BEFORE THE OIL CONSERVATION DIVISION
EXAMINER HEARING MARCH 16, 2017

CASE NO. 15644

FOR AN EXCEPTION TO
NMAC 19.15.34.13(C)

RIO ARRIBA COUNTY, NEW MEXICO

WPXENERGY®

3RF-3

PERMIT
/
REGISTRATION

WPX Section 30 Recycling Facility and Containment Date: 2015

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 1
Submitted by:
WXP ENERGY PRODUCTION LLC
Hearing Date: March 16, 2017

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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-147
Revised March 31, 2015

OIL CONS. DIV. DIST. 3

JUN 04 2015

Recycling Facility and/or Recycling Containment

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*

Type of action: ☐ Permit ☒ 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: WPX Energy LLC (For multiple operators attach page with information) OGRID #: 120782
Address: P.O. Box 640 Aztec, NM 87410
Facility or well name (include API# if associated with a well): Section 30 Containment and Recycling Facility
OCD Permit Number: _____ (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr _____ Section 30 Township 31N Range 5W County: Rio Arriba
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 36.877084 Longitude -107.3984050 NAD: ☐ 1927 ☒ 1983
Proposed Use: ☒ Drilling* ☒ Completion* ☒ Production* ☒ 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.***
☒ Fluid Storage
☒ Above ground tanks ☒ 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.
☒ **Recycling Containment:** Section 30 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 NAD: ☐ 1927 ☒ 1983
☐ For multiple or additional recycling containments, attach design and location information of each containment
☒ Lined ☒ Liner type: Thickness 45 mil LLDPE and 30-mil (LLDPE secondary) ☒ LLDPE ☒ HDPE ☐ PVC ☐ Other _____
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☒ Other Field Welds Volume: 575,000 ~~333,900~~ bbl Dimensions: L 900 x W 300 x D 18.7 (at sump)
☐ *Recycling Containment Closure Completion Date:* _____

105

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 Game Fence (see registration)

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	☐ Yes ☒ No ☐ 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	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals 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
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 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	☐ Yes ☒ 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	☐ 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

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): Heather Riley Title: Regulatory Manager

Signature: Heather Riley Date: June 1, 2015

e-mail address: heather.riley@wpxenergy.com e-mail address: Heather.Riley@wpxenergy.com

Telephone: 505-333-1822

11.

OCD Representative Signature: Approval Date: 8/19/15

Title: Environmental Spec OCD Permit Number: 3RF-3

☐ OCD Conditions

☐ Additional OCD Conditions on Attachment

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
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State of New Mexico
Energy Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

OIL CONS. DIV DIST. 3
AUG 19 2015

Form C-147
Revised March 31, 2015

Recycling Facility and/or Recycling Containment

OIL CONS. DIV DIST. 3
AUG 19 2015

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*

Type of action:
☐ Permit ☐ Registration
☒ Modification ☐ Extension
☐ Closure ☐ Other (explain) Secondary Liner Modification

*** 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: WPX Energy Production Company, LLC (For multiple operators attach page with information) OGRID #: 120782
Address: P.O. Box 640, Aztec, New Mexico, 87410
Facility or well name (include API# if associated with a well): Section 30 Containment and Recycling Facility
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U/L or Qtr/Qtr Section 30 Township 31N Range 5W County: Rio Arriba
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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.***
☒ Fluid Storage
☒ Above ground tanks ☒ Recycling containment ☐ Activity permitted under 19.15.17 NMAC explain type
☐ Activity permitted under 19.15.36 NMAC explain type: ☐ Other explain
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Center of Recycling Containment (if applicable): Latitude 36.877125 Longitude -107.398656 NAD: ☐ 1927 ☒ 1983
☐ For multiple or additional recycling containments, attach design and location information of each containment
☒ Lined ☒ Liner type: Thickness 45-mil LLDPE (Primary) / 45-mil LLDPE (Secondary) / 30-mil LLDPE (non-reinforced foundation) ☒ LLDPE
☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☒ Other Field Welds Volume: 337,900 bbl Dimensions: L 400 x W 400 x D 18.7 (at sump)
☐ Recycling Containment Closure Completion Date:

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): Andrea Felix Title: Regulatory Specialist Senior

Signature: Date: 8/18/2015

e-mail address: andrea.felix@wpxenergy.com Telephone: (505) 333-1849

11.
OCD Representative Signature: **Approval Date:** 8/19/15

Title: Environmental Spec **OCD Permit Number:** 3RF-3

☒ OCD Conditions WP1 Will Install 45mil LLDPE String Reinforced Liner (Secondary Liner) on top of the 30 mil LLDPE (Non Reinforced) "Foundation" Liner

☐ Additional OCD Conditions on Attachment

Smith, Cory, EMNRD

From: Felix, Andrea <Andrea.Felix@wpxenergy.com>
Sent: Tuesday, August 18, 2015 3:17 PM
To: Powell, Brandon, EMNRD; Smith, Cory, EMNRD
Cc: Riley, Heather; Lepich, Mark; VanDenBerg, Randy; McQueen, Ken; Lopez, Chris; 'Mindy Paulek'
Subject: WPX Section 30 Recycling Containment C-147 Modification
Attachments: Section 30 Recycling Containment C-147 Modification_Secondary Liner.pdf

Importance: High

Brandon & Cory,

Thank you both for working with us to ensure we are successful in accurately lining our Section 30 Recycling Containment Facility. We appreciate the time and willingness you both have demonstrated to work together with us.

Please see attached for your reference the C-147 modification correctly outlining the lining plan Brandon and I discussed during our telephone conversation, the original is en route to your office as I type. ☺
WPX will continue to install the secondary liner in accordance with our modified plan per Brandon's verbal approval.

WPX 's modified lining plan is as outlined below.

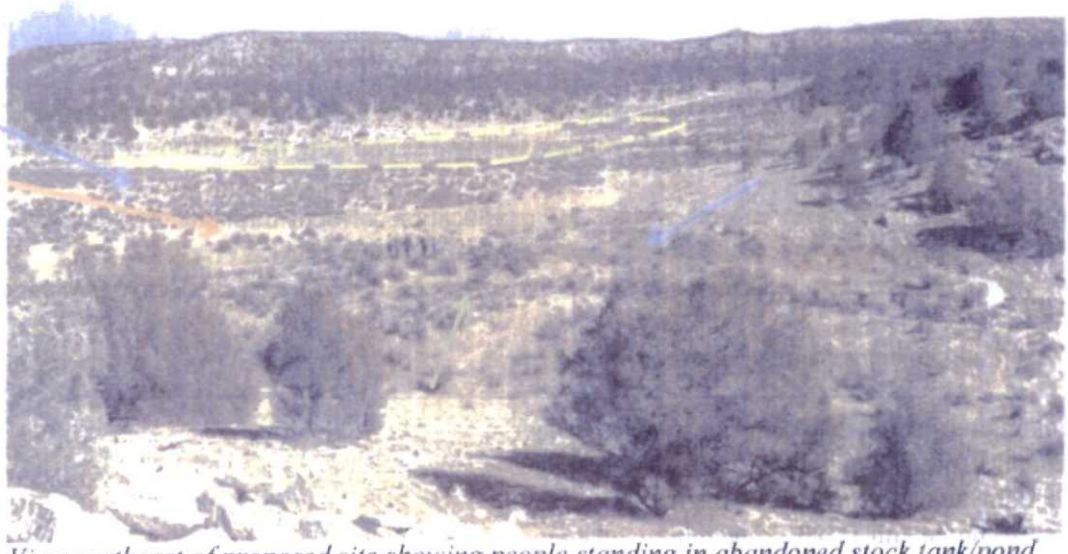
Foundation Liner: 30 mil LLDPE non reinforced liner
Secondary Liner: 45 mil LLDPE string reinforced liner
Leak Detection System: 200 mil geo textile membrane
Primary liner: 45 mil LLDPE string reinforced liner

If you have any questions please feel free to let me know.

Andrea Felix, RWA
Regulatory Specialist Sr.
WPX Energy
Office: 505-333-1849
Cell: 505-386-8205
WPXENERGY.

May 2015

C-147 Registration Package for Section 30 Recycling Containment Section 30, T31N, R5W, Rio Arriba County



View northeast of proposed site showing people standing in abandoned stock tank/pond, the abandoned dam (red arrow) and abandoned stream channel (blue arrows, the active arroyo(green arrow) and general location of proposed produced water recycling containment (yellow dashed area)

Prepared for:
WPX Energy Production LLC
Aztec, New Mexico

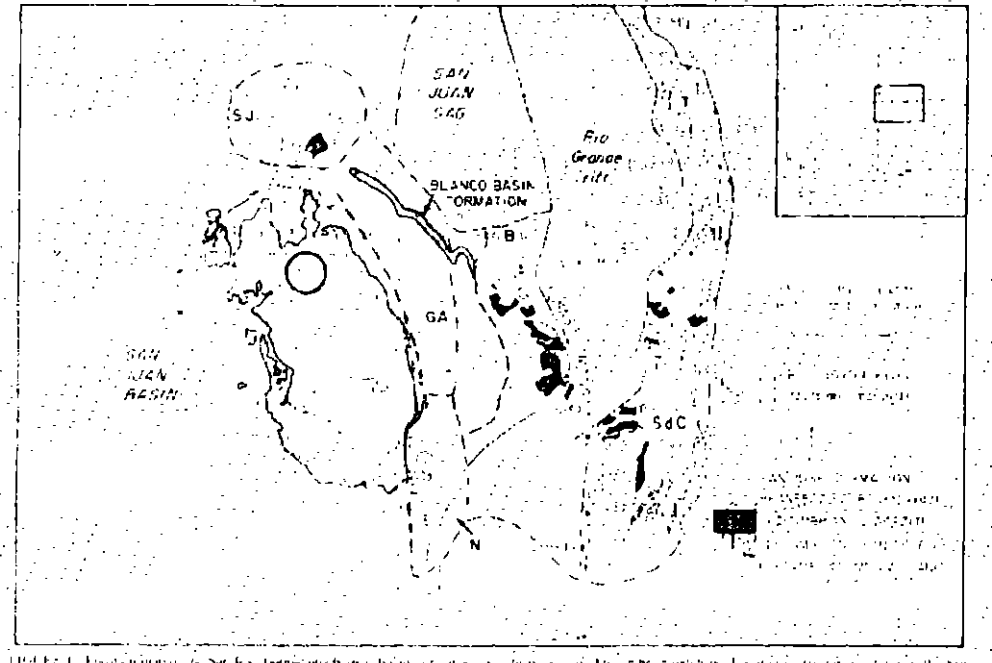
Prepared by:

R.T. Hicks Consultants, Ltd.
901 Rio Grande NW
F-142
Albuquerque, New Mexico

Geologic Setting of the Regional Fresh-Water Bearing Formations

The proposed containment site is located in the southeast portion of the Colorado Plateau, in the northern San Juan Basin. 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 basin, is 6779 feet (SE ¼ 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.

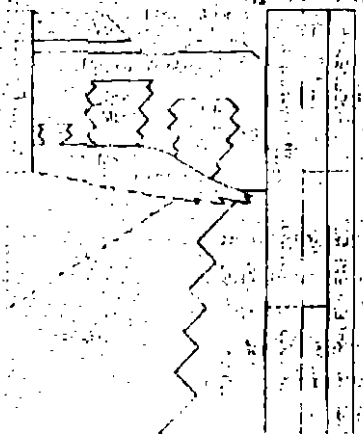
The containment location lies on an outcrop of the Eocene (Tertiary) San Jose Formation, a fluvial unit composed of more than 2000 feet of sandstone and conglomerate interbedded with mudstone. The San Jose formation overlies the Nacimiento Formation to the south and west and the Animas Formation to the 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[1]. Many authors report inter-bedding of sandstone and mudstone units complicate mapping efforts.



