District I
1625 N French Dr , Hobbs, NM 88240
District II
1301 W Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S St Francis Dr , Santa Fe, NM 87505

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

Form C-144
July 21, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office

5734

Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action: ☒ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method
☐ Modification to an existing permit
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request

Please 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: EnerVest Operating, LLC OGRID #: 143199
Address: 1001 Fannin St. Ste 800 Houston, Texas 77002
Facility or well name: Jicarilla B #8
API Number: 30-039-08095 OCD Permit Number:
U/L or Qtr/Qtr B Section 15 Township 26N Range 05W County. Rio Arriba
Center of Proposed Design Latitude 36.492056 Longitude -107.345767 NAD ☐1927 ☒ 1983
Surface Owner ☐ Federal ☐ State ☐ Private ☒ Tribal Trust or Indian Allotment

2
☐ **Pit:** Subsection F or G of 19 15 17 11 NMAC
Temporary ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A
☐ Lined ☐ Unlined Liner type: Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams. ☐ Welded ☐ Factory ☐ Other _____ Volume: _____bbl Dimensions: L _____ x W _____ x D _____

3
☐ **Closed-loop System:** Subsection H of 19 15.17 11 NMAC
Type of Operation ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other _____
☐ Lined ☐ Unlined Liner type Thickness _____mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____

4
☒ **Below-grade tank:** Subsection I of 19.15 17 11 NMAC
Volume. 95 bbl Type of fluid. Primarily produced water w/ compressor skid precipitation & incidental lubricating oil
Tank Construction material. Steel w/ expanded metal cover
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☒ Other _____ electronic monitoring
Liner type Thickness _____mil ☐ HDPE ☐ PVC ☐ Other _____

5.
☐ **Alternative Method:**
Submittal of an exception request is required Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval

6

Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*

☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*

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

☒ Alternate Please specify_____42" Hog-wire fence with 2 strands barbed-wire on top_____

7.

Netting: Subsection E of 19.15 17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☒ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

8.

Signs: Subsection C of 19.15 17 11 NMAC

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

☒ Signed in compliance with 19.15 3.103 NMAC

9.

Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required Please refer to 19 15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☒ Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval

☐ Exception(s) Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10

Siting Criteria (regarding permitting): 19.15 17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. **Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.**

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search, USGS, Data obtained from nearby wells	☐ Yes ☒ 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	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site, Aerial photo, Satellite image	☐ Yes ☒ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site, Aerial photo, Satellite image	☐ Yes ☒ No ☐ NA
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, in existence at the time of initial application - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
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	☐ Yes ☒ No
Within 500 feet of a wetland - US Fish and Wildlife Wetland Identification map, Topographic map, Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within the area overlying a subsurface mine - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources, USGS, NM Geological Society, Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

11.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15 17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☒ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15 17.9 NMAC
☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17 9 NMAC
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Design Plan - based upon the appropriate requirements of 19 15 17 11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19 15.17 12 NMAC
☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17 9 NMAC and 19.15 17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17 9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19 15.17.9
☐ Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19 15 17.12 NMAC
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17 9 NMAC and 19.15 17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number: _____ *(Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

13
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17 9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19 15 17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15 17.10 NMAC
☐ Climatological Factors Assessment
☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15 17 11 NMAC
☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Leak Detection Design - based upon the appropriate requirements of 19 15.17 11 NMAC
☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19 15 17 11 NMAC
☐ Quality Control/Quality Assurance Construction and Installation Plan
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19 15.17 12 NMAC
☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19 15 17 11 NMAC
☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
☐ Emergency Response Plan
☐ Oil Field Waste Stream Characterization
☐ Monitoring and Inspection Plan
☐ Erosion Control Plan
☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19 15 17.13 NMAC

14
Proposed Closure: 19.15 17 13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☒ Below-grade Tank ☐ Closed-loop System ☐ Alternative

Proposed Closure Method ☒ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

15
Waste Excavation and Removal Closure Plan Checklist: (19 15 17 13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

☒ Protocols and Procedures - based upon the appropriate requirements of 19 15 17 13 NMAC
☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19 15 17 13 NMAC
☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
☒ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19 15 17 13 NMAC
☒ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19 15.17 13 NMAC
☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17 13 NMAC

Section I

Sitting Criteria Compliance Demonstration

Jicarilla B #8

API No. 30-039-08095

Sitting Criteria Compliance Demonstration

Criteria as per 19.15.17.10.(A) (1)	In Compliance	Comments
Ground water less than 50' below bottom of tank	Yes	Refer to "Site Hydrology Report" in Section V
Within 300' of continuously flowing watercourse or 200 feet of other significant watercourse, lakebed, sinkhole, or playa lake (measured from ordinary high-water mark)	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 300 feet of a permanent residence, school, hospital, institution, or church	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 500 ft of a private, domestic freshwater well or spring or within 1000 ft of freshwater well or spring in existenance at time of application	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within incorporated municipal boundary of defined municipal fresh water field	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 500 feet of a wetland	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and USF&W Map in Appendix 5
Within the area overlying a subsurface mine	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within an unstable area	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and Karst Map in Appendix 09
Within a 100-year floodplain	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and FEMA Map in Appendix 06

Section II

Design & Construction Plan

Attachment to Form C-144
Below-grade Tank Permit Application

Introduction:

EnerVest Operating, LLC (EV) is submitting this permit application to operate an existing below-grade tank under the authority of 19.15.17 NMAC. The tank is not currently permitted; therefore this document serves as supporting documentation referenced in the attached Form C-144. EV operates coal bed methane production sites in Rio Arriba County, New Mexico. The below-grade tank at this location is used to collect precipitation and residual lubrication oil from the engine skid drain system and produced water from the primary and secondary separators. Produced water from the secondary separator may have small quantities of entrained lubricating oil from the compressor cylinder. In general, emulsified lubricating oil makes up a small percentage of the overall contents of the below-grade tank.

This application is being submitted for the following well site:

Well Name: Jicarilla B #8
API No: 30-039-08095
Location: UL B, Sec 15, 26N, 05W

The supporting documentation contained in this C-144 attachment is organized as follows:

Section I – Sitting Criteria Compliance Demonstration
Section II – Design Plan
Section III – Operating and Maintenance Plan
Section IV – Closure Plan
Section V – Hydrogeology Report

Appendices:
01 – USGS 7.5 Minute Topo Map
02 – Groundwater (water well search)
03 – Aerial Photo
04 – Municipal Boundary Map
05 – U.S. Fish & Wildlife Wetland Identification Map
06 – FEMA 100-year Floodplain map
07 – Mine Map
08 – C-102 Location Plat, Facility Inspection Sheet, Below-Grade Tank Diagram
09 – Karst Map for unstable areas

References

Section I

Sitting Criteria Compliance Demonstration

Jicarilla B #8

API No. 30-039-08095

Sitting Criteria Compliance Demonstration

Criteria as per 19.15.17.10.(A) (1)	In Compliance	Comments
Ground water less than 50' below bottom of tank	Yes	Refer to "Site Hydrology Report" in Section V
Within 300' of continuously flowing watercourse or 200 feet of other significant watercourse, lakebed, sinkhole, or playa lake (measured from ordinary high-water mark)	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 300 feet of a permanent residence, school, hospital, institution, or church	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 500 ft of a private, domestic freshwater well or spring or within 1000 ft of freshwater well or spring in existenance at time of application	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within incorporated municipal boundary of defined municipal fresh water field	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within 500 feet of a wetland	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and USF&W Map in Appendix 5
Within the area overlying a subsurface mine.	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08
Within an unstable area	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and Karst Map in Appendix 09
Within a 100-year floodplain	Yes	Refer to Observed Setting Requirements completed by field personnel in Appendix 08 and FEMA Map in Appendix 06

EnerVest Operating, LLC (EV)

BELOW-GRADE TANK
DESIGN AND CONSTRUCTION SPECIFICATIONS

Rule 19.15.17.11

C. Enervest Operating is the official operator of record for all wells which have below-grade tanks to be addressed in this specification. All below-grade tanks are located on these leases and will be in full compliance with 19.15.16.8 regarding signage.

D. EV will ensure a fence shall be constructed and maintained in good repair with gates that are closed and locked when responsible personnel are not on site. EV shall insure that all gates are closed and locked when responsible personnel are not on-site.

If the below-grade tank is located within 1,000 feet of a permanent residence, school, hospital, institution or church, the fence shall be a chain link security fence at least 6 feet in height with at least two strands of barbed wire on top.

If the below-grade tank is not within 1,000 feet of the above mentioned structures, the fence shall constructed to exclude livestock with at least four strands of barbed wire evenly spaced between one foot from the ground and four foot above the ground.

EV is requesting administrative approval to use a 42" Hog wire fence with 2 strands barbed-wire on top in lieu of the required four strand barbed wire fence. This will be supported with iron posting at the corners and 10 – 12 feet apart. EV believes this will offer better protection for wildlife in these tank areas.

E. EV shall ensure an open top tank is screened with expanded 3/16" metal screen or a fully closed top, both of which are welded on the top of the tank. Such screening will be painted to blend with the below-grade tank. EV believes this is sufficient strength to protect migratory birds or other wildlife.

I. EV will ensure all below-grade tanks will be constructed of 3/16" steel, resistant to the tank's contents and to damage from sunlight. Based on water production and road condition for access during the winter months there are a choice of three different sizes which could be used:

CAPACITY	DIAMETER	HEIGHT
125 bbl	15'	4'
120 bbl	12'	6'
100 bbl	12'	5'

This tank will contain liquids and should prevent contamination of fresh water to protect the public health and environment.

The below-grade system will include a excavated area for the tanks which will be dependent upon the size of the tank used:

18' x 18' x 4' High Square excavated area
18' Diameter x 4' High Circular excavated area
18' Diameter x 5' High Circular excavated area

Most of our below-grade tank systems were installed prior to June 16, 2008 and are 16.5' x 16.5' x 4' square excavated area design. As tanks are retro fitted, this will be changed to one of the above. The particular area and well conditions will determine which design best for that particular well. EV will ensure that there will be room to walk around the tank inside the containment area which will better enable our field personnel to inspect for damage to liners or incidental leaks. Please refer to tank diagram under Appendix 8 for details.

All excavated areas will be reinforced with metal walls to prevent collapse. There will be sufficient open area on all sides of the tank to witness any incidental release that may occur. Please refer to tank diagram under Appendix 8.

EV will ensure the base of any excavated area containing a below-grade tank will be level and free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom.

EV will ensure that any geomembrane liner used shall consist of 30-mil flexible PVC or 60-mil HDPE liner or equivalent liner material. The liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salt and acidic and alkaline solutions and shall be resistant to ultraviolet light. The liner shall have a hydraulic conductivity no greater than 1 x 10^{-9} cm/sec The liner shall be compatible with EPA SW-846 method 9090A. EV will install the liner in such a manner as to divert any possible leak for visual inspection. EV will demonstrate to the OCD that the liner complies with the specifications within Subparagraph (a) of Paragraph (4) of Section I of 19.156.17.11 NMAC and obtain approval from the division prior to the installation of the new design.

EV will ensure the fluid levels of tanks will be monitored by automatic high level alarms at 24" from the top and shut-off devise at 10 1/2 inches from the top of the tank. The tanks will be also equipped with a manual shut-off valve in the event it is needed. Please see design specification sheet of this system in this section. The majority of our below-grade tanks are within the berm around our tank battery and as so are protected from run-on water. Those outside this berm will be protected with an earthen berm which will extend at least 6" above surface ground level to divert run-on around the tank. The side walls of the excavated

area will extend at least 6" above the ground level to divert run-on water around the tank. Any possible leak will be diverted, on the liner, in such a way can be visually inspected.

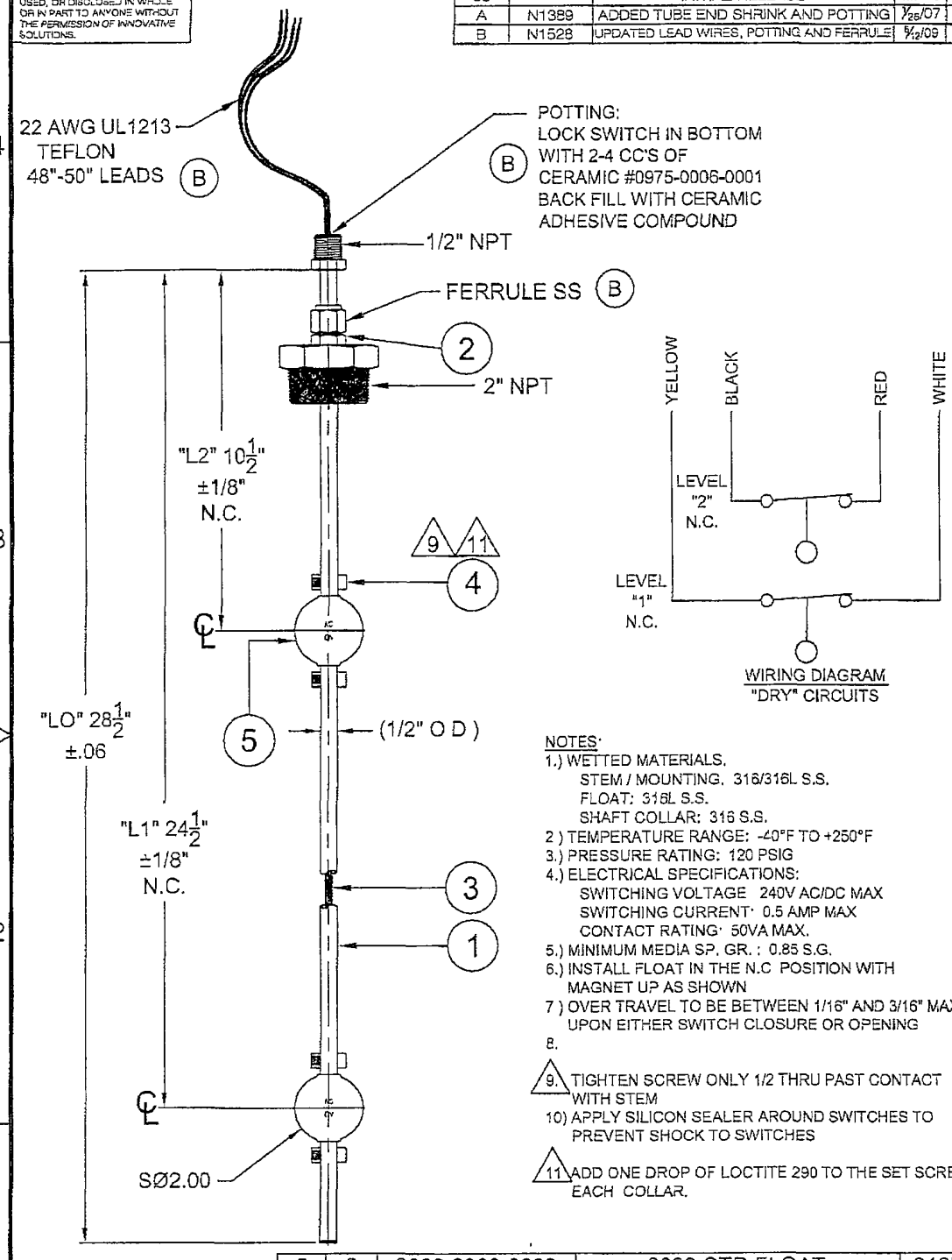
EV tank design will be a single walled tank constructed to ensure that the side walls are open for visual inspection for leaks; the bottom will be elevated six inches above the ground surface and will contain a geomembrane liner, as described above, directly on the ground level of the containment area.

Once a below-grade tank which was installed prior to June 16, 2008 does not demonstrate integrity, EV shall promptly repair or remove that below-grade tank and close the tank or install a below-grade tank that is in full compliance with Paragraph 1 thru 4 of Section I of 19.15.17.11 NMAC. EV shall comply with the operational requirements of 19.15.17.12 NMAC. Please refer to tank diagram under Appendix 8 for details

Any single walled below-grade tank installed before June 16, 2008 where any portion of the tank sidewall is below the ground surface and not totally visible shall be closed, retrofited or replaced before June 15, 2013. EV will fully comply with Paragraph 1 thru 4 of Section I of 19.15.17.11 NMAC for all retrofitting or replacement of below-grade tanks.

-PROPRIETARY NOTICE-
THIS DOCUMENT AND THE DATA DISCLOSED HEREIN OR HEREWITH IS NOT TO BE REPRODUCED, USED, OR DISCLOSED IN WHOLE OR IN PART TO ANYONE WITHOUT THE PERMISSION OF INNOVATIVE SOLUTIONS.

REVISION BLOCK				
REV	E C N NO	DESCRIPTION	DATE	APPRV'D
00		INITIAL RELEASE	6/27/06	D T.
A	N1389	ADDED TUBE END SHRINK AND POTTING	1/26/07	MJR
B	N1528	UPDATED LEAD WIRES, POTTING AND FERRULE	5/12/09	R.B.



