

Area demonstrating 80k tank



SITE PLAN

GENERAL NOTES			
1.	ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT CONSTRUCTION PLAN, SPECIFICATIONS AND THE LATEST EDITION OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS COLLECTION.		
2.	OWNER AND CONTRACTOR ARE RESPONSIBLE TO DEVELOP PERMIT, NEEDS AND APPROVE THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL AND STATE REQUIREMENTS, SUBJECT TO MODIFICATION TO THE PROJECT.		
3.	BOTTOM OF PIT SHALL BE SLOPED AT LEAST 0.1% AND LESS THAN 2% AS SHOWN.		
4.	PERIMETER OF THE PIT SHALL BE ENCLOSED WITH A GAIN WIRE FENCE OR BETTER.		
5.	STAKE AND STOCKPILE TOPSOIL FOR FUTURE CLOSURE USE OR USE AS FILL. OWNER SHALL DETERMINE LOCATION OF STOCKPILE.		
6.	ENGINEERED BELL AND LINDER FOUNDATION SHALL BE SET TO OPTIMUM MOISTURE CONTENT AND COMPACTED PER GEOTECHNICAL REPORT.		
7.	STOCKPILE SHALL BE A MINIMUM OF 100 FT NORTH OF ACTIVE ARROYO.		
8.	TOTAL CAPACITY 1000 TFB BOUND = 875,000 GALL.		
9.	VOLUME @ CURVE FLOW CONCENTRATION = 730,000 GALL.		

SHEET KEYNOTES			
1.	SEMP: SEE DETAIL, SHEET C308.		
2.	1/4" RAMP ACCESS: SEE DETAIL, SHEET C308.		
3.	WALKWAYS: SEE DETAIL, SHEET C308.		
4.	NOT USED.		
5.	TO ADD: WINDMILL FENCE HEIGHT ACCORDING TO STATE, 1000 EACH.		
6.	CONSTRUCTION ZONE.		
7.	3' FREEBOARD DEPTH.		
8.	FRESH WATER ELEVATION.		
9.	GROUND PROTECTION DITCH 3' WIDTH AND 6" DEPTH.		
10.	ANCHOR TRENCH: SEE DETAIL, SHEET C308.		
11.	CHAIN FENCE W/ 42" HIGH CHAIN WIRE: FIRMLY ATTACHED TO BOTTOM.		
12.	STOCKPILE AREA.		
13.	MULTI-WALL FLOOD MANAGEMENT PIT.		

LEGEND	
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR
---	PROPOSED MAJOR CONTOUR
---	PROPOSED MINOR CONTOUR
---	PROPOSED CHAIN WIRE FENCE
---	DITCH & FLOW DIRECTION

PROJECT: WPX ENERGY INC.	
SHEET: SITE PLAN	
WPX - RECYCLING CONTAINMENT SECTION 30 T31N R5W RIO ARRIBA, NM	
PROJECT NO.	RT18976.04
DESIGNED BY	REW
DRAWN BY	GLM
CHECKED BY	SAE
DATE	MAY 20, 2015
WPX CHK.	-
SHEET:	C101

Design Plan

US18P - 18 PANEL FRAC TANK

INDEX OF DRAWINGS	
SHT NO.	SHEET TITLE
G-001	COVER SHEET
G-002	PROJECT SYMBOLOLOGY
S-101	PLAN, ELEVATION, AND GENERAL NOTES
S-102	WALL PANEL ASSEMBLY
S-301	SECTIONS

ISSUED FOR CONSTRUCTION

GARVER PROJECT NUMBER 20B00036
AUGUST 19, 2020



HYDRERA
WATER SERVICES
CLIENT/OWNER
HYDRERA WATER SERVICES, LLC
2722 WEST TUCKER DRIVE
SOUTH BEND, IN 46519
(574) 336-9100



GARVER
ENGINEER
GARVER, LLC
4701 NORTHSHORE DRIVE
NORTH LITTLE ROCK, AR 72118
(501) 376-3633



SFI
FABRICATOR
SFI TENNESSEE
4758 HUNGERFORD ROAD
MEMPHIS, TN 38118
(901) 257-6866



THIS DOCUMENT, ALONG WITH THE DRAWING, IS THE PROPERTY OF GARVER, LLC. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF GARVER, LLC. ANY USE OF THIS DOCUMENT FOR ANY OTHER PROJECT IS STRICTLY PROHIBITED. GARVER, LLC IS NOT RESPONSIBLE FOR ANY DAMAGE OR LOSS OF DATA ARISING FROM THE USE OF THIS DOCUMENT.



11/1/20

REV.	DATE	DESCRIPTION

HYDRERA WATER SERVICES, LLC
2722 W. TUCKER DR.
SOUTH BEND, IN 46519

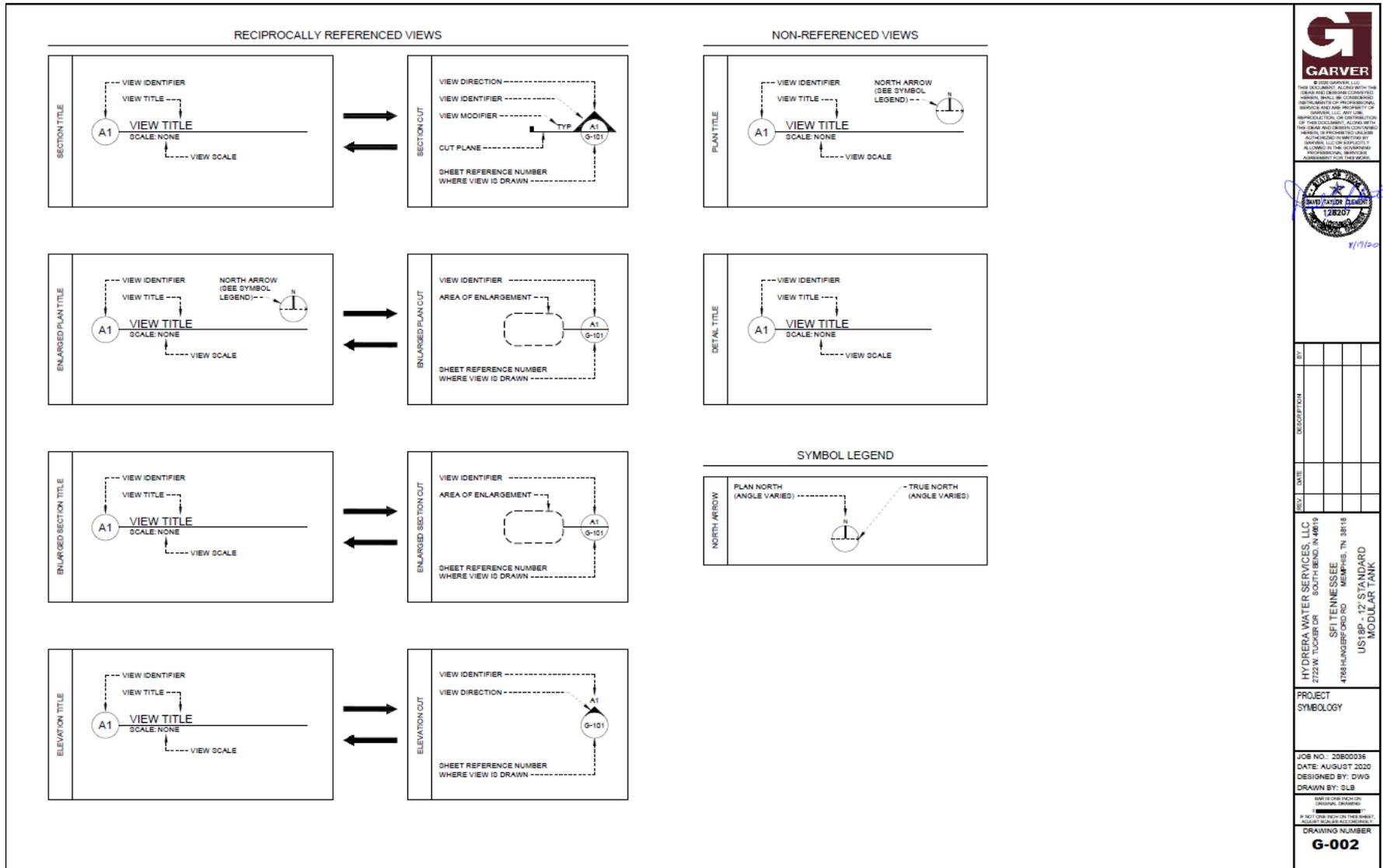
SFI TENNESSEE
4768 HUNGERFORD RD
MEMPHIS, TN 38118

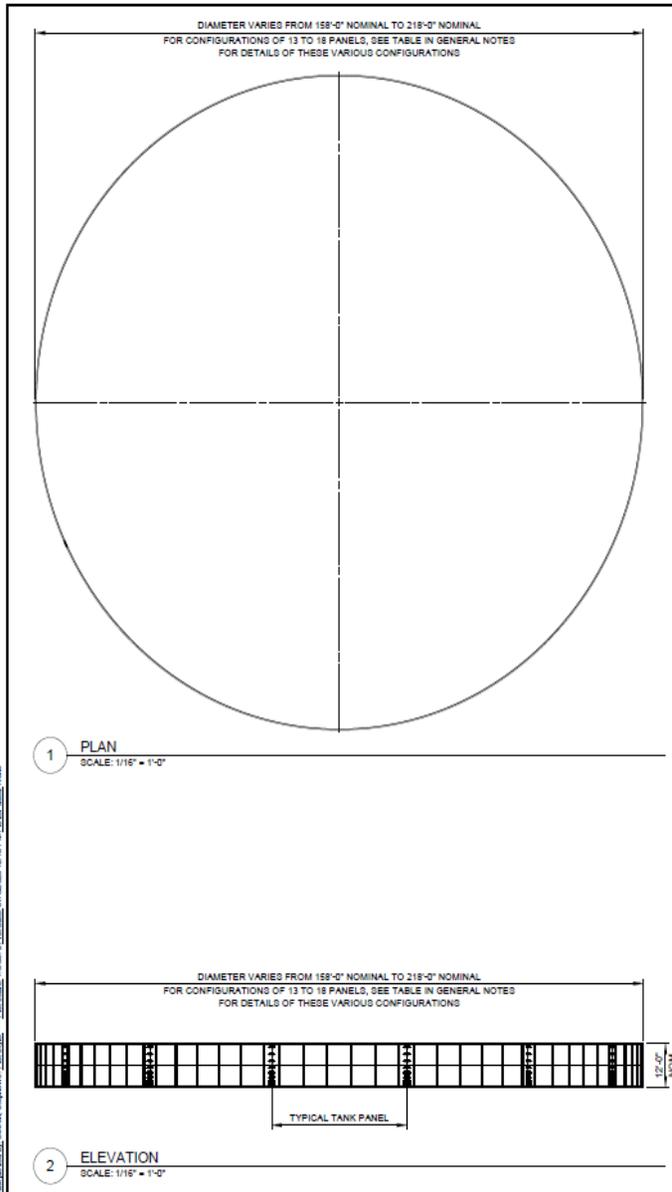
US18P - 12' STANDARD MODULAR TANK

COVER SHEET

JOB NO.: 20B00036
DATE: AUGUST 2020
DESIGNED BY: DWG
DRAWN BY: SLB

DRAWING NUMBER
G-001





GENERAL NOTES

- THESE DRAWINGS CAPTURE THE DESIGN DETAILS OF A MODULAR, PORTABLE, REUSABLE, VARIABLE CAPACITY, ABOVE GROUND LIQUID STORAGE TANK. THIS STRUCTURAL STEEL TANK IS DESIGNED TO RESIST THE HYDROSTATIC PRESSURES AND SUBSEQUENT FORCES OF THE DESIGN LIQUID. DETAILING, FABRICATION, AND USE OF THESE PANELS SHALL BE IN ACCORDANCE WITH THE NOTES AND DETAILS OF THESE DRAWINGS.
- TANK LOCATION: TEXAS
- DESIGN CRITERIA: A CODE STUDY WAS CONDUCTED TO DETERMINE IF AN EXISTING CODE, STANDARD, OR DESIGN EXISTED THAT GOVERNED THE DESIGN OF TANKS OF THE PROPOSED CONFIGURATION AND USE BUT NONE WAS FOUND. IN THE ABSENCE OF A GOVERNING DOCUMENT, THE FOLLOWING WERE UTILIZED IN THE PROPOSED TANK DESIGN:
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION STEEL CONSTRUCTION MANUAL, 13TH EDITION AND 350-15
 - AMERICAN WATER WORKS ASSOCIATION D100-11, WELDED CARBON STEEL TANKS FOR WATER STORAGE
 - AMERICAN PETROLEUM INSTITUTE STANDARD 650, WELDED STEEL TANKS FOR OIL STORAGE
 - AMERICAN WELDING SOCIETY AWS D1.1-2015, STRUCTURAL WELDING CODE - STEEL
- MATERIALS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON THE PLANS.
 - PANEL WALL PLATE A572, GRADE 50 (FY = 50 KSI)
 - ANCHOR PLATE A514, GRADE B (FY = 100 KSI)
 - PANEL CONNECTOR PLATE A514, GRADE B (FY = 100 KSI)
 - OTHER PLATES A36 OR EQUIVALENT (FY = 36 KSI)
 - HOLLOW STEEL SECTION (HSS) A500, GRADE B (FY = 46 KSI)
 - BAR A36 OR EQUIVALENT (FY = 36 KSI)
 - CHAIN (LIFTING) NACM GRADE 80
 - CHAIN (OTHER) NACM GRADE 30
 - ELECTRODES 110 KSI ULTIMATE TENSILE STRENGTH AT MATERIAL WITH FY = 100 KSI, 70 KSI ULTIMATE TENSILE STRENGTH ELSEWHERE
- LIQUID TIGHTNESS OF THE TANK IS ACCOMMODATED BY A LINER SYSTEM. THE DESIGN, DETAILING, AND INSTALLATION OF THE LINER SYSTEM IS NOT A PART OF THIS TANK DESIGN.
- THE DESIGN LIQUID IS AN IDEALIZED LIQUID CONSISTING OF POTABLE WATER WITH A SPECIFIC GRAVITY OF 1.15.
- THE TANK IS CAPABLE OF RESISTING THE HYDROSTATIC PRESSURES AND SUBSEQUENT FORCES WHEN FILLED FULL-DEPTH WITH THE DESIGN LIQUID.
- WHEN REFERRING TO VOLUMES, CAPACITIES, AND DIAMETERS; NOMINAL FIGURES WILL BE USED. THE MAXIMUM DEPTH/HEIGHT OF THE TANK IS A NOMINAL 12 FEET. THE LENGTH OF MODULAR PANELS IS A NOMINAL 38 FEET.
- THE MODULAR NATURE OF THE TANK DESIGN ALLOWS VARIOUS CONFIGURATIONS FROM 13 PANELS TO 18 PANELS OFFERING VARIOUS MAXIMUM STORAGE CAPACITIES AS FOLLOWS.

NUMBER OF PANELS	NOMINAL DIAMETER (FEET)	NOMINAL MAXIMUM VOLUME (CU FT)	NOMINAL MAXIMUM VOLUME (GAL)
13	158	5,946	44,479
14	170	6,404	47,901
15	182	6,861	51,322
16	194	7,319	54,743
17	206	7,776	58,165
18	218	8,233	61,586

USER/INSTALLER NOTES

- USER IS RESPONSIBLE FOR PROPER PREPARATION OF SITE WHERE MODULAR TANKS ARE TO BE INSTALLED AND USED. THIS INCLUDES BUT IS NOT LIMITED TO SUBGRADE PREPARATION, CONTAINMENT DESIGN AND PREPARATION, CONCERNING RELATED TO HAZARDOUS MATERIALS, LOCAL, REGIONAL, AND NATIONAL CODES AND REGULATIONS, ETC.
- INSTALLER IS RESPONSIBLE FOR SAFE RECEIPT, HANDLING, ERECTION, AND USAGE OF THE TANK PANELS AND MUST PROVIDE TEMPORARY BRACINGS AS NEEDED TO MAINTAIN STABILITY UNTIL TANK IS ASSEMBLED AND STABLE. TANK IS CONSIDERED STABLE UNDER THE 36 PSF WIND LOAD WHEN PROPERLY ASSEMBLED, PROPERLY LINED, AND FILLED WITH 4.5 FEET OF THE DESIGN LIQUID. INSTALLER AND USER SHALL TAKE PRECAUTIONS AS NECESSARY TO MAINTAIN STABILITY OF THE TANK WHEN EXPOSED TO THE DESIGN WIND LOAD AND FILLED WITH LESS THAN 4.5 FEET OF THE DESIGN LIQUID.
- USER SHALL COORDINATE USAGE, LIQUID LEVELS, EXTERNAL CONTAINMENT, AND SEISMIC FREEBOARD AS APPROPRIATE FOR USAGE LOCATION, MATERIALS STORED, AND PERTINENT LOCAL CODES AND REGULATIONS.
- USER/INSTALLER SHALL USE SOFTENERS AND APPROPRIATE MEANS AND METHODS AT CORNERS, EDGES, JOINTS, ETC. AS REQUIRED TO MINIMIZE OR ELIMINATE LINER DAMAGE/RELEASE AS NEEDED DURING USE.

GENERAL NOTES (CONT.)

- PROVIDE SURFACE FINISH AS FOLLOWS.
 - CLEAN: THE INSIDE TANK PANEL SURFACE SHALL BE FREE OF ANY FOREIGN MATERIALS, SURFACE PROFILES, SHARP FEATURES, AND OTHER SUCH ITEMS DETRIMENTAL TO THE PERFORMANCE OF THE TANK LINER. OTHERWISE, THE INSIDE TANK PANEL SURFACE IS TO BE UNFINISHED UNLESS OTHERWISE DIRECTED BY THE OWNER. ALL OTHER PORTIONS OF EACH FABRICATED TANK PANEL SHALL BE PREPARED IN ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS AND WITH A MINIMUM SURFACE PREPARATION OF B3PF-DPT/NA2C4 - BRUSH-OFF BLAST CLEANING.
 - PAINT: PAINT SHALL BE APPLIED TO ALL TANK PANEL SURFACES WITH THE EXCEPTION OF THE INSIDE TANK PANEL SURFACE. FINISH MATERIALS SHALL BE PREPARED AND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS IN THE PRODUCT'S TECHNICAL DATA SHEETS. APPLICATION RATES AND DRY FILM THICKNESSES SHALL BE PER THE PRODUCT'S TECHNICAL DATA SHEETS UNLESS OTHERWISE SPECIFIED BY THE OWNER. THE LOCATION OF LOGOS, VERBIAGE, OR ANY OTHER INFORMATION TO BE STENCILED ON THE TANK PANELS WILL BE PROVIDED BY THE OWNER TO THE DETAILER FOR INCORPORATION INTO THE SHOP DRAWINGS. FINISH PRODUCTS SHALL BE AS FOLLOWS.

ITEM	PAINT CODE	DESCRIPTION	NOTES
PANEL PRIMER	QAP591	PPG PRIMER (WET) - PPG	PLACE UPON ALL SURFACES OF FABRICATED TANK PANELS EXCEPT INSIDE TANK PANEL SURFACE
TOP RAIL FINISH COAT	Q38093244	PPG RAL WHITE - WET - PPG	PLACE UPON CURED PANEL TOP COAT
ANTI-SKID ADDITIVE	QAP591	PPG 888 ANTI-SKID ADDITIVE	PLACE PER MANUFACTURER'S RECOMMENDATIONS PRIOR TO FLACING TOP COAT
PANEL TOP COAT	Q38093245	PPG RAL 5005 SIGNAL BLUE - WET - PPG	PLACE UPON ALL SURFACES OF FABRICATED TANK PANELS EXCEPT INSIDE TANK PANEL SURFACE
ANCHOR PLATE AND PANEL CONNECTOR FINISH COAT	Q38093242	PPG RAL GREEN - WET - PPG	PLACE UPON CURED PANEL PRIMER
HYDRERA LOGO 1B	Q38093244	PPG RAL WHITE - WET - PPG	PLACE UPON CURED PANEL TOP COAT
HYDRERA LOGO 2B	Q38093242	PPG RAL GREEN - WET - PPG	PLACE UPON CURED PANEL TOP COAT
"MADE IN THE USA"	Q38093242	PPG RAL GREEN - WET - PPG	PLACE UPON CURED PANEL TOP COAT

- THE ENGINEER'S INTENT IS THAT ALL PANELS ARE THE SAME AND SHOULD BE DETAILED AS SUCH. IF THE DETAILER FINDS AN ITEM OR DETAIL THAT SUGGESTS ANY GIVEN PANEL DIFFER FROM ANY OF THE OTHERS, PLEASE NOTIFY THE ENGINEER FOR EVALUATION.
- ALTHOUGH THE PANELS ARE THE SAME, THE OWNER HAS A NUMBERING SYSTEM THAT ASSIGNS A UNIQUE NUMBER TO EACH PANEL FOR OWNER TRACKING, MAINTENANCE, AND OTHER PURPOSES. FABRICATOR WILL COORDINATE WITH OWNER AND PROVIDE DETAILER WITH PANEL NUMBER INFORMATION FOR INCORPORATION INTO DETAIL DRAWING.
- MATERIAL TRACABILITY, MATERIAL PREPARATION, FIT-UP, INSPECTION, ETC. SHALL BE IN ACCORDANCE WITH FABRICATOR'S QUALITY PROGRAM.
- WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1. ONE HUNDRED PERCENT OF THE WELDS SHALL BE VISUALLY INSPECTED BY AN AWS CERTIFIED WELDING INSPECTOR. THE INTENT IS TO MINIMIZE DAMAGE TO THE LINER FROM SHARP STEEL EDGES.
- CLEANING AND PAINTING OF INTERIOR AND SEAL WELDING OR OTHER APPROPRIATE METHOD OF SEALING JOINTS NOT OTHERWISE WELDED IS RECOMMENDED TO INCREASE THE USEFUL LIFE OF THE TANK PANELS AND MINIMIZE OR ELIMINATE RUSTING AND STAINING FROM UNPAINTED SURFACES OR CONCEALED SURFACES NOT ACCESSIBLE FOR FINAL COATING OR MAINTENANCE COATING. OWNER SHALL SPECIFY IF CLEANING AND PAINTING OF INTERIOR AND SEAL WELDING OR OTHER METHOD OF SEALING JOINTS IS DESIRED WITH EACH RELEASE FOR FABRICATION. DETAILER SHALL CAPTURE CLEANING AND PAINTING OF INTERIOR AND SEAL WELDING REQUIREMENTS AND/OR METHOD OF SEALING JOINTS AS APPROPRIATE ON THE SHOP DRAWINGS.