The inset figure above from Smith (1992)[2] shows the general location of the project area (red circle) in relation to the surface exposure of the San Jose Formation. This publication describes the Llaves Member consisting of a lower sequence of sheet standstones that

[1] http://geoinfo.nmt.edu/tour/state/navaho_lake/home.html
[2] https://nmgs.nmt.edu/publications/guidebooks/downloads/43/43_p0297_p0309.pdf

intertongue 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

Figure 1, Figure 2 and the discussion presented below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the location is greater than 100 feet

Figure 1 is an area topographic base map that depicts regional topography and includes the water wells located nearest to the containment site for which information is available, regardless of how comprehensive or useful. It also shows:

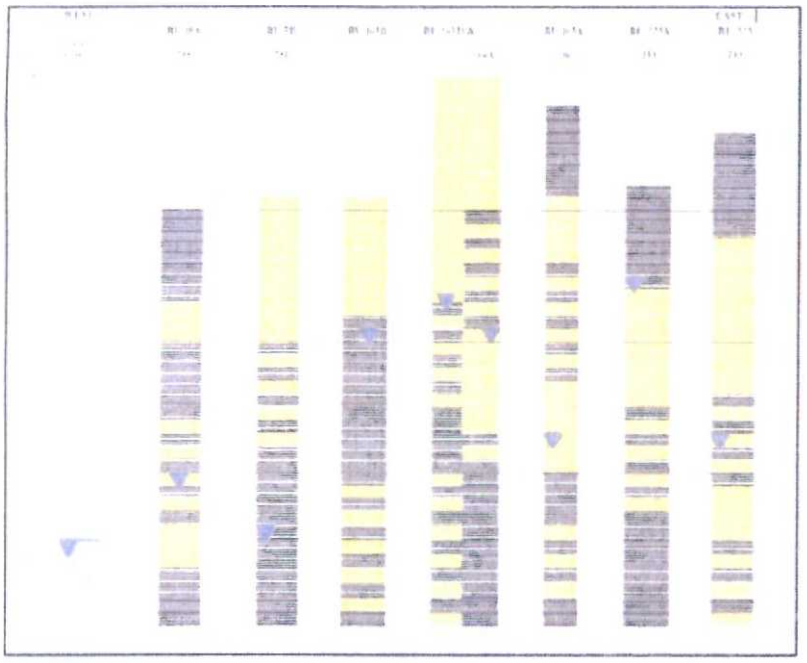
1. The location of the containment site.
2. That water wells from the USGS database are not present in the project region.
3. Water wells, which are documented in WPX files and were identified by field inspection or other data are shown as a dot inside a color-coded (depth) square. These are cathodic protection wells related to individual oil and gas wells.
4. Depth to water and gauging dates from the most recent and reliable measurement for each well is provided adjacent to the well symbol.
5. One well on the NM Office of the State Engineer (OSE) database is present in the area of Figure 1.

Figure 2 is a Google Earth image showing:

1. The location of the containment.
2. Groundwater elevations and gauging dates from the most recent available water level measurement for each well within the shallow most water-bearing unit beneath the containment.
3. All of the groundwater elevation data was obtained from logging and observation of cathodic protection wells.

Site Geology

The containment is located on an outcrop the Eocene San Jose Formation, specifically a mudstone unit immediately below "persistent sheet sandstone" of the Llaves Member that characterizes the nearby tree-covered hills. Beneath the site location are interbedded sandstone and mudrock units as described in the previous section of this application. The schematic cross-section below presents the driller's logs from five cathodic protection wells located on the southern border of Figure 2. This cross-section clearly shows the discontinuous nature of the fluvial sandstones that compose the Regina and Llaves Members of the San Jose Formation. The cross-section also shows that groundwater elevation decreases, in general, from east to west; from the higher mesas toward Navajo Lake.



Explanation of Figure

The Rosa Unit well names and the corresponding Miscellaneous well names on Figure 1 are presented at the top of the figure.

Shale units are characterized by stripes.

Sandstone units are yellow stippled areas.

The elevation at which the driller encountered water is shown as a blue triangle.

The water elevation of Navajo Lake varies between 6030 and 6060

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.

Misc #	Gas Well Name	Date Measured	Location	Flow Rate	Surface Elevation	Depth to First Water	Total Depth	Groundwater Elevation
251	Rosa Unit 005E	4 9 2002	20,T31N,R06W		6309	260	500	6049
244	Rosa Unit 009A	7 2 1994	20,T31N,R06W		6274	200	500	6074
245	Rosa Unit 014A	4 17 2000	23,T31N,R06W		6273	260	500	6013
272	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
247	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 25 2001	24,T31N,R06W		6320	200	500	6120
260	Rosa Unit 019D	5 25 2000	24,T31N,R06W		6311	180	500	6131
253	Rosa Unit 021C	6 14 2005	25,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	230	500	5794
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 200A	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
252	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

Figure 4 and the site visit demonstrates that 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.

Our site visit confirms the data in Figure 4; the only structures near the site are oil exploration and production facilities and a stock pond.

Distance to Non-Public Water Supply

Figures 1 and 3 demonstrate that 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, in existence at the time of initial application.

- Figure 1 shows the location of the only fresh water well in the area, which is located about 2.5 miles to the south.
- Figure 3 shows that no springs are identified within the mapping area.
- Our site visits confirms the data presented in the figures.

Distance to Municipal Boundaries and Fresh Water Fields

Figure 5 demonstrates that 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

Figure 6 demonstrates 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

Figure 7 and our general reconnaissance of the area demonstrate that the nearest mines are rock quarries.

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 Areas

Figure 8 shows the location of the proposed containment with respect to regional karst as mapped by the USGS.

- 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.
- We saw no evidence of solution voids near the site during the field inspection.

- No evidence of unstable ground near the site was observed during the site inspection.

A professional geologist (Randall Hicks) conducted the field survey and concluded that the ground is stable.

Distance to 100-Year Floodplain

Figure 9 suggests that 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 (see Appendix A and the discussion at the end of this section). Therefore, we conclude that the 100-year floodplain exists near the active arroyo that lies about 500 feet south of the containment.

Hydrogeologic Evaluation of Nearby Significant Watercourses

The prescriptive mandates of the Rule that are the subject of this variance request are the following [emphasis added]:

> 19.15.34.11 SITING REQUIREMENTS FOR RECYCLING CONTAINMENTS:
> A. An operator shall not locate a recycling containment:
> (1)…
> (2) 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).

The term "significant watercourse" is not defined in Part 34. The only place in the Rules that this term is defined is in Part 17 of OCD Rules:

> P. "Significant watercourse" means a watercourse with a defined bed and bank either named or identified by a dashed blue line on a USGS 7.5 minute quadrangle map or the next lower order tributary with a defined bed and bank of such watercourse.

While the term may be unique to Part 17, testimony presented in the Part 34 hearings suggest that this same definition should be applied to containments in Part 34. Assuming the definition should be extended to Part 34, this 300-foot setback criteria applies to a feature that has all three of the following characteristics:

1. The feature must be a watercourse
2. With a defined bed and bank
3. That is shown on a USGS 7.5 minute map as
    a. A named stream/arroyo or
    b. Identified by a dashed blue line or
    c. The next lower order tributary that has a defined bed and bank

Thus, OCD Rules require the setback criteria to apply to a watercourse, which is defined as:

> (4) "Watercourse" means a river, creek, arroyo, canyon, draw or wash or other channel having definite banks and bed with visible evidence of the occasional flow of water.

The discussion below concludes that the dashed blue line arroyo mapped by the USGS in 1982

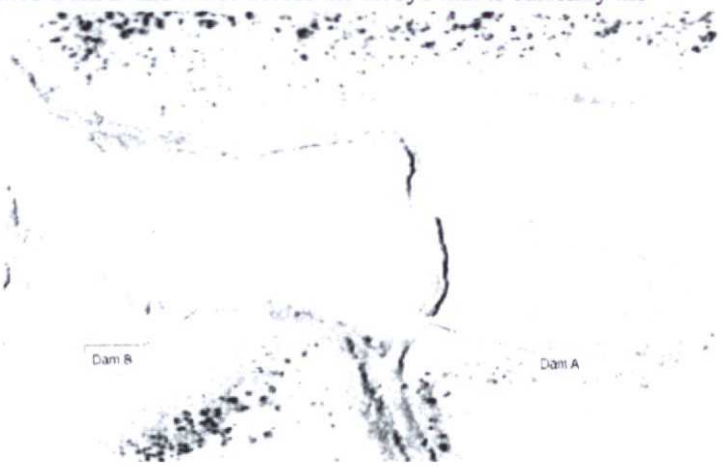
- is not a watercourse now
- was not a watercourse in 1982
- has not been a watercourse since sometime before 1971
- will never be a watercourse in the future
- is not and will not become part of a 100-year floodplain

We base this conclusion on the conditions on the ground, evaluation of the geomorphic history of the site, understanding the history human activity in the area and review of the proposed action relating to the stockpiling of material excavated during construction. Our conclusion refers to the following data and facts:

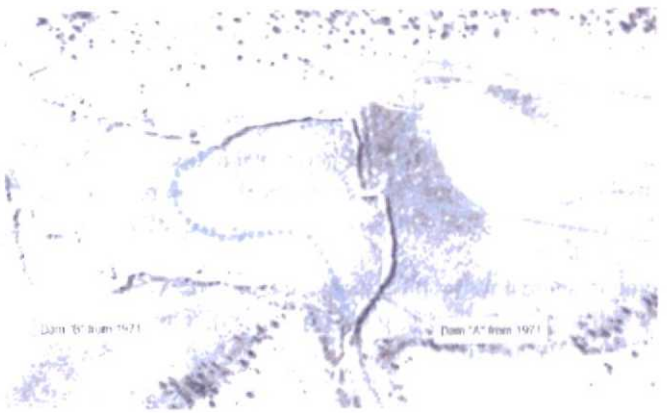
1. Presently, the active significant watercourse nearest to the proposed Containment is the unnamed arroyo located approximately 500 feet southwest (Figures 3a and 3b). Our site visit and historic aerial photographs confirm this statement.

2. Figure 3c is a Google Earth image and topographic map overlay of the entire drainage basin that flows through the bedrock canyon that is about 500 feet southwest of the proposed Containment. The drainage system is composed of two drainages converging near the mouth of the canyon as shown on Figure 3c. The east drainage is 1.3 miles in length. The west drainage is 0.9 miles in length. The length of the intermediate drainage between the point of convergence and the mouth of the canyon is 0.17 miles (900 feet).

3. Figures 3a and 3b also show the presence of the remains of several man-made features that are more easily identified in Figure 3d, a 1971 image of the site area that is partially reproduced below. These features are
   a. A 500± foot dam structure of the "blue line" arroyo near the mouth of the canyon that lies about 300 feet southwest of the proposed earthen containment. We will refer to this structure as Dam A.
   b. A 250± foot dam structure located about 680 feet west-southwest of the proposed Containment. This is called Dam B and it lies across the arroyo that is currently the active arroyo
   c. Two small stock ponds located immediately upstream from each dam
   d. A spillway on the southeast corner of Dam A that appears to attempt to direct flow to the low area that is within the proposed footprint of the Containment
   e. Spillways from each dam that appear to direct any flow to a low area that appears to exist northwest of Dam A and north of Dam B.

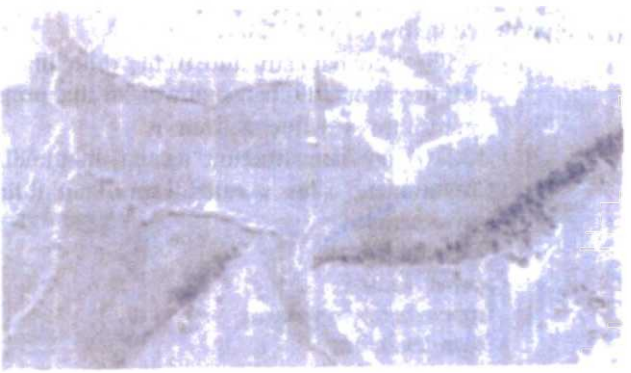


4. Figure 3e is a 1950 aerial photograph showing the nature of the drainage prior to construction of Dam A and Dam B. This photograph, an enlargement of which is presented below, shows the following features:



- The "blue line" arroyo is the active arroyo and the "straight line" flow path with a right-angle bend of this arroyo is dissimilar to the other nearby, more sinuous arroyos
- The presence of the current "active" arroyo that flows west-north west from the mouth of the sandstone canyon south of the Containment
- The presence of what appears to be an area that holds water periodically (or held water in the past) within the footprint of the proposed Containment
- The presence of ancient arroyo watercourses that are typical of an alluvial fan (light blue lines on the inset photograph are due east of the identified ancient watercourse)

5. The inset photograph is a portion of Figure 3f, aerial photograph from 1935, that shows:
   a) What appears to be a water feature within the footprint of the Containment
   b) The channel that is active today is clearly present and well developed
   c) The "blue line arroyo" feature is relatively straight and cannot be traced north of an east-west shadow, which is a small excavation or earth pile. No evidence of a watercourse exists north of this east-west shadow.
   d) Two north-south scars(excavation tracks?) exist north of the east-west shadow
   e) A spillway appears to exist between the blue line arroyo and this water feature (north of blue dashed line)
   f) The white/reflective "rind" that creates a border of the water feature is truncated by dark earth in the northwest quadrant of the water feature
   g) Downhill from this dark earth truncation of the white rind of the water feature, the blue line arroyo is obvious



6. WPX (and BLM) proposes to stockpile the clean earth material excavated from the Containment over the blue-line "arroyo" from adjacent to the existing road uphill to the abandoned stock pond/dam area (see Appendix B). This stockpile will not lie within 100 feet of the active "significant watercourse".