NOTES:
1.) WETTED MATERIALS.
STEM / MOUNTING. 316/316L S.S.
FLOAT: 316L S.S.
SHAFT COLLAR: 316 S.S.
2) TEMPERATURE RANGE: -40°F TO +250°F
3.) PRESSURE RATING: 120 PSIG
4.) ELECTRICAL SPECIFICATIONS:
SWITCHING VOLTAGE 240V AC/DC MAX
SWITCHING CURRENT· 0.5 AMP MAX
CONTACT RATING· 50VA MAX.
5.) MINIMUM MEDIA SP. GR. : 0.85 S.G.
6.) INSTALL FLOAT IN THE N.C POSITION WITH MAGNET UP AS SHOWN
7) OVER TRAVEL TO BE BETWEEN 1/16" AND 3/16" MAX. UPON EITHER SWITCH CLOSURE OR OPENING
8.
9. TIGHTEN SCREW ONLY 1/2 THRU PAST CONTACT WITH STEM
10) APPLY SILICON SEALER AROUND SWITCHES TO PREVENT SHOCK TO SWITCHES
11 ADD ONE DROP OF LOCTITE 290 TO THE SET SCREWS OF EACH COLLAR.

ITEM	QTY	PART NUMBER	DESCRIPTION, CATALOG NO OR FINISHED SIZE	MAT'L
5	2	2000-2000-0006	2000-STD FLOAT	316L S.S.
4	4	0610-0500-0008	1/2" SHAFT COLLAR	316 S.S.
3	1	3000C3890-0001	SWITCH ASSEMBLY	
2	1	0199-0908-0500	AJUSTABLE MOUNTING	316/316L
1	1	5000C3890-0001	STEM/MTG. SUB-ASSEMBLY	316/316L

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES, [ ] ARE IN MM (MILLIMETERS)
TOLERANCES.
X= 1 .XX= .01 .XXX= .005
FRACTIONS ±1/64 ANGLES=30'
MACHINED SURFACES 63 RMS
REMOVE ALL BURRS AND SHARP EDGES
NEXT ASS'Y
MAT'L PART #
HEAT TREAT
FINISH
PLATING
DRAWN BY MJR DATE 6/26/06
CHKD BY D.T. DATE 6/27/06
APPVD BY D T DATE 6/27/06
PROJECT NO.
SKETCH NO.
MAT'L: AS NOTED

INNOVATIVE SOLUTIONS, LLC
80 GUILFORD HILL ROAD, NAUGATUCK, CT 06770 USA
TITLE: 2 LEVEL S.S. / S.S. FLOAT
L500 LEVEL SENSOR
SIZE B | FSCM NO | DWG. NO. L500C3890-0001 | REV. B
SCALE 25 | SHEET 1 OF

Section III

Operation & Maintenance Plan

EnerVest Operating, LLC (EV)

BELOW-GRADE TANK OPERATIONAL REQUIREMENTS

Rule 19.15.17.12

A. EV will operate and maintain Below-Grade Tanks to insure the integrity of the below-grade tank, liner, liner system or berms to prevent contamination of fresh water and protect public health and the environment.

EV will not discharge or store any hazardous waste material of any kind in any Below-Grade Tank.

Any penetration of the below-grade below the liquid's surface that may occur, EV shall remove all liquid above the damage or leak line within 48 hours of the discovery. EV shall notify the appropriate district office within 48 hours of the discovery and repair the damage or replace the liner or below-grade tank.

EV will insure the metal retaining walls of the below-grade system around each tank will extend at least 6" above ground level or be equipped with a 6" earthen berm in an effort to divert run-on water around the below-grade system.

D. EV will insure that a below-grade tank constructed and installed prior to June 16, 2008 that does not meet the requirements of 19.15.17.11 NMAC and does not demonstrate integrity or that the below-grade tank develops any conditions as identified in 19.15.17.12 NMAC shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC and install a below-grade tank that is in full compliance with our approved design. Please see below-grade system diagram in Appendix 8 for details.

EV will insure all Below-grade tanks will be equipped with automatic high-level alarm which sounds at 24" and than shut off devise to insure that flow will shut off at the freeboard height of 10 1/2 inches.

The majority of our below-grade tanks are within the berm around our tank battery and as so are protected from run-on water. Those outside this berm will be protected with an earthen berm which will extend at least 6" above surface ground level to divert run-on around the tank.

EV will remove any visible or measurable layer of oil from the fluid surface of a below-grade tank.

With any below-grade tank, installed before June 16, 2008, that is retrofitted or replaced with another tank, EV will insure that the soil beneath the removed soil is inspected for wet, discolored, or any other evidence of release, with photographic evidence. EV will report the results of all testing to the division on form C-141 and demonstrate to the division whether the evidence of contamination indicates at an imminent threat to fresh water, public health, safety of the environmental exists. If the division determines that the contamination does not pose an imminent threat to fresh water, public health, safety or the environment, EV shall complete the retrofit or the replacement of the below-grade tank as per our approved design program as indicated in Appendix 8. If EV or the division determines that the contamination poses an imminent threat to fresh water, public health, safety or the environment, then EV shall close the existing below-grade tank pursuant to the closure requirements of 19.17.15.13 NMAC prior to initiating the retrofit or replacement.

Table 1.1 GSE HD Smooth Geomembrane

TESTED PROPERTY	TEST METHOD	FREQUENCY	MINIMUM AVERAGE VALUE 30 mil	40 mil	60 mil	80 mil	100 mil
Thickness, (minimum average) mil (mm) Lowest individual reading (-10%)	ASTM D 5199	every roll	30 (0.75) 27 (0.69)	40 (1.00) 36 (0 91)	60 (1.50) 54 (1.40)	80 (2.00) 72 (1.80)	100 (2.50) 90 (2.30)
Density, g/cm^3	ASTM D 1505	200,000 lb	0.94	0 94	0.94	0 94	0.94
Tensile Properties (each direction) Strength at Break, lb/in-width (N/mm) Strength at Yield, lb/in-width (N/mm) Elongation at Break, % Elongation at Yield, %	ASTM D 6693, Type IV Dumbell, 2 ipm G.L. 2 0 in (51 mm) G.L. 1.3 in (33 mm)	20,000 lb	 120 (21) 66 (11) 700 13	 152 (26) 84 (14) 700 13	 243 (42) 132 (23) 700 13	 327 (57) 177 (30) 700 13	 410 (71) 212 (37) 700 13
Tear Resistance, lb (N)	ASTM D 1004	45,000 lb	21 (93)	28 (124)	42 (186)	58 (257)	73 (324)
Puncture Resistance, lb (N)	ASTM D 4833	45,000 lb	65 (289)	85 (378)	125 (556)	160 (711)	195 (867)
Carbon Black Content, % (Range)	ASTM D 1 603*/421 8	20,000 lb	2 0 - 3.0	2.0 - 3.0	2.0 - 3 0	2 0 - 3 0	2 0 - 3.0
Carbon Black Dispersion	ASTM D 5596	45,000 lb	Note[1]	Note[1]	Note[1]	Note[1]	Note[1]
Notched Constant Tensile Load, hr	ASTM D 5397, Appendix	200,000 lb	1000	1000	1000	1000	1000
Oxidative Induction Time, min	ASTM D 3895, 200°C, O_2, 1 atm	200,000 lb	>140	>140	>140	>140	>140
TYPICAL ROLL DIMENSIONS							
Roll Length[2], ft (m)			1,120 (341)	870 (265)	560 (171)	430 (131)	340 (104)
Roll Width[2], ft (m)			22.5 (6.9)	22 5 (6.9)	22 5 (6 9)	22.5 (6.9)	22.5 (6 9)
Roll Area, ft^2 (m^2)			25,200 (2,341)	19,575 (1,819)	12,600 (1,171)	9,675 (899)	7,650 (711)

NOTES
- [1]Dispersion only applies to near spherical agglomerates 9 of 10 views shall be Category 1 or 2. No more than 1 view from Category 3
- [2]Roll lengths and widths have a tolerance of ± 1%.
- GSE HD is available in rolls weighing approximately 3,900 lb (1,769 kg)
- All GSE geomembranes have dimensional stability of ±2% when tested according to ASTM D 1204 and LTB of <-77° C when tested according to ASTM D 746
- *Modified.

O.R.E. SYSTEMS
P.O. Box 3677
Farmington, NM 87499
(505) 327-2161

Section IV

Closure Plan

EnerVest Operating, LLC (EV)

BELOW-GRADE TANK CLOSURE REQUIREMENTS

Rule 19.15.17.13

Before June 15, 2013, EV shall close, retrofit, or replace an existing below-grade tank that has not demonstrated integrity.

EV shall close a below-grade tank within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.

A. EV shall close an existing below-grade tank that does not meet the requirements of Subsection I, paragraphs (1) through (4), of 19.15.17.11 NMAC if not retrofitted to comply with said requirements prior to any sale or change of operator to 19.15.9.9 NMAC.

Any below-grade tank installed prior to June 16, 2008 that is single walled and where any portion of the tank sidewall is below the ground surface and not visible shall equip or retrofit the below-grade tank to comply with paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, or close it, within 5 years after June 16, 2008.

Within 60 days of cessation of the permitted below-grade tanks operation or as required by Subsection B of 19.15.17.17 NMAC, EV shall close the below-grade tank in accordance with a closure plan that the appropriate division district office approves.

J. Prior to implementing any closure operations EV shall research county tax records to determine the name and address of the surface owner of the properties involved. EV shall notify this surface owner via Certified U.S. Mail, return receipt requested, of their intent to close said below-grade tank.

Upon determination, EV will notify the appropriate district office prior to any closure operations beginning. Such notification shall be at least 72 hours, via U.S. Mail, prior to beginning work but not more than one week prior to beginning work. Such notice shall contain at a minimum the following:

Operators Name
Unit letter, Section, Township, & Range of well
Well name and well number
API Number of well

E. .All free standing liquids and sludge will be removed at the start of the below-grade tank closure process from the below-grade tank and disposed of in one of the below division-approved facility as indicated below:

TNT Land Farm	Permit # NM-01-0008	Liquids & Sludge
Environtech Land Farm	Permit # NM-01-0011	Solids
AguaMoss	Permit # 247130	Liquids

EV will obtain prior approval from the division to dispose, recycle, reuse, or reclaim the below-grade tanks and provide documentation of the final disposition of the below-grade tank in the closure report.

Existing liners that are removed as a result of closure will be wiped cleaned and disposed of at a solid waste facility listed below in compliance with Subparagraph (M) of Paragraph (I) of Subsection C 19.15.35.8 NMAC..

San Juan Regional Landfill	Permit # SWM 052426 or
"	Special Waster Permit # SWM052433 "sp"

If there is any on-site equipment associated with a below0grade tank, EV shall remove the equipment, unless the equipment is required for some other purpose .

Upon removal of the below-grade tank, EV will take, at a minimum, a five point composite sample from where the tank was sitting. EV shall collect individual grab samples will be taken from any area that is wet, discolored or showing other evidence of a release. All samples will be analyzed for the following:

Components	Test Method	Limits (mg/Kg)
Benzene	EPA SW-846 8021B or 8260B	0.2
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	100
Chlorides	EPA 300.1	250 or background, whichever is greater

EV will insure that the results of all sampling shall be reported to the division on approved form C-141. EV understands that the division may require additional delineation upon review of the results.

If sampling demonstrates that concentrations specified above have NOT been exceeded, or that a release has NOT occurred, EV will backfill the excavation with compacted, non-waste containing, earthen material, construct a division prescribed soil cover, and recontour and re-vegetate the site. The division prescribed soil cover, recontouring, and re-vegetation shall comply with 19.15.17.13.

If EV or the division determines that a release has occurred, EV shall fully comply with 19.15.29 NMAC and 19.15.30 NMAC as appropriate.

G. Once EV has closed a below-grade tank, we shall reclaim the site to a safe and stable condition that blends with the surrounding undisturbed area. When possible, EV will restore the impacted surface area to the condition that existed prior to oil and gas operations by the placement of soil cover.

If the closed area is within the confines of the pad location EV will blend the site to match the pad location as much as possible. Such activities shall prevent erosion, protect fresh water, human health and the environment. EV will obtain written agreement from the surface owner for any alternate re-vegetation proposals and submit to the division for final approval.

H. The soil cover design will be consistent with the requirements of 19.15.17.13(H)(1)and (3). The soil cover will consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. The soil cover will be constructed to the site's existing grade and prevent ponding of water and erosion of the cover material.

I. EV will seed the disturbed areas the first growing season after closing the below grade tank. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mixes will used on federal lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation.

EV shall notify the division when it has seeded or planted and when it successfully achieves re-vegetation by U.S. Mail.

K. Within 60 days of completion of closure operations, EV will file Form C-144, with attachments, outlining the detailed operations of the closing operations. Such attachments shall include, but not limited to, proof of surface owner and division notifications, confirmation of sampling analysis, disposal facility names and permit numbers, soil backfilling and cover installation, re-vegetation application rates and seeding techniques, and photo documentations.

Section V

Hydrogeology Report

Regional Hydrogeology Report

The San Jose Formation of Eocene age occurs in New Mexico and Colorado, and its outcrop forms the land surface over much of the eastern half of the central San Juan Basin. It overlies the Nacimiento Formation in the area generally sourth of the Colorado-New Mexico state line and overlies the Animas Formation in the area generally north of the State line.

The San Jose Formation was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone, and variegated shale. Thickness of the San Jose Formation generally increases from west to east, ranging from 200 feet in the west and south to almost 2,700 feet in the center of the structural basin.

Ground water is associated with alluvial and fluvial sandstone aquifers. Therefore the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the results of original depositional extend plus any post-depositional modifications, namely erosion and structural deformation.

Transmissivity data for the San Jose Formation are minimal. Values of 40 and 120 feet squared per day were determined from two aquifer tests (Stone et al, 1983. table 5). The reported or measured discharge from 46 water wells completed in San Jose Formation ranges from 0.15 to 61 gallons per minute and the median is 5 gallons per minute. Most of the wells provide water for livestock and domestic use.

The San Jose Formation is a very suitable unit for recharge from precipitation because soils that form on the unit are sandy and highly permeable and therefore readily absorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the San Jose Formation by the San Juan River and its tributaries all tend to reduce the effective recharge to the unit.

Stone et al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico; Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p.

Site Specific Hydro Geologic Analysis

Jicarilla B #8
API 30-039-08095

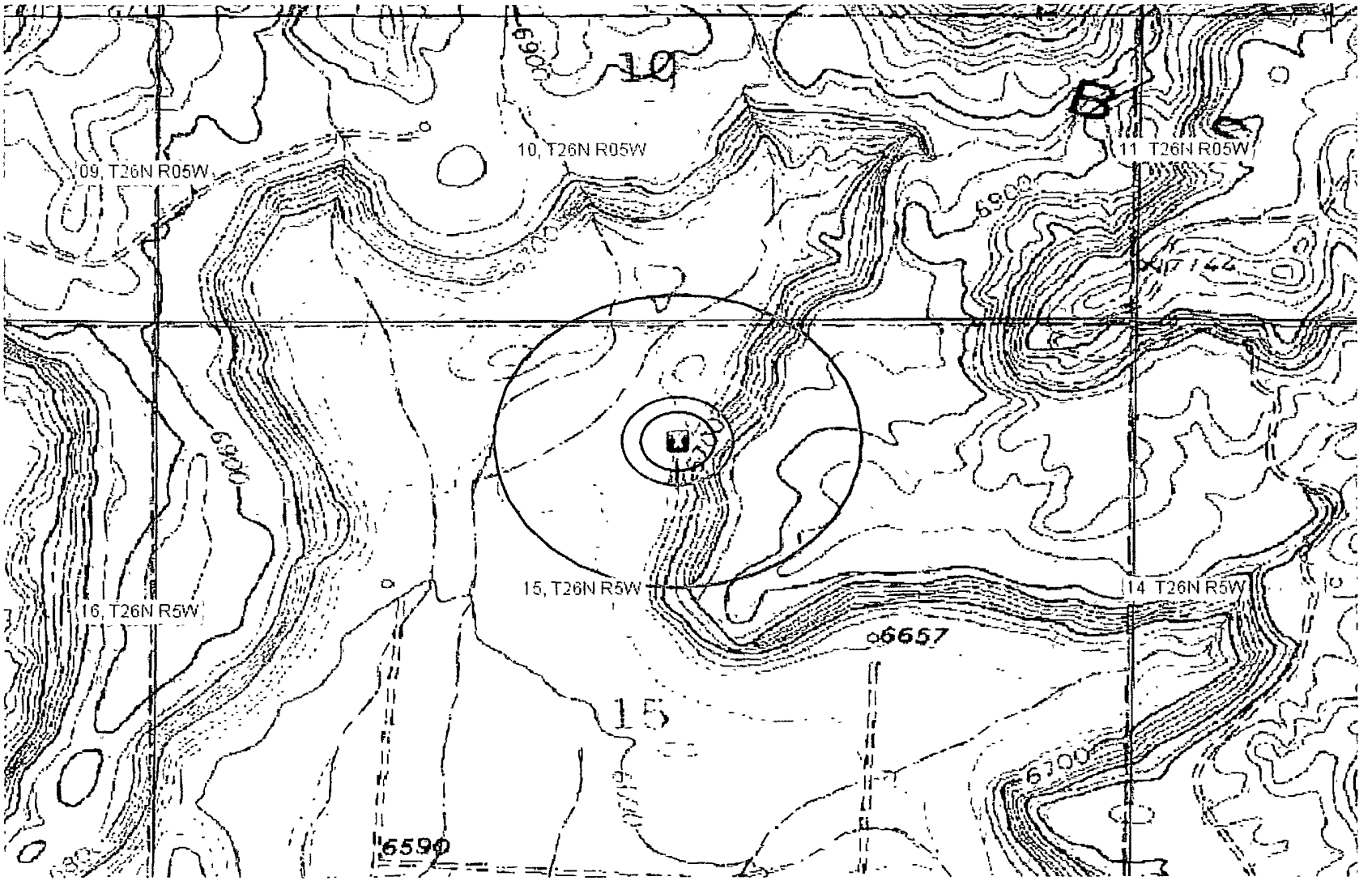
The above referenced well is located at UL B, Sec 15, 26N, 05W at an elevation of 6664. Surface casing was set to a depth of 329' or at a depth of 6335'.