ABBREVIATIONS

- AWG AMERICAN WELDING SOCIETY
- CL CENTERLINE
- CONT CONTINUE, CONTINUOUS
- CU FT CUBIC FEET
- GAL GALLON
- HSS HOLLOW STEEL SECTION
- NOM NOMINAL
- PL PLATE
- REV REVISION
- T&B TOP AND BOTTOM
- TYP TYPICAL
- VERT VERTICAL



HYDRERA WATER SERVICES, LLC
2722 W. TUCKER DR. SOUTH BEND, IN 46719
4768 HUNTERS CREEK RD. MEMPHIS, TN 38118
SEE TENNESSEE
4768 HUNTERS CREEK RD. MEMPHIS, TN 38118

US 18P - 12' STANDARD MODULAR TANK

PLAN, ELEVATION, AND GENERAL NOTES

JOB NO.: 20200036
DATE: AUGUST 2020
DESIGNED BY: DWG
DRAWN BY: SLB

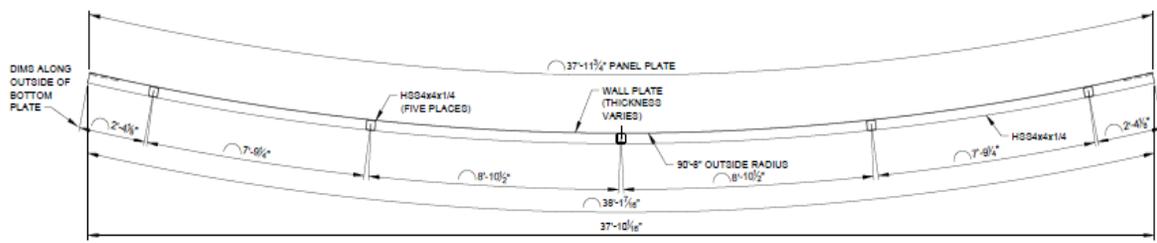
DRAWING NUMBER
S-101



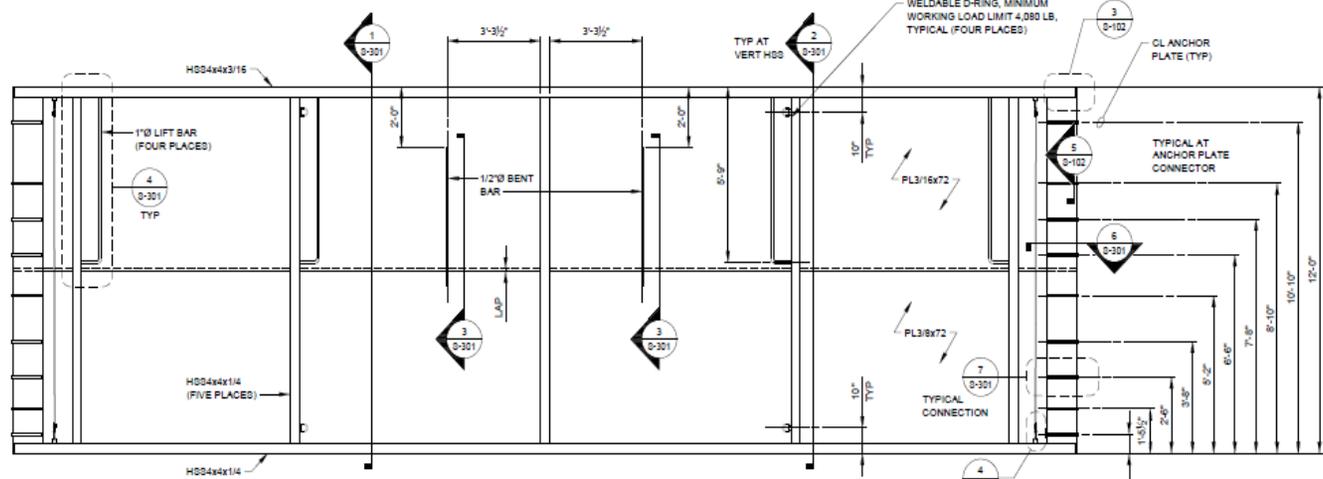
© 2020 GARVER, LLC. THIS DOCUMENT, ALONG WITH THE DESIGN AND ENGINEERING CONCEPTS HEREIN, SHALL BE CONSIDERED INSTRUMENTS OF PROFESSIONAL SERVICE AND ARE PROPERTY OF GARVER, LLC. ANY USE, REPRODUCTION, OR DISTRIBUTION OF THIS DOCUMENT, ALONG WITH THE DESIGN AND ENGINEERING CONCEPTS HEREIN, IS PROHIBITED UNLESS AUTHORIZED IN WRITING BY GARVER, LLC. NO PART IS TO BE ALLOWED IN THE OBTAINING OF PROFESSIONAL SERVICE AGREEMENT FOR THIS WORK.



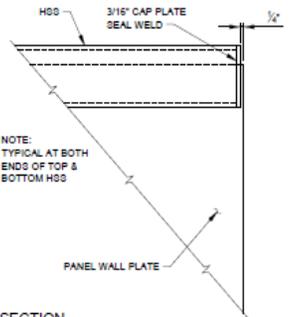
1/1/20



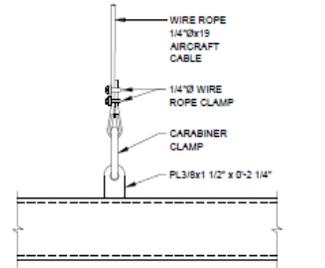
1 WALL PANEL PLAN
SCALE: 1/2" = 1'-0"



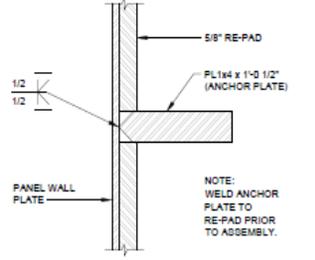
2 TANK PANEL EXTERIOR ELEVATION
SCALE: 1/2" = 1'-0"



3 SECTION
SCALE: 3" = 1'-0"



4 SECTION
SCALE: 3" = 1'-0"



5 SECTION
SCALE: HALF SIZE

REV.	DATE	DESCRIPTION

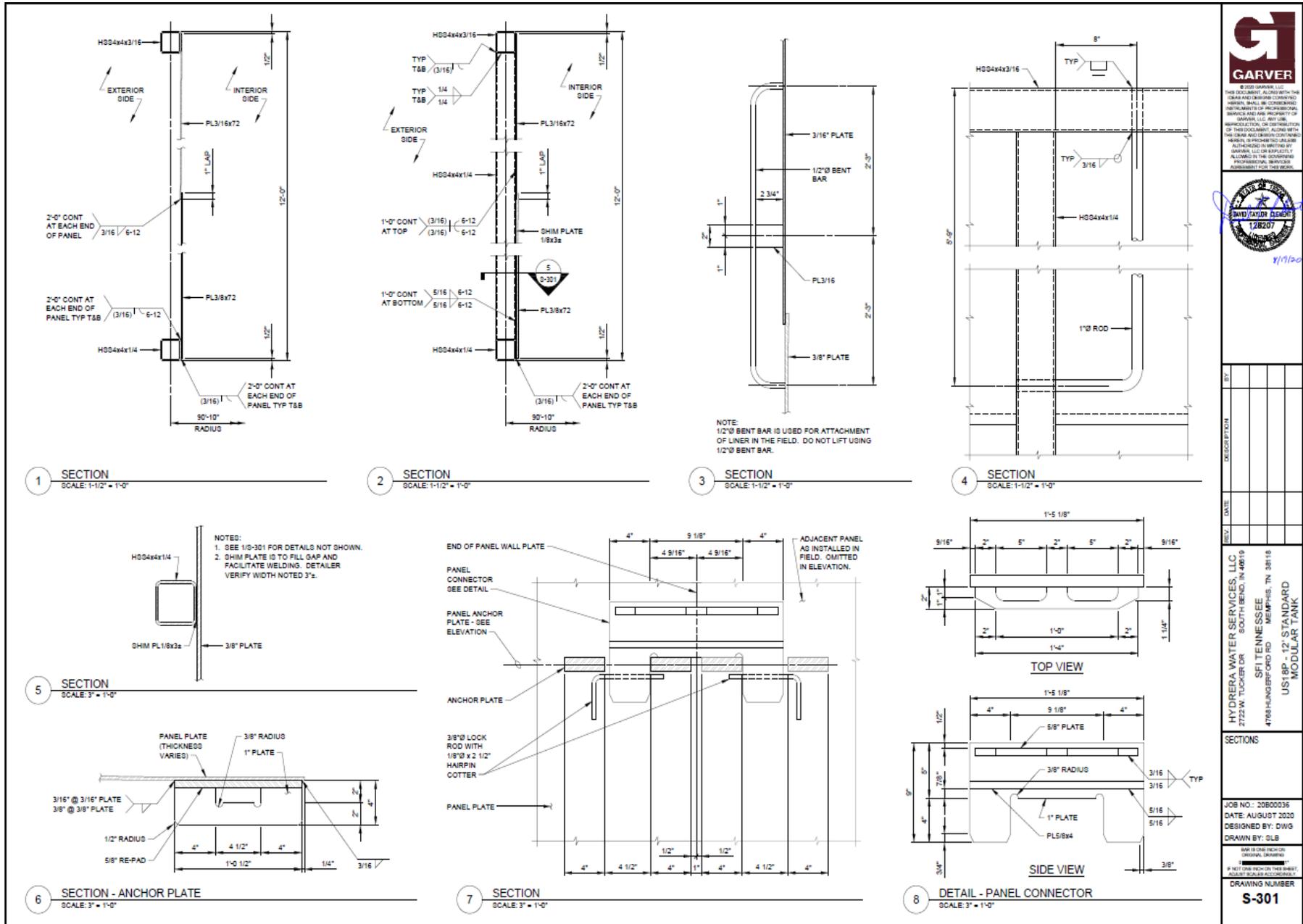
HYDREKA WATER SERVICES, LLC
2722 W. TOUGHER
SHELBY COUNTY, TN 38119
4788 HUNGERFORD RD
MEMPHIS, TN 38118
UST 8P - 12' STANDARD
MODULAR TANK

WALL PANEL ASSEMBLY

JOB NO.: 20B00036
DATE: AUGUST 2020
DESIGNED BY: DWG
DRAWN BY: SLB

DRAWING NUMBER

S-102



REV.	DATE	DESCRIPTION

HYDRERA WATER SERVICES, LLC
2722 W. TUCKER DR
SOUTH BEND, IN 46819
SEI TENNESSEE
4768 HUNGERFORD RD
MEMPHIS, TN 38118
US 18P - 12" STANDARD
MODULAR TANK

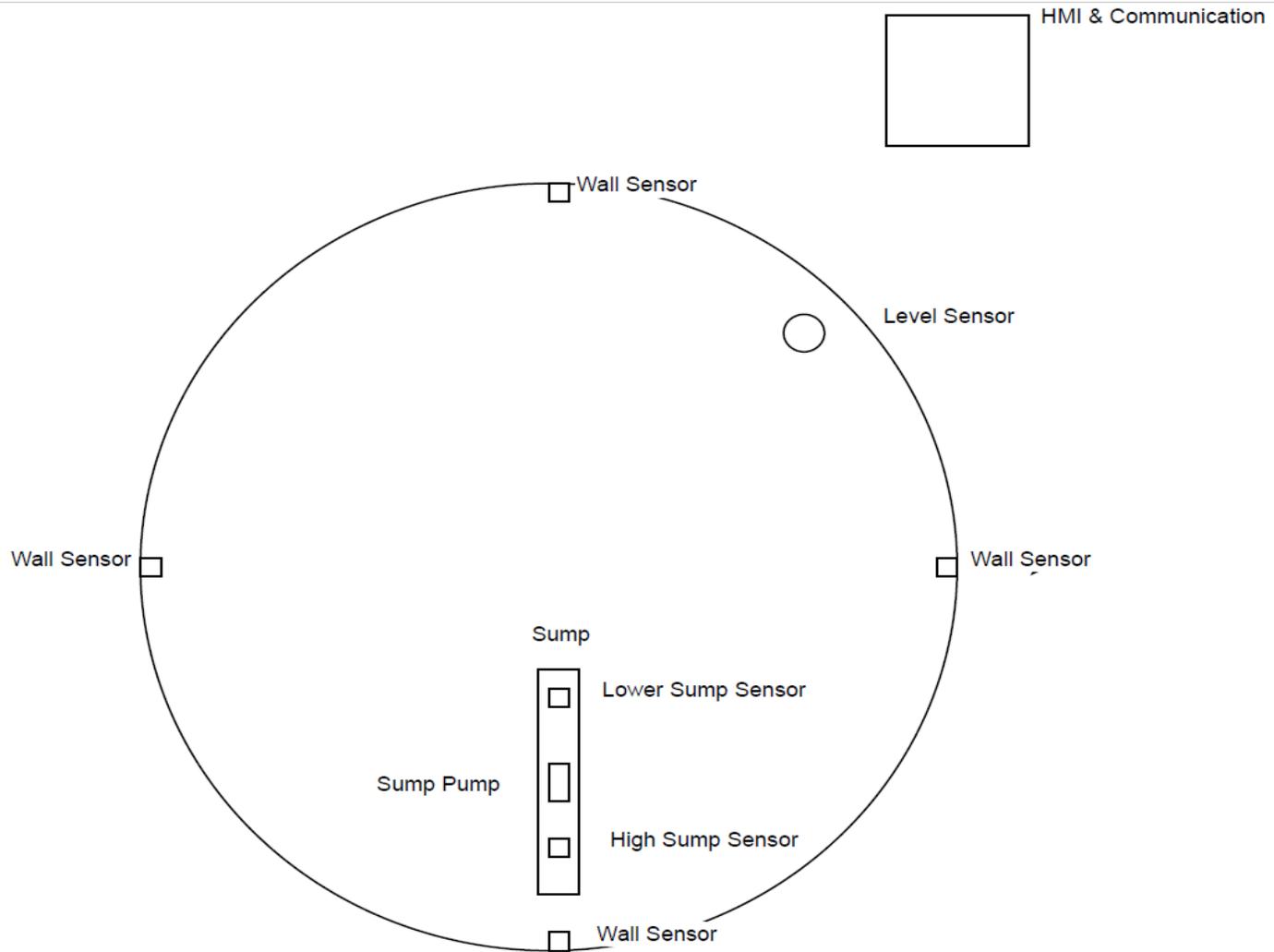
SECTIONS

JOB NO.: 20B00036
DATE: AUGUST 2020
DESIGNED BY: DWG
DRAWN BY: GLB

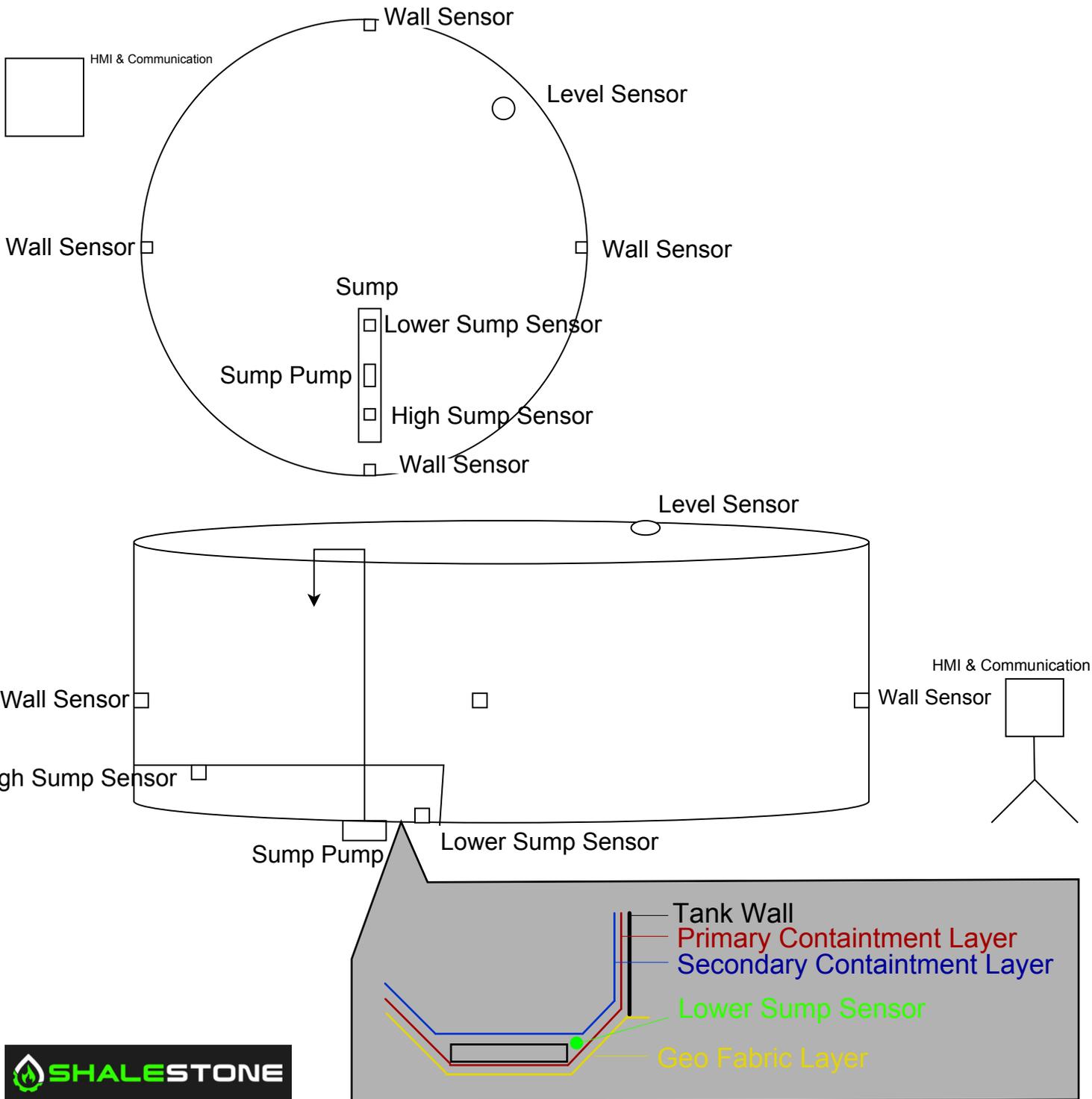
8000 18 CHS RCH 12"
SECTION, 18MM
1" FOR 18MM RCH 12"
ADJUST SIZES AS REQUIRED

DRAWING NUMBER
S-301

Leak Detection



AST Monitoring System



Design and Construction Plan

Recycling Containment

Logos shall design and construct a recycling containment in accordance with the following specifications.

1. LOGOS shall design and construct a recycling containment to ensure the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall.
2. LOGOS and its contractors shall ensure the recycling containment has a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.
3. LOGOS shall use geotextile under the liner, if needed, to reduce localized stress strain or protuberances that otherwise may compromise the liner's integrity.
4. LOGOS's recycling containment shall incorporate, a primary (upper) liner and a secondary (lower) liner with a leak detection system.
5. LOGOS shall ensure primary (upper) liners in the recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts, and acidic and alkaline solutions.
6. LOGOS's primary liners shall be 45-mil LLDPE string reinforced liner.
7. LOGOS's secondary liner shall be 30-mil LLDPE string reinforced liner
8. LOGOS shall ensure the subcontractor installing the recycling containment minimizes liner seams and orient them up and down, not across, a slope of the levee. LOGOS shall ensure that factory welded seams shall be used where possible.
9. LOGOS shall ensure the subcontractor installing the recycling containment ensures field seams in geosynthetic material are thermally seamed and that prior to any field seaming, the installer shall overlap liners four to six inches.
10. LOGOS shall ensure the subcontractor installing the recycling minimizes the number of field seams and corners and irregularly shaped area. LOGOS will only hire qualified personnel to perform field welding and testing.
11. LOGOS shall ensure that the liner is protected from excessive hydrostatic force and mechanical damage at the points of discharge into or suction from the recycling containment. Additionally, LOGOS shall ensure external discharge or suction lines shall

not penetrate the liner. LOGOS shall accomplish both by the installation of an up and over "candy cane" shaped ridged piping that has a steel diverter plate to distribute the water minimizing hydrostatic forces.

12. LOGOS shall place a leak detection system between the upper and lower geomembrane liners that shall consist of 200-mil geonet to facilitate drainage. The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. A 3-foot wide by 3 foot long by 2-foot-deep depression will be constructed to allow for collection of any leaking liquid. A 2-inch pvc line will be installed in between the primary and secondary liners from the top of the tank to the depression to allow for detection and removal of liquid.

Netting

LOGOS will ensure that the recycling containment is screened, netted or otherwise protective of wildlife, including migratory birds. LOGOS will install shade balls.

#15 POLYETHYLENE OCTAGON BIRD NETS

Netting: #15 Twisted Knotted Polyethylene

Mesh: 4" stretched mesh cut and formed square for 2" x 2" openings

Tensile: 79 pounds per twine

Make: 3 strands with Primary S twists and secondary Z twist

Color: Extruded Black PE

Borders: 1/4" Braided Polypropylene

Tensile: 1000 pounds

Make: 8 Carrier Hollow Braid

Color: Extruded Black PP

Hanging or Sewing Twines:

Hand Sewn: #36 Round Braid Perma Black Nylon Twine

Tensile: 330 pounds

(Typically on Diamond mesh sides)

Machine Sewn: #9 Twisted Perma Black Nylon Seine Twine.

Style: 3 stitch overlock with 3 strands

Tensile: 80 pounds per strand

(Typically on Squared mesh sides)

Variance Request

Stock piling of Topsoil

The Rosa Containment has already been built. There will be minimal stock piling of soil on BLM approved land.

Berming of Containment

The Rosa Containment Tanks will be set inside the former Rosa Recycling Facility. The containment area will provide above adequate containment to contain any fluids that should release in the event of a tank failure.

Signs

LOGOS shall post an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place at the entrance to the facility.

LOGOS shall post the sign in a manner and location such that a person can easily read the legend.

1. The sign shall provide the following information:
2. the operator's name,
3. the location of the site by quarter-quarter or unit letter, section, township & range,
4. emergency telephone numbers.