Our site inspection, examination of historic aerial photographs, geomorphic evaluation of the area, the proposed plans for rangeland improvement and the plans for stockpiling material excavated from the containment construction we conclude:

I. The north-south leg of the "blue line arroyo" was
   a. created by water flow through, over or around a man-made feature prior to 1950 and possibly after 1935
   b. abandoned sometime before 1971 – again due to man's actions.

II. The existing active arroyo that presently conveys water from the upper drainage basin through the small basin in which the Containment is planned
   a. was the active arroyo prior to 1935 and
   b. due to man's activities became the active arroyo sometime around 1971

III. The blue line arroyo has not transmitted surface water derived from the upper drainage area since before 1971 – at least 45 years.

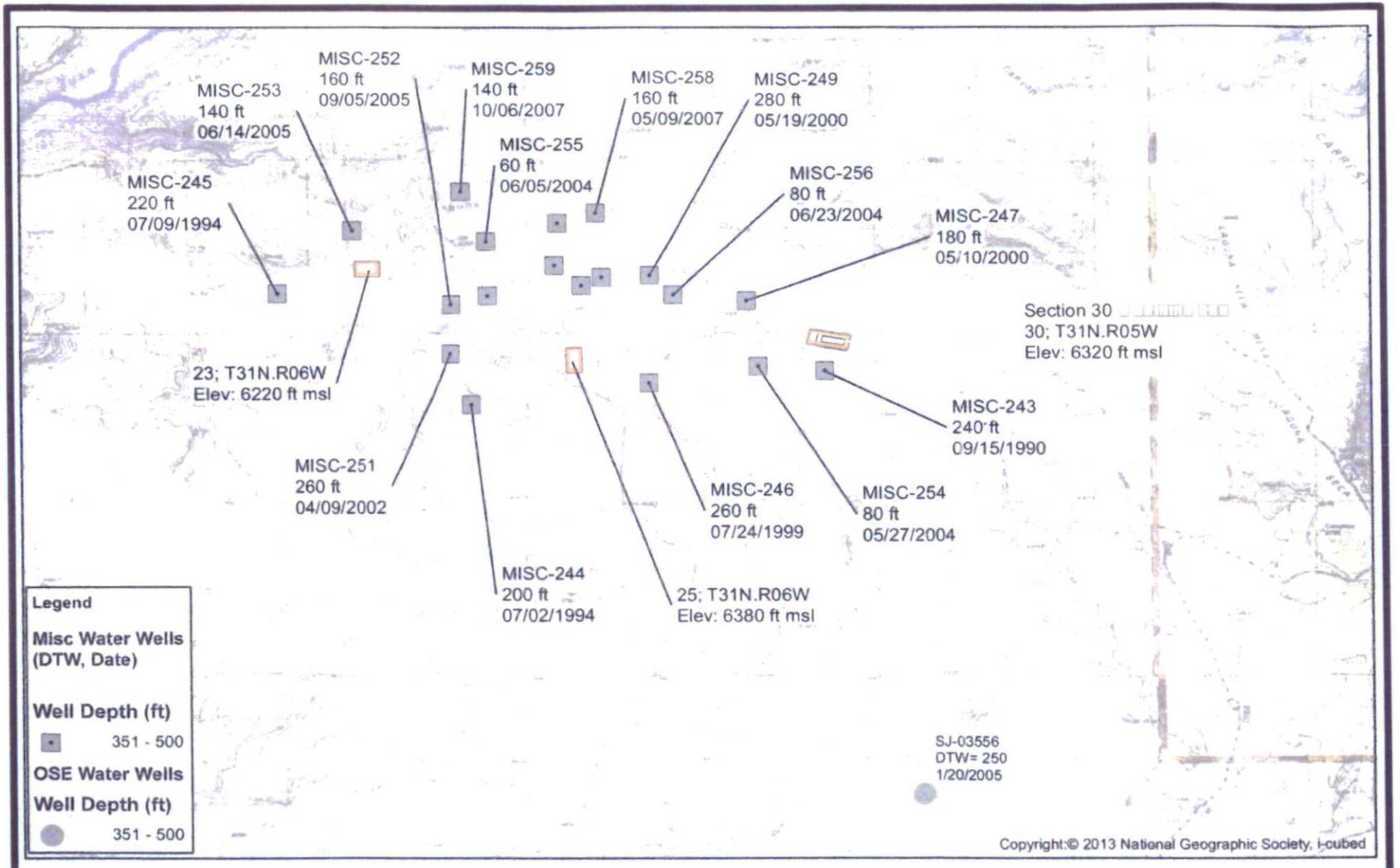
IV. The proposed placement of the excavation stockpile within the man-made features (stock pond, dam and north-south ditch/road) that are mapped as a "blue line arroyo" plus placing rock armoring of this stockpile will prevent any surface water from flowing into the mapped blue line arroyo area during the lifetime of the Containment. However, the placement of this material will not lie within 100 feet of the active arroyo

V. FEMA has incorrectly mapped the 100-year floodplain shown on Figure 9 of the application

Appendix A is correspondence between WPX/BLM and the Army COE regarding this issue. The COE agrees with the assessment provided herein – the blue line arroyo is not a watercourse.

Site Specific Information
Figures from C-144

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



0 2,000 4,000 Feet

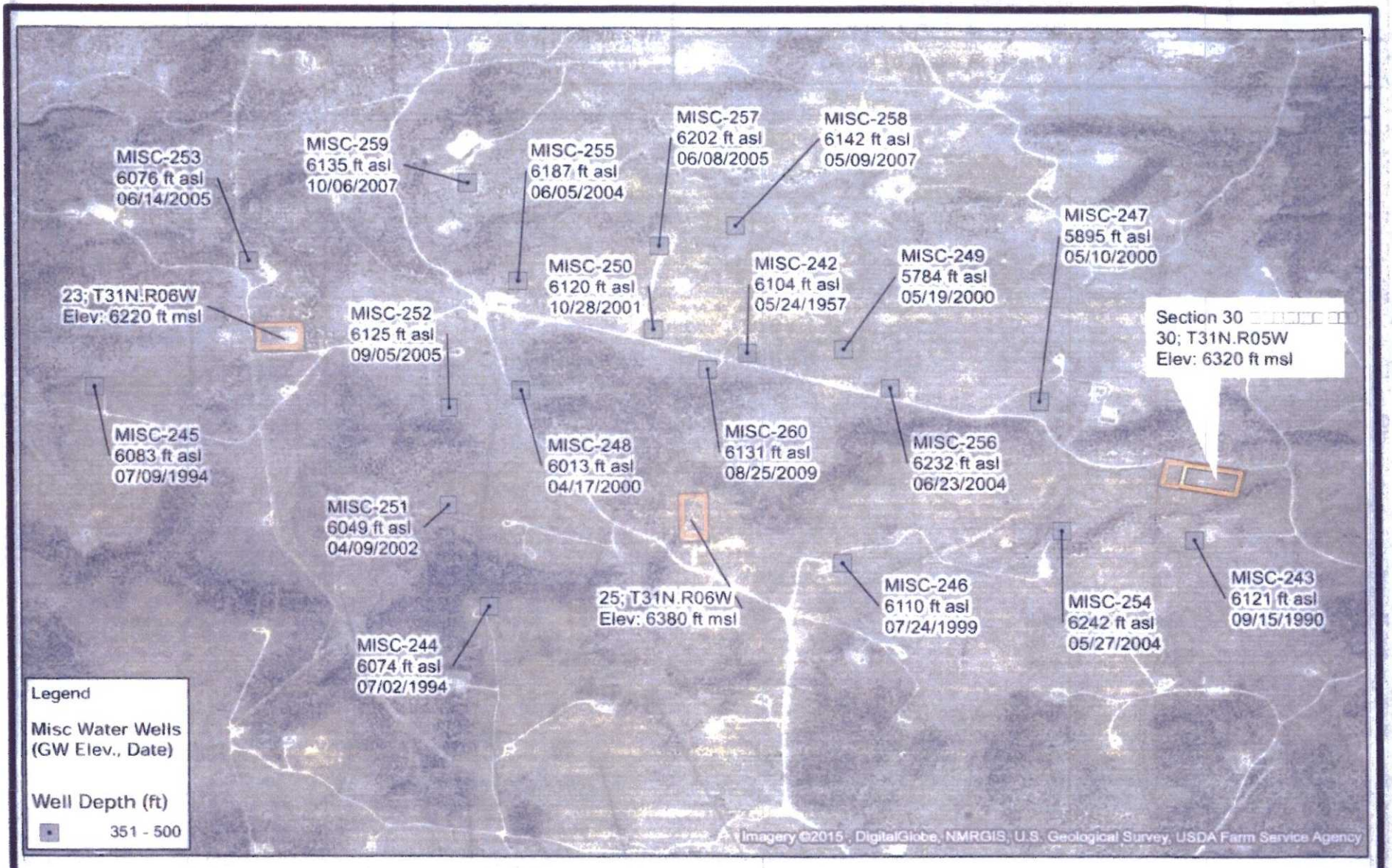
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Depth To Water at Nearby Wells

Figure 1

WPX Energy Production
Section 30 Containment

2015



R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Groundwater Elevation at Nearby Wells