According to the Office of State Engineer, the closest water well drilled was RG 81026 about 3.5 miles North of our location. Drilled to 468 feet at an unknown elevation, it shows water encountered at 186 feet.

In 1980, the Jicarilla B #8M (30-039-22300) was drilled about 1200 feet West of our location. It was at an elevation of 6632 with no indication of water being encountered. Surface casing was set at 314 feet which would be at 6318. We believe that the sand and limestone will prevent any migration of fluids.

Appendix 01

U.S. 7.5 Minute TOPO Map

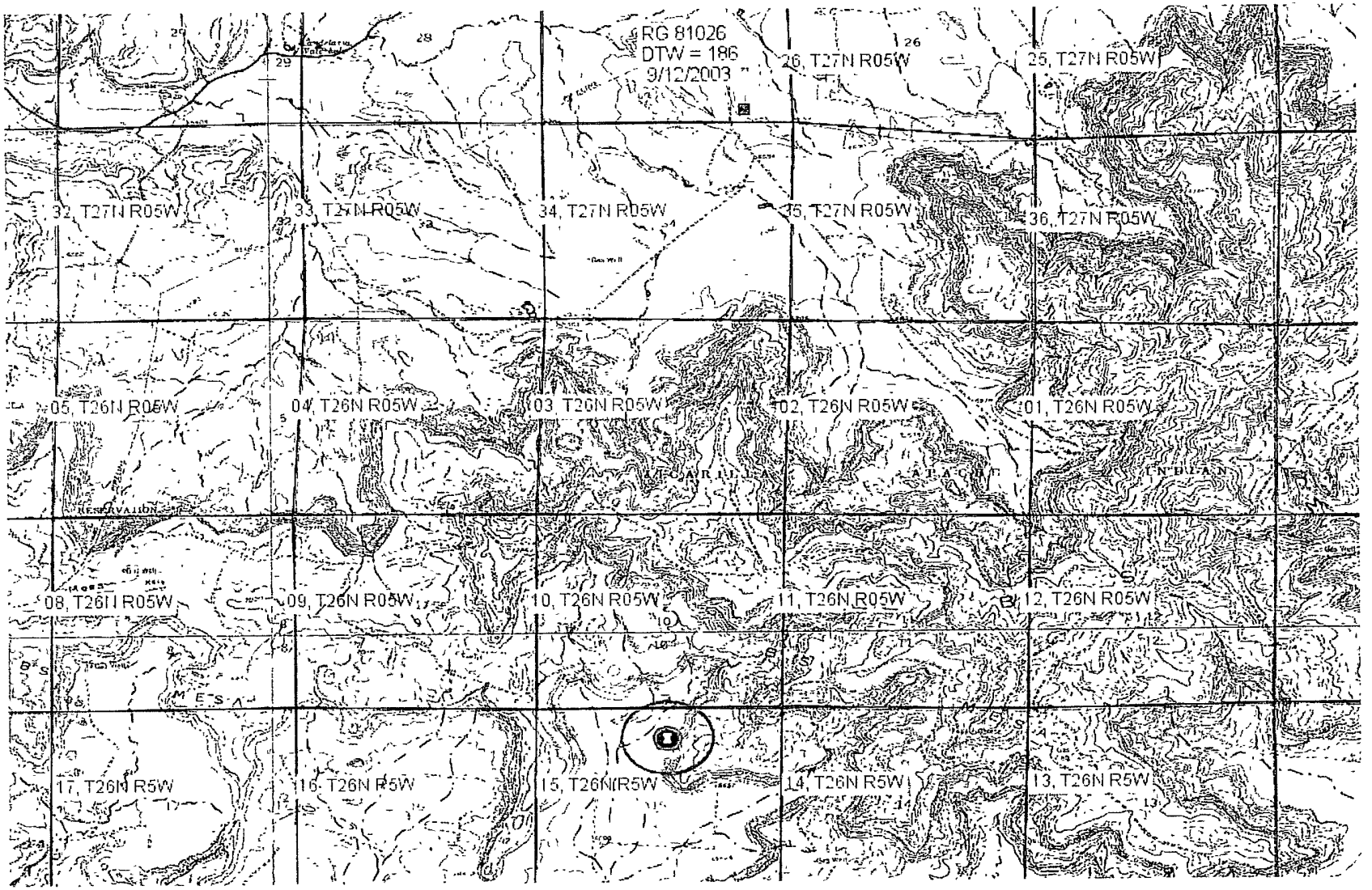


Petroleum Recovery Research Center	TOPO - Jicarilla B #8	Figure: 01
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

Appendix 02

Ground Water Depth



Petroleum Recovery Research Center	OSE Water Wells - Jicarilla B #8	Figure: 02
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: RG 81026
Primary Purpose: STK 72-12-1 LIVESTOCK WATERING
Primary Status: PMT PERMIT
Total Acres:
Total Diversion: 3
Owner: BUREAU OF LAND MANAGEMENT
Contact: DALE WIRTH

Documents on File

	Doc	File/Act	Status 1	2	3	Transaction Desc.	From/To	Acres	Diversion	Consumptive
get images	72121	2003-09-02	PMT	LOG	PRC	RG 81026	T		3	

Point of Diversion

(NAD83 UTM in meters)

Pod Number	Source	Q Q Q 64 16 4	Sec	Tws	Rng	X	Y	Other Location Desc
RG 81026	Shallow	3 4 4	27	27N	05W	290530	4046294*	LIVESTOCK WELL

*An (*) after northing value indicates UTM location was derived from PLSS - see Help

New Mexico Office of the State Engineer
Point of Diversion Summary

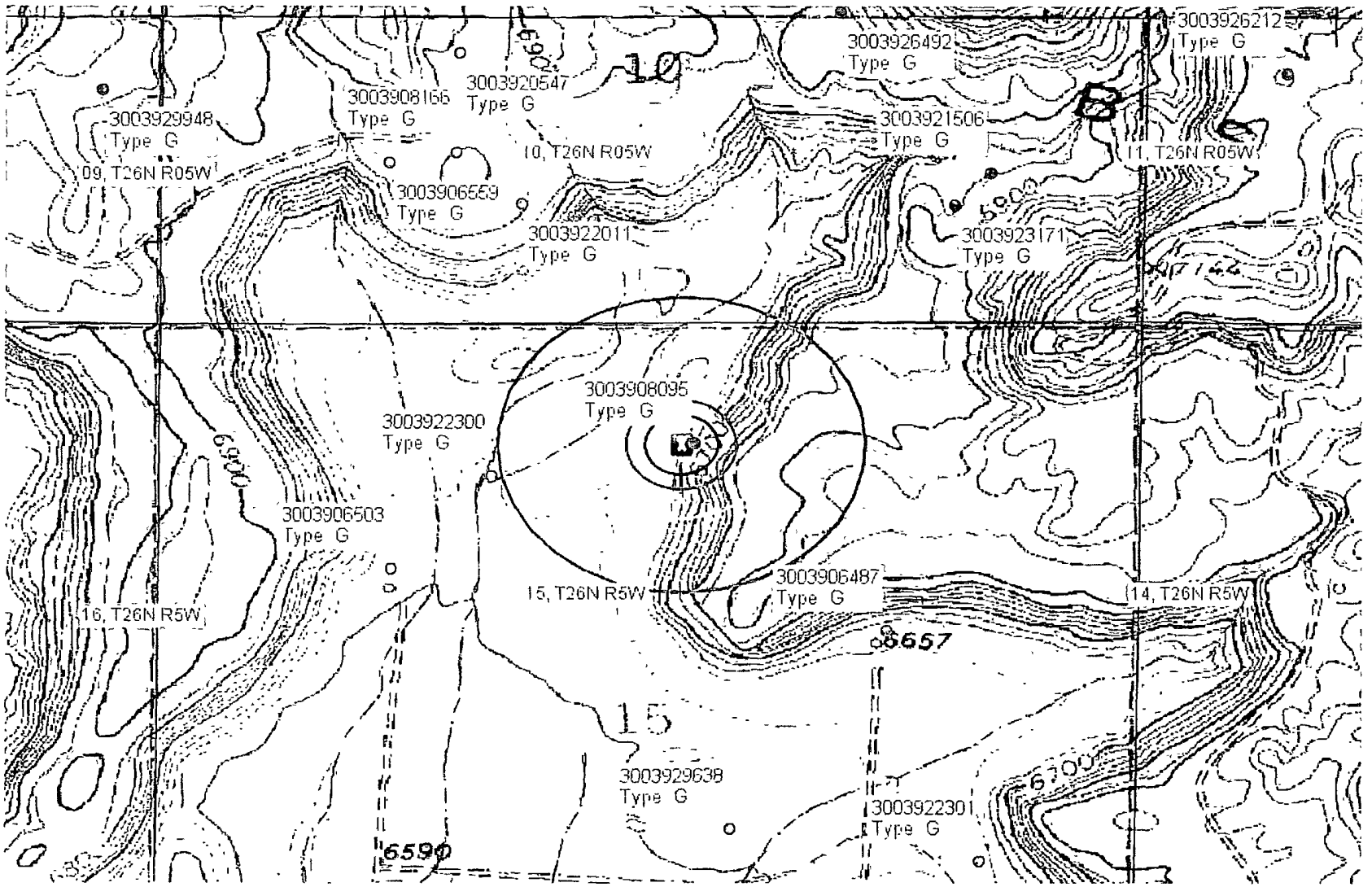
POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
RG 81026	3	4	4	27	27N	05W	290530	4046294*

Driller License: SUNBELT DRILLING, LLC
Driller Name:
Source: Shallow
Drill Start Date: 09/12/2003 **Drill Finish Date:** 09/16/2003
Log File Date: 10/01/2003 **PCW Received Date:**
Pump Type: **Pipe Discharge Size:**
Casing Size: 5.00 **Estimated Yield:** 3
Depth Well: 460 feet **Depth Water:** 186 feet

Water Bearing Stratifications:	Top	Bottom	Description
	180	195	Sandstone/Gravel/Conglomerate
	430	460	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	412	452

*UTM location was derived from PLSS - see Help



0 500 1000ft

N W E S

Petroleum Recovery Research Center	Aerial - Jicarilla B #8	Figure: 2a
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

AMENDED

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R355.5.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

5. LEASE DESIGNATION AND SERIAL NO: Contract 109

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: Jicarilla

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Jicarilla B

9. WELL NO.: 8M

10. FIELD AND POOL, OR WILDCAT: ~~Basin Dakota~~ MV

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 15, T26N ~~R5W~~ R5W

12. COUNTY OR PARISH: Rio Arriba

13. STATE: New Mexico

1a. TYPE OF WELL. OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2. NAME OF OPERATOR: Tenneco Oil Company 22300

3. ADDRESS OF OPERATOR: P. O. Box 3249, Englewood, CO 80155

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements.*)*
At surface: 1020' FNL 1685' FWL
At top prod. interval reported below
At total depth

RECEIVED

14. PERMIT NO. — DATE ISSUED

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
6/21/80	7/12/80	9/4/80	6632' gr.	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
7670'	7624'	2	→	0'-TD	No

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: 5345-5441' Mesaverde

25. WAS DIRECTIONAL SURVEY MADE: No

26. TYPE ELECTRIC AND OTHER LOGS RUN: C/FDL: C/NFD: I/GR; CBL/VD; ISFL

27. WAS WELL CORED: No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
9-5/8"	36#	314'	12-1/4"	225sx Cl-B w/2% CACL2, 150sx	
7"	23#	5808'	8-3/4"	Howco-lite, 150sx Cl-B,	
4-1/2"	11.6#	7670'		895sx Howco-lite, 90sx BJ-lite	
4-1/2"	10.5#	7670'	6¼"	150sx Cl-B	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	5100'	

RECEIVED AUG 5 1981 OIL CON. DIV. DIST. 3

31. PERFORATION RECORD (*Interval, size and number*)
5345-47' 5422-26'
5352-54' 5437-41'
5370-72' 4930-36'
5382-86' 4952-61'
5412-14' Total 35' 70 holes @ 2 JSPF

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
5345-5441'	1000 gals 15% HCL, 60 balls
	63,000 gal KCL water, 52500#
	20/40 sand, 750 gals 7-1/2% HCL
	44,000 gal KCL 36,900# 20/40 sand

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
9/3/81	Flowing	Shut-in

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF	WATER—BBL.	GAS-OIL RATIO
9/3/81	3	3/4"					

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
90 PSI	510 PSI			1716		

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): To be sold

TEST WITNESSED BY

35. LIST OF ATTACHMENTS: Electric logs to be forwarded by Schlumberger

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED [signature] TITLE Production Analyst DATE 5 1981 8/4/81

*(See Instructions and Spaces for Additional Data on Reverse Side)