Fencing

The design provides for a fence to enclose the recycling containment in a manner that deters unauthorized wildlife and human access. The design calls for a game fence around the containment to exclude wildlife. This fence provides greater wildlife (and human) deterrence than the minimum required barbed wire fence with four strands evenly spaced in the interval between one foot and four feet above ground level. The fence will be gated to provide access for maintenance and placement of pumps and other necessary equipment. As stated, LOGOS will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Slopes and Trenches

LOGOS request a variance to constructing the containment in a levee with an inside grade no steeper than two horizontal feet to one vertical foot (2H:1V). The levee shall have an outside grade no steeper than three horizontal feet to one vertical foot (3H:1V). The top

of the levee shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance. As the leak detection and containment allow for better protection and identification of a leak.

Maintenance and Operation Plan

LOGOS Employees shall maintain and operate a recycling containment in accordance with the following requirements.

1. LOGOS Employees shall remove any visible layer of oil from the surface of the recycling containment.
2. LOGOS Employees shall maintain at least three feet of freeboard at each containment.
3. LOGOS shall ensure the injection and withdrawal of fluids from the containment shall be accomplished through pipes with a diverter plate that prevents damage to the liner by erosion.
4. LOGOS shall ensure the pipes will be sturdily mounted at the top with angle iron to eliminate impact from installation and removal of hoses or pipes.
5. In the event the containment's primary liner is compromised above the fluid's surface, LOGOS employees shall repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the NMOCD.
6. In the event the primary liner is compromised below the fluid's surface, LOGOS employees shall remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.
7. LOGOS shall ensure the ground surrounding the recycling containment is contoured such that surface water run on is diverted away from the containment to prevent erosion and ensure integrity of the containment.
8. LOGOS shall maintain on site, an oil absorbent boom to contain an unanticipated release.

Cessation of Operations

LOGOS management shall deem the recycling containments to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use.

LOGOS management shall report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

LOGOS Inspection Plan

The containment will be inspected on a weekly basis when water is present in the containment. All inspectors will ensure the containment is receiving only filtered produced water with no hydrocarbons. An inspection log will be maintained by LOGOS and will be available for review by the NMOCD.

LOGOS will inspect the recycling facility/containment and associated leak detection systems weekly while the containment is holding fluids.

An inspection of the filtration system will occur routinely.

The leak detection system will be checked during the weekly inspection report for the presence of water per visual inspection. As well, the leak detection system is automated to alert personnel of any leak. If water is detected, the water will be immediately removed.

If a leak is detected LOGOS will notify the NMOCD of the leak, remove all fluids above the leak level and report the primary liner within 48 hours, or request an extension on the repair within the 48 hour time limit.

The recycling facility will be operated in such a way to prevent the collection of surface water.

LOGOS Closure Plan

LOGOS will close the containment within six months from the date the operator ceases operations from the containment for use. (19.15.34.14.A NMAC).

LOGOS shall notify the surface owner (i.e., Bureau of Land Management) by certified mail, return receipt requested that of LOGOS's planned closure operations at least 72 hours, but not more than one week, prior to any closure operation. LOGOS shall ensure the notice includes the location.

LOGOS shall notify the appropriate division district office verbally and in writing at least 72 hours, but not more than one week, prior to any closure operation. LOGOS shall ensure the notice includes the operator's name and the location to be closed by unit letter, section, township, and range.

LOGOS shall close the recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility. After the tanks have been emptied LOGOS will disconnect the tanks and manways will be removed. Removal of tanks for reuse.

LOGOS shall test the soils beneath the containment for contamination with a five-point composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed below since depth to groundwater is greater than >100'

Closure Criteria for Recycling Containments			
Depth below bottom of containment to groundwater less than 10,000 mg/l TDS	Constituent	Method*	Limit**
51 feet - 100 feet	Chloride	EPA 300.0	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
> 100 feet 	Chloride	EPA 300.0	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

* Or other test methods approved by the division.

** Numerical limits or natural background level, whichever is greater.

If any contaminant concentration is higher than the parameters listed above, the division may require additional delineation upon review of the results and LOGOS must receive approval before proceeding with closure.

If all contaminant concentrations are less than or equal to the parameters listed in above, then LOGOS can proceed to backfill with non-waste containing, uncontaminated, earthen material.

Within 60 days of closure completion, LOGOS shall submit a closure report on form C-147, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping, or covering, where applicable.

The closure report shall certify that all information in the report and attachments are correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

ix Once the recycling containment is closed, LOGOS shall reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.

1. LOGOS shall replace topsoils and subsoils to their original relative positions and contoured to achieve erosion control, long-term stability, and preservation of surface water flow patterns.
2. LOGOS shall reseed the disturbed area in the first favorable growing season following closure of a recycling containment.
3. LOGOS shall substantially restore the impacted surface area to the condition that existed prior to the construction of the recycling containment.

Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds



LOGOS Resources will install the following netting on the Rosa Recycling Containment. The following netting will ensure that it adequately protects migratory birds and other wildlife life.

LOGOS will install **#15 POLYETHYLENE OCTAGON BIRD NETS GTEX 8 Series**

Netting: #15 Twisted Knotted Polyethylene

Mesh: 4" stretched mesh cut and formed square for 2" x 2" openings

Tensile: 79 pounds per twine

Make: 3 strands with Primary S twists and secondary Z twists.

GEOTEXTILE GTEX6-16

NONWOVEN NEEDLE-PUNCHED GEOTEXTILE

		GTEX6	GTEX8	GTEX10	GTEX12	GTEX16
PROPERTIES	TEST METHOD	IMPERIAL				
WEIGHT	ASTM D5261	6 oz/yd ²	8 oz/yd ²	10 oz/yd ²	12 oz/yd ²	16 oz/yd ²
THICKNESS	ASTM D5199	80 Mils	90 Mils	115 Mils	130 Mils	175 Mils
GRAB TENSILE STRENGTH	ASTM D4632	170 lbs	230 lbs	270 lbs	320 lbs	425 lbs
GRAB TENSILE ELONGATION	ASTM D4632	50 %	50 %	50 %	50 %	50 %
TRAPEZOIDAL TEAR STRENGTH	ASTM D4533	70 lbs	95 lbs	105 lbs	125 lbs	155 lbs
CBR PUNCTURE STRENGTH	ASTM D6241	450 lbs	600 lbs	725 lbs	900 lbs	1200 lbs
APPARENT OPENING SIZE	ASTM D4751	80 U.S. Sieve	100 U.S. Sieve	100 U.S. Sieve	100 U.S. Sieve	100 U.S. Sieve
PERMITTIVITY	ASTM D4491	1.5 sec ⁻¹	1.4 sec ⁻¹	1.2 sec ⁻¹	0.9 sec ⁻¹	0.7 sec ⁻¹
PERMEABILITY	ASTM D4491	0.45 cm/sec	0.31 cm/sec	0.32 cm/sec	0.3 cm/sec	0.31 cm/sec
FLOW RATE	ASTM D4491	110 gal/min/ft ²	110 gal/min/ft ²	85 gal/min/ft ²	65 gal/min/ft ²	50 gal/min/ft ²
UV RESISTANCE	ASTM D4355	80 %	80 %	80 %	80 %	80 %
TYPICAL ROLL DIMENSIONS						
Roll Dimensions	15 ft x 300 ft					
Roll Area	500 yd ²					

GEOTEXTILE

The GT-Series is a complete line of needle-punched nonwoven geotextiles composed of polypropylene fibers formed in a stable network. Geotextiles are primarily used in association with soil as a separation layer, drainage filter, reinforcement layer, and for protection of primary lining products. High-strength GT-Series fabrics are felt-like in appearance and are designed to increase soil stabilization, erosion control, and to maintain slope stabilization. GT-Series geotextiles are resistant to biological degradation from naturally encountered chemicals, alkalis, and acids. Nonwoven geotextiles provide protection in many civil engineering applications to cushion geomembrane liners and as subsurface drainage, roadway separation, railroad stabilization, hard armor underlayment, gas venting, and drainage systems.

Note: To the best of our knowledge, unless otherwise stated, these are typical property values and are intended as guides only, not as specification limits. Chemical resistance, odor transmission, longevity as well as other performance criteria is not implied or given and actual testing must be performed for applicability in specific applications and/or conditions. RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.

RAVEN ENGINEERED FILMS

P.O. Box 5107 Sioux Falls, SD 57117-5107
Ph: +1 (605) 335-0174 • TF: +1 (800) 635-3456

© 2018 RAVEN INDUSTRIES INC. All rights reserved.

efdsales@ravenind.com
www.ravenefd.com

RAVEN

060618 EFD 3130

Smith, Cory, EMNRD

From: Griswold, Jim, EMNRD
Sent: Monday, August 17, 2015 10:04 AM
To: 'Lopez, Chris'; 'Lepich, Mark'; r@rthicksconsult.com; 'Riley, Heather'; 'Felix, Andrea'; andrew@rthicksconsult.com
Cc: Powell, Brandon, EMNRD; Smith, Cory, EMNRD; VonGonten, Glenn, EMNRD; Wade, Gabriel, EMNRD
Subject: WPX Energy Section 30 Produced Water Recycling Containment site

OCD has reviewed and accepts the flood risk assessment provided by John Kelly of Tetra Tech, Inc. dated August 11, 2015 with respect to the produced water recycling containment under construction for WPX in Section 30 of Township 31 North, Range 5 West in Rio Arriba County. It is Mr. Kelly's expert opinion that the containment is at no risk of flooding from either 100-year 6 or 24 hour storm events and is thus compliant with the siting requirement specified in 19.15.34.11 A.(9) NMAC. This opinion was necessary as the pertinent 1987 FEMA map indicates the site is in the floodplain. That mapping appears to have been based in part upon the presence of a tributary that was actually abandoned sometime between 1950 and 1971 by the construction of stock watering dams.

Jim Griswold
Environmental Bureau Chief
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505.476.3465
email: jim.griswold@state.nm.us

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Tuesday, April 18, 2023 11:43 AM
To: Vanessa Fields
Subject: 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527]
Attachments: C-147 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] 04.18.2023..pdf

3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527]

Good morning Mr. Fields,

NMOCD has reviewed the recycling containment permit application and related documents, submitted by [289408] LOGOS OPERATING, LLC on March 21, 2023, **Application ID: 199485**, for 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] in A-30-31N-05W, Rio Arriba County, New Mexico. [289408] LOGOS OPERATING, LLC requested variances from 19.15.34 NMAC for 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527].

The following variances have been approved:

- The variance to 19.15.34.12.A.(2) NMAC for the no side-slope requirement for the AST containment with vertical walls is approved.
- The variance to 19.15.34.12.A.(3) NMAC for the liners to be anchored to the top of the AST steel walls and no anchor trenches is approved.
- The variance to NMAC 19.15.34.12.D to install a game fence around the containment to exclude wildlife is approved. This fence provides greater wildlife (and human) deterrence than the minimum required barbed wirefence with four strands evenly spaced in the interval between one foot and four feet above ground level.

The form C-147 and related documents for 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] is approved with the following conditions of approval:

- The purpose of this permit is for oil and gas activities regulated under the NMAC 19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Section 70-2-12(B) NMSA 1978, which authorizes the division to regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas or both and Paragraph (21) of Section 70-2-12(B) NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.
- Water reuse and recycling from 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] consisting of one (1) above ground storage tank (AST) of 80,000 BBL of capacity is limited to wells owned or operated by [289408] LOGOS OPERATING, LLC.
- [289408] LOGOS OPERATING, LLC shall construct, operate, maintain, close, and reclaim 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] in compliance with NMAC 19.15.34 NMAC.
- 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] is approved for five years of operation from the date of permit application.
- 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] permit expires on March 21, 2028. If [289408] LOGOS OPERATING, LLC wishes to extend operations past five years, an annual permit extension request must be submitted using form C-147 through [OCD Permitting](#) by February 21, 2028.
- [289408] LOGOS OPERATING, LLC shall notify OCD, through [OCD Permitting](#) when construction of 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] commences.
- [289408] LOGOS OPERATING, LLC shall notify NMOCD through [OCD Permitting](#) when recycling operations commence and cease at 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527].

- A minimum of 3-feet freeboard must be maintained at 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operations of the 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] is considered ceased and a notification of cessation of operations should be sent electronically to [OCD Permitting](#). A request to extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through [OCD Permitting](#).
- **If after that 6-month extension period, the 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] is not utilized at a minimum of 20% fluid capacity, no additional extensions would be granted, and the operator would be directed to remove all fluids and proceed with the closure requirements.**
- [289408] LOGOS OPERATING, LLC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on OCD form C-148 via [OCD Permitting](#) even if there is zero activity.
- [289408] LOGOS OPERATING, LLC shall inspect the recycling containment and associated leak detection systems weekly while it contains fluids. The operator shall maintain a current log of such inspections and make the log available for review by the division upon request as per 19.15.34.13.A.
- [289408] LOGOS OPERATING, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527].

Please reference number 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] in all future communications.

Regards,

Victoria Venegas • Environmental Specialist

Environmental Bureau

EMNRD - Oil Conservation Division

(575) 909-0269 | Victoria.Venegas@emnrd.nm.gov

<https://www.emnrd.nm.gov/ocd/>



Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2021

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

5. Lease Serial No. NMSF078771

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other		7. If Unit of CA/Agreement, Name and/or No. NMNM78407E
2. Name of Operator LOGOS OPERATING LLC		8. Well Name and No. ROSA UNIT 651H
3a. Address 2010 AFTON PLACE FARMINGTON, NM 87401	3b. Phone No. (include area code) (505) 278-8720	9. API Well No. 30-039-31326
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) SEC 25 T31N R06W NENE (A) 1038 FNL 324 FEL		10. Field and Pool or Exploratory Area BASIN MANCOS
		11. Country or Parish, State RIO ARRIBA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off	
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity	
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other - Revised SUPO	
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon		
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal		

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

ROSA PAD 27 and 29 SUPO CHANGES – ROSA WATERLINE: LOGOS is requesting approval for new water route, water source, water storage and enlarging the existing well pad for Pad 29. Please see attached amended Rosa Pad 27 and Pad 29 Supplemental SUPO with Reclamation Plan for details.

This same supplemental SUPO has been approved under Rosa Unit 654H API 30-039-31384 and Rosa Unit 656H API 30-039-31383 with conditions of approval. See NEPA eplanning for DOI-BLM-NM-F010-2021-0014-EA and approved documents dated 5/7/2021.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed) Etta Trujillo	Title Regulatory Specialist
Signature <i>Etta Trujillo</i>	Date 5/27/2021

THE SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

LOGOS Operating, LLC

May 2020

Supplement to the Surface Use Plan of Operations

*Rosa Pad 27 #640H/#641H/#642H/#643H/#644H/
#645H/#646H/#647H/#648H/#649H*

and

*Rosa Pad 29 #650H/#651H/#652H/#653H/#654H/#655H/#656H/#657H
Natural Gas Well Pads and Associated Drilling and Completion
Development Project*



Prepared for:

**LOGOS Operating, LLC
2010 Afton Place
Farmington, NM 87401**

Developed by:



479 Wolverine Drive, #9
Bayfield, CO 81122
(970) 884-4080

Well Name: ROSA UNIT	Well Location: T31N / R6W / SEC 25 / NENE / 36.874968 / 107.408804	County or Parish/State: RIO ARRIBA / NM
Well Number: 654H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078769	Unit or CA Name: ROSA UNIT-MANCOS PA	Unit or CA Number: NMNM78407E
US Well Number: 3003931384	Well Status: Drilling Shut In	Operator: LOGOS OPERATING LLC

Notice of Intent

Type of Submission: Notice of Intent

Type of Action: Surface Disturbance

Date Sundry Submitted: 02/04/2021

Time Sundry Submitted: 01:46

Date proposed operation will begin: 02/04/2021

Procedure Description: WIS EC 515421 & 515424 SUBMITTED 05/24/20 & REJECTED FOR BLM PROGRAM CHANGES. ROSA PAD 29 SUPO CHANGES - ROSA WATERLINE: LOGOS is requesting approval for new water route, water source, water storage and enlarging the existing well pad. PLEASE SEE ATTACHMENTS FOR DETAIL.

Surface Disturbance

Is any additional surface disturbance proposed?: Yes

Proposed Disturbance(acres): 4

Interim Reclamation (acres): 4

Long Term Disturbance (acres): 0

Surface Disturbance: Rosa Pad 29 Extension as described in Supplemental SUPO May 2020.

NOI Attachments

Procedure Description

3160_5_Rosa_Pond_Waterlines_NOI_20200514_Part_1_scan_pkg_20210204134228.pdf

3160_5_Rosa_Pond_Waterlines_NOI_20200514_Part_2_scan_pkg_20210204134222.pdf

Well Name: ROSA UNIT

Well Location: T31N / R6W / SEC 25 / NENE / 36.874968 / 107.408804

County or Parish/State: RIO ARRIBA / NM

Well Number: 654H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078769

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 3003931384

Well Status: Drilling Shut In

Operator: LOGOS OPERATING LLC

Conditions of Approval

Additional Reviews

CONDITIONS_OF_APPROVAL_FOR_Logos_656_654H_20210507094907.docx

Operator Certification

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: TAMRA SESSIONS

Signed on: FEB 04, 2021 01:45 PM

Name: LOGOS OPERATING LLC

Title: REGULATORY SPECIALIST

Street Address: 2010 Afton Place

City: Farmington

State: NM

Phone: (505) 324-4145

Email address: tsessions@logosresourcesllc.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: RYAN JOYNER

BLM POC Title: Physical Scientist

BLM POC Phone: 9703851242

BLM POC Email Address: rjoyner@blm.gov

Disposition: Approved

Disposition Date: 05/07/2021

Signature: ryan joyner

Well Name: ROSA UNIT	Well Location: T31N / R6W / SEC 25 / NENE / 36.874926 / 107.408775	County or Parish/State: RIO ARRIBA / NM
Well Number: 656H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078769	Unit or CA Name: ROSA UNIT-MANCOS PA	Unit or CA Number: NMNM78407E
US Well Number: 3003931383	Well Status: Location	Operator: LOGOS OPERATING LLC

Notice of Intent

Type of Submission: Notice of Intent

Type of Action: Surface Disturbance

Date Sundry Submitted: 04/16/2021

Time Sundry Submitted: 12:50

Date proposed operation will begin: 04/16/2021

Procedure Description: ROSA PAD 29 SUPO CHANGES - ROSA WATERLINE: LOGOS is requesting approval for new water route, water source, water storage and enlarging the existing well pad. Please see attached amended Rosa Pad 27 and Pad 29 Supplemental SUPO with Reclamation Plan for details.

Surface Disturbance

Is any additional surface disturbance proposed?: Yes

Proposed Disturbance(acres): 4

Interim Reclamation (acres): 4

Long Term Disturbance (acres): 0

Surface Disturbance: Rosa Pad 29 Extension as described in Supplemental SUPO May 2020.

NOI Attachments

Procedure Description

3160_5_Rosa_656H_Rosa_Pond_Waterlines_20210416_20210416124430.pdf

Well Name: ROSA UNIT

Well Location: T31N / R6W / SEC 25 / NENE / 36.874926 / 107.408775

County or Parish/State: RIO ARRIBA / NM

Well Number: 656H

Type of Well: CONVENTIONAL GAS WELL

Allottee or Tribe Name:

Lease Number: NMSF078769

Unit or CA Name: ROSA UNIT-MANCOS PA

Unit or CA Number: NMNM78407E

US Well Number: 3003931383

Well Status: Location

Operator: LOGOS OPERATING LLC

Conditions of Approval

Specialist Review

CONDITIONS_OF_APPROVAL_FOR_Logos_656_654H_20210507095102.docx

Operator Certification

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a submission of Form 3160-5 or a Sundry Notice.

Operator Electronic Signature: TAMRA SESSIONS

Signed on: APR 16, 2021 12:46 PM

Name: LOGOS OPERATING LLC

Title: REGULATORY SPECIALIST

Street Address: 2010 Afton Place

City: Farmington

State: NM

Phone: (505) 324-4145

Email address: tsessions@logosresourcesllc.com

Field Representative

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: RYAN JOYNER

BLM POC Title: Physical Scientist

BLM POC Phone: 9703851242

BLM POC Email Address: rjoyner@blm.gov

Disposition: Approved

Disposition Date: 05/07/2021

Signature: null

**CONDITIONS OF APPROVAL FOR
DOI-BLM-NM-F010-2021-0014-EA
5/7/2021**

1. SITE PROTECTION AND EMPLOYEE EDUCATION:

All employees of the project, including the Operator and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

2. ARCHAEOLOGICAL MONITORING IS REQUIRED:

A copy of these stipulations will be supplied to the archeological monitor at least two working days prior to the start of construction activities. No construction activities, including vegetation removal, may begin before the arrival of the monitor.

The monitor will:

- Ensure that the site protection barriers are located as indicated on the attached maps in the vicinity of LA68852, LA181123, LA99398, LA99399, LA99400, & LA122993
- Observe all surface disturbing activities with a qualified archeological monitor within 100' of LA181123, and LA99401.
- Submit a report of the monitoring activities within 30 days of completion of monitoring unless other arrangements are made with the BLM. These stipulations must be attached to the report.

3. SITE PROTECTION BARRIER:

- Temporary site protection barriers will be erected prior to construction. The barriers will consist of upright wooden survey lath spaced no more than 10 feet apart and marked with blue flagging or blue paint. The barriers will remain in place through reclamation and reseeding and shall be promptly removed after reclamation.
- The barriers will be placed as indicated on the attached maps.
- There will be no surface-disturbing activities or vehicle traffic past the barrier.

Table of Contents

Introduction1

1.0 Existing Roads.....1

2.0 New or Reconstructed Access Roads1

3.0 Location of Existing Wells.....2

4.0 Location of Existing or Proposed Production Facilities.....2

5.0 Locations and Types of Water Supply2

6.0 Construction Materials4

7.0 Methods for Handling Waste6

8.0 Ancillary Facilities8

9.0 Well Site Layout.....8

10.0 Plans for Surface Reclamation8

11.0 Surface Ownership.....9

12.0 Other Information9

Appendices:

A - 2020 Supplemental Reclamation Plan

B - 2020 New Figures 14, 15, 16, 17, 18, and 19

C - 2020 Updated Road Maintenance Plan

D - No change - Proposed Holding Pond Netting Plan

E - No change - Proposed Game Fence Detail

F - New 2020 - Archeological Report for Booster #3 Location

G - New 2020 - Plats for BOR Areas of Use

Introduction

This Supplemental Surface Use Plan of Operations (SUPO) submitted by LOGOS Operating, LLC (LOGOS) addresses proposed modifications to a Surface Use Plan of Operations originally submitted by WPX Operating, LLC (WPX), the previous owner of the Rosa Unit, Rio Arriba County, New Mexico. LOGOS acquired the Rosa Unit from WPX in 2017.