WPX Energy Production
Section 30 Containment

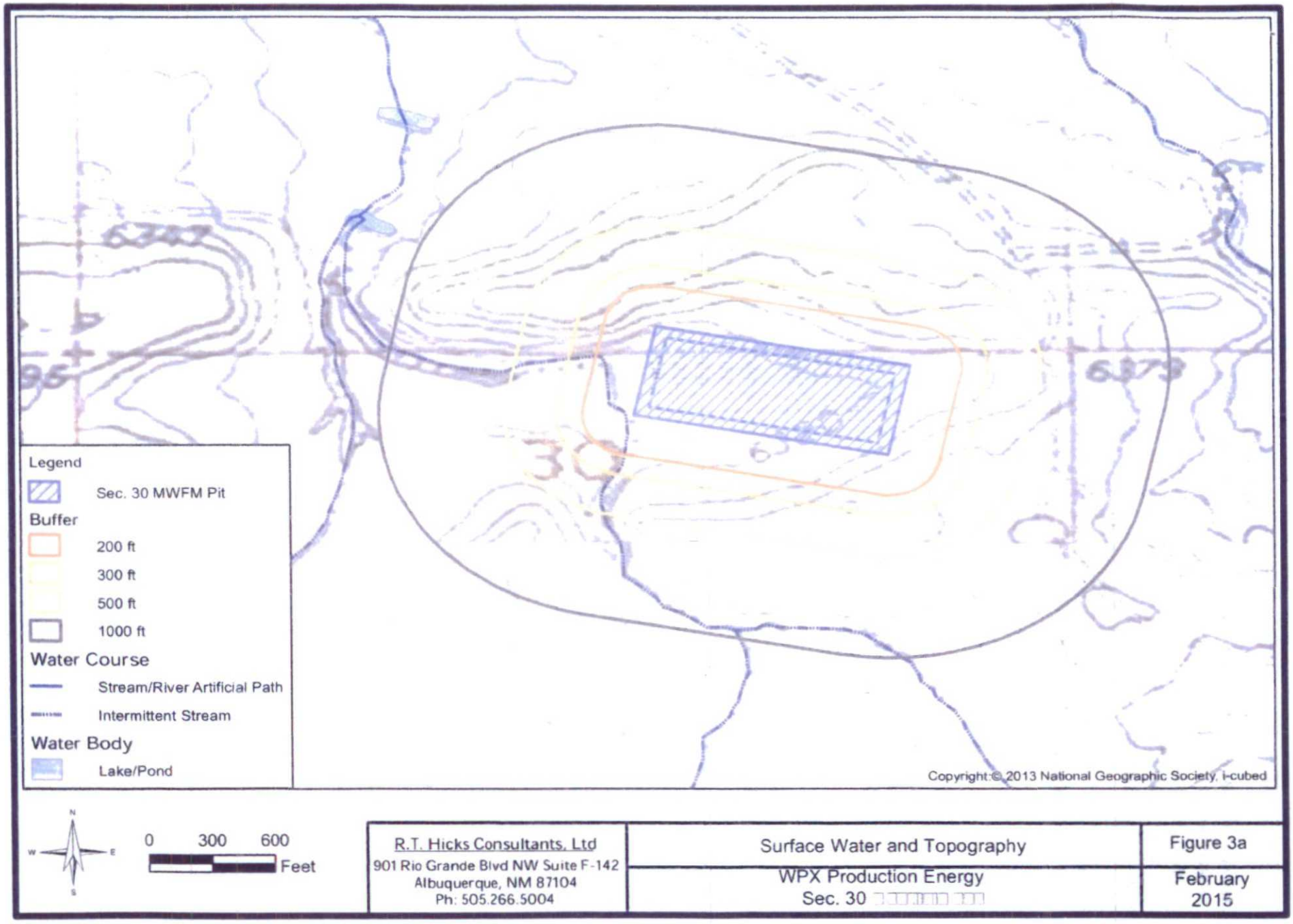
Figure 2

May
2015

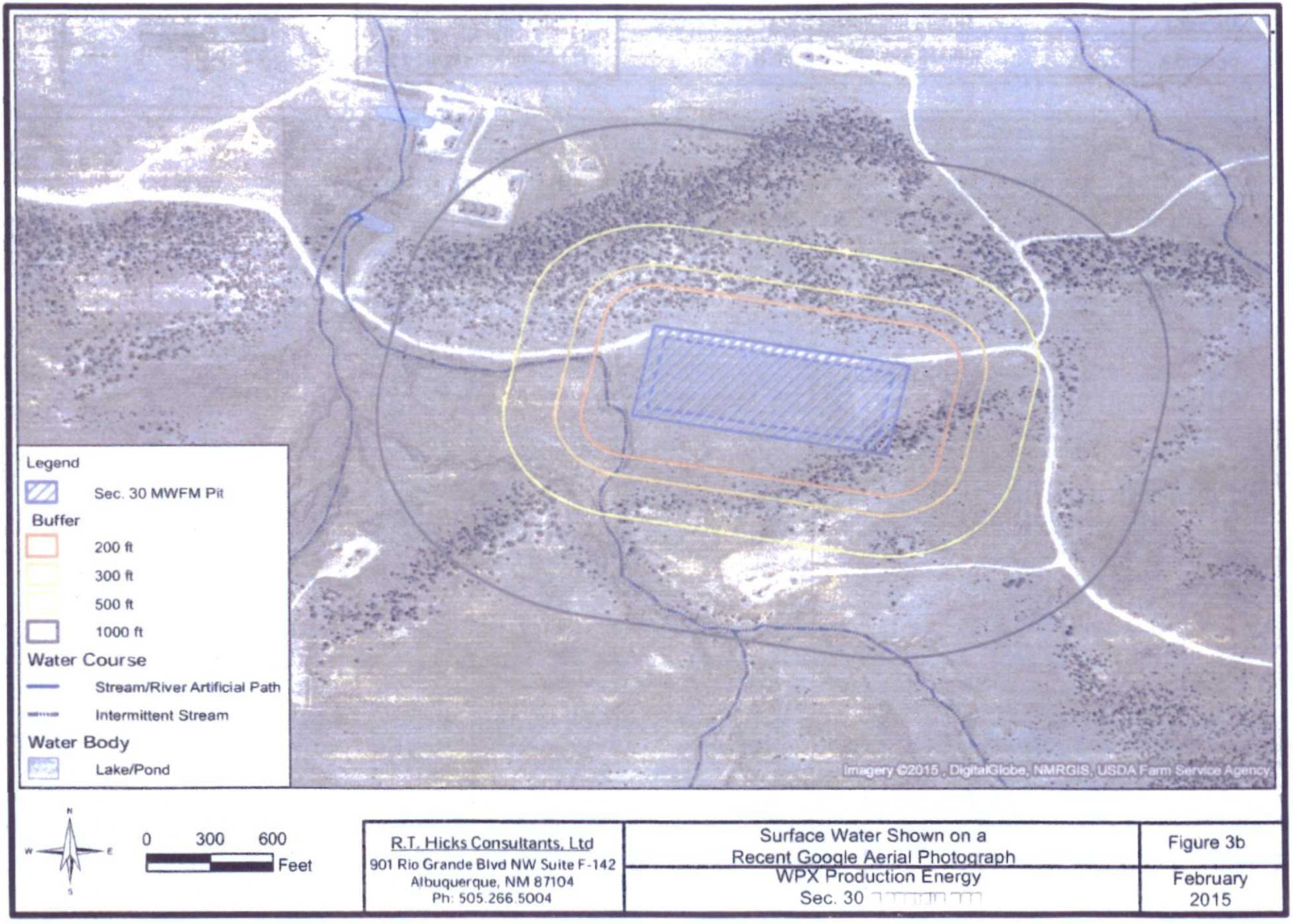
Ground Bed Drilling Log

Company: **Williams Production Co.** Well: **Rosa Unit 223●A** Date: 5/18/05
Location: Sec. 30 T31N R5W Duel Well: State: NM
Ground Bed Depth: 480' Diameter: 6 3/4"
Indicate Water Zone Depth: 80'
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

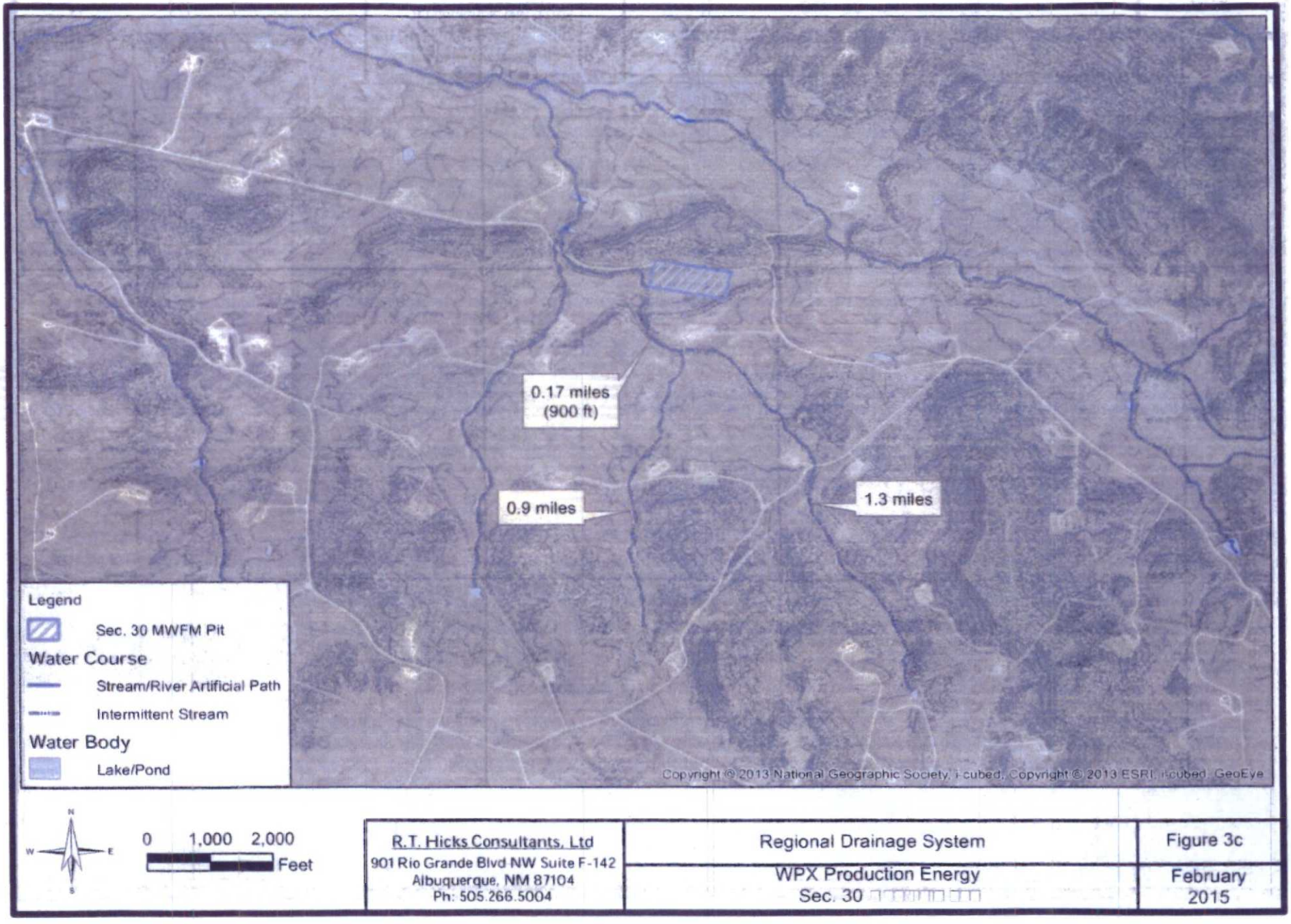
Depth Ft	Drilling Log	Anodes Log			Remarks
		Logged	Coked	Depth	
0'-20'	Casing				8" PVC SCH 40
20'- 80'	Shale				
80'- 160'	Sand Stone				
160'- 260'	Sandy Shale				
260'- 360'	Shale				
360'	"	2.0			
370'	"	2.1	4.2	370'	#10
380'	"	2.3	4.6	380'	#9
390'	Sandy Shale	0.9			
400'	Shale	1.8	3.6	400'	#8
410'	"	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			



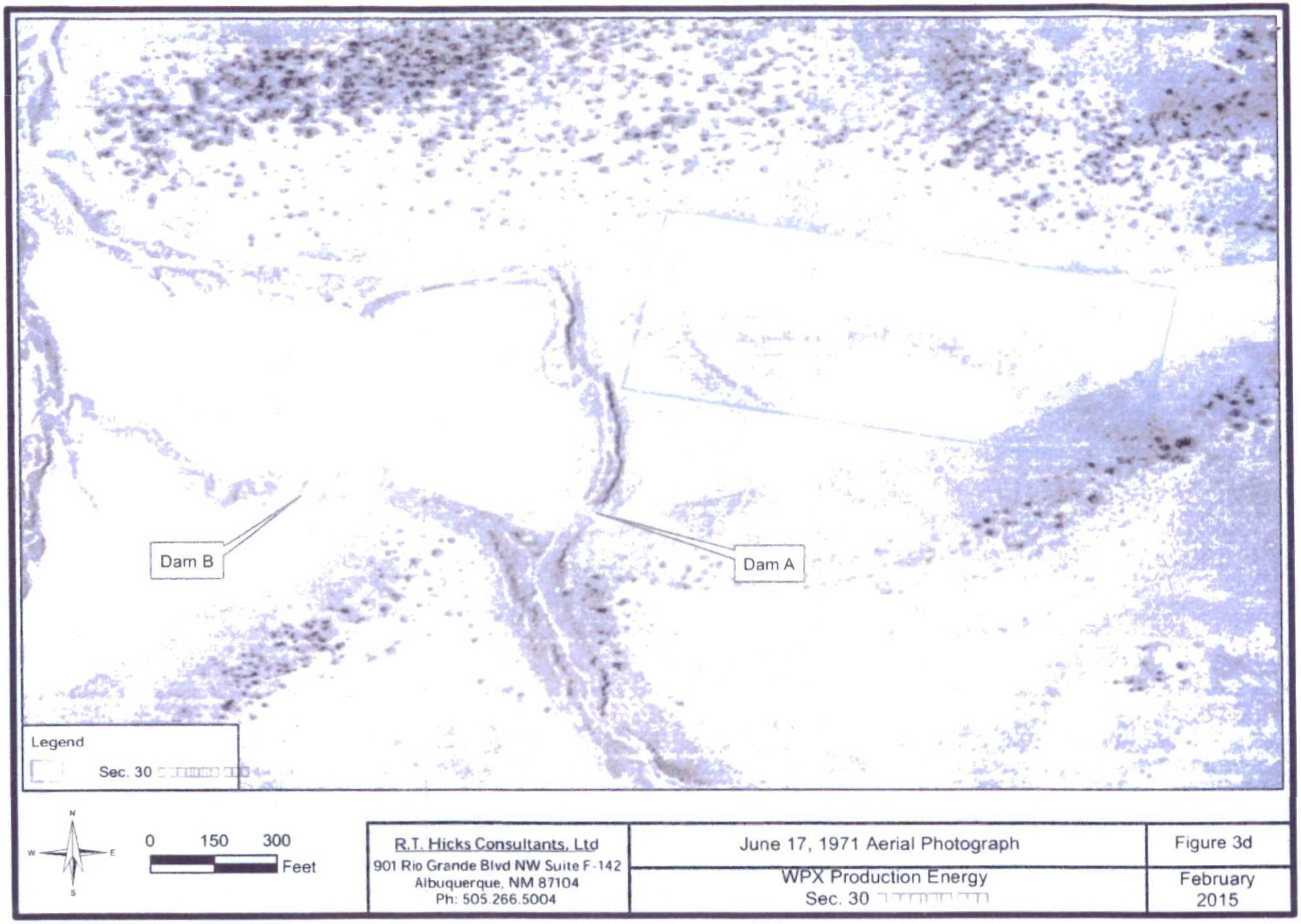
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Surface Water and Topography WPX Production Energy Sec. 30	Figure 3a February 2015