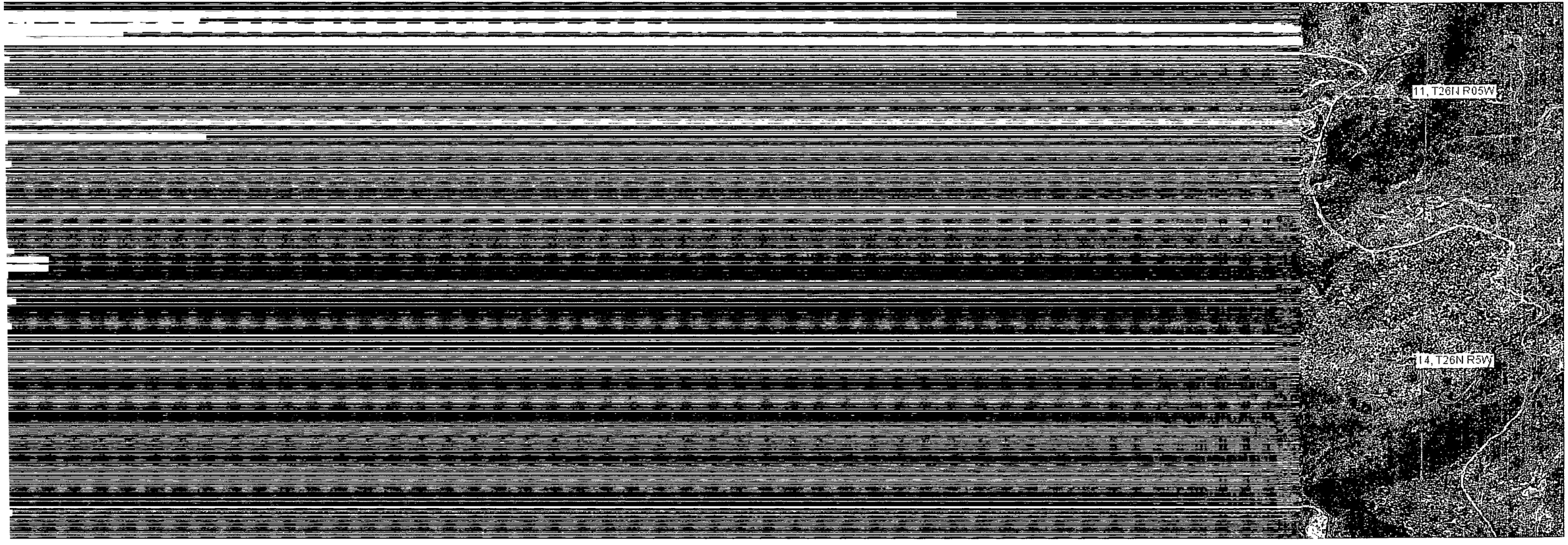
OPERATOR

FARMINGTON DISTRICT

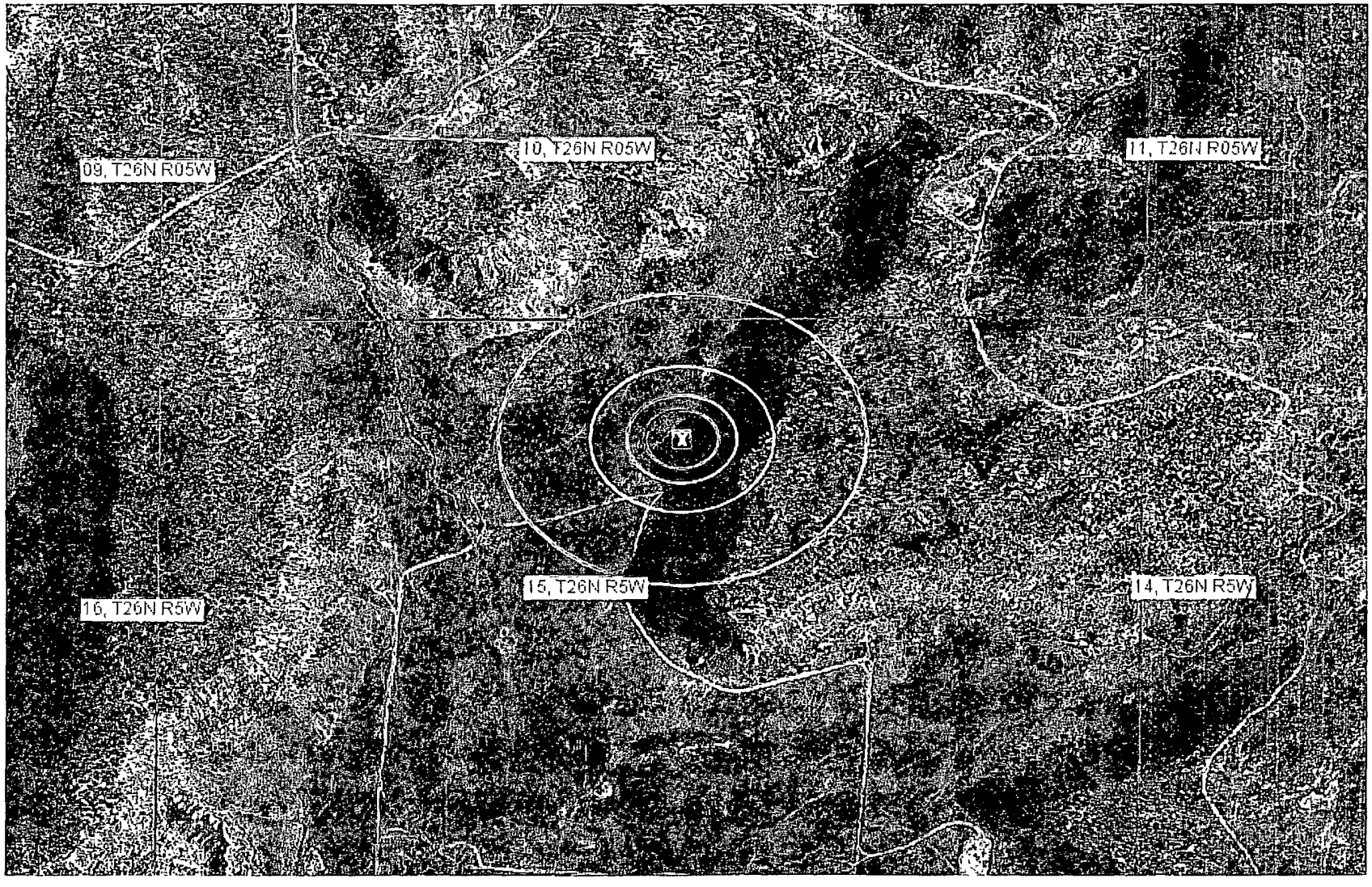
BY [signature]

Appendix 03

Aerial Photo



icarilla B #8	Figure: 03
5, 26N, 05W	Jan 29, 2010
039-08095	

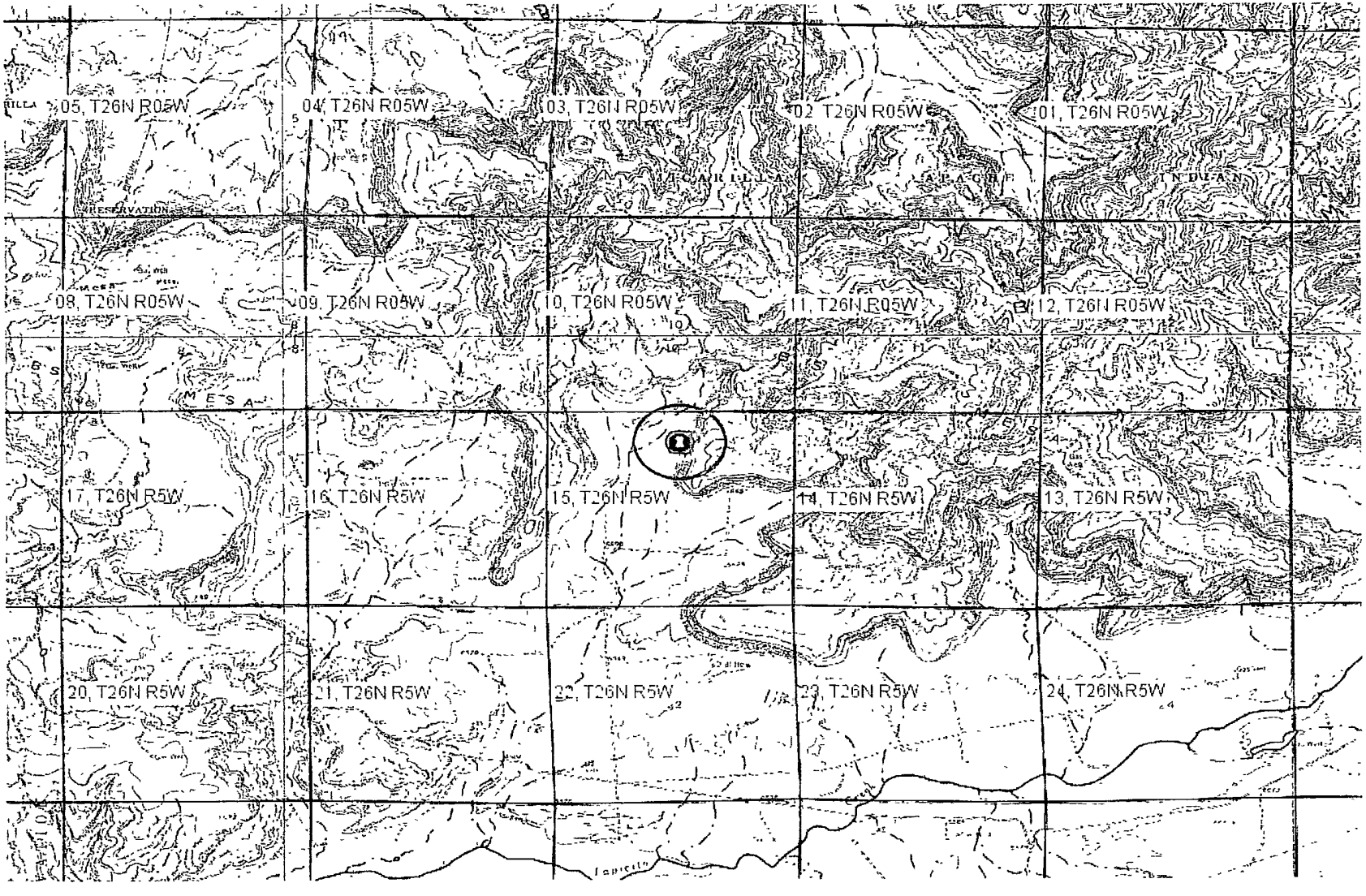


0 500 1000ft

N W E S

Petroleum Recovery Research Center	Aerial - Jicarilla B #8	Figure: 03
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095



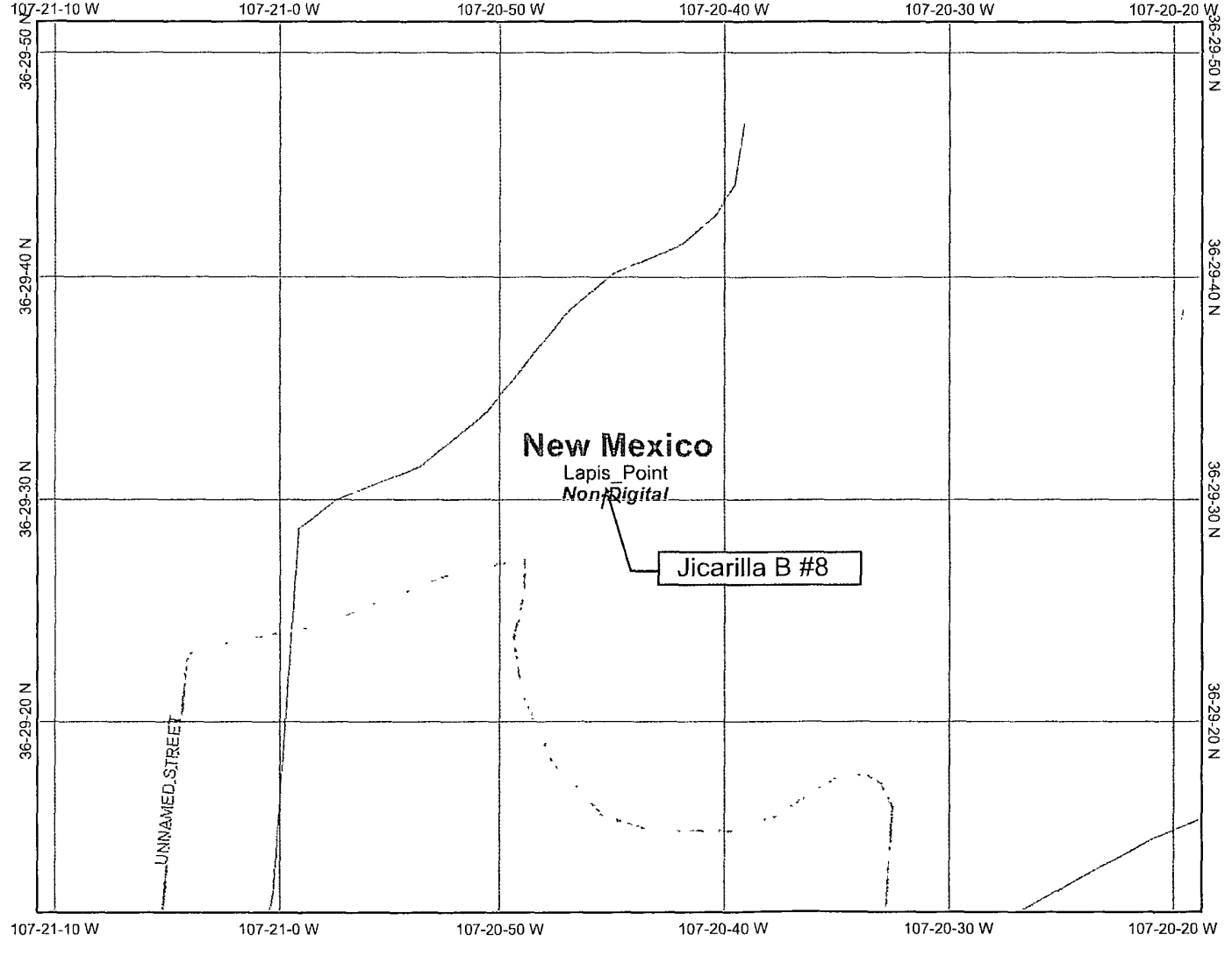
Petroleum Recovery Research Center	Municipalities - Jicarilla B #8	Figure: 04
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

Appendix 05

U.S. Fish & Wildlife Wetland Identification Map

U. S. Fish & Wildlife Wetlands Map



Legend

Ohio_wet_scan
- 0
- 1
- Out of range

Interstate

Major Roads

Other Road
- Interstate
- State highway
- US highway

Roads
- Cities
- USGS Quad Index 24K

Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

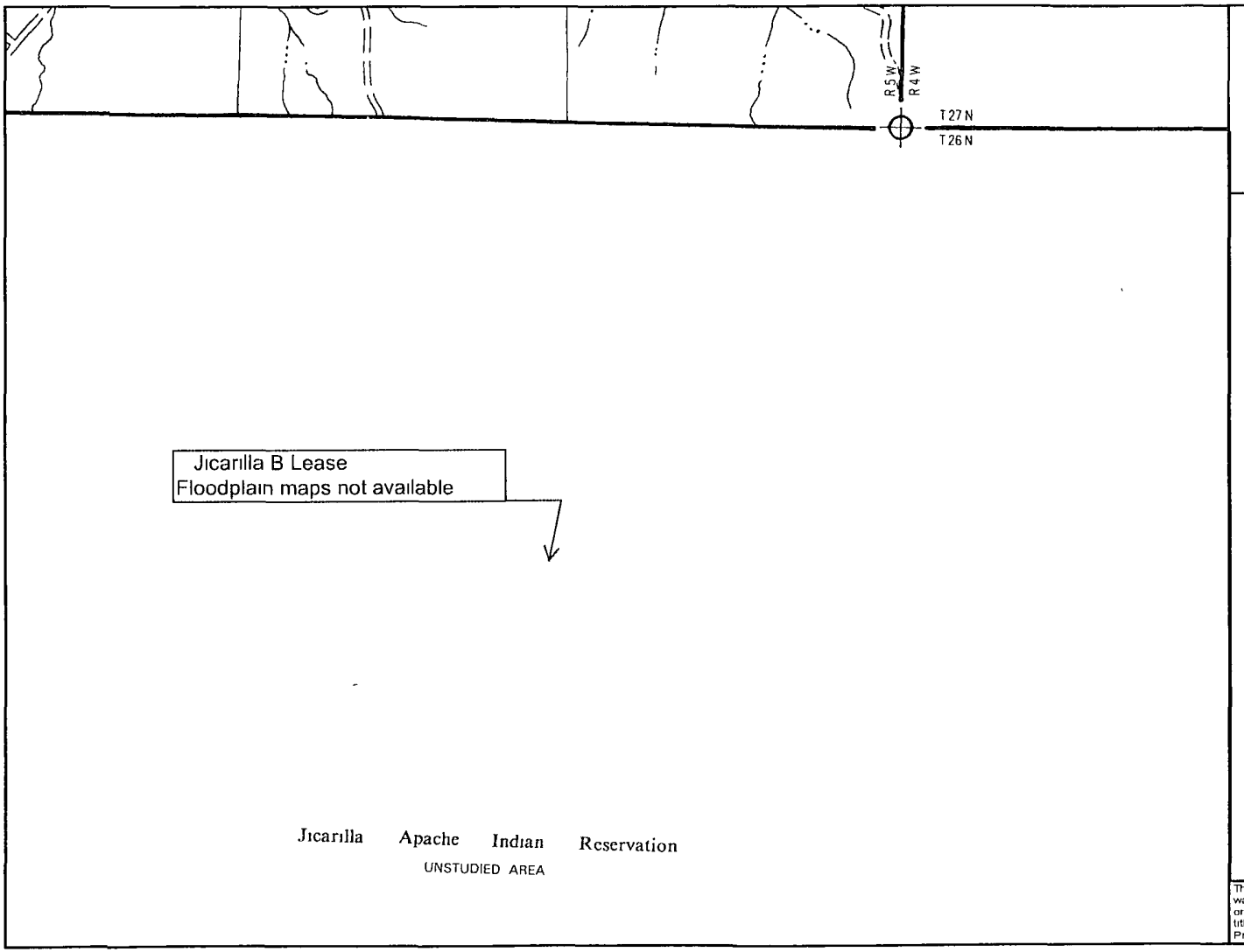
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America

Scale: 1:8,659

Map center: 36° 29' 31" N, 107° 20' 45" W

Appendix 06

FEMA 100-year Floodplain Map



APPROXIMATE SCALE

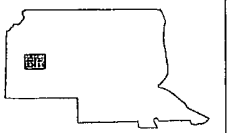
2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