The original SUPO, to which this document is a supplement, was approved by the Bureau of Land Management (BLM) Farmington Field Office (FFO) in 2015. It covered construction, use, and ultimate abandonment of two multi-well well pads, the Rosa Pad 27 (formerly Rosa UT 27) and Rosa Pad 29 (formerly Rosa UT 29), along with development of associated well pad construction zones, access roads, pipeline corridors, recycling containments, cuttings disposal, temporary surface lines, pump stations, an underground electric utility line, and a Variable Frequency Device (VFD) pad and buffer zone. The projects were located on lands managed by the BLM FFO and the New Mexico Game and Fish Division and accessed federal minerals managed by the BLM FFO. The area for this project is shown in Appendix B, Figure 14, General Location Area Map.

Much of the development described in the original SUPO has already been completed. In 2015 and 2016, WPX built roads and pipelines as well as a recycling containment, then constructed, drilled wells on, and interim reclaimed the Rosa Pad 27 and Rosa Pad 29. WPX also filed for name changes for all of the wells, making the well names listed in the original SUPO title obsolete. The newer names are used in this Supplemental SUPO.

LOGOS is now making plans to drill and complete wells at Rosa Pad 29. LOGOS is planning first to drill and complete two wells, with others possibly to follow depending on the results of the first two. The BLM has approved APDs for eight wells at Rosa Pad 29.

LOGOS is proposing modifications to the source of water for drilling and completing wells and to the methods for transportation and disposal of water. These changes are documented in this Supplemental SUPO along with modifications in other areas. LOGOS is not proposing changes to elements which are not discussed in this supplemental SUPO.

1.0 Existing Roads

No change from original SUPO specifications.

2.0 New or Reconstructed Access Roads

- A. No change from original SUPO specifications for access road construction parameters or methods. If additional material is needed, it would be obtained from existing permitted or private sources and would be hauled in by trucks over existing access roads to the area.

- B. LOGOS would maintain the access roads as outlined in their Road Maintenance plan (Appendix C). At final abandonment, the access roads will be reclaimed as described in the Reclamation Plan (Appendix A).

3.0 Location of Existing Wells

The map of water wells and oil and gas wells (plugged and abandoned, active, and proposed) within a 1-mile radius of the well pad has been updated in 2020 as depicted on a map in Appendix B (Figure 15). There are no recorded water wells located within a 1-mile radius of the project area.

4.0 Location of Existing or Proposed Production Facilities

No change from original SUPO specifications.

5.0 Locations and Types of Water Supply

The first two wells which LOGOS plans to drill and complete at Rosa Pad 29 would be horizontally drilled in the target interval, and completions would include well stimulation by hydraulic fracturing. Produced, recycled, non-potable, and fresh water might all be used. LOGOS would ensure that water would be obtained legally and that all required permits would be completed prior to obtaining water.

LOGOS has obtained approved APDs for eight wells at Rosa Pad 29. The first two wells could be drilled and completed in late 2020 or early 2021. The remaining six would be planned in detail following analysis of the results of the first two wells and various business conditions.

LOGOS proposes to utilize produced water for drilling if sufficient volumes are available. Use of produced water from existing wells for drilling fluid is authorized under New Mexico State Regulation (NMAC 19.15.2.52). Approximately 1500 barrels of water is estimated to be needed for drilling each well.

Produced water would be sourced from LOGOS's permitted Rosa SWD #1 on Rosa Mesa. This SWD facility receives water from existing wells producing from the Mesa Verde/Dakota and Fruitland coal formations. If sufficient produced water is not available at the Rosa SWD #1, then additional produced water could be extracted from LOGOS's permitted Rosa SWD #2 Well, which is also on Rosa Mesa. If needed, fresh water could be obtained from the San Juan Basin Water Haulers Association, which would retrieve and truck water from the permitted Manzanares Mesa Water Well #1R (SJ-193) and/or San Juan 29-6 Unit Water Well 1 Formation (SJ-192).

Produced water from wells on Rosa Mesa would be piped or trucked to storage tanks located within permitted temporary use areas (TUAs) and on well pads. This water would be piped through LOGOS's existing water gathering system in the area where infrastructure is available and trucked where infrastructure is not available. LOGOS does not currently plan to use holding ponds to hold produced water for well drilling.

Well completions would use fresh water sourced from a permitted Point of Diversion at Navajo Lake, which is operated by the Bureau of Reclamation (BOR). Necessary permits would need to be approved by the BOR for access to and diversion of the water. Water from the lake would be pumped into one or two 10" to 12" O.D. lay flat lines and/or into poly surface pipelines permitted for temporary use and transported to the Rosa Pond or to Rosa Pad 29. Temporary water pipelines crossing the roadway would be protected by culverts and road base or by metal plates. Vehicle drivers would be alerted in advance of each pipeline crossing by signs along the road.

Pipelines would be laid in existing disturbance for approximately 4.2 miles on BLM FFO managed land as shown on the waterline route map (Appendix B, Figure 16), from Rosa Pad 181 to the Rosa Pad 29. At Rosa Pad 29, fresh water would be stored in one or more lake tanks with up to 60,000 barrel (bbl) storage capacity each. Multiple on-site 400 or 500 bbl storage tanks could also be used for storage and treatment of fresh water to be used in well completions. An extension to Rosa Pad 29 has been platted to ensure sufficient space for the fresh water lake tank(s) at Rosa Pad 29, and approval of this extension is requested. An archeological report for the extension area (LAC 2019-4a) was submitted to the BLM FFO for review in 2019.

The Rosa Pond in Section 30 (previously known as the Section 30 Recycling Containment) might also be used for fresh water storage for well completions. This pond was originally constructed and used by WPX. It was closed by LOGOS in 2019 per New Mexico Oil Conservation Division regulations. All liners were removed and appropriately disposed. With BLM concurrence, LOGOS could use this pond during well completions for storage of fresh water during the development of the Mancos Formation in the Rosa Unit. Subsequent to completing the Mancos development in the Rosa Unit, the area surrounding the pond would be revegetated (in addition to any other surface modifications as agreed to with the BLM) so that ultimately the pond would be suitable for use as a wildlife pond.

Three temporary pumps would be used to move the lake water up to the lake tank(s) at Rosa Pad 29, and/or the Rosa Pond. The proposed locations are shown on the waterline route map (Appendix B, Figure 16). Pump #1 is currently planned to be located at the edge of Navajo Lake, on BOR land. Water removed from the lake would be filtered at a second site on BOR land slightly further from the lake edge (see survey plat in Appendix G). Two booster pumping stations would be established along the route to Rosa Pad 29: pump #2 would be located at the Rosa Pad 181, which is partially on BOR land and partially on BLM land, and pump #3 would be located at road intersection #6, near the planned cuttings disposal. The site for booster pump #3 is shown in Appendix B, Figure 17. An archeological report (LAC 2019-4d) for this site is attached in Appendix F and has been previously provided to the BLM-FFO. The booster pumps would assist with lifting the water to the Rosa Pad 29 and into the tanks or to the Rosa Pond.

The three temporary booster pumps are planned as trailer mounted, diesel-powered, centrifugal pumps that would be leased and operated by Rain for Rent or a similar commercial water transfer company. The current plan is for pump #1 to be approximately 190 horsepower (hp) and for pumps #2 and #3 to be approximately 355 hp each. The pumps would be fueled from double-walled tanks of diesel fuel on their trailers.

Approximately 3 to 5 days would be needed to lay temporary lines and to set up the lake tank(s) and booster pump stations. Once the pipelines are laid and in use, supervisors would continuously inspect the pumps and lines to monitor for leaks. Radio communications would be used to connect all parties

and to pass along a shutdown order as quickly as possible if needed. Intermediate valves would be located at the booster stations so that segments of the pipeline could be isolated if necessary.

Pumping fresh water is expected to operate up to 24 hours per day for up to 21 days or until sufficient water is achieved. The temporary lines would be in place longer to accommodate set up and removal as well as the total duration of the well completions. LOGOS's current plan to complete two wells simultaneously could take up to 37 days.

Once the fracs have been completed, pigs would be sent through the temporary lines from the lake towards Rosa Pad 29 to clear any water left over and to minimize leaks and waste during the rig down process. Water pigged from the lines would flow into the lake tank(s) or laydown tanks. From there, the water would be used for completion fluid, hauled to another project, or hauled for disposal at the permitted LOGOS SWD #1 well or SWD #2 well.

To acquire water from the new Point of Diversion (POD) proposed at Navajo Lake, both an access to the POD across BOR managed land and temporary operations areas for a pump and water filter on BOR managed land are needed (Appendix G). Minor upgrades would be needed to the road on BOR land. In addition, the temporary surface pipelines would traverse approximately 2055.2 feet of BOR managed land to reach the filter and second pump at the LOGOS Rosa Pad 181. From this pad, lay flat hoses would transport water on BLM land in existing rights of way (ROWS).

The San Juan Basin Water Haulers Association (SJBWHA) has applied to the BOR for the permits necessary to this project and could be contracted to work with LOGOS and other contractors to deliver water to LOGOS for its well completions. The necessary areas have been surveyed and platted. LOGOS may apply for a similar set of permits. The BOR is currently reviewing the following permit applications from SJBWHA:

- Point of Diversion,
- Temporary Use Area for pumping station,
- Temporary Use Area for pipelines (2,055.2 ft from edge of lake to well pad),
- Right of Way for Access.

LOGOS has estimated that a total of 550,000 barrels ($\pm 15\%$) of fresh water would be required for completion of each well. Because completions would require more water than can be stored in the lake tank(s), other onsite tanks, and the Rosa Pond, pumping operations would continue around the clock just before and during completions in order to provide the needed volumes of water. The first two wells at Rosa Pad 29 are planned to be completed at the same time using a technique called "zipper fracking." Frac flow back from the first two wells would be stored in laydown tanks on location (not in lake tanks or the Rosa Pond) and hauled by truck and/or pipeline for reuse in other oil and gas activities or for disposal at a permitted location. In the future, frac flow back could likely be used in completing additional wells in this area. Approximately 165,000 bbls of water from completion of each well could be recovered for reuse or else would be disposed at a permitted location.

6.0 Construction Materials

As per the original SUPO, the BLM/FFO will be notified (505-564-7600) at least 48 hours prior to the start of construction activities associated with the project.

- A. Access Road
 - 1. No change from original SUPO specifications.
- B. Pipeline
 - 1. No change from original SUPO specifications.
- C. Surface waterlines
 - 1. Surface waterlines would be temporarily installed to transport water for use in well stimulation from the Navajo Lake Point of Diversion (POD) to the lake tank(s), storage tanks at Rosa Pad 29, and Rosa Pond (if used) as well as to the specific well being completed (Appendix B, Figures 14, 16, and 19).
 - 2. Surface waterlines between the POD, the tanks at Rosa Pad 29 or other locations, and the Rosa Pond would be temporarily located in or adjacent to existing roads or ROWs (Appendix B, Figure 16, and Appendix G). Road crossings would be constructed as 16 to 24-inch culverts installed with road base on top except for one which would require metal plates be used.
 - 3. Surface waterlines would only be installed where needed and would not exceed more than three (3) 12-inch heavy-duty lay flat lines within one corridor at a time.
 - 4. In areas where surface waterlines traverse a side hill or steep slope they would be secured with metal t-posts. All lines in service would be inspected every day, several times a day.
 - 5. Stimulation pumping would be conducted using a pump located adjacent to the lake tank and at other locations as noted. Water would be pumped through surface waterlines to the lake tank(s), the Rosa Pond, and other tanks if used, and then to individual wells.
 - 6. To recycle the stimulation water, waterlines would transfer flowback water from the wellheads to laydown tanks, not to the lake tank or Rosa Pond. The flowback water could be filtered and returned to additional tanks for reuse in subsequent stimulations or other activities or it could be trucked for disposal at a permitted location. The aboveground stimulation and flowback lines would be installed in or adjacent to existing disturbance. The temporary lines would be removed following all well stimulation activities.
- D. Well pad
 - 1. The drilling and completion of the first two wells at Rosa Pad 29 would take approximately 60-70 days and is currently planned for late 2020 or early 2021. Additional wells at this pad could be drilled and completed in the future based on the results of the first two completions by LOGOS and various other business conditions.
 - 2. The Rosa Pad 29 would be enlarged to increase available space for well construction activities on the pad (Appendix B, Figure 18). An archeological report covering the additional requested area (LAC 2019-4a) has been submitted to the BLM-FFO by LOGOS for review and approval. Additional material would not need to be brought in to enlarge the working area, but a substantial volume of earthen material would be relocated from the northwest side to the southeast side. Topsoil would be stored in the expansion area to the southeast.
 - 3. One or more "lake tanks" up to 60,000 bbl capacity would be installed at Rosa Pad 29 for short term storage of fresh water needed for well completions. Only fresh water would be stored in the lake tank(s).
 - 4. Extra storage tanks could also be installed on location for storage of additional fresh water and/or produced water if needed for completions as well as for produced water

for drilling and for storage of frac flowback. All water remaining in these tanks after completions would be hauled away by truck for reuse in other oil and gas operations or for disposal at a permitted location.

5. Storm water Best Management Practices (BMPs) would be installed and maintained as necessary.
- E. Production Facilities
1. No change from the original SUPO.
- F. Recycling Containments
1. The Section 25 Recycling Containment originally planned by WPX was not built by WPX, and LOGOS does not plan to build it at this time.
 2. The Section 30 Recycling Containment, now known as the Rosa Pond, was built by WPX and partially reclaimed. LOGOS closed this Recycling Containment according to OCD regulations in 2019. LOGOS and the BLM are in discussion regarding the potential use and final reclamation of this site. LOGOS would install a liner in the former recycling containment and utilize it as a freshwater pond with the existing fence.
- G. Cuttings Disposal
1. Cuttings would be buried within the existing disturbance of Rosa Rock Pit #4 (FUP NM-070-90-04CX) in Section 23-T31N-R6W (Section 23 Cuttings Disposal) and in an existing sandstone quarry pit, Rosa Pit #165 (FUP NM-070-01-472CX) located in Section 25-T31N-R6W (Section 25 Cuttings Disposal). These locations are shown in Appendix B, Figures 14 and 16. The Section 25 pit is permitted under a free use permit with the BLM-FFO, and LOGOS can also utilize material in the pit for road maintenance. At both locations, drill cuttings would be tested and utilized to reclaim and restore the area to a form near original land contours.
 2. Drill cuttings could be placed until storage of the cuttings meets capacity of the pits or drilling of all permitted wells associated with the cuttings disposal is complete, whichever comes first. At that point, the pits would be closed and the area reclaimed by LOGOS.
 3. Cuttings disposal construction, operation, and closure will be permitted and regulated under NMOCD Rule 17.

After the well completions and connections to pipelines and facilities is completed, portions of the project area not needed for operation would be reclaimed. When all wells have been plugged and abandoned according to regulations in effect at that time, final reclamation would occur within the remainder of the project area. Updated reclamation activities are described in detail in the Supplemental Reclamation Plan (Appendix A).

7.0 Methods for Handling Waste

- A. Cuttings
1. Drilling operations would utilize a closed-loop system. If drilling of the horizontal laterals is accomplished with water-based mud, all cuttings would be placed in roll-off bins and hauled to the Section 23 Cuttings Disposal or the Section 25 Cuttings Disposal for burial as described above. LOGOS would follow Onshore Oil and Gas Order No. 1 regarding the placement, operation, and removal of closed-loop systems. No blow pit would be used.

2. If oil-based drilling mud were used, a closed-loop system would be used to minimize potential impacts to surface and groundwater quality. A 30-mil reinforced liner would be placed under the drill rig mats and all drilling machinery. This area would be enclosed by a containment berm and ditches, which would drain to sump areas for spill prevention and control. The containment berm would be ramped to allow access to the solids control area.
 3. Closed-loop tanks would be adequately sized for containment of all fluids.
- B. Drilling Fluids
1. Drilling fluids would be stored onsite in above-ground storage tanks. Upon termination of drilling operations, the drilling fluids would be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical. All residual fluids would be hauled to a commercial disposal facility.
- C. Spills
1. Any spills of non-freshwater fluids would be immediately cleaned up and removed to an approved disposal site.
- D. Sewage
1. Portable toilets would be provided and maintained by a commercial service during construction, as needed.
- E. Garbage and other waste material
1. All garbage and trash would be placed in a metal trash basket. The trash and garbage would be hauled off site and dumped in an approved landfill, as needed.
- F. Hazardous Waste
1. No chemicals subject to reporting under Superfund Amendments and Reauthorization Act Title III in an amount equal to or greater than 10,000 pounds would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.
 2. No extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities would be used, produced, stored, transported, or disposed of annually in association with the drilling, testing, or completing of these wells.
 3. All fluids (i.e., scrubber cleaners) used during washing of production equipment would be properly disposed of to avoid ground contamination or hazard to livestock or wildlife.
- G. Produced Water:
1. LOGOS would recycle and reuse produced water for drilling fluids to be used in the additional drilling of wells in the area if feasible. Produced water would be filtered, treated and stored at the LOGOS Rosa SWD #1 prior to use.
 2. Once drilling is complete, LOGOS would reuse produced water in its own operations or dispose of the produced water from wells in this area by trucking to one or more of the following facilities:
 - a. Lybrook Yard WDW #1, API #30-039-27533, NMOCD permit #SWD-907, operated by DJR Operating, LLC, located in NE $\frac{1}{4}$, Section 14, Township 23 North, Range 7 West
 - b. Jillson Federal #1, NMOCD order #R-10168, operated by Hilcorp, located in NW $\frac{1}{4}$, Section 8, Township 24 North, Range 3 West
 - c. Rosa SWD #1, API #30-039-27055, NMOCD permit SWD-916, operated by LOGOS, located in SE $\frac{1}{4}$, Section 23, Township 31 North, Range 6 West
 - d. Rosa SWD #2, API #30-039-30182, NMOCD permit SWD-1236, operated by LOGOS, located in NW $\frac{1}{4}$, Section 25, Township 31 North, Range 5 West

- e. Basin Disposal, permit #NM-01-005, located in the NW ¼, Section 3, Township 29 North, Range 11 West
 - f. Sunco SWD #1, API #30-045-28653, NMOCD permit SWD-457, operated by Key Energy, located in NW ¼, Section 2, Township 29 North, Range 12 West
3. Produced water would be piped through the existing water gathering system in the Rosa Mesa area where possible and would be hauled by truck if necessary.

8.0 Ancillary Facilities

Facilities for the Rosa Pad 29 wells would be on the adjacent Rosa 165A well pad.

9.0 Well Site Layout

The proposed drilling rig layout is shown in Appendix B, Figure 18. Facilities for the Rosa Pad 29 wells would be on the Rosa Unit 165A pad, which is adjacent to the south.

LOGOS proposes to expand the existing Rosa Pad 29 to the east and northwest as shown in Appendix B, Figures 18 and 19, to provide additional space necessary for the lake tank(s) and other operations. The dimensions for the proposed new disturbance would form an irregular shape totaling 4.57 acres of expanded disturbance generally to the north and east of the original disturbance s shown in Appendix B, Figure 16. The original disturbance area was 6.17 acres; with the proposed expansion area, the Rosa 29 well pad would now include a total of 10.74 acres of disturbance.

Following the drilling and completion of wells, Rosa Pad 29 would be interim reclaimed to include one teardrop with a 16-foot-wide driving surface that will not be reseeded and would total approximately 0.17 acres. Approximately 1.61 acres would be reseeded but not recontoured during interim reclamation. This includes the center of the teardrop and an approximately 189-by-195-foot area around the proposed wellheads for potential future activities, but which would not be used on a daily basis. After accounting for the portion of this polygon that overlaps the teardrop, this region measures 0.81 acres for Rosa Pad 29. The remainder of the proposed well pad and construction zones, including the proposed expansion area, would be fully reclaimed during interim reclamation, a total of 8.97 acres.

10.0 Plans for Surface Reclamation

The interim reclamation/long-term disturbance of the original well pad site is depicted in the Reclamation Plan (Appendix A) and described in detail there. All of the expansion area to the north and east would also be interim reclaimed as soon as practicable, except for the area needed for topsoil storage. Full reclamation would be undertaken following the completion of all construction activities, including the drilling and completion of all wells.

The two cuttings areas in Sections 23 and 25 of T31N - R6W and the Rosa Pond would also be reclaimed after project construction is completed using methods agreed upon with the BLM. Details are described in the Reclamation Plan (Appendix A).

Based on observations made during the pre-disturbance site visit for the original WPX construction, the BLM/FFO representative determined that the vegetation community which best represents the proposed project area is Great Basin desert scrub sagebrush community.

LOGOS would follow the noxious weed pre-construction survey results and methods for controlling and preventing noxious weeds as provided in the original Reclamation Plan. Prior to construction equipment entering the project area, equipment would be inspected for noxious weeds and cleaned. The operator would comply with applicable federal and state laws and regulations concerning the use of pesticides. The operator would acquire approval from the BLM-FFO prior to the use of pesticides.

11.0 Surface Ownership

1. As described in the original SUPO, the project is located on BLM-managed land. The field office contact information for the BLM is:

Bureau of Land Management Farmington Field Office
6251 College Boulevard, Suite A
Farmington, New Mexico 87401
(505) 564-7600

2. Fresh water would be obtained from Navajo Lake, so temporary use of Bureau of Reclamation (BOR) land is planned (see Appendix G). The San Juan Basin Water Haulers Association is applying for necessary permits from the BOR and would work with LOGOS to deliver fresh water for well completions in this project.

3. LOGOS may also apply for the necessary permits from the BOR in order to obtain fresh water from Navajo Lake. LOGOS has included estimates of new and existing disturbance on BOR land and proposed reclamation methods in the Supplemental Reclamation Plan (Appendix A).

12.0 Other Information

1. The following LOGOS locations may be utilized for staging/TUA's:
 - a. LOGOS's Rosa Pad 83A,
 - b. Rosa Pad 183B,
 - c. Rosa Pad 204A,
 - d. Rosa Pad 10B,
 - e. Rosa Pad 212A,
 - f. Rosa Pad 256, and
 - g. Rosa Pad 165C
 - h. Rosa SWD #1
 - i. Rosa SWD #2

With the exception of the Rosa Pad 204A, which may be too limited in open space, all permitted and previously disturbed areas of these well pads may be utilized.