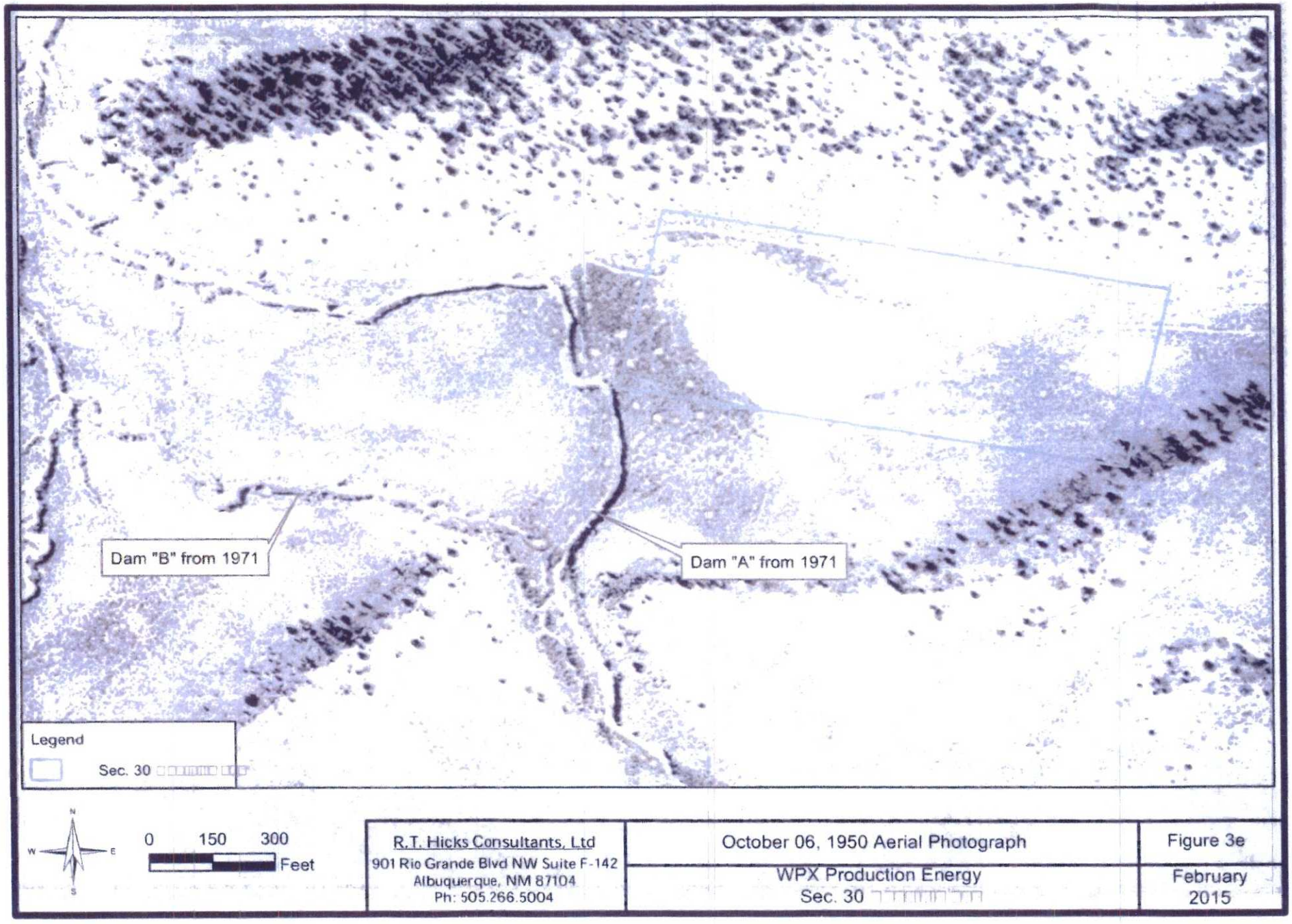
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Surface Water Shown on a Recent Google Aerial Photograph WPX Production Energy Sec. 30 [illegible]	Figure 3b February 2015



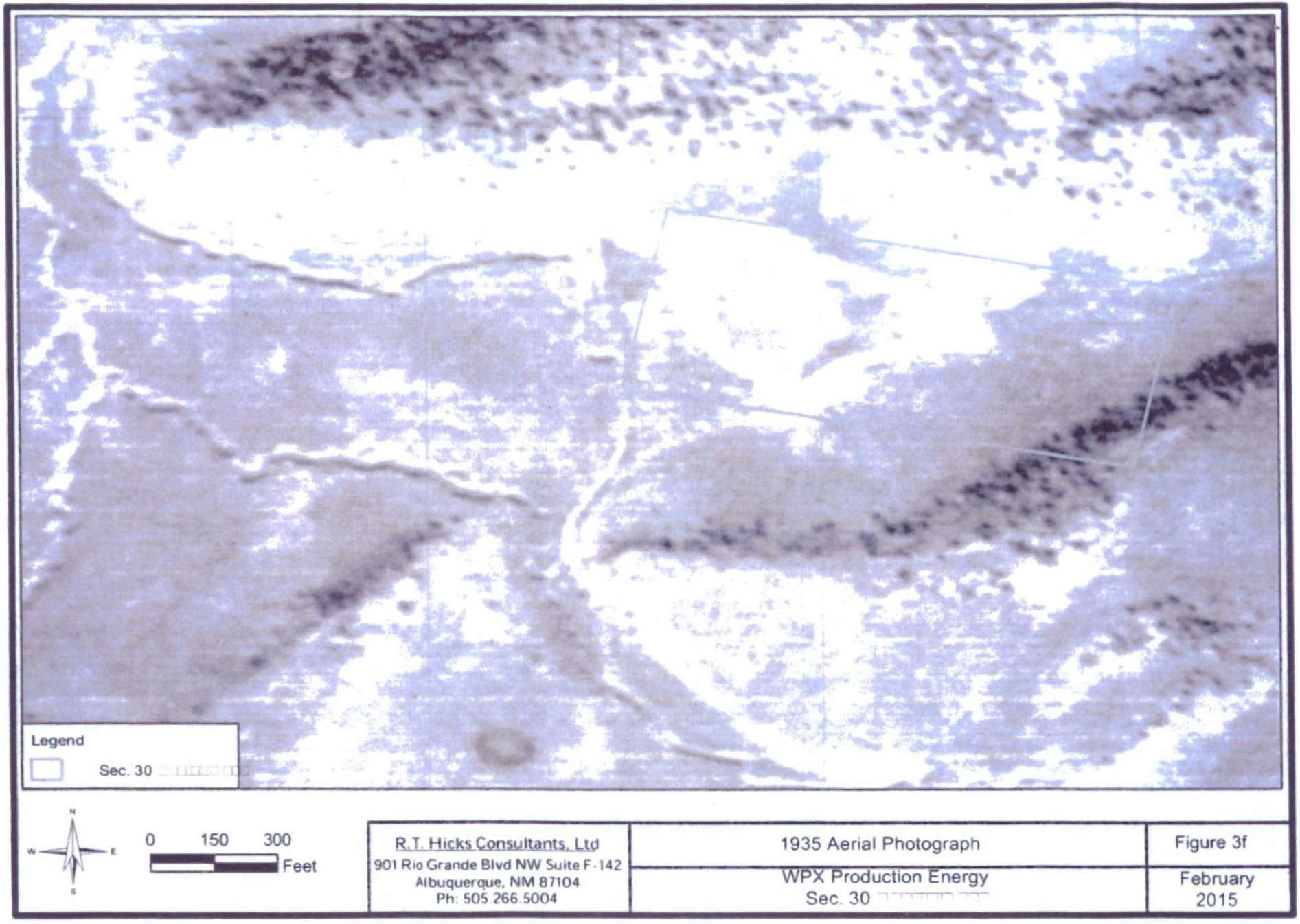
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Regional Drainage System WPX Production Energy Sec. 30	Figure 3c February 2015



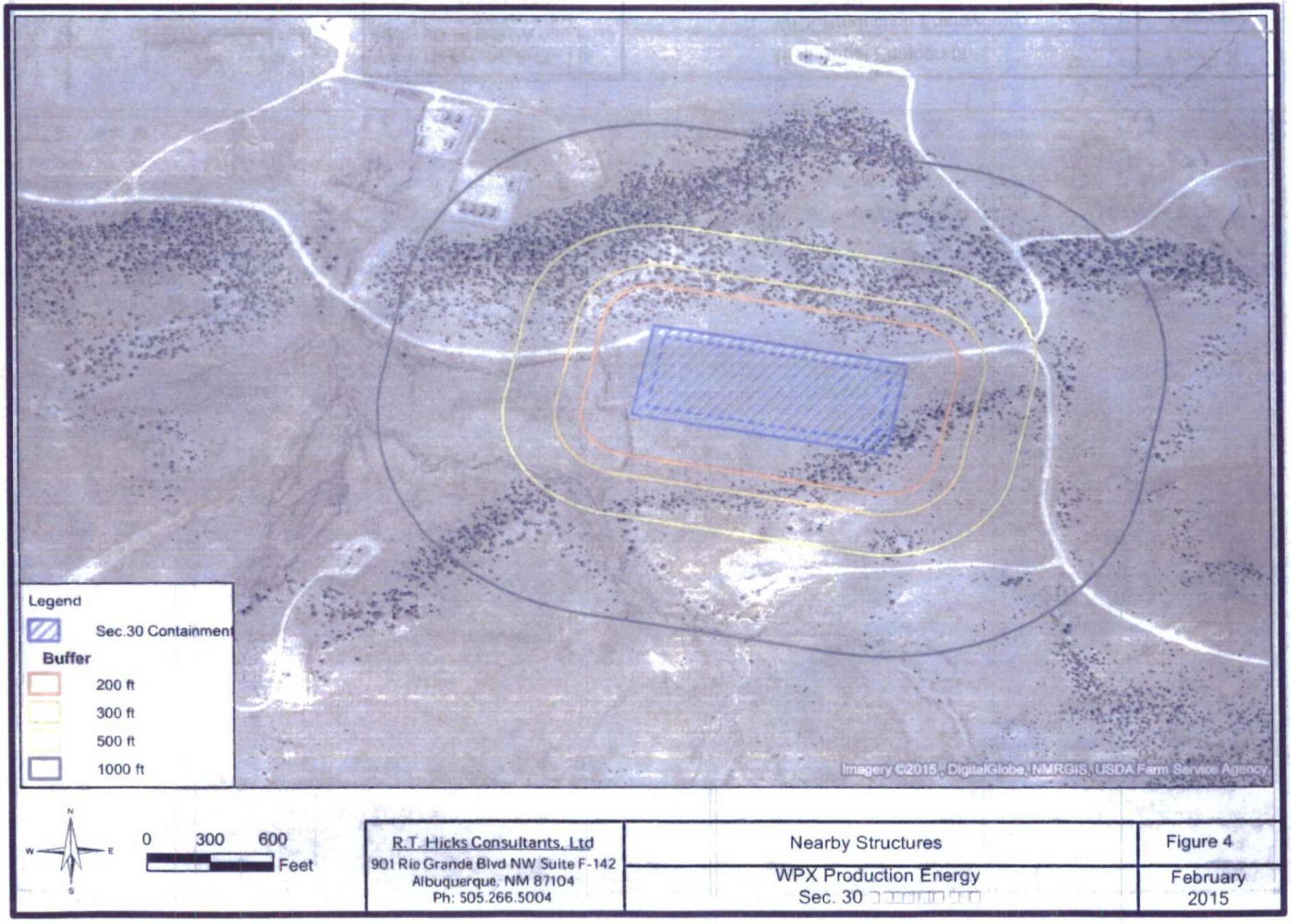
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	June 17, 1971 Aerial Photograph WPX Production Energy Sec. 30	Figure 3d February 2015