RIO ARRIBA COUNTY,
NEW MEXICO
UNINCORPORATED AREAS

PANEL 550 OF 1325
(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION

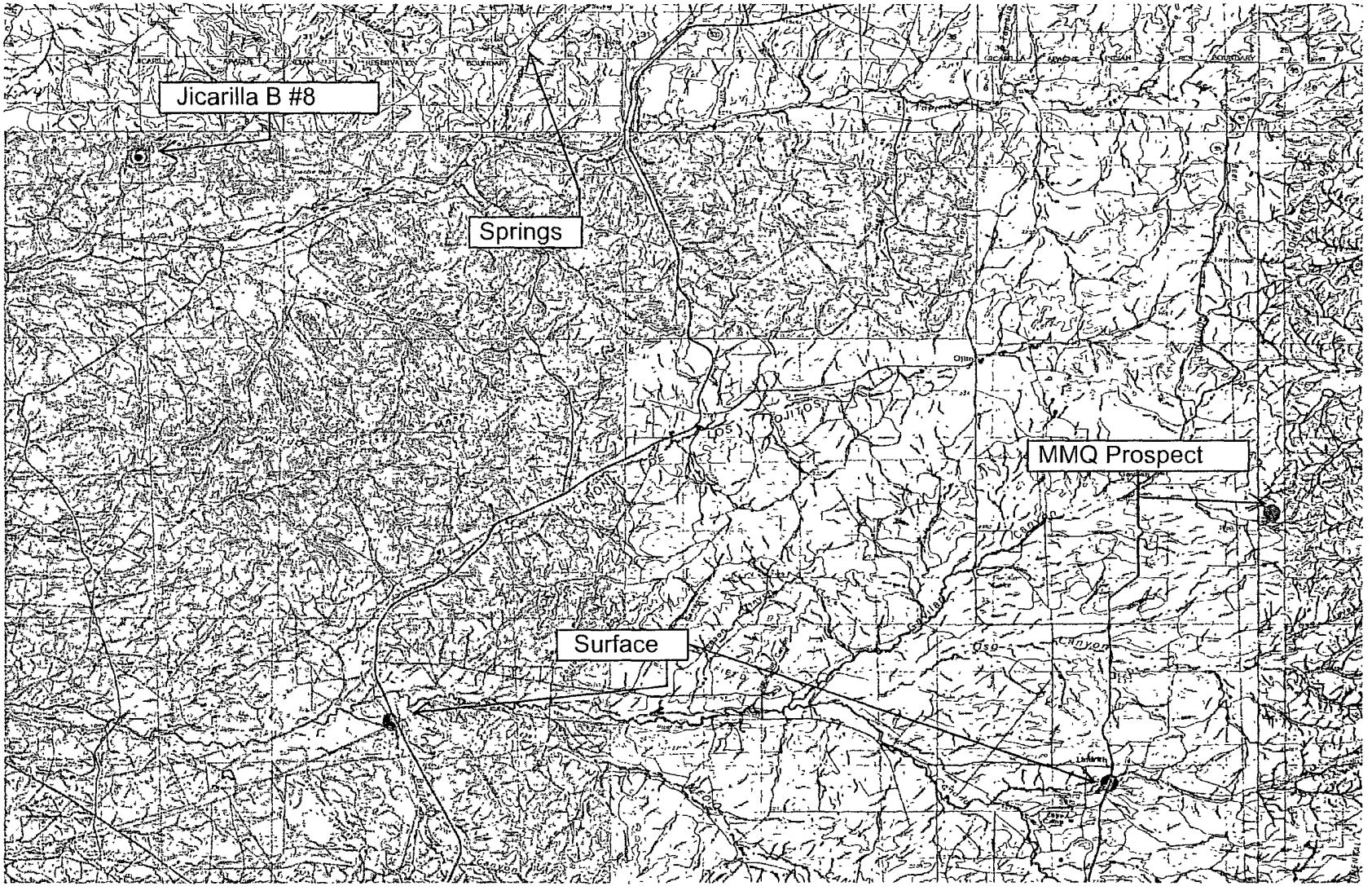
COMMUNITY-PANEL NUMBER
350049 0550 B

EFFECTIVE DATE:
JANUARY 5, 1989

Federal Emergency Management Agency

Appendix 07

Mines, Mills, & Quarires Map



0 2 4mi

N W E S

Petroleum Recovery Research Center	Mines, Mills, Quarries - Jicarilla B #8	Figure: 07
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

Appendix 08

C-102 Location Plat
Facility Inspection Sheet
Below-Grade Tank Diagram

ENERVEST OPERATING LLC

Below Grade Tank

Observed Sitting Requirements

Lease Name & Well Number	Jicarilla B 008 MV/DK	
API No.	3003908095	
Observed by	ROY GREENE	
Date Observed	September 1 2009	
GPS	36.49202	107.34602

MEASURED FROM THE BELOW-GRADE TANK:	Yes	No	If not within limits,explain:
Continiously flowing water course > 300ft.	X		
Signigicant Watercourse, lakebed, sinkhole or playa lake> 200 feet	X		
Permanent Residence> 200 feet	X		
School > 200 feet	X		
Hospital >200 feet	X		
Institution or Church> 200'	X		
Private, domestic fresh water well or spring> 500 feet	X		
Any other fresh water well or spring> 1000 feet	X		
Within incorporated municipal boundary of defined municipal fresh water field		X	
Wetland area > 500 feet	X		
Overlying a subsurface mine		X	

Distance to watercourse or dry wash should be to nearest edge

Please include distance & direction to all waterwells and/or wetland areas

Each Below-Grade Tank needing to be permitted, needs a visual inspection of the above Criteria as per Rule 19.15.17.10

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACERAGE DEDICATION PLAT

RECEIVED
JUL 25 1966
OIL CON. COM.

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
TENNECO OIL COMPANY	JICARILLA "B"	8 ST. 3

Unit Letter	Section	Township	Range	County
B	15	26 North	5 West	Rio Arriba

Actual Footage Location of Well: 790 feet from the North line and 2510 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Avereage:
6664' ungraded	Basin Dakota	Basin Dakota	320 Acres N/2

1 Outline the acerage dedicated to the subject well by colored pencil or hachure marks on the plat below

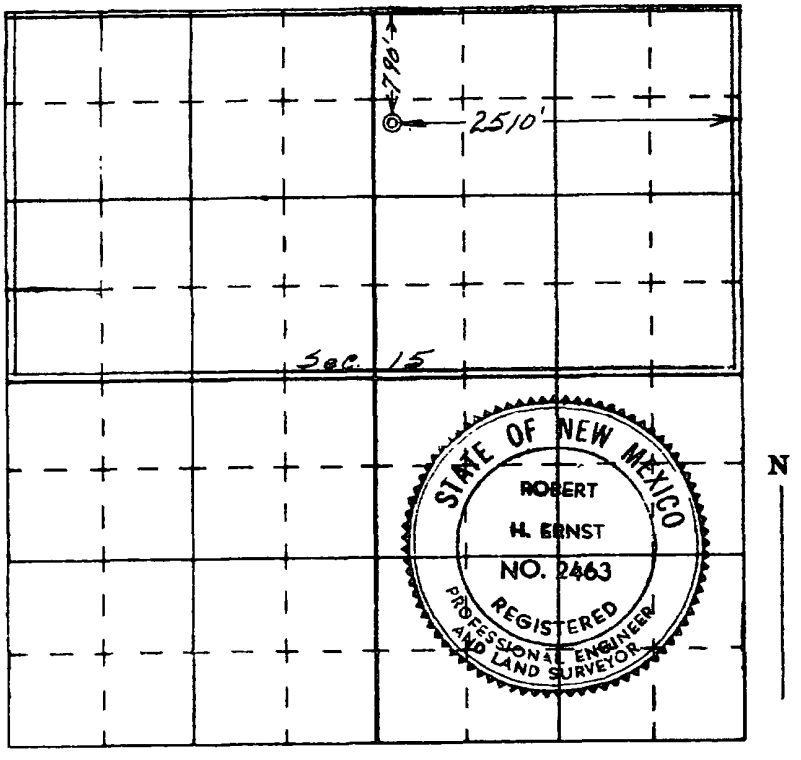
2 If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty),

3 If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling etc?

( ) Yes ( ) No If answer is "yes," type of consolidation . . . .

If answer is "no," list the owners and tract descriptions which have actually consolidated (Use reverse side of this Form if necessary . . . . . .

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization forced-pooling, or otherwise) or until a non standard unit, eliminating such interests, has been approved by the Commission



ERNST ENGINEERING CO.
DURANGO, COLORADO

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Harold C. Nichols
Name

Harold C. Nichols
Position

Senior Production Clerk
Company

Tenneco Oil Company
Date

July 21, 1966

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

28 June 1966
Date Surveyed

Robert H. Ernst
Registered Professional Engineer and/or Land Surveyor

Robert H. Ernst
N. Mex. PE & LS 2463
Certificate No

Form 9-330
(Rev. 5-63)

Form approved.
Budget Bureau No. 42-R355.5

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

RECEIVED
NOV 10 1966
U. S. GEOLOGICAL SURVEY
FARMINGTON, N. M.

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☒ DRY ☐ Other

b TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other

2 NAME OF OPERATOR
Tenneco Oil Company

08095

3. ADDRESS OF OPERATOR
Box 1714, Durango, Colorado

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface 790' FNL 2510' FEL Unit B
At top prod interval reported below
At total depth

5. LEASE DESIGNATION AND SERIAL NO.
Jicarilla Cont 109

6 INDIAN, ALLOTTEE OR TRIBE NAME
Jicarilla Dulce, New Mexico

7. UNIT AGREEMENT NAME

8 FARM OR LEASE NAME
Jicarilla "F"

9. WELL NO.
8

10. FIELD AND POOL, OR WILDCAT
Basin Dakota

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA
Sec. 15-T26N-R5W

14. PERMIT NO. | DATE ISSUED

12. COUNTY OR PARISH: Rio Arriba | 13. STATE: New Mexico

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
8-18-66	9-3-66	10-13-66	6664' GR	6664'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
7734'	7696'	---	→	0-7734'	---

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*
7443-7650' Dakota

25. WAS DIRECTIONAL SURVEY MADE
Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN
IES and Density

27. WAS WELL CORED
No

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
8-5/8"	20 & 24#	329'	12-1/4"	175 sx.	
4-1/2"	10.5 & 11.6#	7731'	7-7/8"	770 sx.	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
2-3/8"	7651'	---

31. PERFORATION RECORD (*Interval, size and number*)
7650' 2 shots 7443-7448' 10 shots
7614-7620' 6 shots
7565-7579' 14 shots
7576-7581' 10 shots
7468-7478' 8 shots

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
7650-7565'	60,000# sand, 71,500 gals. wtr.
7443-7581'	56,000# sand, 70,000 gals. wtr.

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
Shut-In	Flowing	Shut-In

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
10-13-66	3	3/4"					

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
335	1098			4841		

34 DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*)

TEST WITNESSED BY

RECEIVED
NOV 14 1966
OIL CON. COM.
DIST. 3

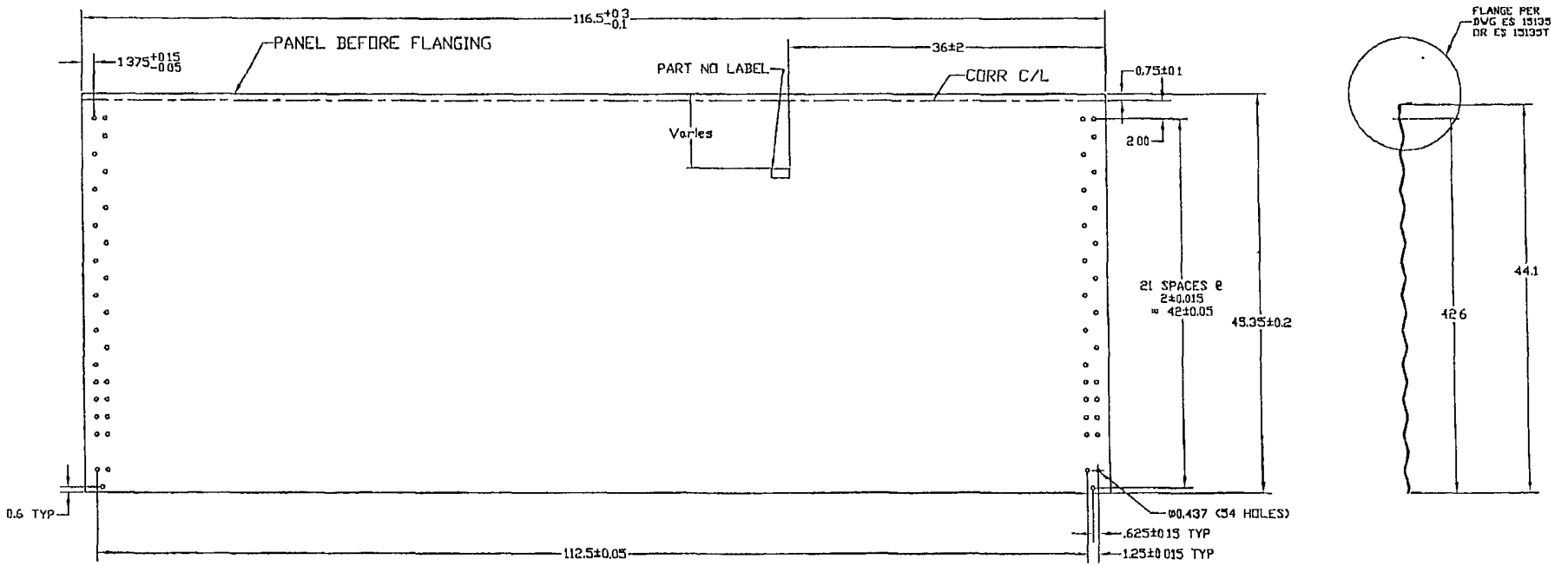
35. LIST OF ATTACHMENTS

36 I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

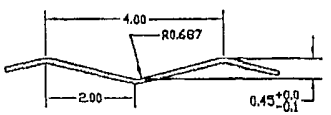
SIGNED Harold C. Nichols TITLE Senior Production Clerk DATE 11-9-66

*(See Instructions and Spaces for Additional Data on Reverse Side)

6-USGS
1-Atlantic
1-Conoco
1-File



44' WALL PANEL BEFORE FLANGING



CORRUGATING DETAIL

MANUFACTURING NOTES:
1. CORRUGATION..... SEE DETAIL
2. HOLE OFF CENTER OF CORR..... ± .05
3. HOLE BURR MAX..... .01
4. CUT OFF BURR MAX..... .01
5. CORNER HOLE TO HOLE DIAGONAL ± .15

MATERIAL SPECIFICATIONS

THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	46.5	CW4415F	98.5
0.096	0.088	46.3	CW4413F	143.4

NO	DATE	REVISION	E.C.R.	BY	CH.
1	01.28.04	LOWERED CLAMP LOCATION 4"	A6786	RF	BA

DIMENSIONS SHOWN ARE IMPERIAL
UNITS SHOWN IN BRACKETS

TOLERANCES (UNLESS OTHERWISE NOTED)

DIMENSIONS:

IMPERIAL (in)	METRIC (mm)
.x ± .1	.x ± 2
.xx ±.03	.x ± 1.0
.xxx ±.010	.xx ± .50

ANGULAR: ± 1°

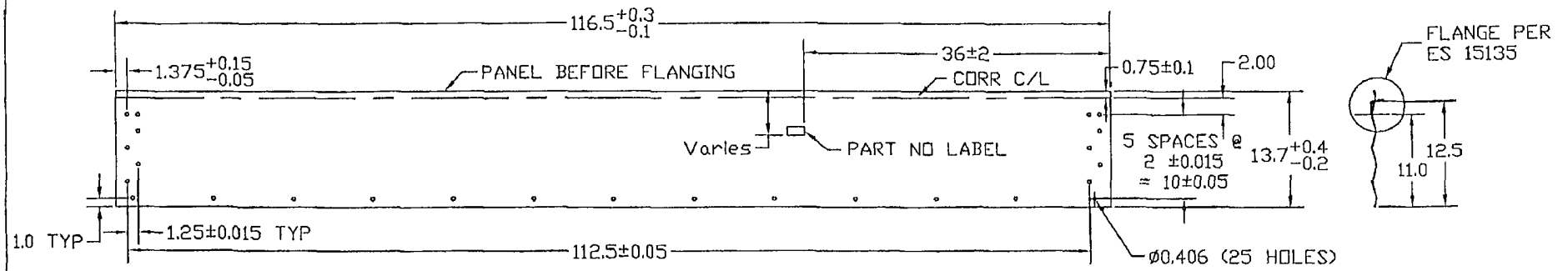
MATERIAL: SEE CHART - ASTM A653 SS GR 50 G115 OIL
BLANK SIZE: 46.5 x 116.5
SURFACE AREA:
WEIGHT (LBS): see chart