*Appendix A – 2020 New:
Supplemental Surface Use
Reclamation Plan*

LOGOS Operating, LLC

May 2020

Supplemental Reclamation Plan

***Rosa Pad 27 #640H/#641H/#642H/#643H/#644H/
#645H/#646H/#647H/#648H/#649H***

and

***Rosa Pad 29 #650H/#651H/#652H/#653H/#654H/
#655H/#656H/#657H***

***Natural Gas Well Pads and Associated Drilling and Completion
Development Project***



Prepared for

LOGOS Operating, LLC
2010 Afton Place
Farmington, New Mexico 87401
Phone: (505) 278-8720

Developed by



479 Wolverine Drive, #3
Bayfield, CO 81122
(970) 884-7080

Table of Contents

1.0 Introduction1

1.1 Vegetation Reclamation..... 1

1.2 Revision of the Reclamation Plan 2

2.0 Project Description2

2.1 Estimated Total Area of Disturbance 3

3.0 Pre-Disturbance Site Visit.....6

3.1 Vegetation Community 6

3.2 Proposed Reclamation Seed Mix 6

3.3 Vegetation Reclamation standards..... 7

3.4 Pre-Disturbance Weed Survey 7

3.5 Pre-Disturbance Soil Evaluation..... 7

3.6 Pre-Disturbance Site Photographs..... 7

4.0 Reclamation Techniques for Successful Revegetation7

4.1 Vegetation and Site Clearing..... 7

4.2 Topsoil Stripping, Storage, and Replacement..... 7

4.3 Water Management/Erosion Control Features 8

4.4 Seedbed Preparation 8

4.5 Soil Amendments 8

4.6 Seeding..... 8

4.7 Noxious and Invasive Weed Control 8

5.0 Monitoring Requirements8

5.1 Interim Reclamation..... 8

5.1.1 Initiation 8

5.1.2 Annual Monitoring and Reporting 8

5.1.3 Attainment of Vegetation and Reclamation Standards 8

5.2 Final Abandonment..... 9

6.0 References9

Appendix A: Environmental Surface (ES) Inspection Form

Appendix B: Final Reclamation Inspection Monitoring Form

Reclamation Plan

LIST OF TABLES

Table 1. Legal Land Description for the Proposed Project 3

Table 2. Project Disturbance Estimates..... 5

Table 3. Disturbance Acreage Following Interim Reclamation 5

Table 4. Sagebrush Community seed mix 6

Table 5. Reclamation goal for Sagebrush Community vegetation cover 7

ACRONYMS

BLM	Bureau of Land Management
FAN	final abandonment notice
FFO	Farmington Field Office
FSL	from the south line
FWL	from the west line
GPS	global positioning system
PLS	pure live seeds
ROW	right-of-way
TUA	temporary use areas
WPX	WPX Energy Production, LLC

Reclamation Plan

Reclamation Plan

Applicant	LOGOS Operating, LLC (LOGOS)
Project Type	Well Pad, Temporary Waterlines and Booster Pumps, Pond, & Cuttings Disposals
Well, Oil and Gas Lease, or Right-of-Way (ROW) Name	Rosa Pad 29 Natural Gas Well Pad and Associated Drilling and Completion Activities Project
Legal Location	<p><i>Rosa Pad 29</i>: Section 25, Township 31 North, Range 6 West, NMPM Rio Arriba County, New Mexico</p> <p><i>Section 23 Cuttings Disposal</i>: Section 23, Township 31 North, Range 6 West, NMPM Rio Arriba County, New Mexico</p> <p><i>Section 25 Cuttings Disposal</i>: Section 25, Township 31 North, Range 6 West, NMPM Rio Arriba County, New Mexico</p> <p><i>Rosa Pond (formerly Section 30 Recycling Containment)</i>: Section 30, Township 31 North, Range 5 West, NMPM Rio Arriba County, New Mexico</p>
Lease Number	SF-078767 and SF-078771

1.0 Introduction

This Supplemental Reclamation Plan has been prepared to accompany a Supplemental SUPO and to meet the requirements and guidelines of the Bureau of Land Management (BLM) Farmington Field Office (FFO) and Onshore Oil and Gas Order No. 1. LOGOS has succeeded WPX Energy Production, LLC (WPX) as operator of the Rosa Unit.

The LOGOS Operating, LLC (LOGOS) contact person for this Reclamation Plan is:

Tamra Sessions
 LOGOS Operating, LLC
 2020 Afton Place
 Farmington, NM 87401
 (505) 278-8720

1.1 Vegetation Reclamation

The FFO makes no distinction between interim and final revegetation processes; revegetation processes and standards are the same for all revegetation activities. However, in interim reclamation related to this project, revegetation may be undertaken without re-creating original topography if there is a likelihood of re-disturbing the area during additional construction activities in the near future or if original topography would not be practical during operations.

LOGOS would be responsible for revegetating all areas disturbed by their operations, including the proposed new disturbance areas (total 5.14 acres) and any areas of existing disturbance utilized for the project. LOGOS currently plans to restore topography and revegetate the new disturbance proposed for

Reclamation Plan

the Booster Pump #3 site (0.057 acre) immediately after completion activities are concluded. At Rosa Pad 29, the proposed new disturbance created by the proposed expansion area would also be revegetated after the conclusion of well completion activities by redistributing topsoil and reseeding but topography would not yet be restored. The majority of the well pad area would also be revegetated by reseeding, leaving only a teardrop shaped, 16 ft wide driving surface for access to the wellheads. At the end of the life of the wells, the entire pad including the expansion area would be completely reclaimed to return the area as closely as practicable to its original condition. This would include reconfiguring the topography of the area, redistributing topsoil, seedbed preparation, and reseeding.

1.2 Revision of the Reclamation Plan

This Supplemental Reclamation Plan is a revision to the original 2015 Reclamation Plan submitted by WPX Energy Production, LLC (WPX), the previous operator of the Rosa Unit. The justification for this revision is the areas of new disturbance proposed by LOGOS, which would require reclamation and which were not included in the original Reclamation Plan. This plan also updates procedures for the reclamation of previously disturbed areas which LOGOS proposes to disturb again in their own mineral development activities.

LOGOS may submit a request to the BLM/FFO to revise this Reclamation Plan at any time during the life of the project in accordance with page 44 of the Gold Book (USDI-USDA 2007). LOGOS will include justification for any revision request.

2.0 Project Description

The Rosa 29 Project now proposed by LOGOS is a continuation of a project originally proposed, approved for, and in part completed by WPX before the assets involved were acquired by LOGOS in 2017 from WPX. LOGOS's planned project activity includes the horizontal drilling, production and final abandonment of multiple oil and natural gas wells drilled from the Rosa Pad 29 well pad, which was previously constructed by WPX. These wells would develop federal minerals in the Basin Mancos Formation from a surface location positioned on surface managed by the BLM-FFO. In the process of constructing wells, LOGOS would create 5.14 acres of new disturbance by expanding the Rosa Pad 29 and by creating a site for a booster pump. LOGOS would also re-use areas previously disturbed.

LOGOS proposes to expand the Rosa Pad 29 by approximately 4.57 acres to allow space for drilling and completions equipment and activity. Fresh water from Navajo Lake would be transported through temporary surface waterlines to tanks on the well pad for use in well completions. One pond, the Rosa Pond, which was originally part of a recycling containment constructed by WPX, as well as tanks on other existing pads would be utilized to store fresh water for the well completions. Temporary surface waterlines would be placed within existing access road and pipeline corridors. Three booster pumps would be needed to push water from the Point of Diversion (POD) on Bureau of Reclamation (BOR) land up to tanks and the pond. One pump would be on BOR land, one would be on LOGOS's Rosa Pad #181, and the third would be located on a new disturbance totaling 0.57 acre in Section 25-T31N-R6W. One to two cuttings disposal areas which are previously disturbed sites would be utilized to dispose of drill cuttings.

Reclamation Plan

Table 1. Legal Land Description for the Proposed Project (BLM and BOR Surface)

Township, Range	Section	Project Feature
Township 31 North, Range 5 West	10 (BOR surface)	Point of Diversion, Booster Pump and Filter, Access Road
	30	Rosa 29 Pad, Rosa Pond, Surface Waterlines
Township 31 North, Range 6 West	11 (BOR and BLM)	Access Road, Surface Waterlines, Booster Pump
	14, 26	Surface Waterlines
	23	Surface Waterlines, Section 23 Cuttings Disposal, Access Road
	25	Section 25 Recycling Containment, Surface Waterlines, Booster Pump
	29	Rosa Pad 29, Surface Waterlines

2.1 Estimated Total Area of Disturbance

The original WPX project estimated a total of 42.09 acres of disturbance on BLM land. LOGOS plans to use approximately 29.46 acres of the original project disturbance and to develop approximately 5.14 acres of new disturbance: 4.57 acres of new surface disturbance at Rosa Pad 29 and 0.057 acre at Booster Pump #3. The new total disturbance on BLM land would be 47.23 acres. LOGOS also plans to use 0.02 acre of existing disturbance on BOR land and to develop 2.92 acres of new disturbance on BOR land.

Of the 38.96 acres proposed to be disturbed by LOGOS, including both BLM and BOR surface, approximately 37.03 acres would be fully reclaimed and 0.81 acre would be reseeded (but not recontoured) during interim reclamation. The remainder (1.11 acres) would be stabilized, used as a working surface throughout the life of the proposed project, and fully reclaimed during final reclamation.

Rosa Pad 29 Well Pad and Construction Zone

The Rosa Pad 29 is co-located with the Rosa Pad 165A. There would be no new access road associated with this project. The existing area of disturbance for Rosa Pad 29, is 6.17 acres and would be reused. It would be further expanded in an irregular shape on the northwest, north, and east-southeast by a total of 4.57 acres as shown in Appendix B, Figure 18 of the Supplemental SUPO. The total disturbance at the Rosa Pad 29 would thus be 10.74 acres. The entire original well pad area would be utilized during construction, setting of production equipment, and drilling and completion phases along with part of the expansion on the northwest. The remainder of the expansion area of disturbance is required to develop a safe and stable slope around the usable part of the expanded working area.

LOGOS has eight approved APDs for horizontal wells to be drilled from this well pad with the potential for additional wells in the future. Once all drilling and completions phases are complete for all wells, the well pad, including the expansion area, would be interim reclaimed leaving only a 16 ft wide teardrop shaped driving surface for access to the well heads.

Well pad expansion construction is expected to take approximately two (2) to three (3) weeks. Drilling operations for each well are likely to occur for three (3) to four (4) weeks. Completion drilling operations

Reclamation Plan

for each well are likely to occur for two (2) to three (3) weeks. Drilling and completion drilling operations for multiple wells on the well pad are planned to occur simultaneously, and would occur on a 24-hour basis. The resulting life of each well may be 30 or more years for a total action period of 30+ years.

Section 23 Cuttings Disposal

No change from original Reclamation Plan.

Section 25 Cuttings Disposal

This site has existing disturbance from a historic rock quarry pit that is being depleted of its resources and is unreclaimed on BLM surface. This location was originally proposed by WPX for a recycling containment area, but no pond was ever constructed. However, a portion of the area was utilized for disposal of cuttings, and LOGOS also plans to utilize part of the location for disposal of cuttings. The dimensions and placement of these cuttings within the site's footprint are yet to be determined, but any cuttings placed by LOGOS at this site would be utilized by LOGOS to reclaim and restore the area. The entire disturbed area would be completely reclaimed when all drilling activities have been concluded. During reclamation, the disturbed surface would be restored to near original land contours if possible.

Rosa Pond (formerly Section 30 Recycling Containment)

WPX originally constructed the Section 30 Recycling Containment for use during their drilling and completion operations and after use, partially reclaimed it. The originally proposed recycling containment dimensions were 900 feet by 350 feet (7.23 acres) with an additional 50-foot construction buffer zone surrounding all four sides (3.1 acres). The resulting area is 10.33 acres. Approximately 0.69 acres overlaps an existing road to the north. The pond was originally planned by WPX to be approximately 700 feet by 300 feet and 25 feet deep. Total volume was estimated by WPX to be 622,708 barrels.

LOGOS closed the Recycling Containment in 2019 in accordance with New Mexico Oil Conservation Division regulations. However, the holding pond remains as a structural feature and could be used to hold fresh water for use in well drilling and completions by LOGOS. The pond is no longer lined or netted and does not contain a leak detection system but it is fenced.

The disturbed area would be reclaimed when all drilling activities have been concluded in accordance with discussions, guidance, and agreements with the BLM. LOGOS and the BLM are in discussion regarding the ultimate use or reclamation of the pond as a suitable wildlife pond.

Surface Waterlines

Surface waterlines would be temporarily installed to transport water from Navajo Lake to tanks located at staging areas as well as at Rosa Pad 29 and to the Rosa Pond if used. Surface waterlines would also be used to transport water from the tanks and Rosa Pond to the well which is being completed for well stimulation. The surface waterlines would consist of a maximum of two 10-inch to 12-inch diameter heavy duty lay flat lines and/or poly surface pipelines permitted for temporary use. Surface waterlines would only be installed and utilized as needed.

These surface waterlines would be temporarily installed in or adjacent to existing disturbance for their entire length. The proposed route for surface lines from the POD to Rosa Pad 29 are shown in Appendix B, Figure 16. If the Rosa Pond were used to store freshwater, LOGOS would utilize the waterline routes as previously described by WPX and approved in the original SUPO. Vegetation would not be cleared to

Reclamation Plan

make room for surface waterlines, and no surface disturbance would occur. The temporary surface waterlines would be removed following all well stimulation activities. Surface waterlines from the edge of the BOR land in Section 11 to the Rosa Pad 29 would be approximately 21,798 feet long (4.2 miles).

Staging Areas/Temporary Use Areas (TUA's)

Fracturing materials, tanks, and pumps would be stored on Rosa Pad 29, at the cuttings disposal sites, and at staging areas at LOGOS's Rosa Pad #183A, Rosa Pad #183B, Rosa Pad #204A, Rosa Pad #10B, Rosa Pad #212A, Rosa Pad #256, Rosa Pad #165C, Rosa SWD #1, and Rosa SWD #2. All surfaces within the staging areas disturbed during the duration of the project would be reclaimed.

Table 2. Project Disturbance Estimates

Feature	Length (Feet)	Width (Feet)	Previous/Existing Surface Disturbance (Acres)	New Surface Disturbance (Acres)	Total Surface Disturbance (Acres)
Rosa Pad 29 Well Pad/Construction Zone	irregular	irregular	6.17	4.57	10.74
Section 23 Cuttings Disposal	600	400	5.51	0	5.51
Section 25 Cuttings Disposal	800	400	7.35	0	7.35
Rosa Pond Site	-	-	10.33	0	10.33
Surface Water Lines (BLM) ¹	21,798'	-	-	-	0.00
Booster Pump #3 Site	50	50	0	0.57	0.57
Section 23 Cuttings Disposal Access Road	140	30	0.10		0.10
BOR Waterline and Access Road	2055.2	30	0.472	0.944	1.416
BOR Pump and Filter sites	25' x 2	25' x 2	0.02	2.92	2.94
Total			29.95	9.00	38.95

¹ Surface waterlines will be placed within bounds of existing disturbance. As such, width will vary depending on the width of existing disturbance. No surface disturbance will occur.

Table 3. Disturbance Acreage Following Interim Reclamation

Feature	Acreage			Description of New Disturbance Acreage Following Interim Reclamation		
	Existing Disturbance	New Disturbance	Total	Fully Reclaimed (Reseeded and Recontoured)	Reseed Only	Unreclaimed
Rosa UT 29 Well Pad/Construction Zone	6.17	4.57	10.74	9.76	0.81	0.17
Section 23 Cuttings Disposal	5.51	0	5.51	5.51	0	0
Section 25 Cuttings Disposal	7.35	0	7.35	7.35	0	0

Reclamation Plan

Rosa Pond	10.33	0	10.33	10.33	0	0
Surface Water Lines ³	0	0	0	0	0	0
Booster Pump #3 Site	0	0.57	0.57	0.57	0	0
Section 23 Cuttings Disposal Access Road	0.10	0	0.10	0.10	0	0
BOR Waterline and Access Road	0.472	0.944	1.416	0.472	0	0.944
BOR Pump and Filter sites	0.02	2.92	2.94	2.94	0	0
Total	29.95	9.00	38.95	37.03	0.81	1.11

3.0 Pre-Disturbance Site Visit

No change from original Reclamation Plan.

3.1 Vegetation Community

The proposed new disturbance areas are part of the same vegetation communities previously described in the original Reclamation Plan. The three primary vegetation communities occurring across the proposed project area are Great Basin desert scrub sagebrush, piñon-juniper woodland, and reclaimed shrub grassland habitat associated with existing disturbance. The planned new disturbance would be reclaimed as Great Basin desert scrub sagebrush community.

The Great Basin desert scrub sagebrush community is dominated by big sagebrush, broom snakeweed, blue grama, and James' galleta. Rabbitbrush is scattered throughout the area and may be heavily browsed. Vegetative cover varies from an estimated 25 to 35 percent.

3.2 Proposed Reclamation Seed Mix

New disturbance areas, as well as any additional disturbance of previously disturbed areas, would be reclaimed using the same techniques previously described in the original Reclamation Plan. Disturbance would be re-contoured, and topsoil would be redistributed and prepared for seeding by the reclamation contractor. Ripping, disking, and seeding of the sites would be completed using the BLM-approved seed mix, which is shown in Table 4 below. The proposed reclamation seed mix takes into account the existing vegetation on the proposed project site.

Table 4. Sagebrush Community seed mix

Common Name	Scientific Name	Variety	Season	Form	PLS lbs/acre ¹
Fourwing saltbush	<i>Atriplex canescens</i>	VNS	Cool	Shrub	2.0
Winterfat	<i>Krascheninnikovia lanata</i>	VNS	Cool	Shrub	2.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	VNS	Warm	Bunch	0.5
Western wheatgrass	<i>Pascopyrum smithii</i>	Arriba	Cool	Sod-forming	4.0
Indian ricegrass	<i>Achnatherum hymenoides</i>	Paloma or Rimrock	Cool	Bunch	4.0

Reclamation Plan

Bottle brush squirreltail	<i>Elymus elymoides</i>	Tusas or VNS	Cool	Bunch	3.0
Blue flax	<i>Linum lewisii</i>	Apar	Cool	Forb	0.25
Small burnet	<i>Sanguisorba minor</i>	Delar	Cool	Forb	2.0

¹Based on 60 pure live seeds (PLS) per square foot, drill seeded; double this rate (120 PLS per square foot) if broadcast or hydro-seeded.

3.3 Vegetation Reclamation standards

Reclamation success is typically determined for selected vegetation community by the reclamation percent cover standards for the community, as outlined in Table 5 below. The vegetation community would be observed by the BLM/FFO to sign off on the attainment of vegetation reclamation standards.

Table 5. Reclamation goal for Sagebrush Community vegetation cover

Functional Group	Percent (%) Foliar Cover	Common Species
Trees/Shrubs/Grasses/Forbs	>35	Utah juniper, Piñon pine; big sagebrush, four-wing saltbush, antelope bitterbrush, alkali sacaton, Western wheatgrass, Indian ricegrass, galleta, sand dropseed, scarlet globemallow, wooly Indianwheat, fleabane, Penstemon spp., buckwheat, threadleaf groundsel.
Invasive/undesirables 10% allowed toward meeting standard of 35%.	≤10	Plants that have the potential to become a dominant species on a site where its presence is a detriment to revegetation efforts or the native plant community. Examples of invasive species include cheatgrass, Russian thistle, kochia.

3.4 Pre-Disturbance Weed Survey

No change from original Reclamation Plan.

3.5 Pre-Disturbance Soil Evaluation

No change from original Reclamation Plan.

3.6 Pre-Disturbance Site Photographs

No change from original Reclamation Plan.

4.0 Reclamation Techniques for Successful Revegetation

Reclamation in the Rosa Pad 29 Development Project areas would be conducted according to standard reclamation practices and additional guidance received from the BLM/FFO or BOR, as appropriate, at the time of reclamation.

4.1 Vegetation and Site Clearing

No change from original SUPO and reclamation plan.

4.2 Topsoil Stripping, Storage, and Replacement

No change from existing Reclamation Plan.

Reclamation Plan

4.3 Water Management/Erosion Control Features

No change from existing Reclamation Plan.

4.4 Seedbed Preparation

No change from existing Reclamation Plan.

4.5 Soil Amendments

No change from existing Reclamation Plan.

4.6 Seeding

No change from existing Reclamation Plan.

The seed mix chosen for this project area is listed in Table 4 and would be appropriate for the two proposed new disturbance areas as well as previously disturbed areas approved under the original SUPO.

4.7 Noxious and Invasive Weed Control

No change from existing Reclamation Plan.

5.0 Monitoring Requirements

Monitoring would be completed according to BLM/FFO guidelines after the project is completed to ensure reclamation practices are successful.

5.1 Interim Reclamation

Interim reclamation would be completed on areas which may be disturbed again by project work before the wells are plugged and abandoned.

5.1.1 Initiation

During the post-disturbance inspection at the project site, the BLM/FFO representative (in collaboration with the LOGOS Representative) would determine site specific issues for interim reclamation and confirm reclamation goals. The BLM's initial monitoring report should be completed within 60 days of the post-disturbance earthwork and seeding inspection. The initial report will be available to the operator from the BLM/FFO.

5.1.2 Annual Monitoring and Reporting

LOGOS would be responsible for annual inspections and documentation of findings on the inspection form. Monitoring may occur at any time of year, but the initial monitoring report would be submitted to the BLM by December 31 of the first year monitored and subsequent reports would also be due by the end of each calendar year.

Annual monitoring would continue until vegetation and reclamation standards are attained.

5.1.3 Attainment of Vegetation and Reclamation Standards

Reclamation Plan

During annual inspections, the evidence of the following criteria would need to be observed and documented on the inspection form. The inspection form documenting success or need for corrective actions (Appendix A) would be attached to the annual report submitted to the BLM by the end of each calendar year.

- The original landform has been restored for all disturbed areas.
 - Including roads, two tracks, and staging areas
- A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and invasion by non-native plants and to reestablish wildlife habitat or forage production. See Table 6 (above) for species and success criteria.
 - The established plant community should consist of species included in the seed mix and/or desirable species occurring in the nearby natural vegetation.
- Erosion control is sufficient so that water naturally infiltrates into the soil and gullying, head cutting, slumping, and deep or excessive rills (greater than three inches) are not observed.
- Erosion features are equal to or less than surrounding area.
- The site is free of state- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds are controlled.

When the reclamation criteria have been met, LOGOS may request BLM/FFO concurrence that reclamation has been successful. LOGOS would submit a written report identifying that criteria have been met. The BLM/FFO would reply to the operator to confirm concurrence (or not) with a rationale for the determination within 60 days of receiving the request (Appendix B).

If the revegetation and reclamation criteria are not attained, LOGOS and the BLM/FFO would analyze the issues that may have contributed to the lack of success. Remedial actions would be developed in collaboration.