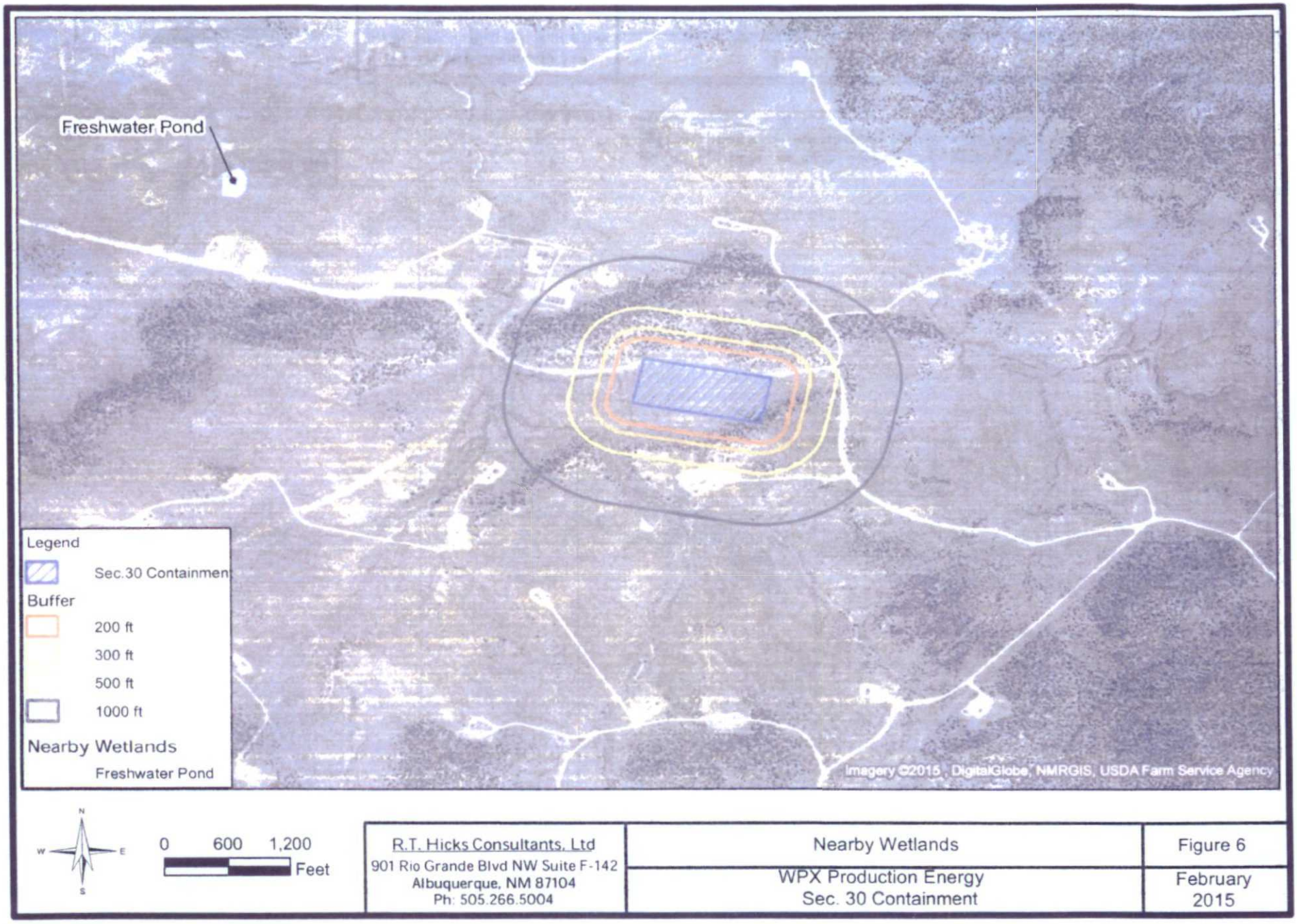
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	October 06, 1950 Aerial Photograph WPX Production Energy Sec. 30	Figure 3e February 2015



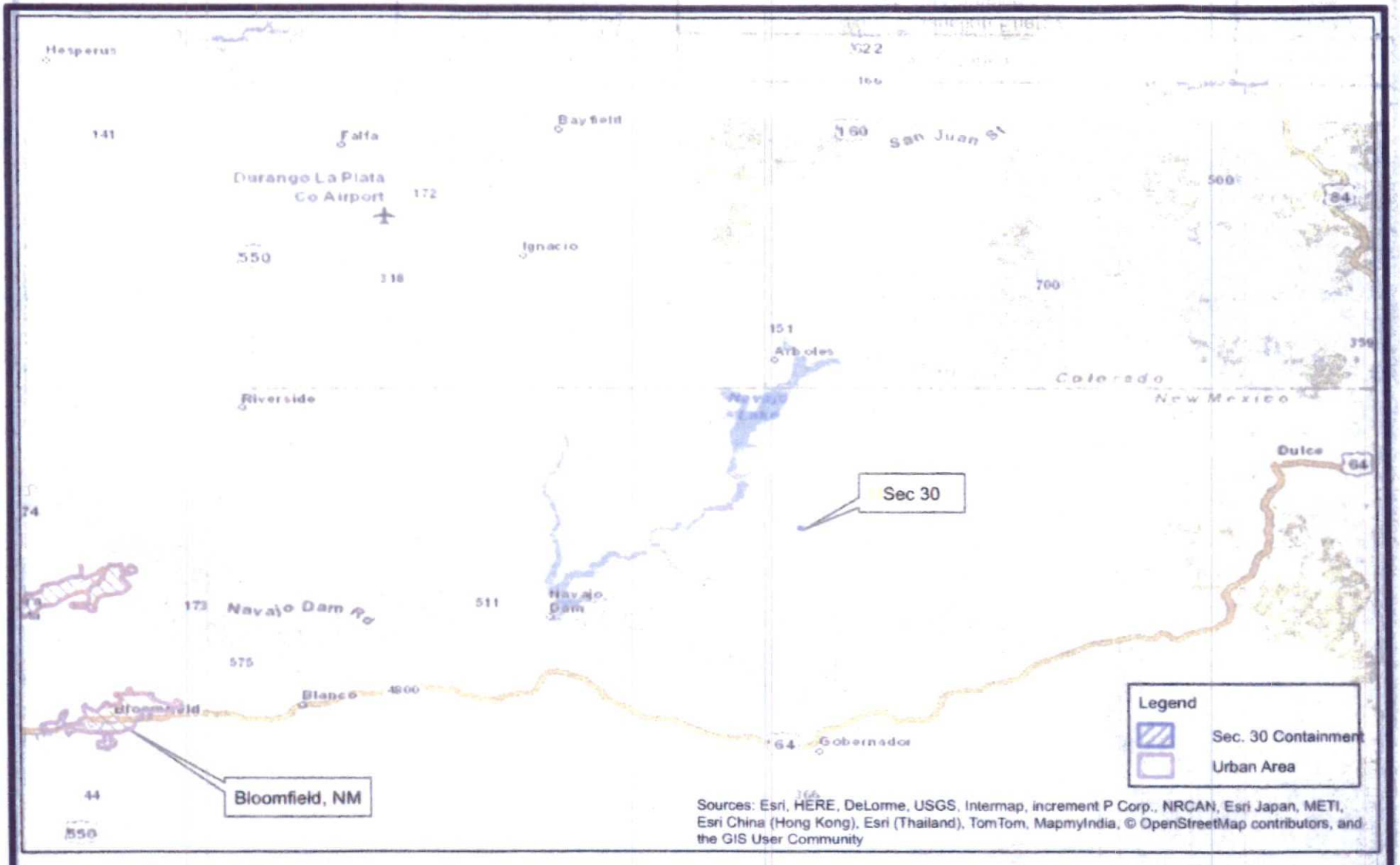
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	1935 Aerial Photograph	Figure 3f
	WPX Production Energy Sec. 30	February 2015



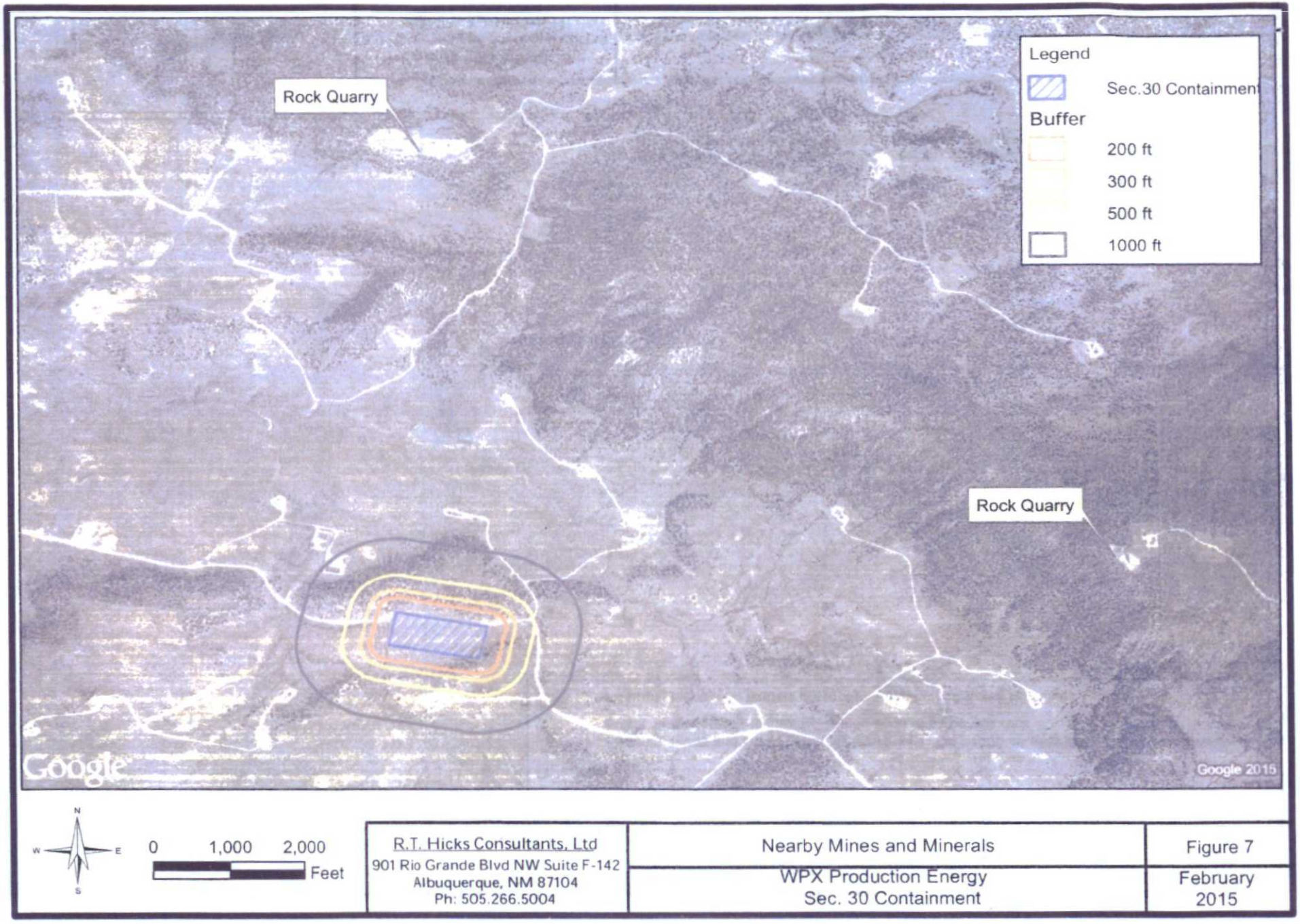
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Structures WPX Production Energy Sec. 30	Figure 4 February 2015



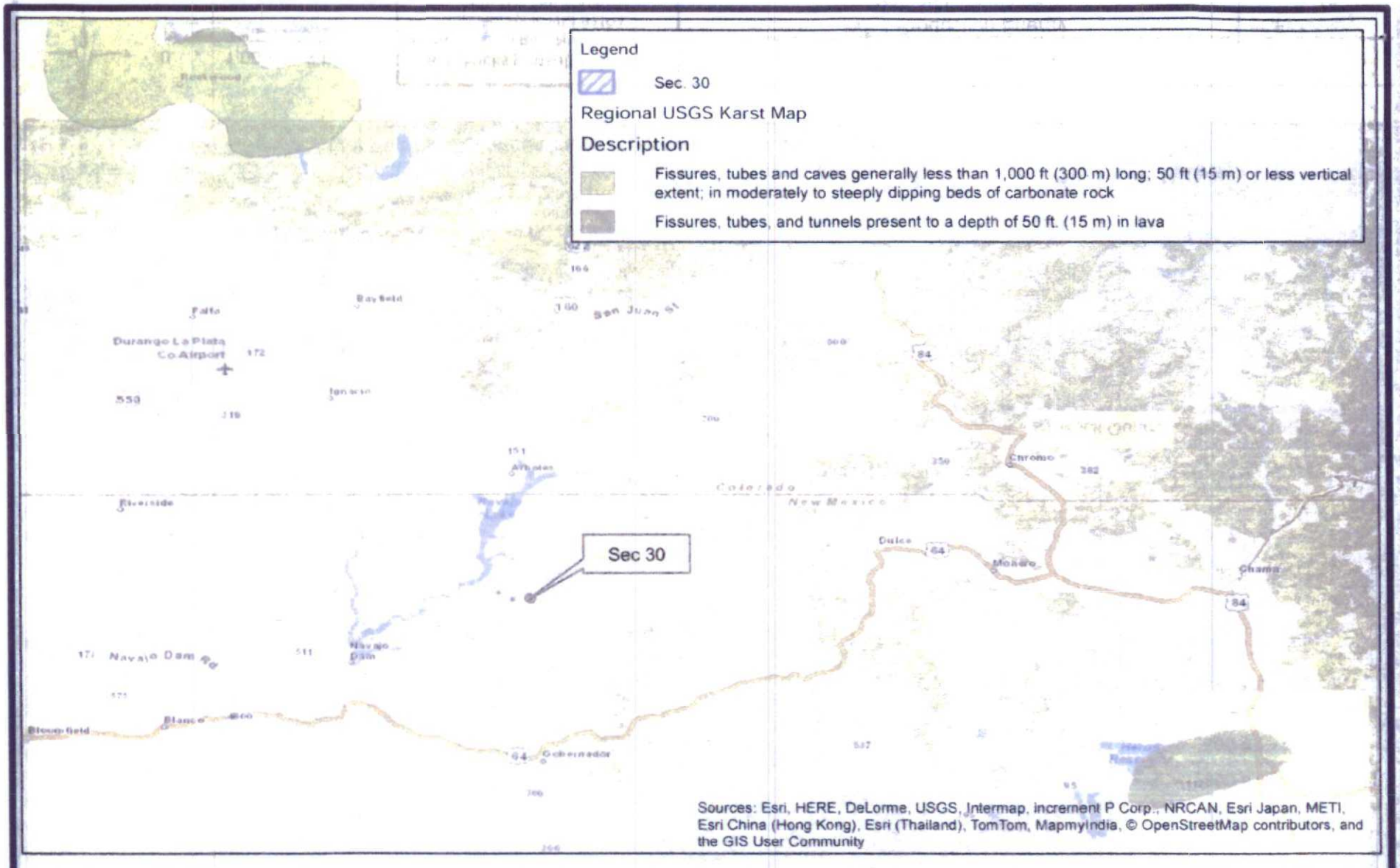
R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Wetlands WPX Production Energy Sec. 30 Containment	Figure 6 February 2015