DESN. RM
DWN. RF
CHKD. BA
APP'D. BA

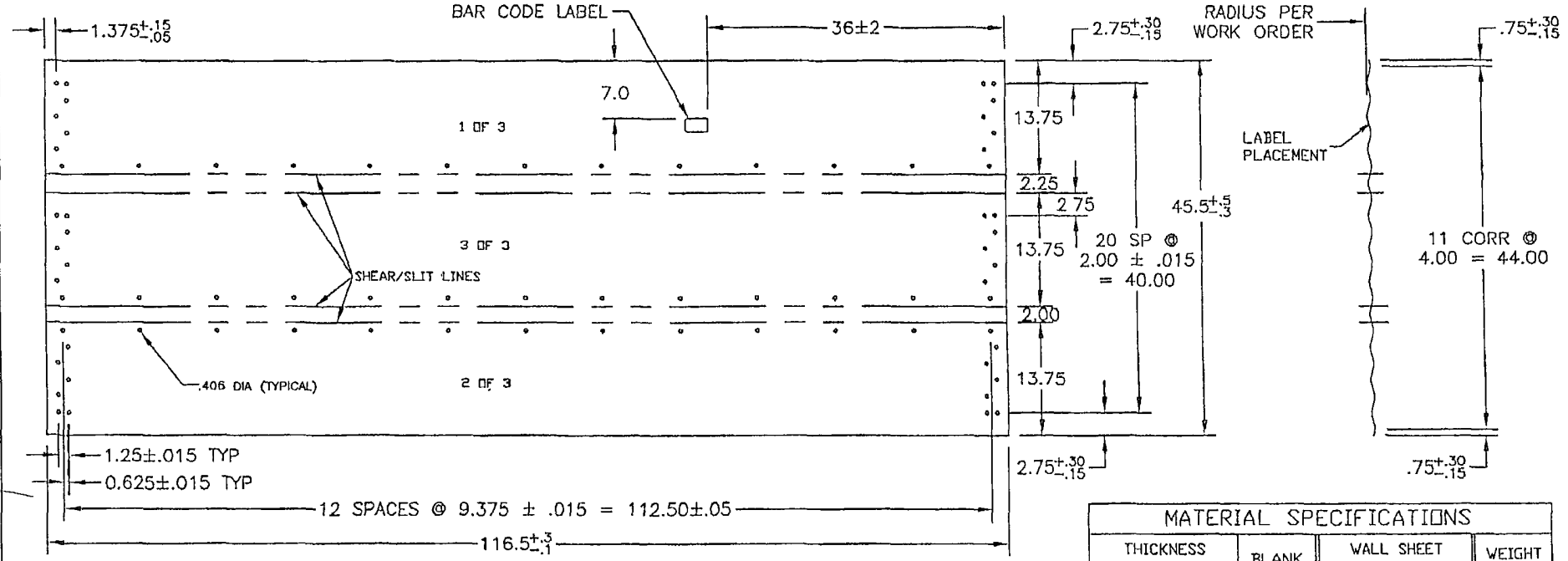
SCALE: nts
DWN. (Y.M.D.): 02.02.19
LOCATION: WINNIPEG
E.C.R.: A6647
E.P. NO.: 02-255
TYPE: ACAD14

DRAWING TITLE: CONTAINMENT RING 44' WALL PANEL
CUSTOMER:
PRINTING DATE:

SIZE: B
DRAWING NO.: ES 15510
REV. NO.: 1



13 1/2" WALL PANEL LAYOUT BEFORE FLANGING



MANUFACTURING VIEW ONLY - TRIPLE PANEL AFTER CORR & PUNCH, BEFORE SLITTING & FLANGING

MATERIAL SPECIFICATIONS				
THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	14.75	CW1357F	31.5

NO	DATE	REVISION	E.C.R.	BY	CH.

DIMENSIONS SHOWN ARE IMP
MM UNITS SHOWN IN BRACKETS

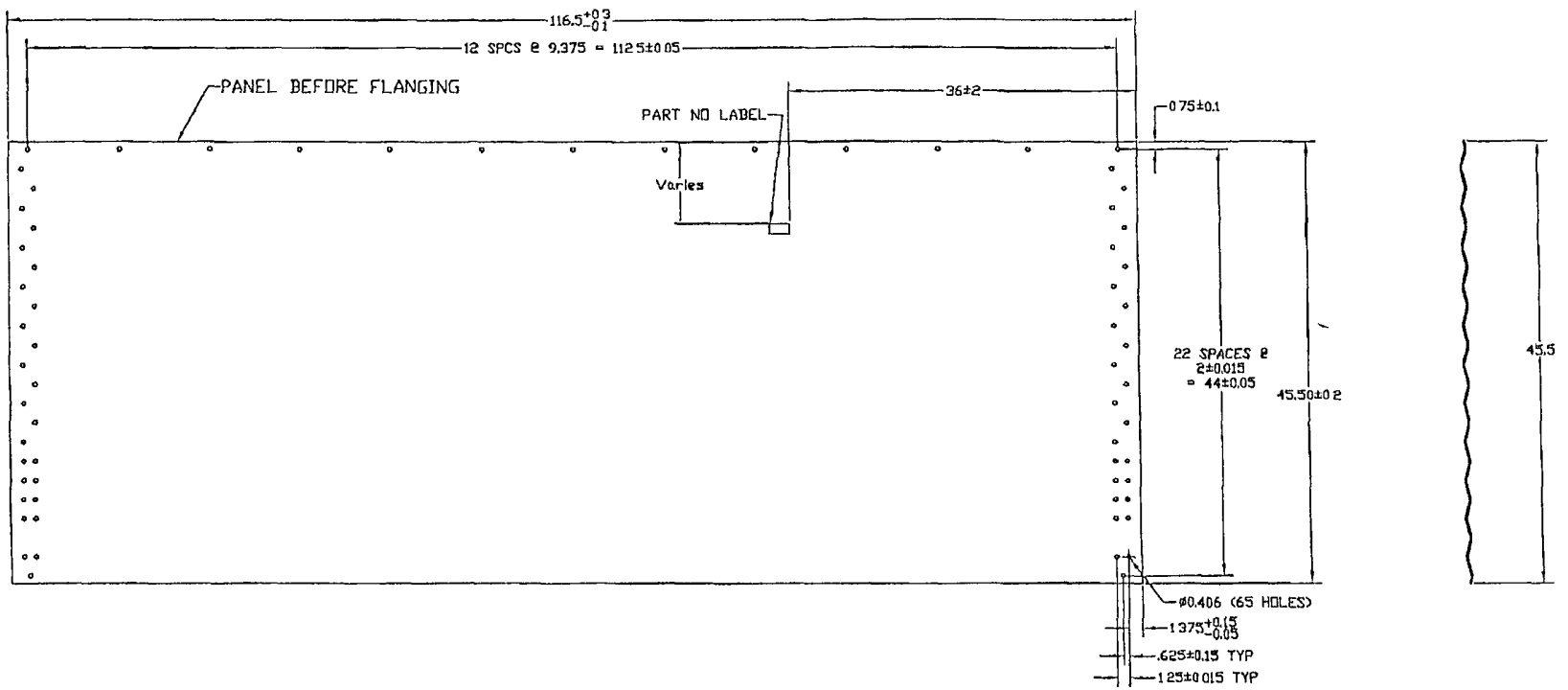
TOLERANCES (UNLESS OTHERWISE NOTED)

DIMENSIONS

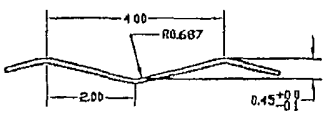
IMPERIAL (in.)	METRIC (mm)
.x ? .1	x ? 2
.xx ? .03	.x ? 1.0
.xxx ? .010	.xx ? .50

ANGULAR: ± 1°

MATERIAL	SEE CHART - ASTM A653 SS GR50 G115 OIL		BLANK SIZE	46.5x116.5 (3 pcs)		WEIGHT (LBS.)	31.5
DESND	BA		SCALE	N.T.S.	DWN. (Y.M.D.)	2004.11.30	LOCATION	WPG
DWN.	RF		E.C.R.	A6834	E.P. NO.	02-255	DWG TYPE	A-2000
CHKD.	BA	DRAWING TITLE 13.5" FULL PANEL - 57" ONLY CONTAINMENT RING	SIZE	A	DRAWING NO	ES 15516	REV. NO.	O
APP'D.	BA	CUSTOMER -	PRINTING DATE (Y.M.D.)	-				



44' WALL PANEL AFTER CORRUGATING AND PUNCHING



CORRUGATING DETAIL

MANUFACTURING NOTES:
1. CORRUGATION..... SEE DETAIL
2. HOLE OFF CENTER OF CORR..... ± .05
3. HOLE BURR MAX..... .01
4. CUT OFF BURR MAX..... .01
5. CORNER HOLE TO HOLE DIAGONAL ± .15

MATERIAL SPECIFICATIONS				
THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	46.5	CW445715F	97.7
0.139	0.130	46.2	CW445710F	208.5

NO	DATE	REVISION	E.C.R.	BY	CH

DIMENSIONS SHOWN ARE IMPERIAL
UNITS SHOWN IN BRACKETS

TOLERANCES (UNLESS OTHERWISE NOTED)

DIMENSIONS:

IMPERIAL (in)	METRIC (mm)
.x ± .1	x ± 2
.xx ±.03	.x ± 1.0
.xxx ±.010	.xx ± .50

ANGULAR: ± 1°

DESND.	BA
DWN.	RF
CHKD.	BA
APPD.	BA

MATERIAL	BLANK SIZE	SURFACE AREA	WEIGHT (LBS)
SEE CHART - ASTM A653 SS GR 50 G115 OIL	46.5 x 116.5		see chart

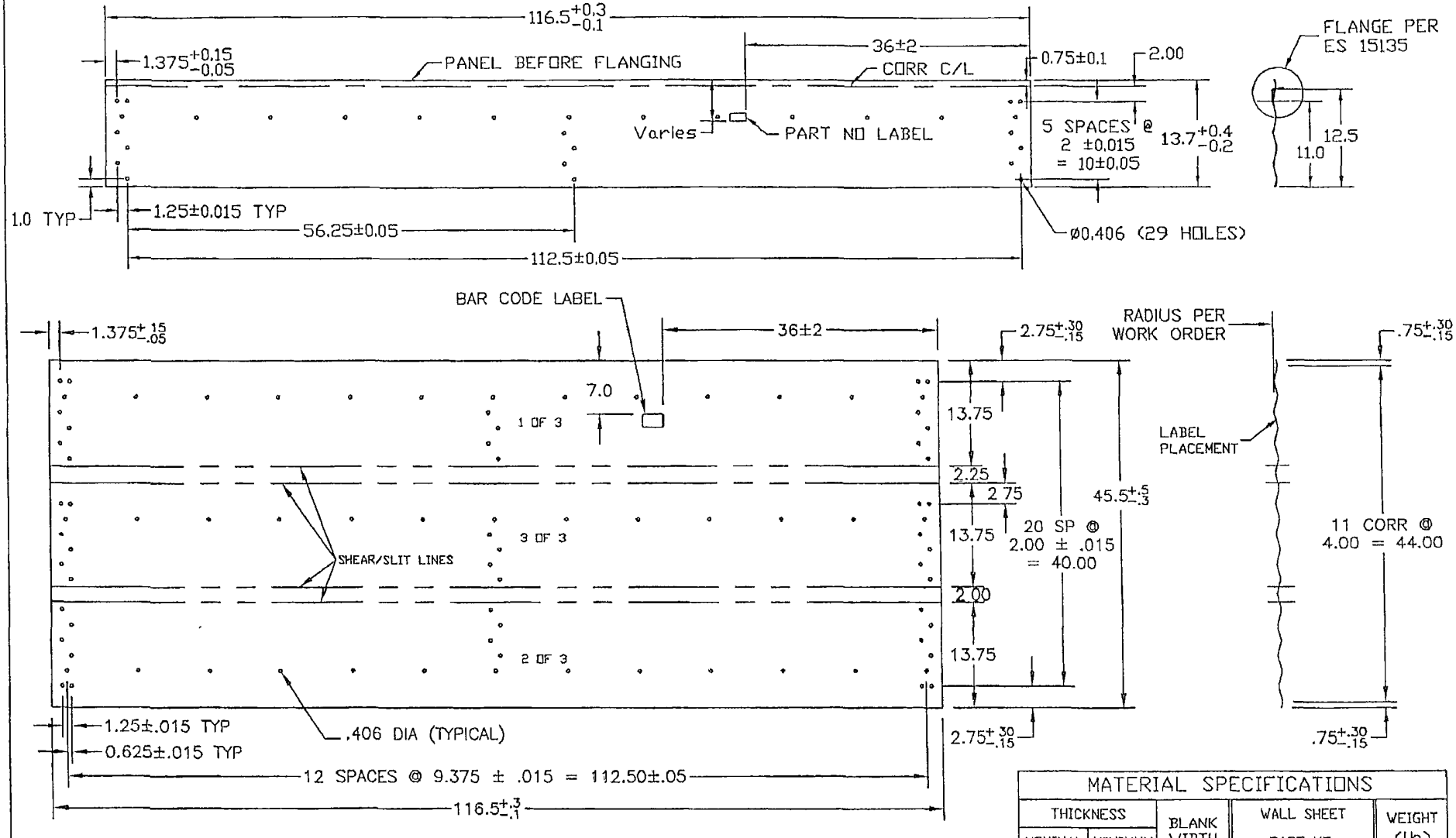
SCALE	DWN. (Y.M.D.)	LOCATION
nts	04.12.01	WINNIPEG
E.C.R.	E.P. NO.	TYPE
A6834		A-2000

DRAWING TITLE: 44' FULL PANEL - 57' ONLY CONTAINMENT RING

CUSTOMER

PRINTING DATE

SIZE	DRAWING NO.	REV. NO.
B	ES 15518	0



MANUFACTURING VIEW ONLY - TRIPLE PANEL AFTER CORR & PUNCH, BEFORE SLITTING & FLANGING

MATERIAL SPECIFICATIONS				
THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	14.75	019401	31.5

NO	DATE	REVISION	E.C.R.	BY	CH.

DIMENSIONS SHOWN ARE IMP
MM UNITS SHOWN IN BRACKETS

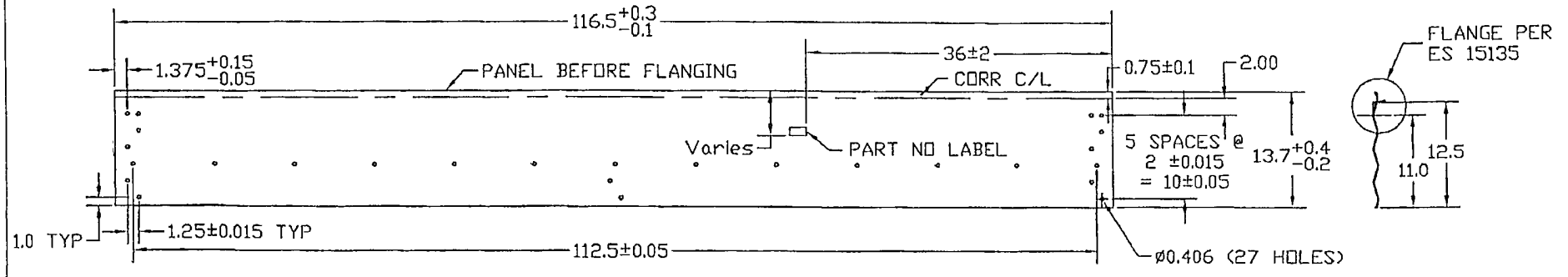
TOLERANCES (UNLESS OTHERWISE NOTED)

DIMENSIONS:

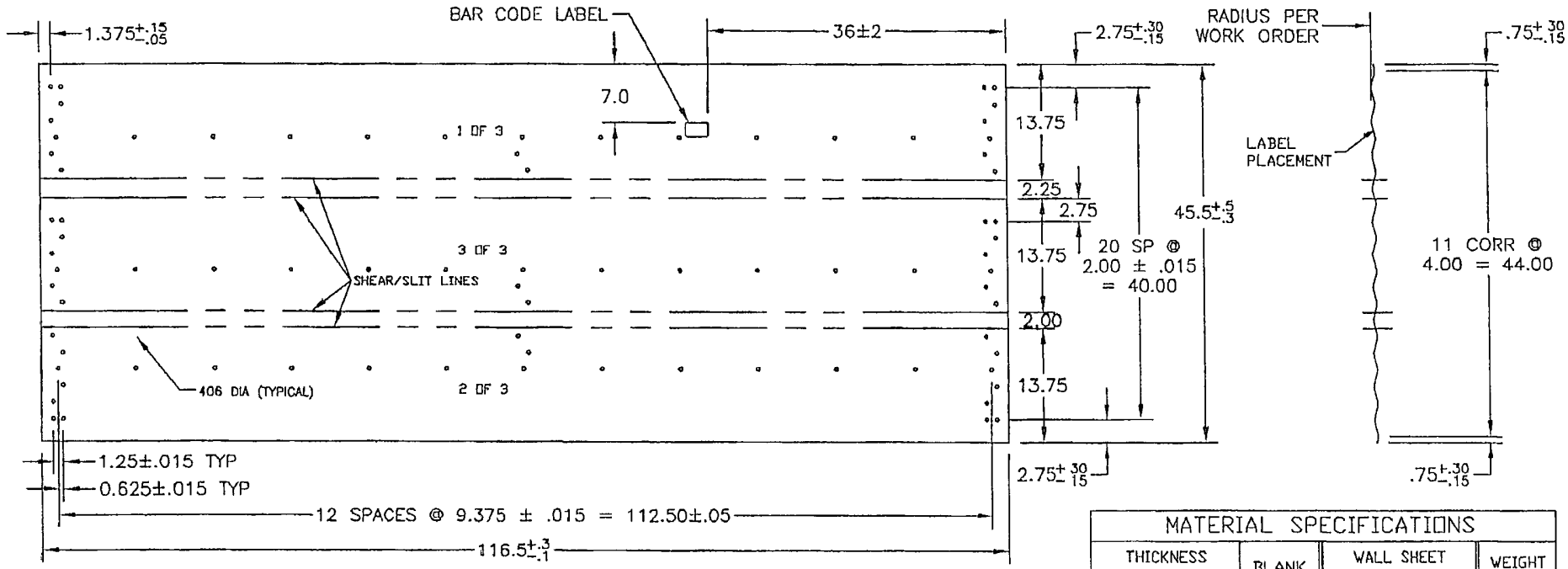
IMPERIAL (in.)	METRIC (mm)
.x ? .1	x ? 2
.xx ? .03	.x ? 1.0
.xxx ? 010	.xx ? .50

ANGULAR: ± 1°

MATERIAL	SEE CHART - ASTM A653 SS GR50 G115 OIL
BLANK SIZE	46.5x116.5 (3 pcs)
WEIGHT (LBS.)	31.5
DESND.	BA
DWN.	RF
CHKD.	BA
APPD.	BA
SCALE	N.T.S.
DWN. (Y.M.D.)	2004.11.30
LOCATION	WPG
E.C.R.	A6834
E.P. NO.	02-255
DWG TYPE	A-2000
DRAWING TITLE	13.5" FULL PANEL - 4" RISER CONTAINMENT RING
SIZE	A
DRAWING NO.	019401
REV. NO.	O
CUSTOMER	-
PRINTING DATE (Y.M.D.)	-



13 1/2" WALL PANEL LAYOUT BEFORE FLANGING



MANUFACTURING VIEW ONLY - TRIPLE PANEL AFTER CORR & PUNCH, BEFORE SLITTING & FLANGING

MATERIAL SPECIFICATIONS

THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	14.75	019419	31.5

NO	DATE	REVISION	E.C.R.	BY	CH.

DIMENSIONS SHOWN ARE IMP MM UNITS SHOWN IN BRACKETS

TOLERANCES (UNLESS OTHERWISE NOTED)

DIMENSIONS

IMPERIAL (in.)	METRIC (mm)
.x ? .1	x ? 2
.xx ? .03	.x ? 1.0
.xxx ? .010	.xx ? .50

ANGULAR: ± 1°

DESND.	BA
DWN.	RF
CHKD.	BA
APPD.	BA

MATERIAL: SEE CHART - ASTM A653 SS GR50 G115 OIL

BLANK SIZE: 46.5x116.5 (3 pcs)

WEIGHT (LBS.): 31.5

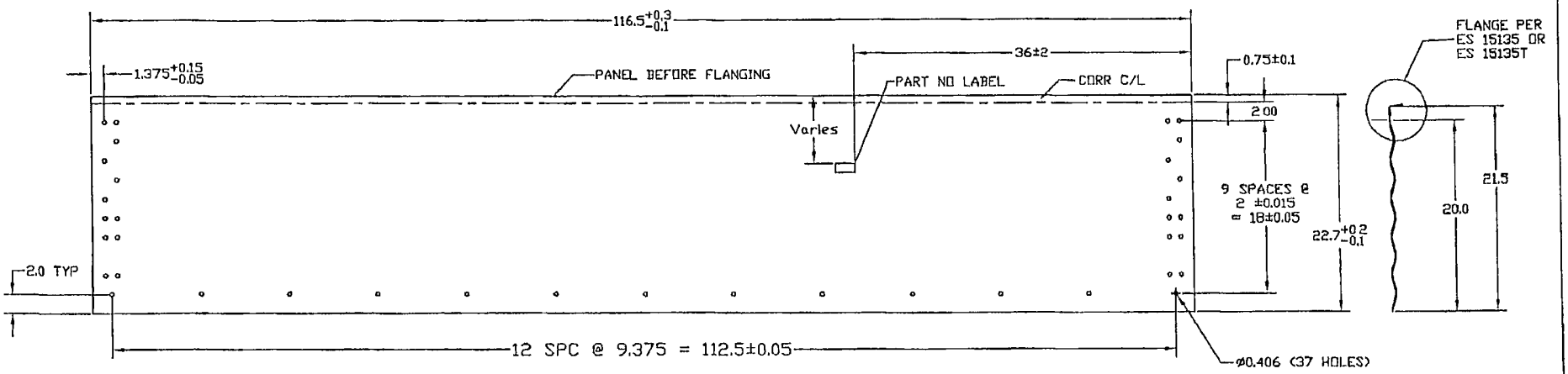
SCALE	N.T.S.
DWN. (Y.M.D.)	2006.08.08
LOCATION	WPG
E.C.R.	A6834
E.P. NO.	02-255
DWG TYPE	A-2000

DRAWING TITLE: 9.5" FULL PANEL - 52.5' ONLY CONTAINMENT RING

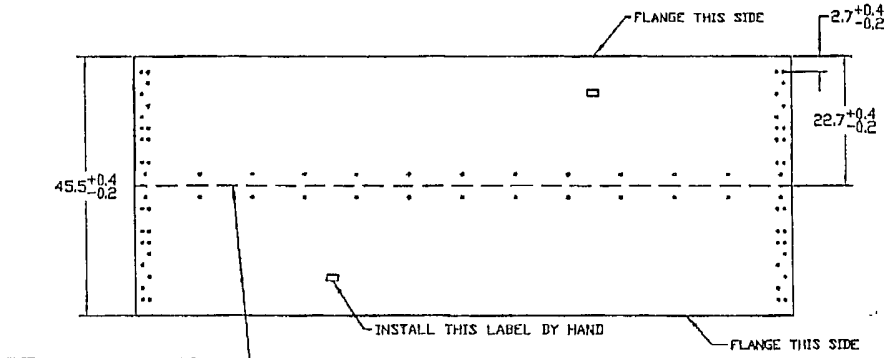
SIZE	DRAWING NO.	REV NO.
A	019419	O

CUSTOMER: -

PRINTING DATE (Y.M.D.): -



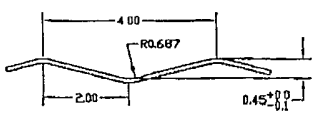
21 1/2" WALL PANEL LAYOUT BEFORE FLANGING



MANUFACTURING VIEW ONLY - DOUBLE PANEL AFTER CORR & PUNCH, BEFORE SLITTING & FLANGING

MANUFACTURING NOTES:
1. CORRUGATION..... SEE DETAIL
2. HOLE OFF CENTER OF CORR..... ± .05
3. HOLE BURR MAX..... .01
4. CUT OFF BURR MAX..... .01
5. CORNER HOLE TO HOLE DIAGONAL ± .15

MATERIAL SPECIFICATIONS				
THICKNESS		BLANK WIDTH	WALL SHEET PART NO	WEIGHT (lb)
NOMINAL	MINIMUM			
0.066	0.061	23.3	C10514	49.4



CORRUGATING DETAIL

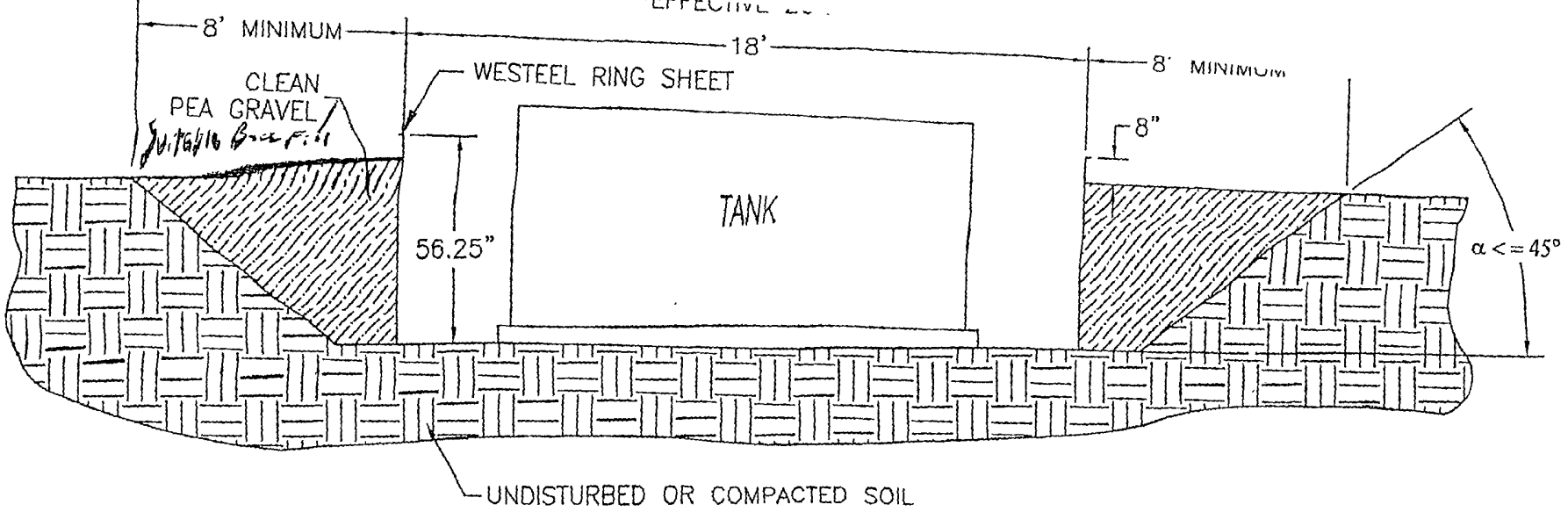
NO	DATE	REVISION	E.C.R.	BY	CH.
1	06/12/06	CORRECTED HOLE PATTERN ON BOTTOM BLANK	A6898	RF	RF

DIMENSIONS SHOWN ARE IMPERIAL
UNITS SHOWN IN BRACKETS

TOLERANCES UNLESS OTHERWISE NOTED

DIMENSIONS:
IMPERIAL (in.) METRIC (mm)
.X ± .1 X ± 2
.XX ± .03 .X ± 1.0
.XXX ± .010 .XX ± .50
ANGULAR ± 1°

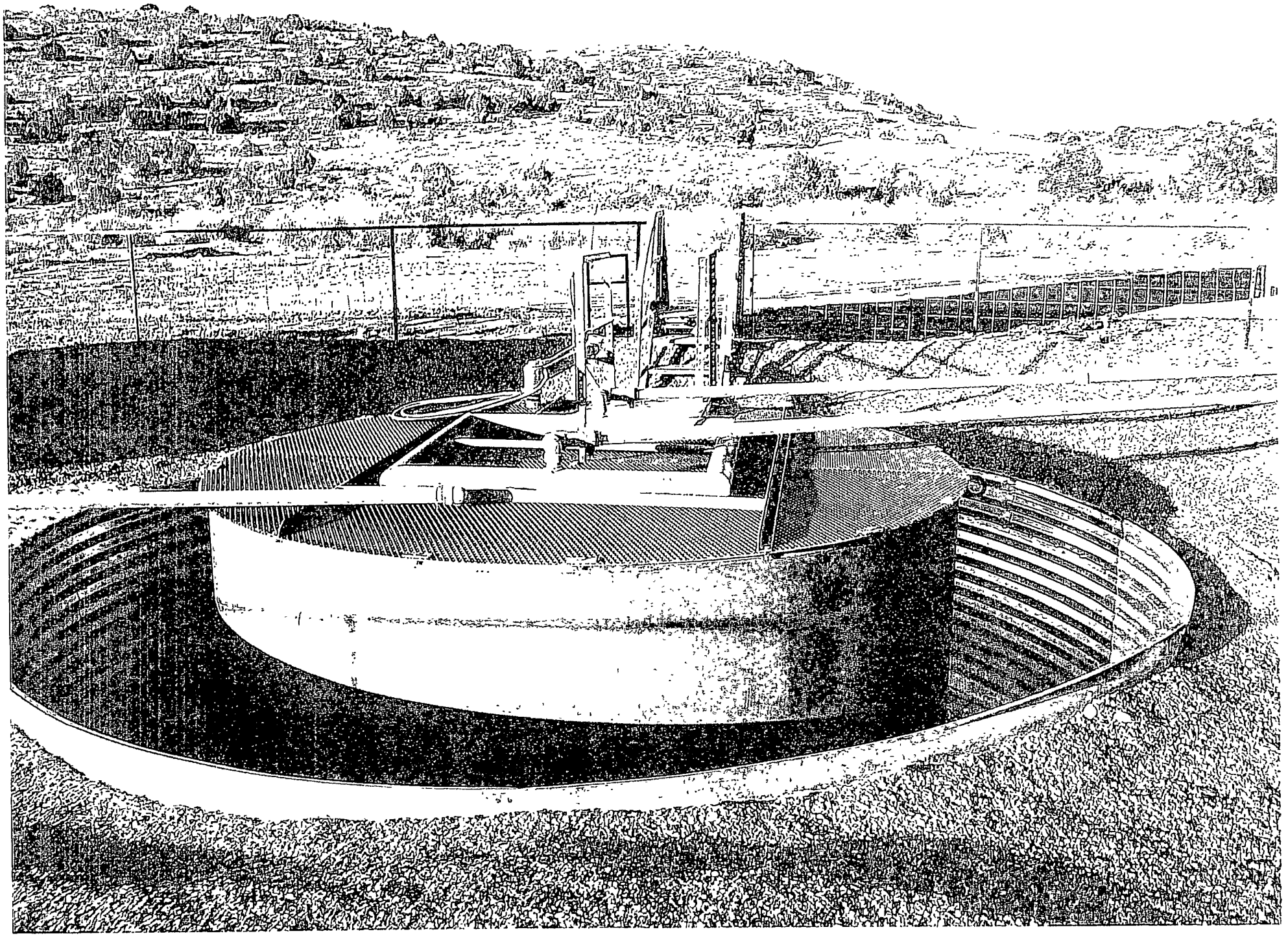
MATERIAL	SEE CHART - ASTM A653 SQ GR50 GL15 OIL
BLANK SIZE	46.6x116.5 (2 pcs)
SURFACE AREA	
WEIGHT (LBS.)	49.4
DESIGNED	RM
DRAWN	RM
CHECKED	YS
APPROVED	RM
SCALE	nts
DWN. (Y.M.D.)	98.08.13
LOCATION	WINNIPEG
E.C.R.	A 6428
E.P. NO.	98-197
TYPE	ACAD14
SIZE	B
DRAWING NO	C10514
REV. NO.	1
DRAWING TITLE	CONTAINMENT RING 22" WALL PANEL
CUSTOMER	
PRINTING DATE	