5.2 Final Abandonment

Revegetation percent cover standards will be attained, documented, and submitted to the BLM/FFO by LOGOS or an exception granted before the BLM/FFO would approve a final abandonment notice (FAN) or relinquishment.

6.0 References

43 CFR Part 3160, "Onshore Oil and Gas Order No. 1; Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Approval of Operations," 72 Federal Register 44 (March 2007), pp. 10328-10338.

BLM. 2013a. Farmington Field Office Bare Soil Reclamation Procedures. Available at: http://www.blm.gov/pgdata/etc/medialib/blm/nm/field_offices/farmington/farmington_planning/surface_use_plan_of.Par.69026.File.dat/FFO%20Bare%20Soil%20Reclamation%20Procedure.s%202-1-13.pdf. Accessed September 2014.

BLM. 2013b. Updated Reclamation Goals. Available at: http://www.blm.gov/nm/st/en/fo/Farmington_Field_Office/ffo_planning/surface_use_plan_of/updated_reclamation.html. September 2014.

U.S. Department of the Interior - U.S. Department of Agriculture (USDI-USDA). 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+307/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

Appendix A – Environmental Surface Inspection Form

Form 3160-33
(Sept 2018)

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL SURFACE (ES) INSPECTION FORM

Inspection Header

Inspection Target	<input type="checkbox"/> Support Facility(s)							
	Name		Number		Type		Status	
	<input type="checkbox"/> Production Facility(s)							
	Name / Number				Status			
	<input type="checkbox"/> Well(s)							
	Well Name		Well Number		US Well Number		Lease	Well Status
Inspection Target Details								
Operator			Case		Latitude	Longitude	Priority	
Aliquot	Lot	Tract	Section	Township	Range	Meridian	County	State

Inspection Details

New <input type="checkbox"/> Follow-up <input type="checkbox"/>				Partial Inspection - Yes <input type="checkbox"/> No <input type="checkbox"/>			
Open Date:		Inspection Date:		Close Date:		AFMSS Date:	
Activity	Inspector	Contractor	Open	Close	Office	Travel	Inspection

Inspection Footer

Operations are in Conformance with Permit Requirements: YES <input type="checkbox"/> NO <input type="checkbox"/> (REQUIRED FOR ALL INSPECTIONS)					
Follow-up Requirements: (select all that apply)		<input type="checkbox"/> NONE	<input type="checkbox"/> VERBAL	<input type="checkbox"/> ORDER	<input type="checkbox"/> INC
General Remarks:					
FAN Approval Recommendation: (select only one)		<input type="checkbox"/> APPROVE	<input type="checkbox"/> DENY	<input type="checkbox"/> NA	
Follow-up Remarks:					
Next ES Date:					

(Continued on Page 2)

(Form 3160-33)

Appendix B – Final Inspection Monitoring Form

Final Reclamation Inspection/Monitoring - Environmental				
Case #:		Multi-Well Location		Well Name:
Lease #:		Yes <input type="checkbox"/>		Well #:
Operator: Present: Yes <input type="checkbox"/> No <input type="checkbox"/>		No <input type="checkbox"/>		API #:
Twn:		County:		Well Status:
Sec:	Rng:	State:		Plugged Date:
N/S Foot:	Qtr:	Lat:	Long:	Facility ID:
E/W Foot:				Facility Name:
Surface Owner:		Inspection Activity: ES/ SA		
Present: Yes <input type="checkbox"/> No <input type="checkbox"/>				
Office Time:	Travel Time:	Inspection Time:	Trips:	
Inspection Open Date: Click here to enter a date.		Inspection Close Date: Click here to enter a date.		Inspector:
Inspected: Well/Facility Location <input type="checkbox"/> ; Road <input type="checkbox"/> ; Pipeline <input type="checkbox"/> ; Power Line <input type="checkbox"/> ; Other <input type="checkbox"/>				

Inspection Items	Met	Not Met	N/A	Order/ INC
1. All Facilities Removed for Final Reclamation (Including cement, surface and shallow pipes, risers, markers, signs, fences, culverts, gates, cattleguards, trash, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
2. Surfacing Material Removed from Location and Road	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
3. Free of Oil or Salt-Contaminated Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
4. Compacted Areas Ripped/Disked (Locations, Roads, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
5. All Original Disturbance Areas Recontoured Back to Original Contour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
6. Adequate Topsoil Replaced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
7. Seeded Drill Seeded <input type="checkbox"/> Broadcast Seeded <input type="checkbox"/> Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
8. Adequate Surface Roughness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
9. Erosion and Runoff Controlled Methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
10. Mulch Type	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
11. Reclamation Fence: Follow-up needed to ensure fence removal? Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
12. Dry-hole Marker: Surface Monumented <input type="checkbox"/> Subsurface Monumented (preferred) <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
13. Free of Noxious or Invasive Weeds Treatment Needed Yes <input type="checkbox"/> No <input type="checkbox"/> Species Present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
14. Revegetation Success & Desired Species Density/Cover Measurement and % Species Types and % Reference Site Density/Cover Measurement and % Reference Site Species Types and % Transect Sheets Completed Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
15. Overall Site Stability (Wind & Water Erosion, Subsidence, Vegetation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
16. Split Estate: Surface Owner Consultation/Concurrence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
17. Other: (Describe)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Summary: All Reclamation Work According to the Approved Reclamation Plan & BLM Policy and Successful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>

05-09-2011

Final Reclamation Approvable - Yes No

Comments, Inspection/Monitoring Results, and Additional Actions Necessary:

Original Disturbance Acres/Well: (including location, roads, and pipelines):		Meets Final Reclamation Standards Acres/Well:	
Follow-up Requirements: Choose an item.	Correct problem by: Click here to enter a date.	Next Inspection date: Click here to enter a date.	Date AFMSS updated: Click here to enter a date.

Order/INC No.

The Privacy Act of 1974 and the regulations in 43 CFR 2.48(d) require that you be furnished the following information.

Authority: 30 U.S.C. 181 et seq.; 43 CFR 3160; Onshore Oil and Gas Order No. 1.

Purpose: The BLM uses this information to document and track operator compliance with the terms of a Federal permit for the development oil and natural gas and to contact the permit holder and other affected parties.

Routine uses: In addition to those disclosures generally permitted under 5 U.S.C. 552a(b) of the Privacy Act, all or a portion of the information collected may be disclosed as a routine use pursuant to 5 U.S.C. 552a(b)(3) as follows: (1) Document and track compliance with permit conditions. (2) Gather contact information for permittees and parties affected by the permit. (3) Track monitoring data. (4) Information from the record and/or the record will be transferred to appropriate Federal, State, or local agencies when relevant to civil, criminal, or regulatory investigations or prosecutions.

Effect of not providing information: Disclosure of the information is voluntary; however, failure to provide the requested information may impede individual participation.

05-09-2011

Final Reclamation ES – Photo Log	
PHOTO NUMBER	PHOTO INFORMATION
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

Photo 1

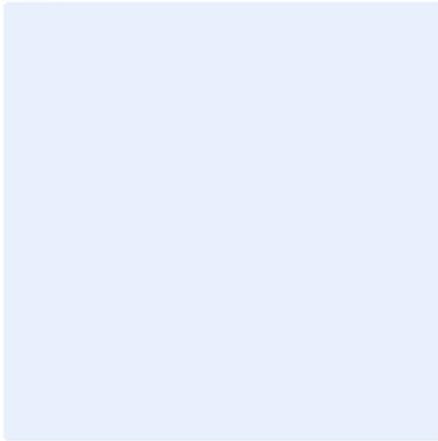


Photo 2

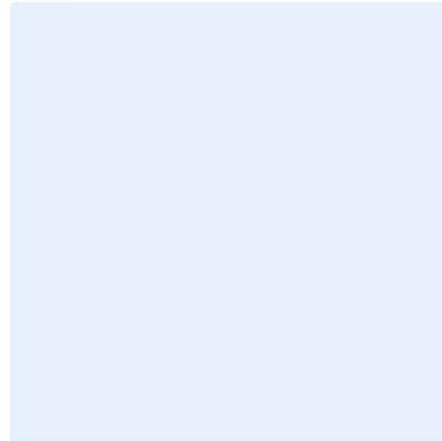


Photo 3

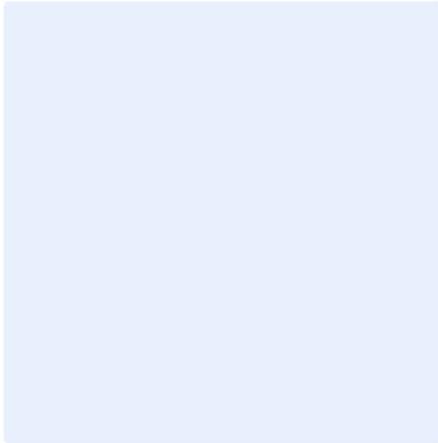
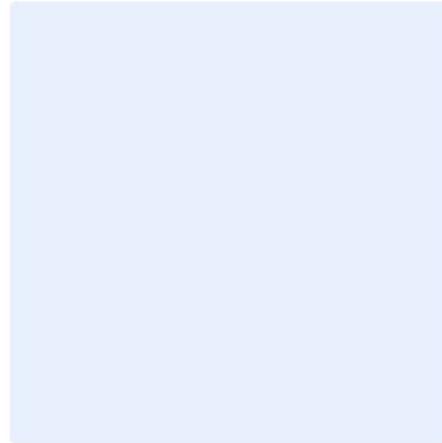


Photo 4



05-09-2011

Photo 5

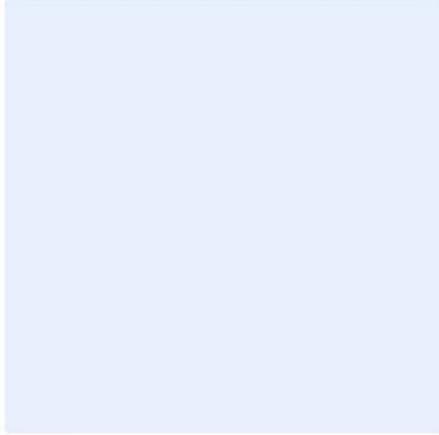


Photo 6

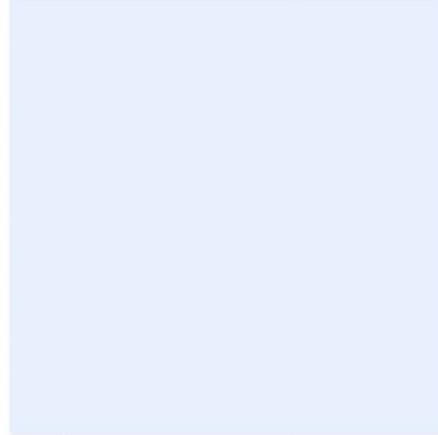


Photo 7

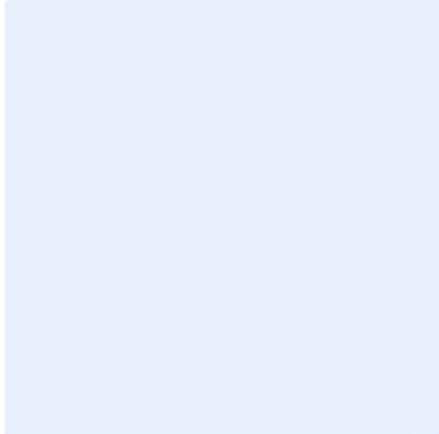
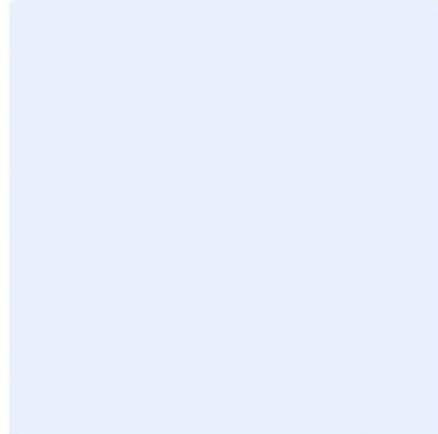