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Municipalities	Figure 5
	WPX Production Energy Sec. 30 Containment	February 2015



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Mines and Minerals	Figure 7
	WPX Production Energy Sec. 30 Containment	February 2015



N W E S

0 4 8 Miles

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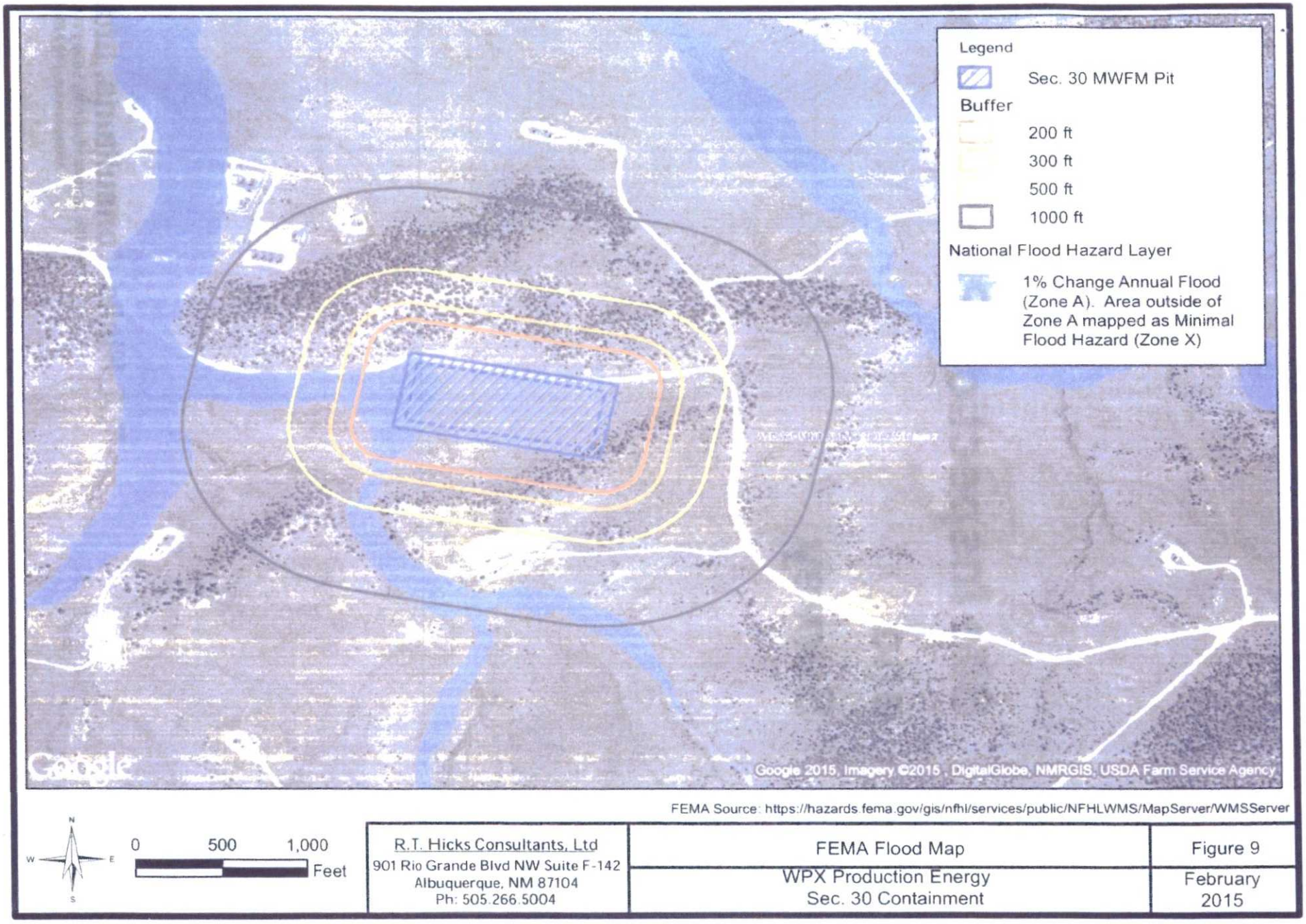
Albuquerque, NM 87104
Ph: 505.266.5004

Karst Potential

WPX Production Energy
Sec. 30 Containment

Figure 8

February 2015



FEMA Source: https://hazards.fema.gov/gis/nfhl/services/public/NFHLWMS/MapServer/WMSServer

N W E S

0 500 1,000 Feet

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

FEMA Flood Map

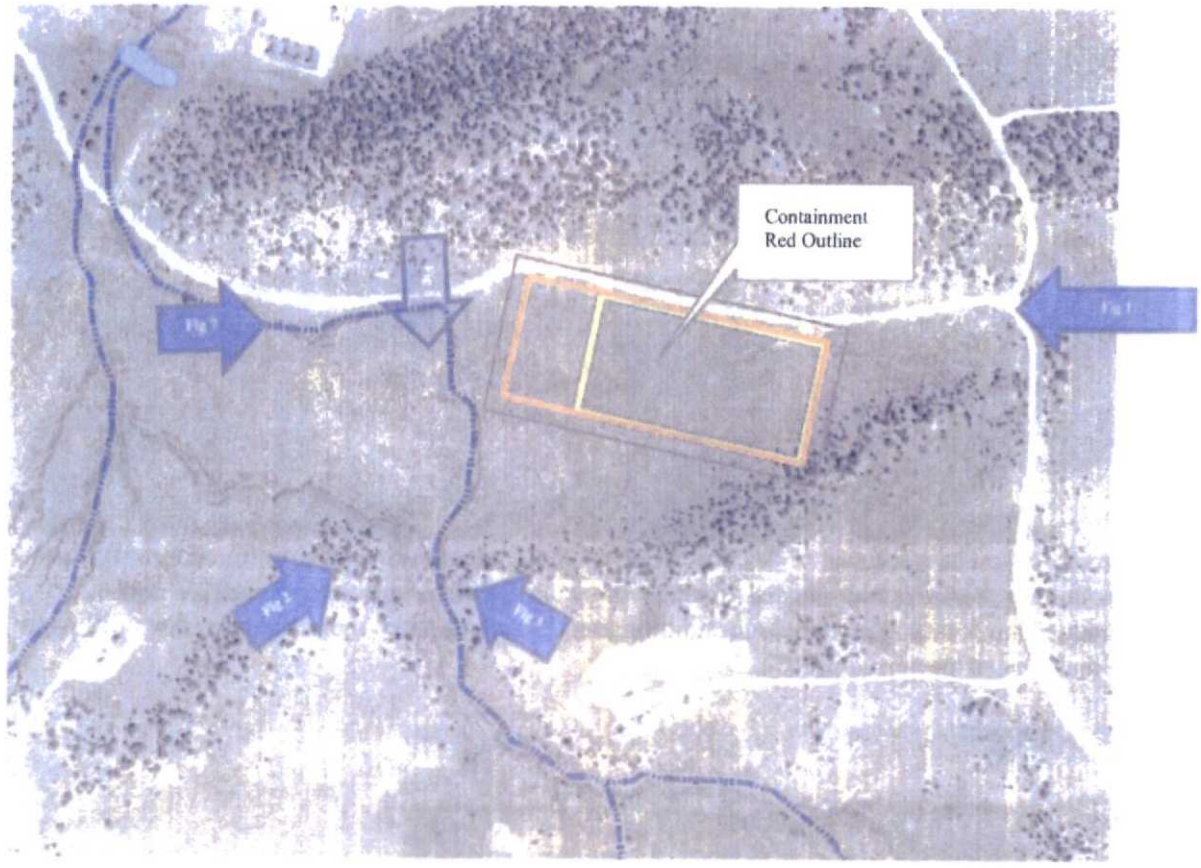
WPX Production Energy
Sec. 30 Containment

Figure 9

February 2015

Site Inspection Photographs and Survey

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



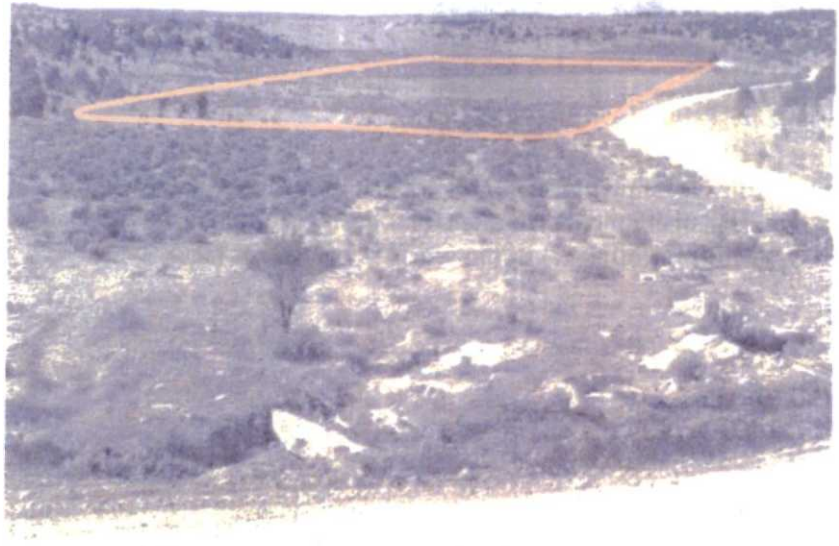


Figure 1 – Looking west to proposed location of Section 30 MWFM pit. Area of proposed pit is roughly outlined in red.

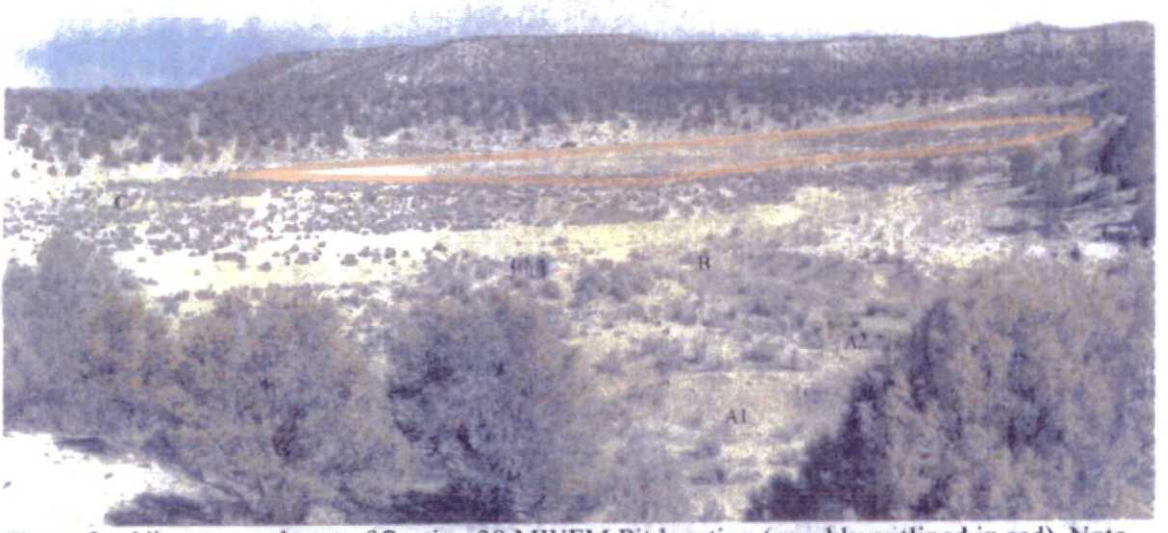


Figure 2 – View to northeast of Section 30 MWFM Pit location (roughly outlined in red). Note the following features: two incised channels of arroyo flowing north into frame (A1 and A2), abandoned stock tank dam and water holding area (B), abandoned incised arroyo downhill from dam and west of proposed pit (C)

Figure 3 – Photo-mosaic looking northwest showing: two incised channels of active arroyo (A1 and A2), abandoned stock tank dam (B), abandoned arroyo channel upstream from stock tank and dam (arrow). Section 30 MWFM Pit is northwest of photograph, outside of frame to the right.