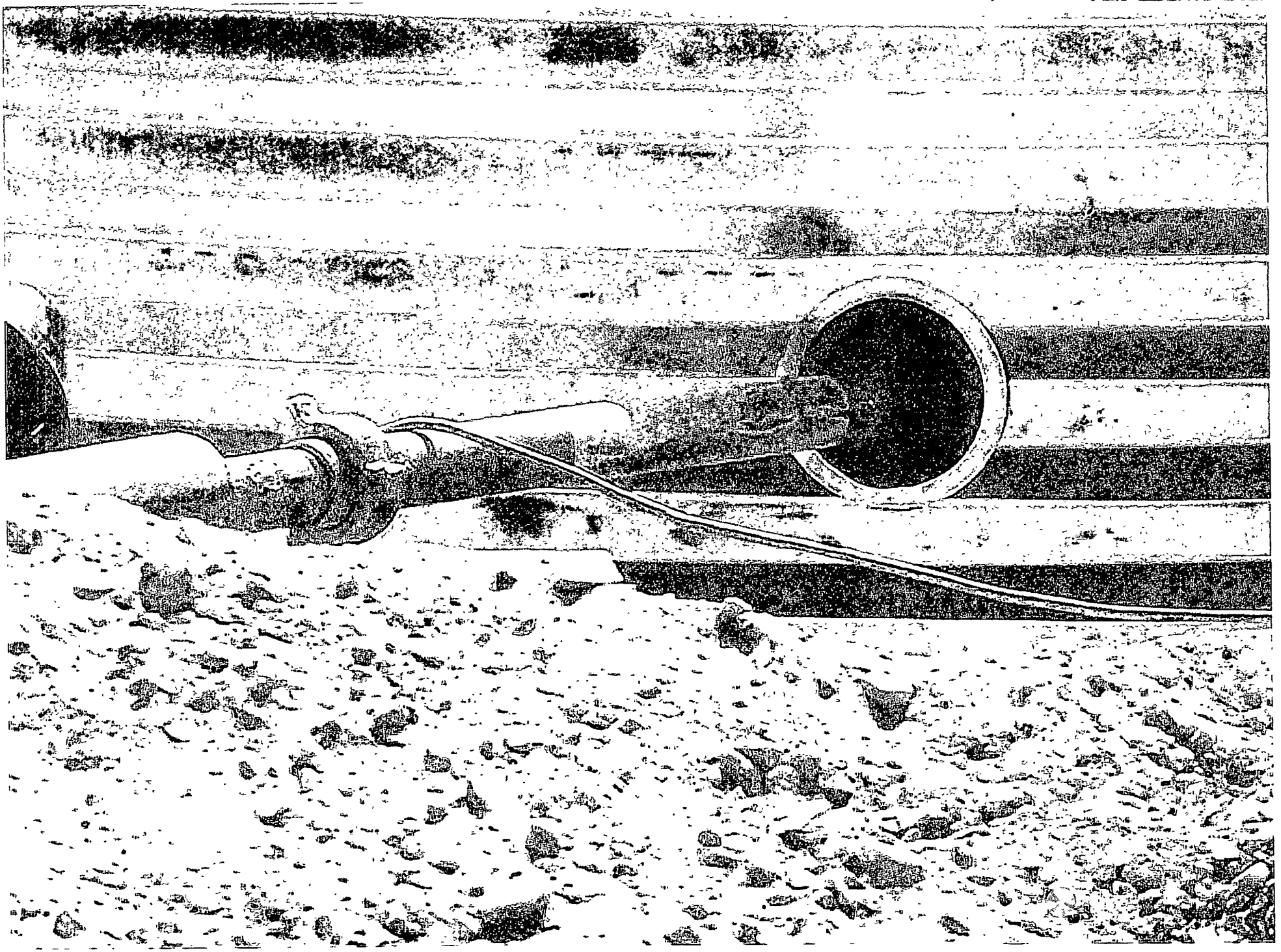


INSTALLATION INSTRUCTIONS & SITE REQUIREMENTS

1. EXCAVATE AS PER ABOVE
2. FOR BEST RESULTS, BACKFILL WITH CLEAN PEA GRAVEL (OR EQUIVALENT FREE FLOWING MATERIAL) EVENLY AROUND THE STRUCTURE, TAKING CARE NOT TO FILL IN ANY ONE AREA VERY HIGH RELATIVE TO OTHER AREAS, SO AS TO MAINTAIN THE STRUCTURE AS ROUND. WORKING AROUND THE STRUCTURE IN APPROXIMATELY 6" LIFTS IS RECOMMENDED. (NOTE: ALTERNATIVE MATERIALS CAN BE USED BUT CARE MUST BE TAKEN TO INSURE THAT THE EXTERNAL PRESSURES ACTING ON THE STRUCTURE REMAIN UNIFORM. IF NATIVE SOIL IS USED AS A BACKFILL MATERIAL, IT SHOULD BE UNIFORM IN CONSISTENCY, AND BE FREE OF LARGE ROCKS OR UNBROKEN CLUMPS, WHICH COULD RESULT IN UNEVEN LOADING).
3. THE COMPLETED STRUCTURE SHOULD EXTEND APPROXIMATELY 8" ABOVE GRADE
4. TO INSURE STRUCTURAL INTEGRITY, UNEVEN EXTERNAL WALL PRESSURE IS TO BE AVOIDED. NO VEHICLES OR OTHER SOURCES OF POINT LOADING SHOULD BE PERMITTED WITHIN THE EFFECTIVE ZONE (AS ILLUSTRATED).
5. WESTEEL IS NOT LIABLE FOR ANY DAMAGES OR INJURIES RESULTING FROM ANY FAILURE DUE TO IMPROPER INSTALLATION, IMPROPER SITE CONDITIONS, OR INADEQUATE MAINTENANCE OF THE SITE.

NOTE: THIS SYSTEM IS NOT DESIGNED FOR THE SECONDARY CONTAINMENT OF LIQUIDS, RATHER, TO ALLOW FOR INSPECTION OF THE TANK.



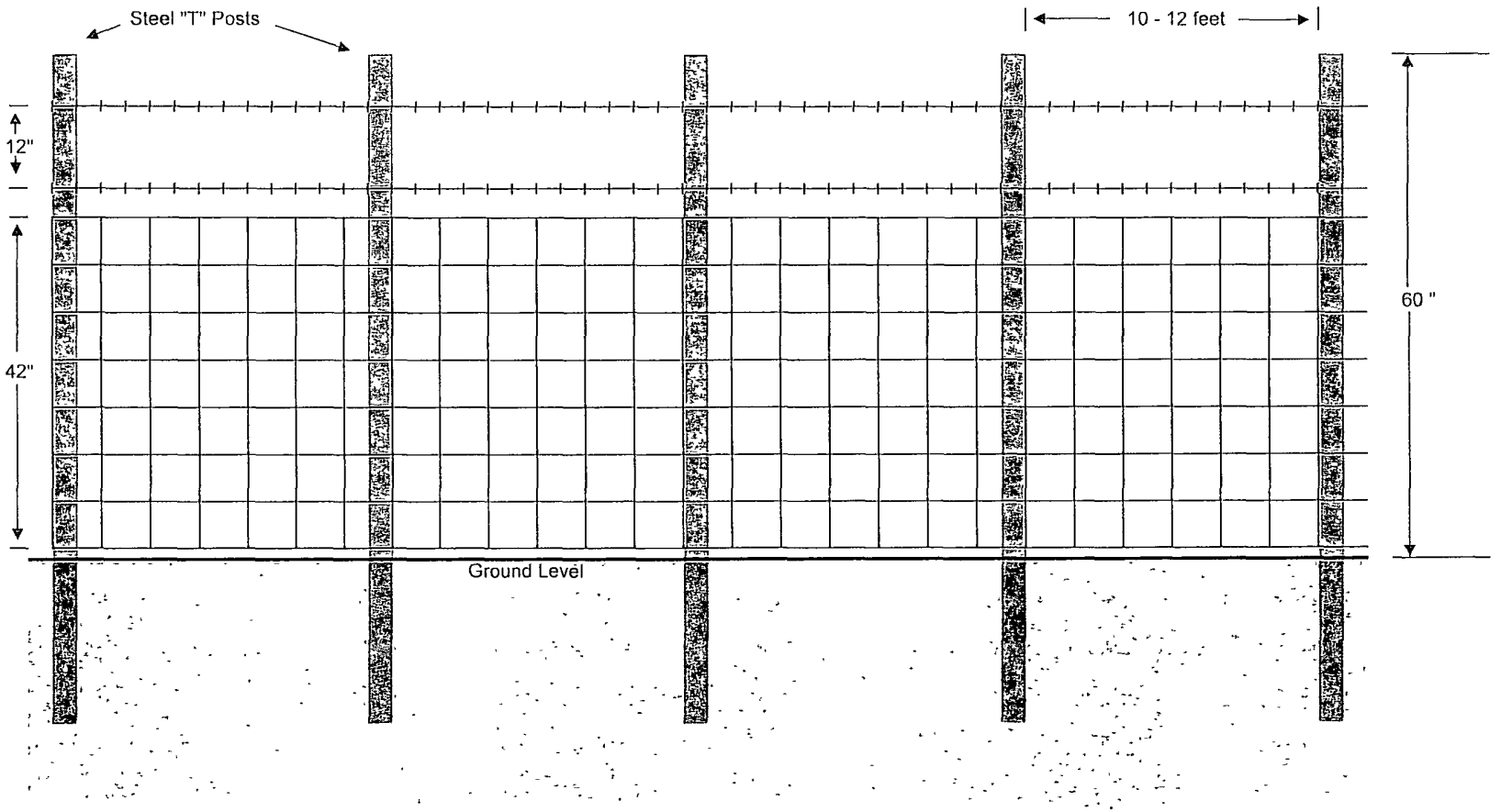


ENERVEST OPERATING, LLC

Proposed Alternative Fencing

Below-Grade Tank Construction

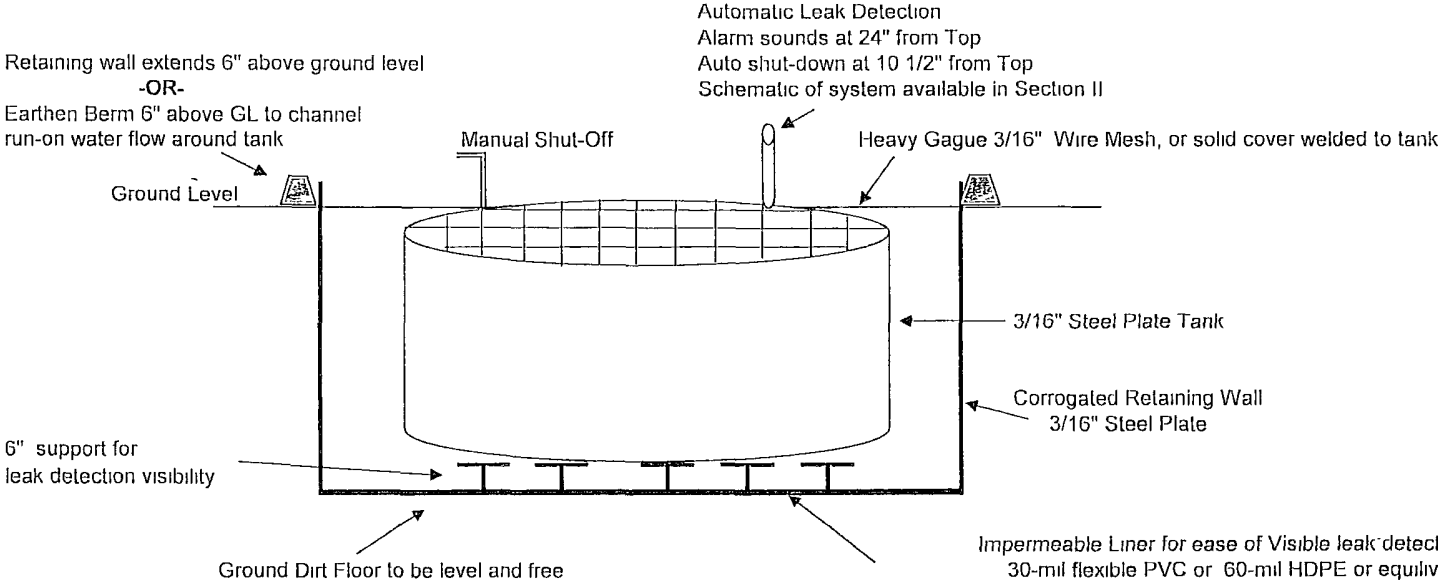
42" Hogwire Fence with 2 strands barbed-wire on top



EnerVest Operating, LLC
Western Division

Below-Grade Tank System

Gravity Fed - Produced Water



Impermeable Liner for ease of Visible leak detection
30-mil flexible PVC or 60-mil HDPE or equilivant Liner
Liner shall have a hydraulic condictivity no greater than

1×10^{-9} cm/sec

Liner compatibility shall comply with EPA SW-846 method 9090A
Liner to be impervious to hydrocarbons, salt &
acidic and alkiline solutions
Any liner installation will be done in such a way as to easily
detect any possible leak.

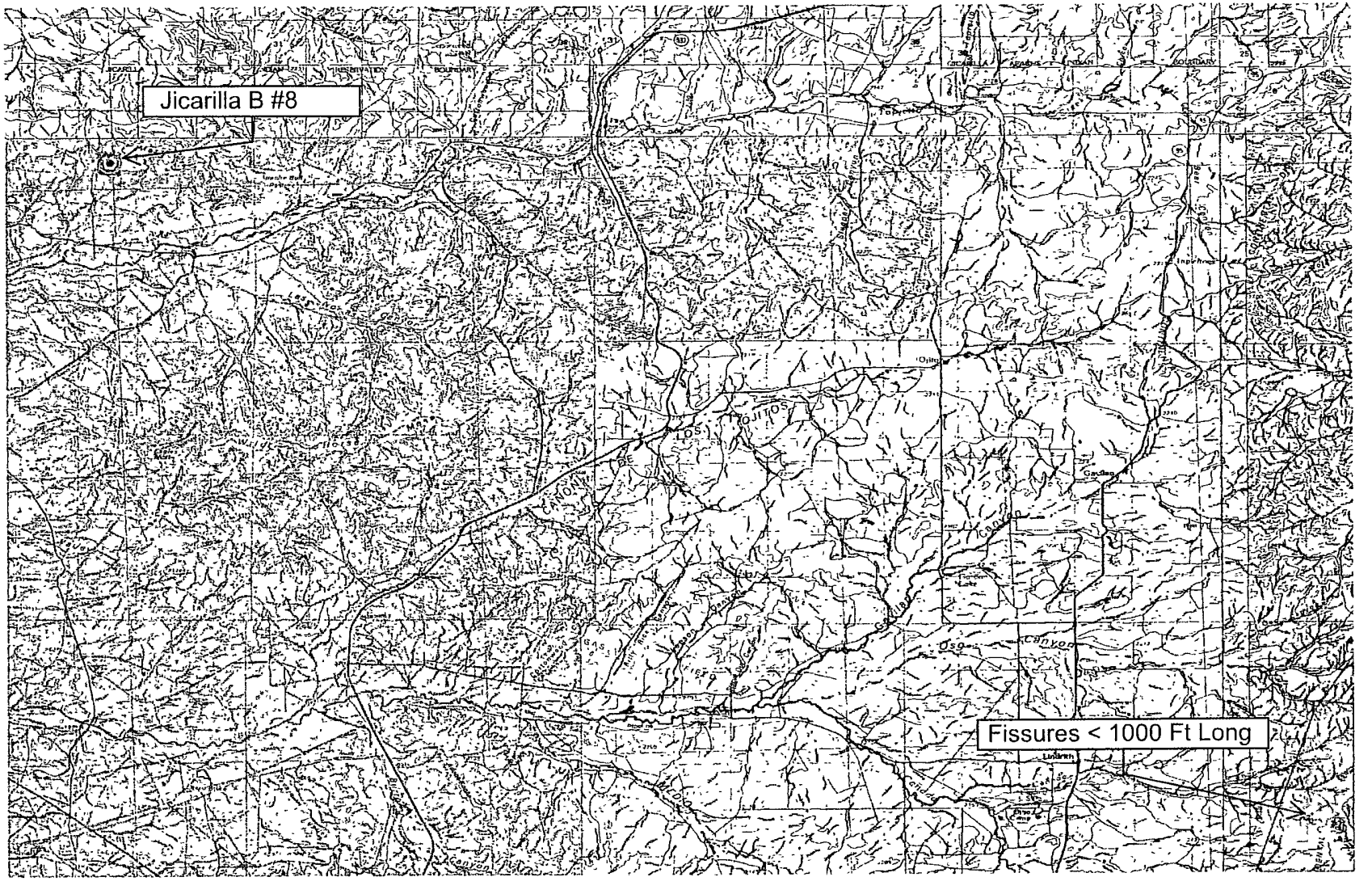
Below-Grade System Components

Tank Size		Excavation Areas
Capacity	Dia x Height	
125 Bbl	15' x 4'	18' x 18' x 4' Square
120 Bbl	12' x 6'	18' x 4' Circular
100 Bbl	12' x 5'	18' x 5' Circular

Tank size dependent upon water production & road conditions
Excavation Area size dependent upon tank size

Appendix 09

Karst Map



0 2 4mi

N W E S

Petroleum Recovery Research Center	Karst Area - Jicarilla B #8	Figure: 09
	B - Sec 15, 26N, 05W	Jan 29, 2010

API 30-039-08095

REFERENCES

Wetland Map:
U. S. Fish and Wildlife Service
National Wetlands Inventory
Wetlands Mapper
www.fws/gov/wetlands/data/mapper

Floodplains map:
Federal Emergency Management Agency
National Flood Insurance Program
FIRM (Flood Insurance Rate Map)
Map Service Center
http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1

Depth to Ground Water: Individual water well documentation.
State of New Mexico
Office of the State Engineer
New Mexico Water Rights Reporting System
http://www.ose.state.nm.us/waters_db_index.html

Subsurface Mines:
EMNRD
Mining & Minerals Division
Mines, Mills & Quarries Commodity Group
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