Photo 8



05-09-2011

Appendix B – 2020 New: Figures 14, 15, 16, 17, 18, and 19

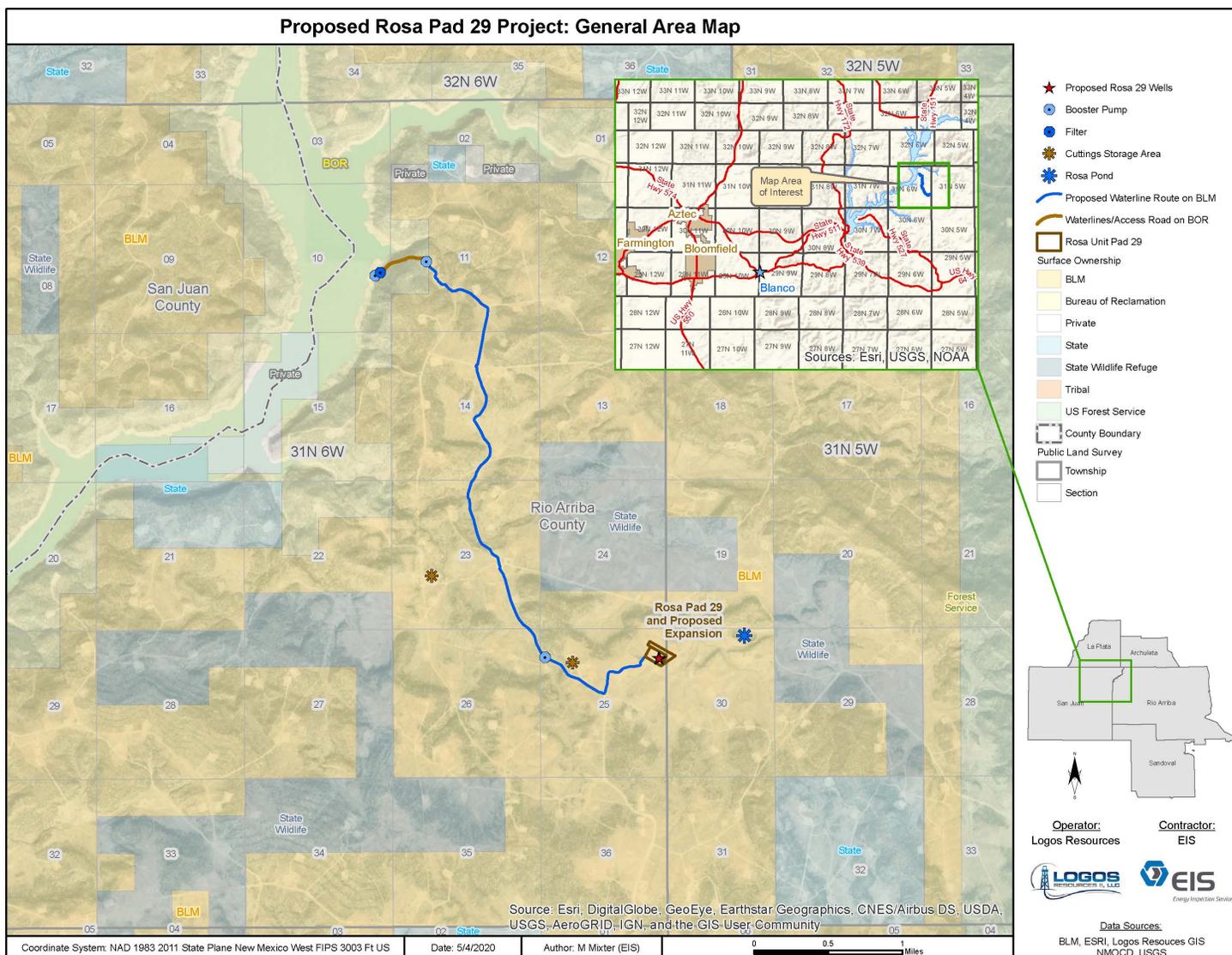


Figure 14. Rosa Pad 29 Project - General Location Area Map

Supplemental SUPO: Rosa Pad 27 and Rosa Pad 29 Development Project
 May 2020

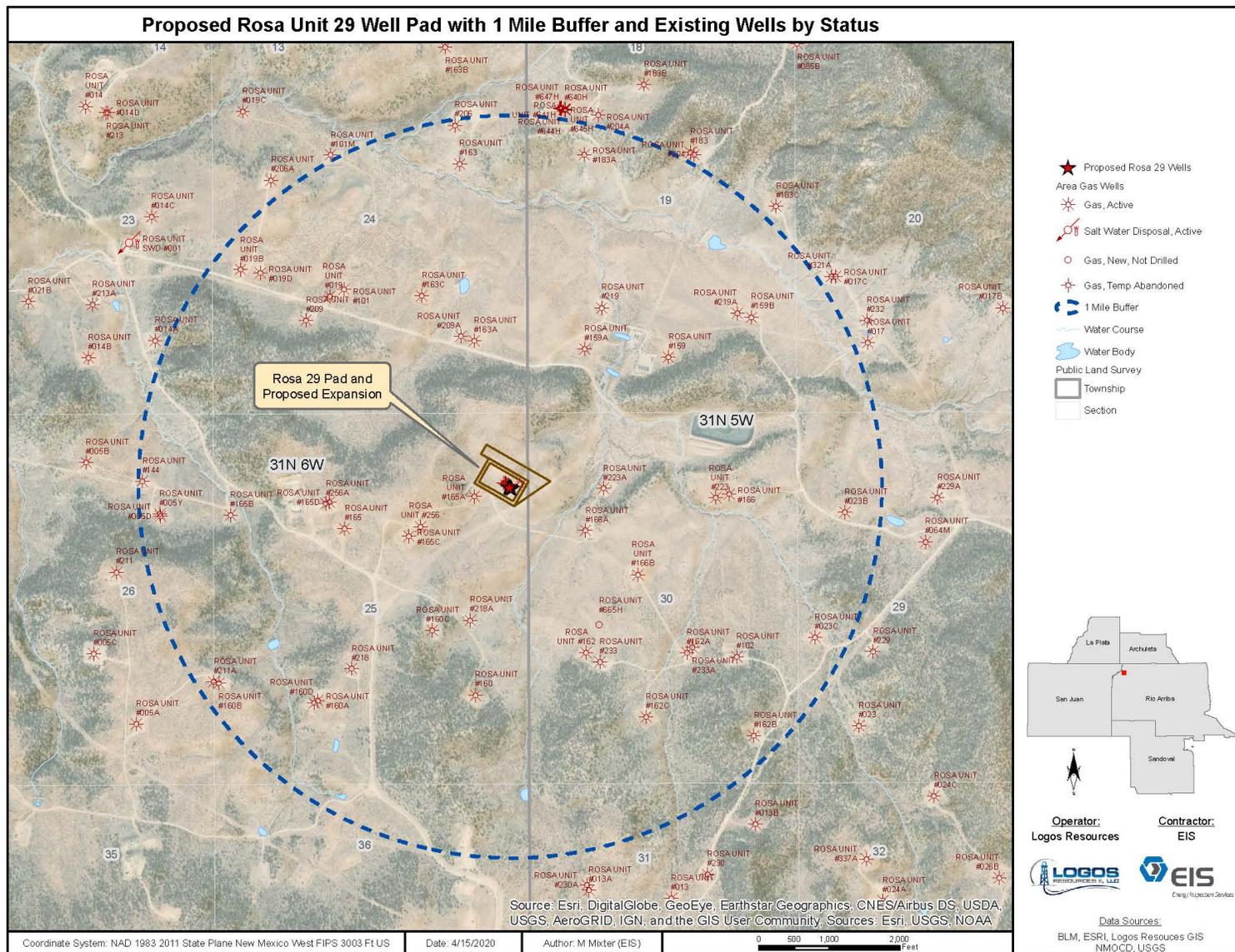


Figure 15. Rosa Pad 29 - 2020 Updated Wells within One Mile Map

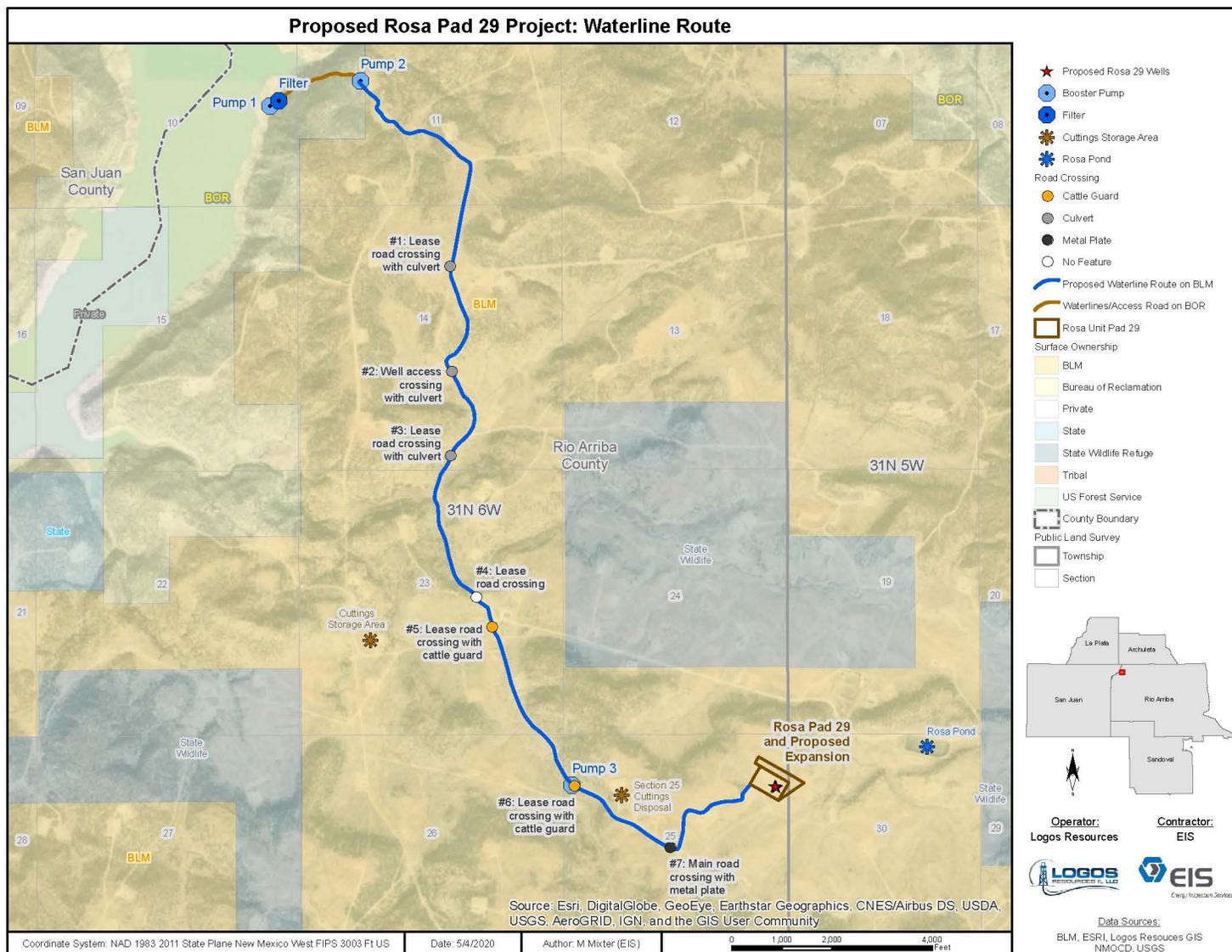


Figure 16. Rosa Pad 29 - Waterline Route Map

Supplemental SUPO: Rosa Pad 27 and Rosa Pad 29 Development Project
May 2020

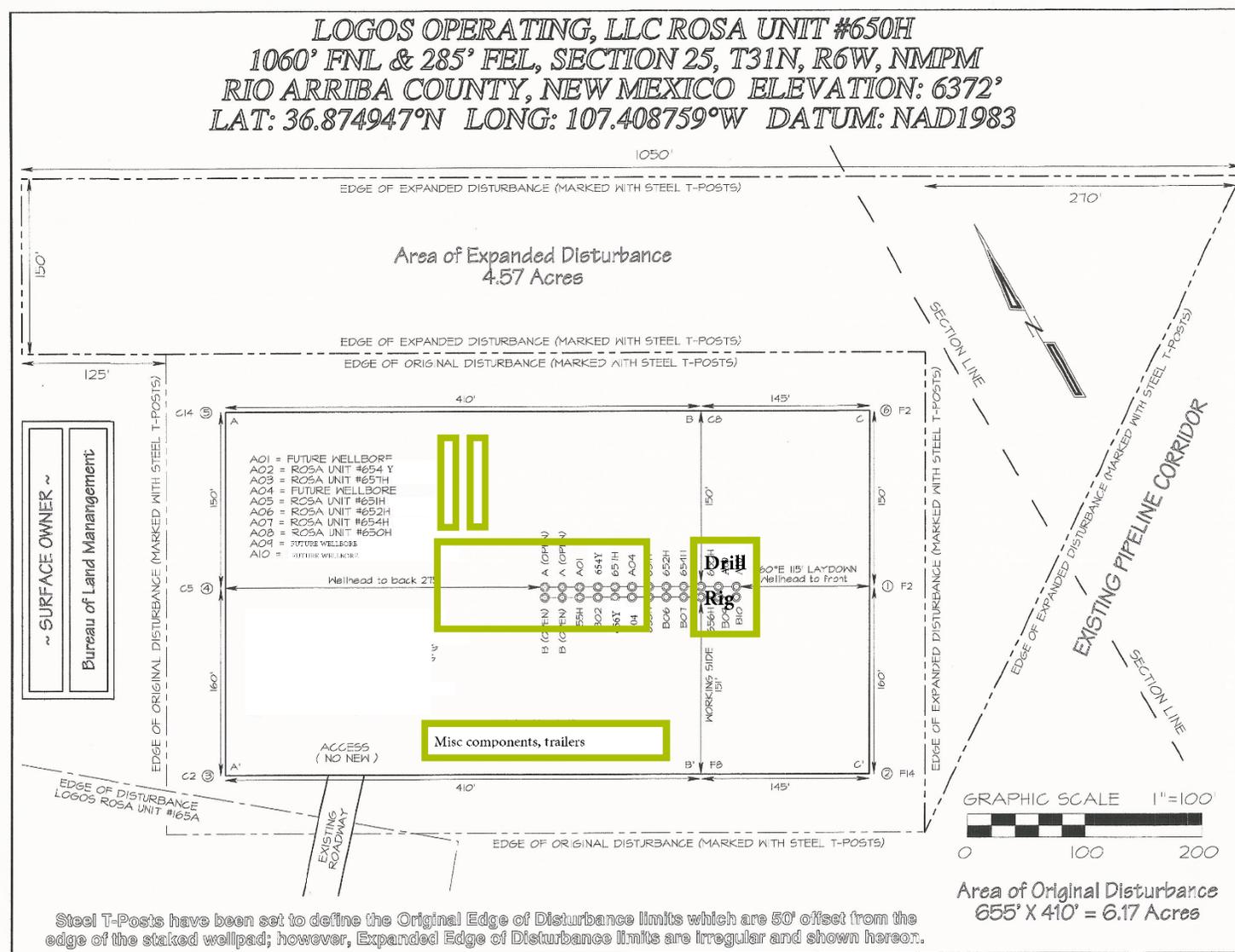


Figure 18. Rosa Pad 29 Diagram with Proposed Expansion Area

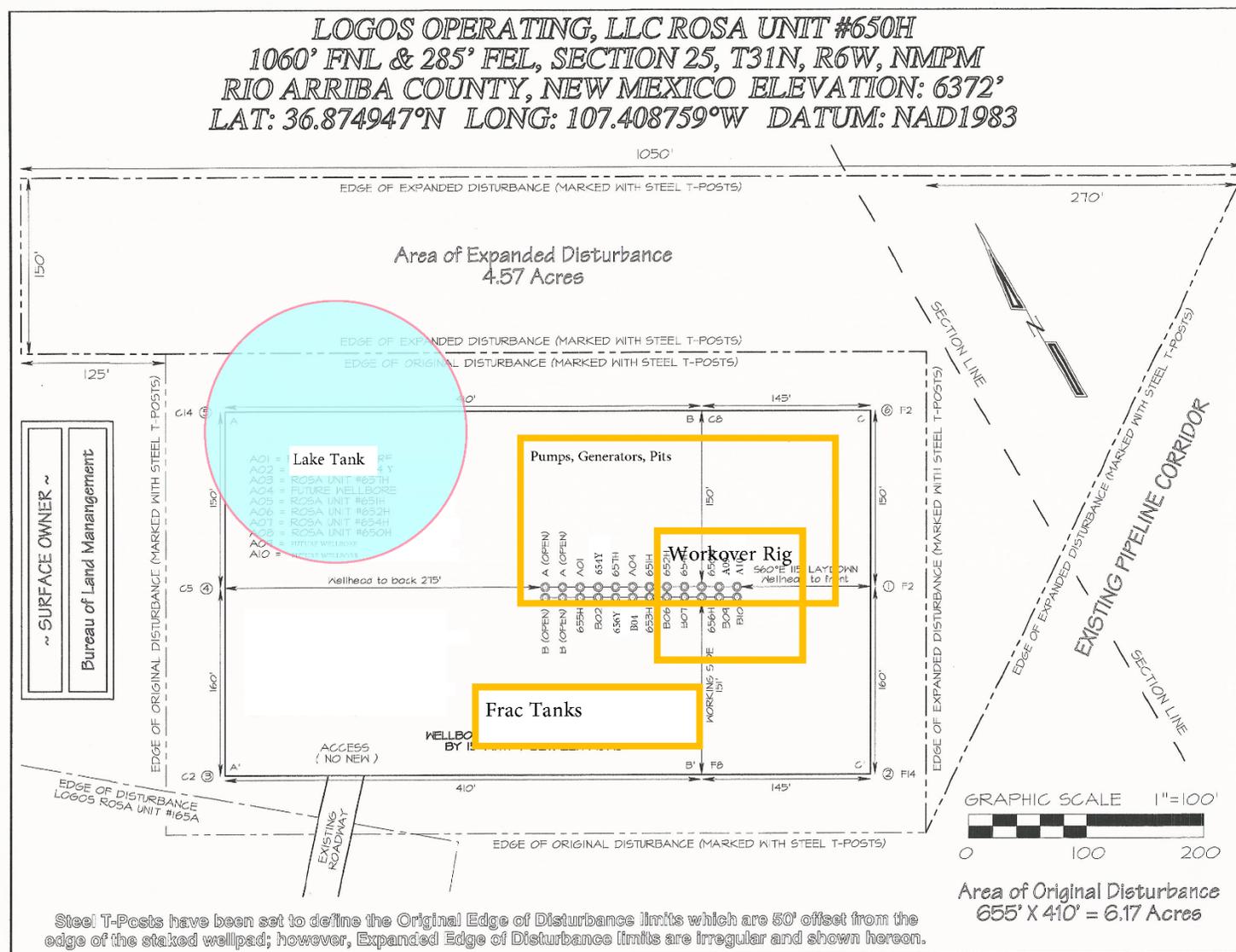


Figure 19. Rosa Pad 29 – 2020 Updated Completions Layout Diagram:

Appendix C – 2020 Updated: Road Maintenance Plan

LOGOS Operating, LLC's Road Maintenance Plan

The following Road Maintenance Plan will be implemented and followed by LOGOS Operating, LLC (LOGOS) for roads utilized in its San Juan Basin Operations. All roads would be constructed and maintained to meet the Bureau of Land Management (BLM) Gold Book Standards and BLM Manuals 9113-1 (Roads Design Handbook) and BLM Manuals 9113-2 (Roads National Inventory and Condition Assessment Guidance and Instructions Handbook).

Road Inspection

1. A LOGOS representative or designated inspector would inspect all newly constructed or reconstructed roads that would be used to construct, operate, maintain and terminate LOGOS's oil and gas operations.
2. Road Inspections would be conducted monthly or within 72 hours of an extreme weather event (e.g., summer thunderstorms). The inspector would observe road conditions as they drive to and from locations.

Maintenance Procedures

LOGOS maintenance plan contains provisions for maintaining the travelway of newly constructed or reconstructed roads. Identified items during inspection would be reviewed and corrected as necessary by LOGOS or designated contractors.

1. Blading
 3. If the road crown surface becomes rutted, not adequately draining, or in a roughened condition, LOGOS would utilize a maintainer to re-grade and/or resurface the road crown.
2. Culverts
 4. If culverts or silt traps are plugged or are not functioning properly, LOGOS would excavate and remove debris or sediment impeding the function of the culvert.
3. Ditches
 5. If road side ditches become blocked or not functioning properly, LOGOS would use a maintainer or the necessary equipment to clean or blade the ditch.
4. Silt Traps or Water Control Structures

6. If silt traps or water control structures are found to be filled with sediment or are not functioning properly, LOGOS would use the appropriate equipment to clean out sediment or repair/modify the structure.

5. Dust Abatement

7. Dust emissions would be controlled on the road and location, as necessary, with the application of dust suppressants (e.g., Magnesium Chloride) and/or water. Dust control would be implemented when dust plumes become larger than normal road use conditions or when directed by the administrative agency.

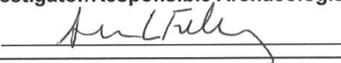
Appendix D – Proposed Holding Pond Netting Plan – no change

Appendix E – Game Fence Detail – no change

*Appendix F – 2020 New:
Archeological Report for the Booster
#3 Pad*

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.: 144455	2a. Lead (Sponsoring) Agency: BLM, Farmington Field Office	2b. Other Permitting Agency(ies):	3. Lead Agency Report No.:									
4. Title of Report: A Cultural Resources Survey of Logos Operating LLC's Rosa Unit #181 POD Booster Pump #3, Rio Arriba County, New Mexico. Author(s): Steven Fuller			5. Type of Report: <input checked="" type="checkbox"/> Negative <input type="checkbox"/> Positive									
6. Investigation Type: <input type="checkbox"/> Research Design <input checked="" type="checkbox"/> Survey/Inventory <input type="checkbox"/> Test Excavation <input type="checkbox"/> Excavation <input type="checkbox"/> Collections/Non-Field Study <input type="checkbox"/> Overview/Lit Review <input type="checkbox"/> Monitoring <input type="checkbox"/> Ethnographic study <input type="checkbox"/> Site specific visit <input type="checkbox"/> Other:												
7. Description of Undertaking (what does the project entail?) This survey is for a small booster pump site that will be used by Logos Operating as part of a temporary waterline located adjacent to the Rosa Road, Rio Arriba County, New Mexico. The 50 ft by 50 ft booster pump site is located just southwest of the Rosa Road and requires no additional access, pipeline, or construction zone. A 50 ft cultural buffer zone was surveyed on all four sides. In order to meet the minimum 1 acre survey requirement, the buffer zone was expanded an additional 50 ft to the northwest, southwest, and southeast, resulting in a total survey area measuring 250 by 200 ft. Much of the survey area is currently disturbed by road, cattleguard, and fence construction. As shown on Figure 2, the survey area covers 1.15 acres, all on BLM, Farmington Field Office lands. See Figures 1 and 2 for project location and Figure 4 for project plat.		8. Dates of Investigation: October 14, 2019										
		9. Report Date: October 25, 2019										
10. Performing Agency/Consultant: La Plata Archaeological Consultants Principal Investigator: Steven Fuller Field Supervisor: Steven Fuller Field Personnel Names:		11. Performing Agency/Consultant Report No.: LAC Report 2019-4d										
		12. Applicable Cultural Resource Permit No(s): NM Cultural Resource Use Permit 19-2920-17-DD										
13. Customer Name: Logos Operating LLC Responsible Individual: Tamra Sessions Address: 2010 Afton Place, Farmington, NM 87401 Phone: (505) 324-4145		14. Client/Customer Project No.:										
15. Land Ownership Status (Must be indicated on project map):												
<table border="1"> <thead> <tr> <th>Land Owner</th> <th>Acres Surveyed</th> <th>Acres in APE</th> </tr> </thead> <tbody> <tr> <td>BLM, Farmington Field Office</td> <td>1.15</td> <td>0.06</td> </tr> <tr> <td>TOTALS</td> <td>1.15 acres</td> <td>0.06 acres</td> </tr> </tbody> </table>				Land Owner	Acres Surveyed	Acres in APE	BLM, Farmington Field Office	1.15	0.06	TOTALS	1.15 acres	0.06 acres
Land Owner	Acres Surveyed	Acres in APE										
BLM, Farmington Field Office	1.15	0.06										
TOTALS	1.15 acres	0.06 acres										
16. Records Search(es):												
Date(s) of ARMS File Review: 10/07/2019		Name of Reviewer(s): S. Fuller										
Date(s) of NR/SR File Review:		Name of Reviewer(s):										
Date(s) of Other Agency File Review: 10/08/2019		Name of Reviewer(s): K. Adams Agency: BLM, FFO										
<p>There are a total of three previously recorded archaeological sites within 1/4 mile of the project area. Of these, only LA130958 and LA99401 are located within 500 ft. The former site is about 150 ft or more to the south and no attempt was made to relocate it. The latter site, LA99401, site was relocated with ease using the 1992 site map (Nathan 1992). The NMCRIS plot of the site (a circular polygon based on maximum site dimension) incorrectly portrays the actual site boundaries. Panel 1 (historic inscriptions) was relocated and the original defined site boundary was subsequently established. The south end of the site, as originally mapped, is just over 100 ft from the northeast corner of the booster pump site, thus a little over 50 ft from the current survey area. Since the NMCRIS GIS map suggests the site is in the current survey area, a "not found" site form is attached. See Figure 3, ARMS Mapserver map, for location of previously recorded sites.</p>												

<p>22. Required Attachments (check all appropriate boxes): <input checked="" type="checkbox"/> USGS 7.5 (1:24,000) Topographic map with sites, isolates, and survey area clearly drawn <input checked="" type="checkbox"/> Copy of ARMS Map Check <input type="checkbox"/> LA Site Forms - new sites <i>(with sketch map & topographic map)</i> <input checked="" type="checkbox"/> LA Site Forms (update) - previously recorded & un-relocated sites <i>(first 2 pages minimum) (see Attachment D)</i> <input type="checkbox"/> Historic Cultural Property Inventory Forms <input type="checkbox"/> List and Description of isolates, if applicable <input type="checkbox"/> List and Description of Collections, if applicable</p>	<p>23. Other Attachments: <input type="checkbox"/> Photographs and Log <input type="checkbox"/> Other Attachments <i>(Describe):</i></p>
<p>24. I certify the information provided above is correct and accurate and meets all applicable agency standards. Principal Investigator/Responsible Archaeologist: Steven Fuller, PI Title (if Not PI) Signature: <u></u> Date <u>October 25, 2019</u></p>	
<p>25. Reviewing Agency: Reviewer's Name/Date _____ Accepted () Rejected () Tribal Consultation (if applicable): <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p>26. SHPO Reviewer's Names/Date: _____ HPD Log #: _____ SHPO File Location: _____ Date sent to ARMS: _____</p>

References

Nathan, Randy
 1992 *An archaeological Survey of a Seismic Line from Laguna Seca to Gobernador in Rio Arriba County, New Mexico.*
 Moore Anthropological Report MAR-91-054a. NMCRI LAC Report 2014-17a. NMCRI Report 41670.

CULTURAL RESOURCE FINDINGS
[fill in appropriate section(s)]

1. NMCRIS Activity No.: 144455	2. Lead (Sponsoring) Agency BLM, Farmington Field Office	3. Lead Agency Report No.:
---------------------------------------	--	-----------------------------------

SURVEY RESULTS:
 Sites discovered and registered: 0
 Sites discovered and NOT registered: 0
 Previously recorded sites revisited *(site update form required)*: 0
 Previously recorded sites not relocated *(site update form required)*: 1 (see Attachment D for updated site form)
TOTAL SITES VISITED: 0
 Total isolates recorded: 0 **Non-selective isolate recording?**
 Total structures recorded *(new and previously recorded, including acequias)*: 0

MANAGEMENT SUMMARY: No significant cultural resources were encountered in the survey area and archaeological clearance is recommended. The one "not found" site is over 100 ft from the project area and separated from the project area by the Rosa Road and a barbed wire fence.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG
 Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)

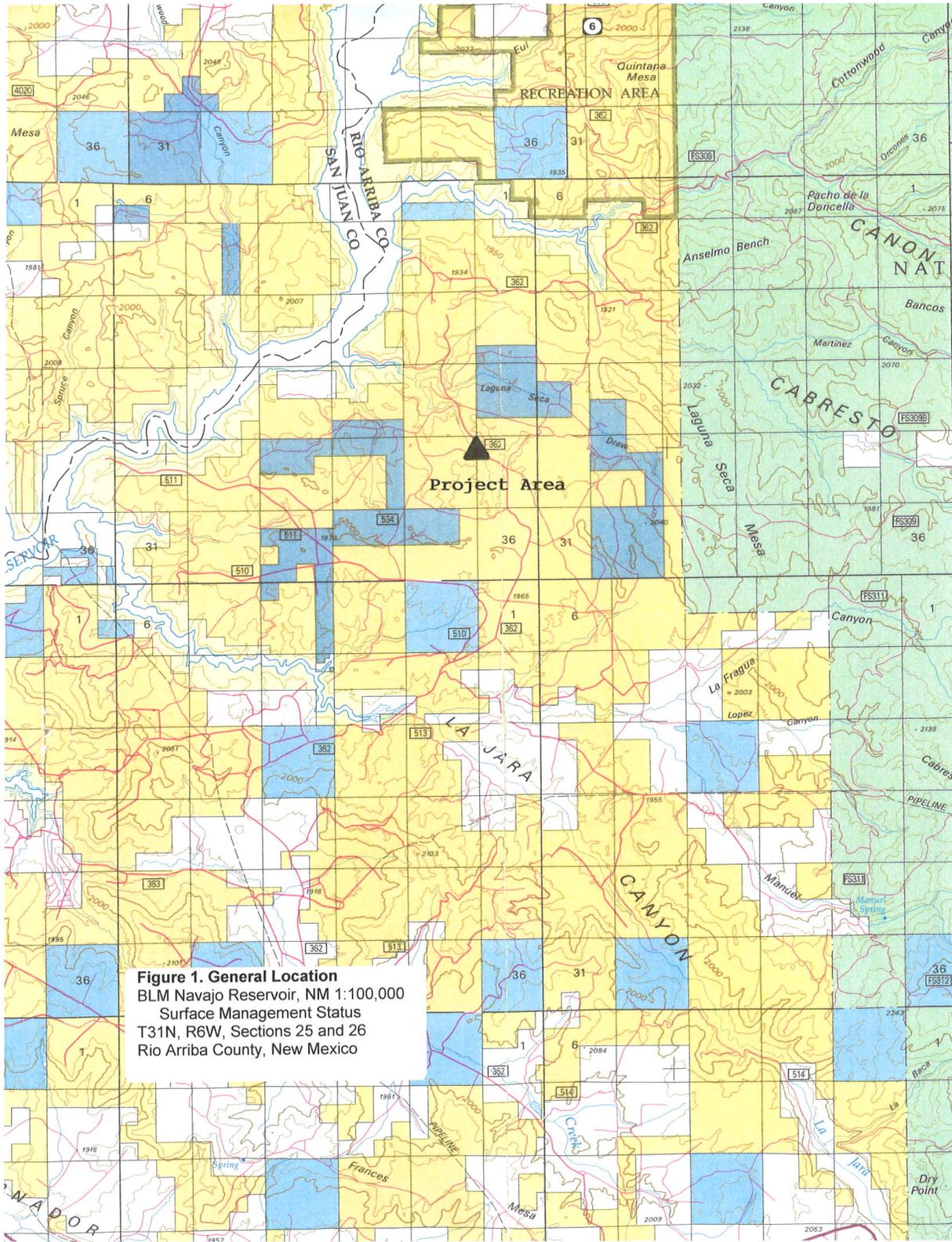
MONITORING LA NUMBER LOG *(site form required):*

Sites Discovered <i>(site form required):</i>		Previously recorded sites <i>(Site update form required):</i>	
LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes No If no explain why:

TESTING & EXCAVATION LA NUMBER LOG *(site form required)*

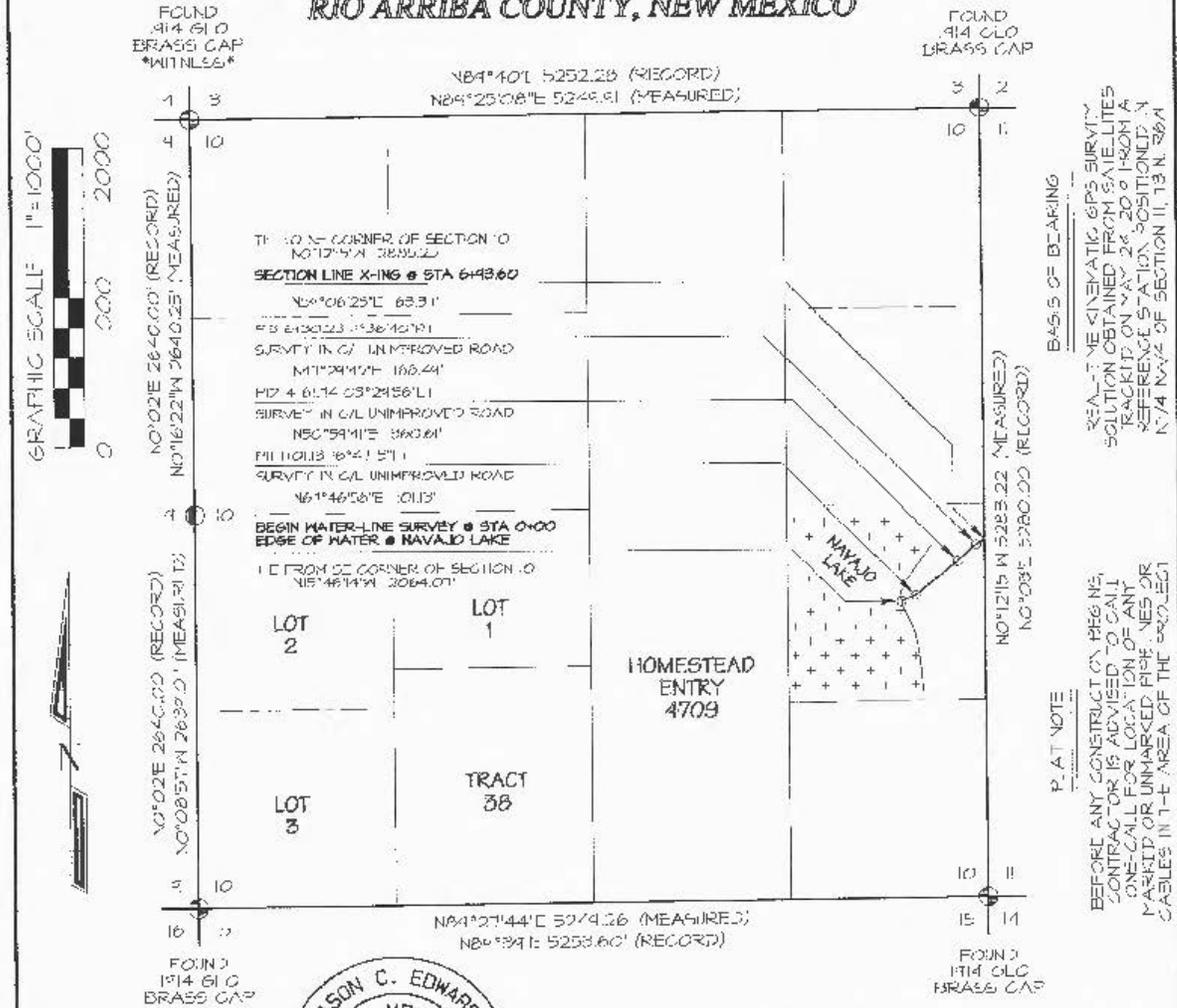
Tested LA Number(s)	Excavated LA Number(s)





Appendix G – 2020 New: Plats of BOR Areas of Use

**LOGOS OPERATING, LLC ROSA UNIT #181 POD
 SURVEY FOR ABOVE-GROUND WATERLINE & ACCESS ROAD
 LOCATED IN NE/4 SE/4 OF SECTION 10, T31N, R6W, NMPM
 RIO ARriba COUNTY, NEW MEXICO**



BEFORE ANY CONSTRUCTION OF THESE NE, CONTRACTOR IS ADVISED TO CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED PIPES, LINES OR CABLES IN THE AREA OF THE PROJECT.

BEFORE ANY CONSTRUCTION OF THESE NE, CONTRACTOR IS ADVISED TO CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED PIPES, LINES OR CABLES IN THE AREA OF THE PROJECT.

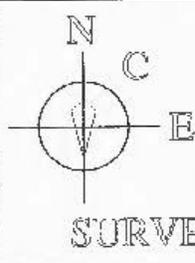


SURFACE OWNERSHIP	
Bureau of Reclamation and	
0100 06-43.60	00360 7-142.01 RODS

I, Jason C. Edwards, a registered Professional Surveyor under the laws of the State of New Mexico, hereby certify that this plat was prepared from field notes of an actual survey meeting the minimum requirements of the standards for cadastral surveys and is true and correct to the best of my knowledge and belief.

JASON C. EDWARDS Date: June 17, 2019
 Jason C. Edwards, P.L.S.
 New Mexico L.S. #15269

Prepared for:
 LOGOS OPERATING, LLC
 200 AFON BLVD
 FARRINGTON, NH 03440



Land Surveyor
 Jason C. Edwards
 Mailing Address:
 Post Office Box 5512
 Farmington, NH 03440
 Business Address:
 111 East Pines Street
 Farmington, NH 03402
 (603) 486-1853 (Office)
 jcesurveys@comcast.net

SURVEYS, INC.

SEE PLANS
 CALCULATED
 DRAWN BY: JCE
 CHECKED BY: JCE

June 17, 2019

**LOGOS OPERATING, LLC ROSA UNIT #181 POD
 ABOVE-GROUND WATERLINE & ACCESS ROAD SURVEY
 LOCATED IN NE/4 SE/4 SECTION 10 & NW/4 SW/4 SECTION 11
 TOWNSHIP 31 NORTH, RANGE 6 WEST, N.M.P.M., RIO ARRIBA COUNTY, NM**

A strip of land 30 feet wide during construction, reverting to 20 feet wide post construction, across NE/4 SE/4 of Section 10 & NW/4 SW/4 of Section 11, Township 31 North, Range 6 West, N.M.P.M., Rio Arriba County, New Mexico, being 15 feet on both sides during construction, following completion both sides will be 10 feet both sides post construction, of the following described centerline:

Commencing at the South-East Section Corner of said Section 10, thence N15°46'14"W a distance of 2064.07 feet to the "true point-of-beginning" for this description;

- Thence N67°46'56"E a distance of 101.13 feet to a point;
- Thence N50°59'41"E a distance of 360.61 feet to a point;
- Thence N47°29'45"E a distance of 168.49 feet to a point;
- Thence N59°06'25"E a distance of 63.37 feet to a point on the Section line;
- Thence N59°06'25"E a distance of 75.11 feet to a point;
- Thence N75°45'45"E a distance of 258.91 feet to a point;
- Thence N66°27'27"E a distance of 58.11 feet to a point;
- Thence N79°12'13"E a distance of 123.58 feet to a point;
- Thence N65°05'53"E a distance of 169.90 feet to a point;
- Thence N81°43'50"E a distance of 144.86 feet to a point;
- Thence S75°35'41"E a distance of 119.87 feet to a point;
- Thence N89°00'00"E a distance of 202.91 feet to a point;
- Thence S68°06'16"E a distance of 67.85 feet to a point;

Thence S30°01'00"E a distance of 140.50 feet to the "true point-of-ending" for this description from whence the South Quarter-Section Corner of said Section 11 bears S29°50'35"E a distance of 2847.14 feet.

The above described strip of land, 30 feet wide during construction and 20 feet wide after construction, totals 2,055.20 feet or 124.56 rods in length and contains 1.416 acres during construction and 0.944 acres post construction more or less, and is allocated by 40-acre tracts as follows:

				Construction	Post Construction
Section 10	NE/4 SE/4	693.60 Feet	42.04 Rods	0.478 Acre(s)	0.319 Acre(s)
Section 11	NW/4 SW/4	1,361.60 Feet	82.52 Rods	0.938 Acre(s)	0.625 Acre(s)
Total		2,055.20 Feet	124.56 Rods	1.416 Acre(s)	0.944 Acre(s)

BASIS OF BEARING: REAL-TIME KINEMATIC GPS SURVEY SOLUTION OBTAINED FROM SATELLITES TRACKED ON MAY 24, 2019 FROM A REFERENCE STATION POSITIONED IN THE NE/4 NW/4 SECTION 11, T31N, R6W, RIO ARRIBA COUNTY, NEW MEXICO.

SURVEYOR'S CERTIFICATION

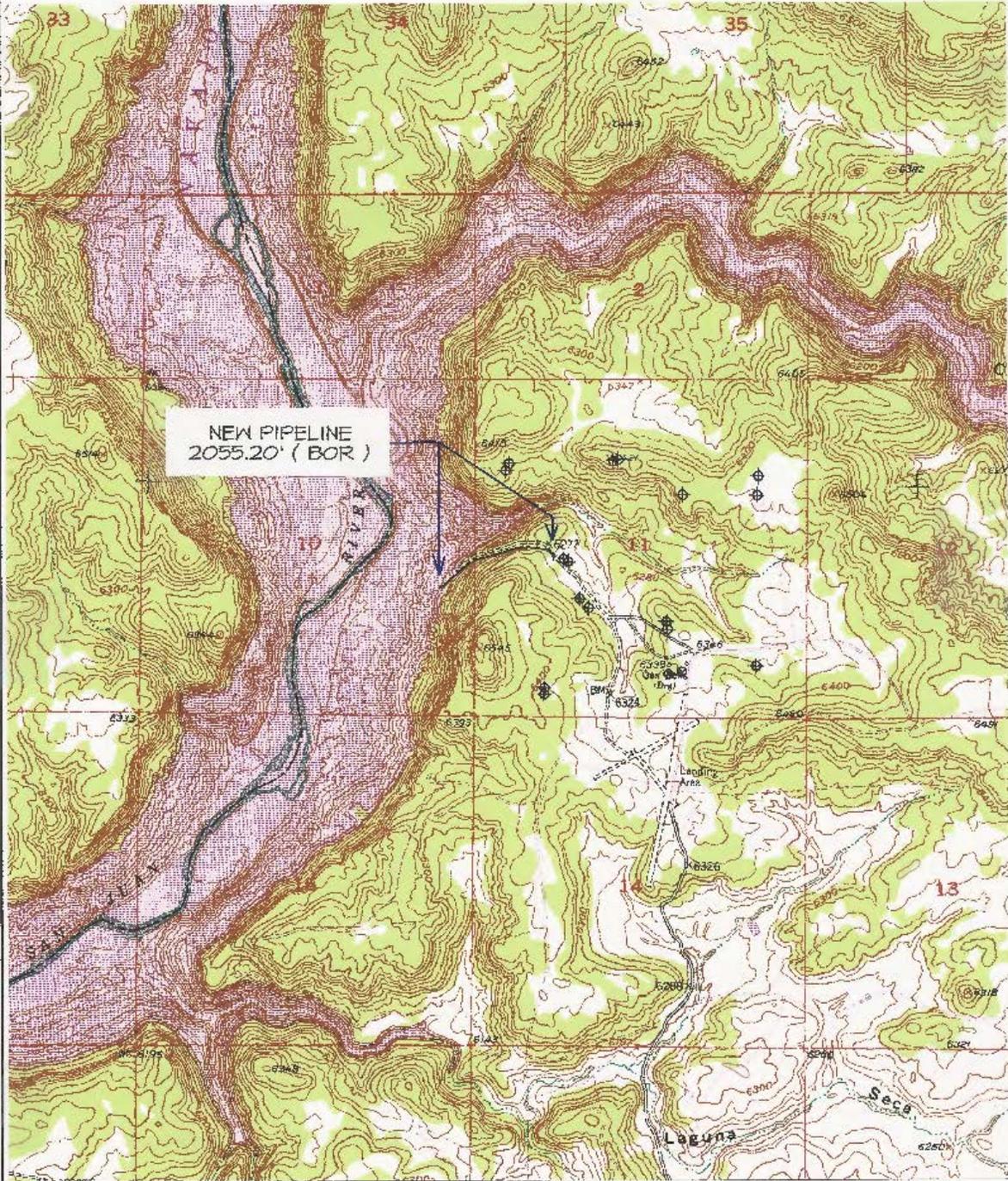
I, JASON C. EDWARDS, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15269, DO HEREBY CERTIFY THAT THIS SURVEY DESCRIPTION AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JASON C. EDWARDS

JASON C. EDWARDS, NEW MEXICO LS #15269
REFERENCE DRAWING: 31610GP1-31611GP2



LOGOS ROSA UNIT #181 POD ABOVE-GROUND WATERLINE & ACCESS ROAD
LOCATED IN NW/4 SW/4 SECTION 11, T31N, R6W, & NE/4 SE/4 SECTION 10, T31N, R6W
N.M.P.M., RIO ARriba COUNTY, NEW MEXICO

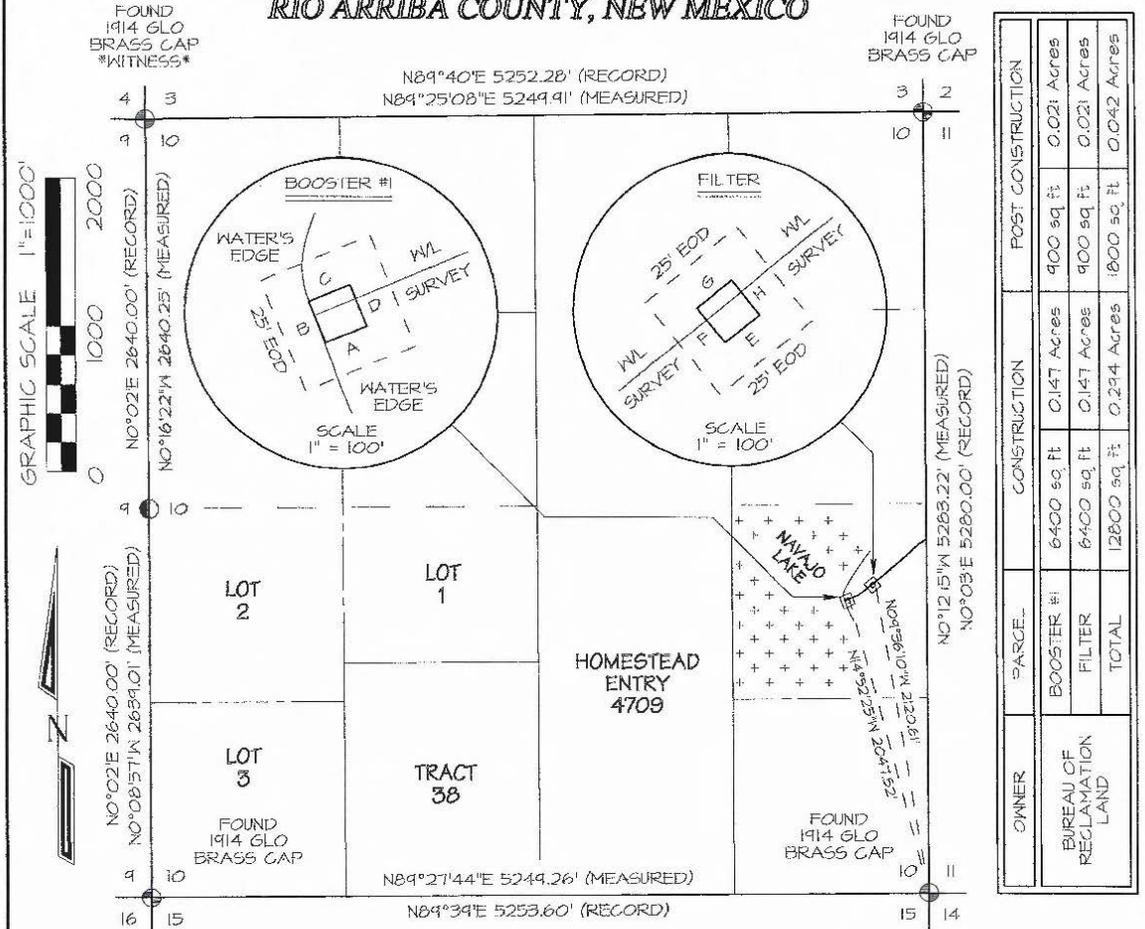


TOPO NAME : BANCOS MESA NW

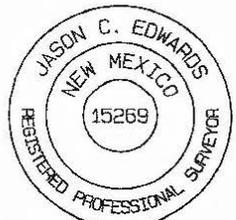
◆ PRODUCING WELL

⊗ PLUGGED & ABANDONED WELL

**LOGOS OPERATING, LLC ROSA UNIT #181 POD
SURVEY FOR BOOSTER #1 AND FILTER PAD SITES
LOCATED IN NE/4 SE/4 OF SECTION 10, T31N, R6W, NMPM
RIO ARriba COUNTY, NEW MEXICO**



OWNER	PARCEL	CONSTRUCTION		POST CONSTRUCTION	
		BOOSTER #1	BOOSTER #2	BOOSTER #1	BOOSTER #2
BUREAU OF RECLAMATION LAND	BOOSTER #1	6400 sq. ft.	0.147 Acres	900 sq. ft.	0.021 Acres
	FILTER	6400 sq. ft.	0.147 Acres	900 sq. ft.	0.021 Acres
	TOTAL	12800 sq. ft.	0.294 Acres	1800 sq. ft.	0.042 Acres



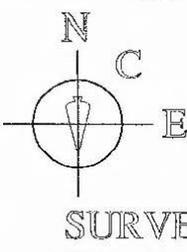
BOOSTER #1	
LINE A	S67°46'56"W 30.00'
LINE B	N22°13'04"W 30.00'
LINE C	N67°46'56"E 30.00'
LINE D	S22°13'04"E 30.00'

FILTER	
LINE E	S50°59'41"W 30.00'
LINE F	N39°00'19"W 30.00'
LINE G	N50°59'41"E 30.00'
LINE H	S39°00'19"E 30.00'

I, Jason C. Edwards, a registered Professional Surveyor under the laws of the State of New Mexico, hereby certify that this plat was prepared from field notes of an actual survey meeting the minimum requirements of the standards for easement surveys and is true and correct to the best of my knowledge and belief.

JASON C. EDWARDS Date: July 10, 2019
Jason C. Edwards, P.L.S.
New Mexico L.S. #15269

Prepared for:
LOGOS OPERATING, LLC
2010 AFTON PLACE
FARMINGTON, NM 87401



Land Surveyor:
Jason C. Edwards
Mailing Address:
Post Office Box 6612
Farmington, NM 87499
Business Address:
111 East Pinon Street
Farmington, NM 87402
(505) 486-1695 (Office)
ncesurveys@comcast.net

SURVEYS, INC.

SHEET 1 OF 3
CHECKED BY: JCE
DRAWN BY: EDO

July 10, 2019

**LOGOS OPERATING, LLC
ROSA UNIT #181 BOOSTER #1 PAD & FILTER PAD SURVEY
LOCATED IN NE/4 SE/4 SECTION 10, TOWNSHIP 31 NORTH, RANGE 6 WEST
N.M.P.M., RIO ARRIBA COUNTY, NM**

Two parcels of land for a proposed Booster #1 Pad and Filter Pad, located in the Northeast Quarter of the Southeast Quarter (NE/4 SE/4) of Section 10, Township 31 North, Range 6 West, N.M.P.M., Rio Arriba County, New Mexico, being more particularly described as follows:

BOOSTER #1 PAD

Commencing at the South-East Section Corner of said Section 10, thence N14°52'25"W a distance of 2047.82 feet to the "true point-of-beginning" for this description;

- Thence S67°46'56"W a distance of 30.00 feet to a point;
- Thence N22°13'04"W a distance of 30.00 feet to a point;
- Thence N67°46'56"E a distance of 30.00 feet to a point;
- Thence S22°13'04"E a distance of 30.00 feet to the "true point-of-beginning".

The above described parcel of land contains 6,400 square feet or 0.147 acres, more or less, during construction, and 900 square feet or 0.021 acres, more or less, post construction.

		During Construction		Post Construction	
Section 10	NE/4 SE/4	6,400 Square Feet	0.147 Acres	900 Square Feet	0.021 Acres
	Total	6,400 Square Feet	0.147 Acres	900 Square Feet	0.021 Acres

FILTER PAD

Commencing at the South-East Section Corner of said Section 10, thence N09°36'10"W a distance of 2120.61 feet to the "true point-of-beginning" for this description;

- Thence S50°59'41"W a distance of 30.00 feet to a point;
- Thence N39°00'19"W a distance of 30.00 feet to a point;
- Thence N50°59'41"E a distance of 30.00 feet to a point;
- Thence S39°00'19"E a distance of 30.00 feet to the "true point-of-beginning".

The above described parcel of land contains 6,400 square feet or 0.147 acres, more or less, during construction, and 900 square feet or 0.021 acres, more or less, post construction.

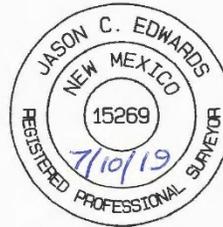
		During Construction		Post Construction	
Section 10	NE/4 SE/4	6,400 Square Feet	0.147 Acres	900 Square Feet	0.021 Acres
	Total	6,400 Square Feet	0.147 Acres	900 Square Feet	0.021 Acres

BASIS OF BEARING: REAL-TIME KINEMATIC GPS SURVEY SOLUTION OBTAINED FROM SATELLITES TRACKED ON MAY 24, 2019 FROM A REFERENCE STATION POSITIONED IN THE NE/4 NW/4 SECTION 11, T31N, R6W, RIO ARRIBA COUNTY, NEW MEXICO.

SURVEYOR'S CERTIFICATION

I, JASON C. EDWARDS, NEW MEXICO PROFESSIONAL SURVEYOR NO. 15269, DO HEREBY CERTIFY THAT THIS SURVEY DESCRIPTION AND THE ACTUAL SURVEY ON THE GROUND UPON WHICH IT IS BASED WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION; THAT I AM RESPONSIBLE FOR THIS SURVEY; THAT THIS SURVEY MEETS THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO; AND THAT IT IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I FURTHER CERTIFY THAT THIS SURVEY IS NOT A LAND DIVISION OR SUBDIVISION AS DEFINED IN THE NEW MEXICO SUBDIVISION ACT.

JASON C. EDWARDS
JASON C. EDWARDS, NEW MEXICO LS #15269
REFERENCE DRAWING: 31610GP3



District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720
District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720
District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 199485

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 199485
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
venegas	NMOCD has reviewed and approved the recycling containment permit application and related documents, submitted by [289408] LOGOS OPERATING, LLC on March 21, 2023, Application ID: 199485, for 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] in A-30-31N-05W, Rio Arriba County, New Mexico. • Water reuse and recycling from 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] is limited to wells owned or operated by [289408] LOGOS OPERATING, LLC. • [289408] LOGOS OPERATING, LLC shall construct, operate, maintain, close, and reclaim 3RF-57 - ROSA RECYCLING FACILITY ID [fVV2308853527] in compliance with NMAC 19.15.34 NMAC.	4/18/2023