Figure 4: View to northwest showing eastern channel of active incised arroyo, in-place sandstone bedrock and abandoned channel to former stock tank and dam (arrow)

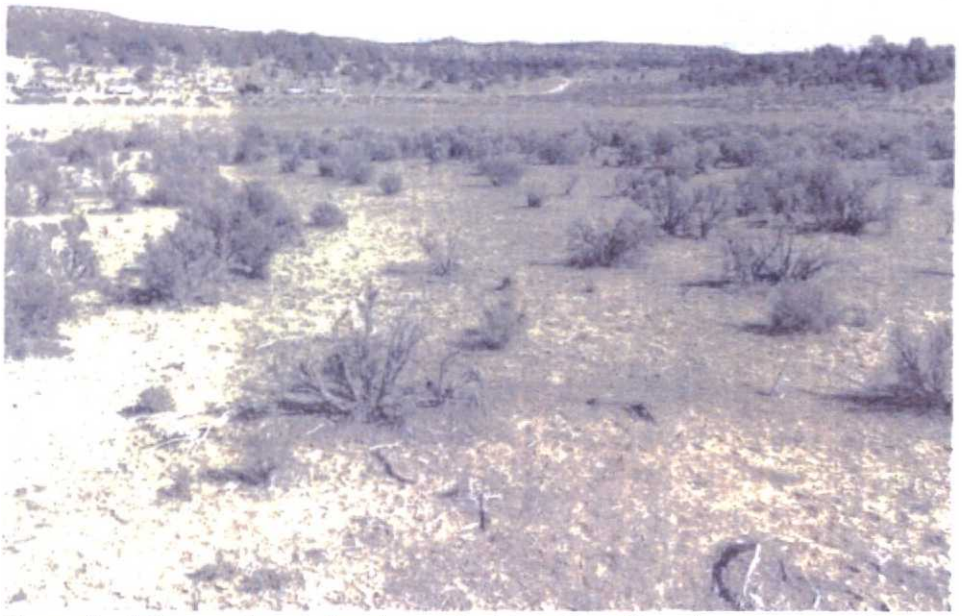


Figure 5 – View northeast showing staked location of southwest extent of proposed Section 30 MWFM Pit. Photo is taken near edge of abandoned incised arroyo.

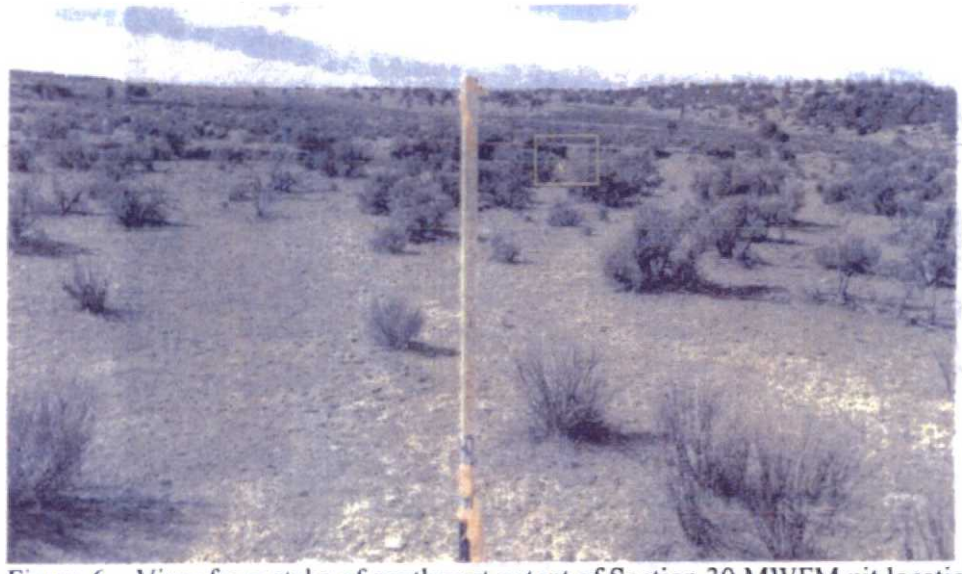
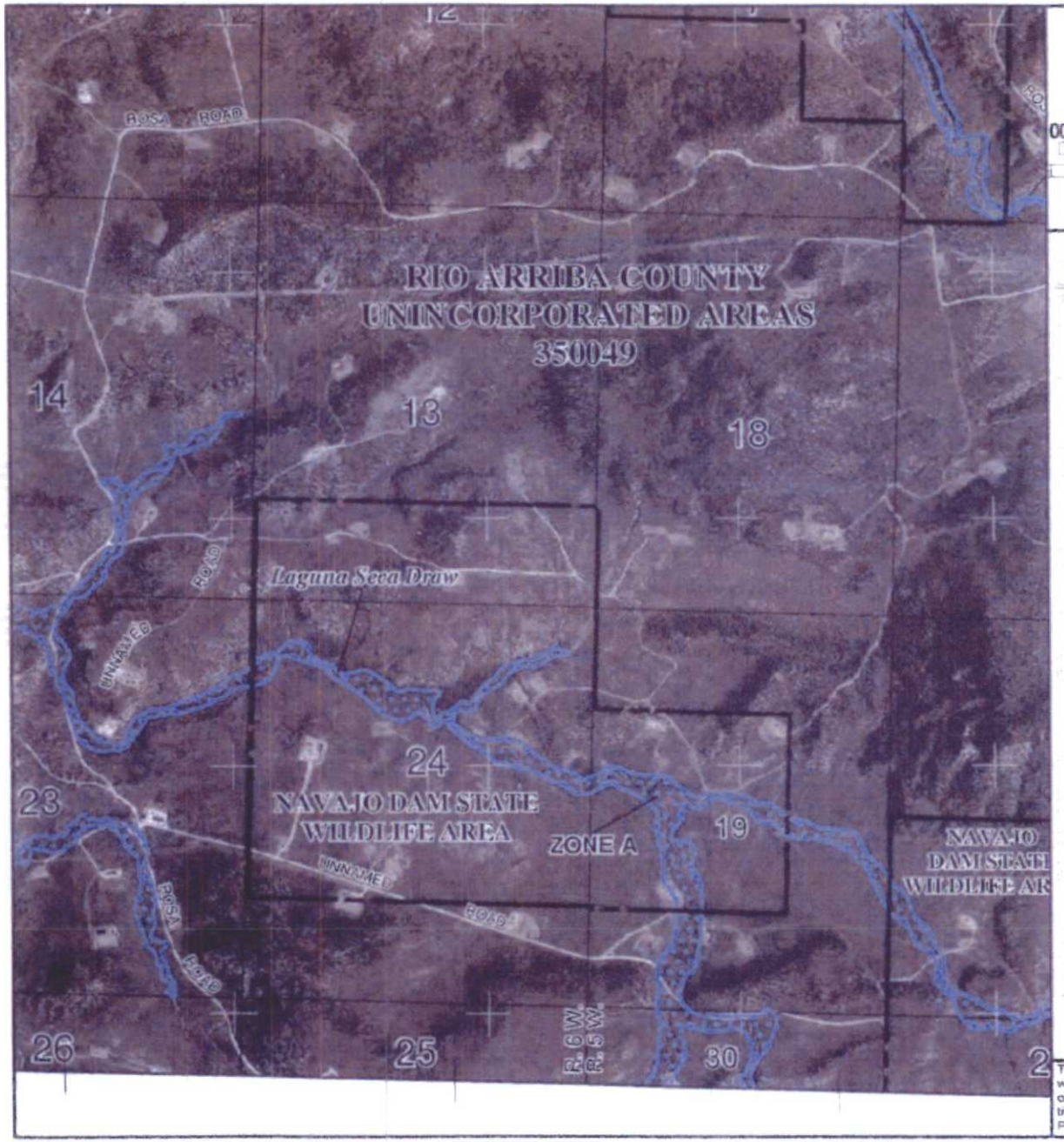


Figure 6 – View from stake of southwest extent of Section 30 MWFM pit location with abandoned incised arroyo in background (A)

Figure 7 – View east showing nature of abandoned incised channel downhill from Section 30 MWFM pit location. Note the lack of a defined bed and bank in this former drainage with no evidence of recent water flow.

Attachment 3

Additional Survey Data Acquired by NCE Surveys, Inc.



MAP SCALE 1" = 2000'

000 0 2000 4000 FEET METE

NFIP

PANEL 0175D

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

RIO ARRIBA COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 175 OF 3175

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
RIO ARRIBA COUNTY	350049	0175	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
35039C0175D

EFFECTIVE DATE
MARCH 15, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

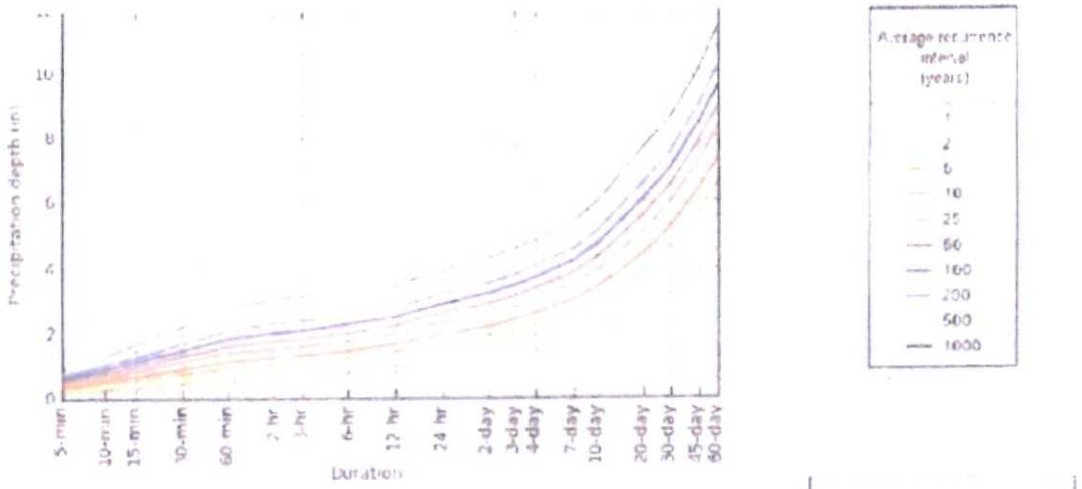
Attachment 2

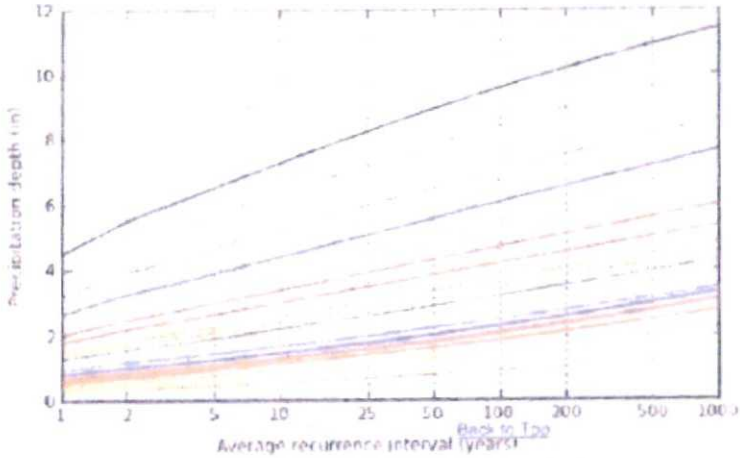
Excerpt from FEMA Flood Insurance Rate Map, Rio Arriba County, New Mexico
Panel 175 (Map No. 35039C0175D)

Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions? HDSC.Questions@noaa.gov

Disclaimer



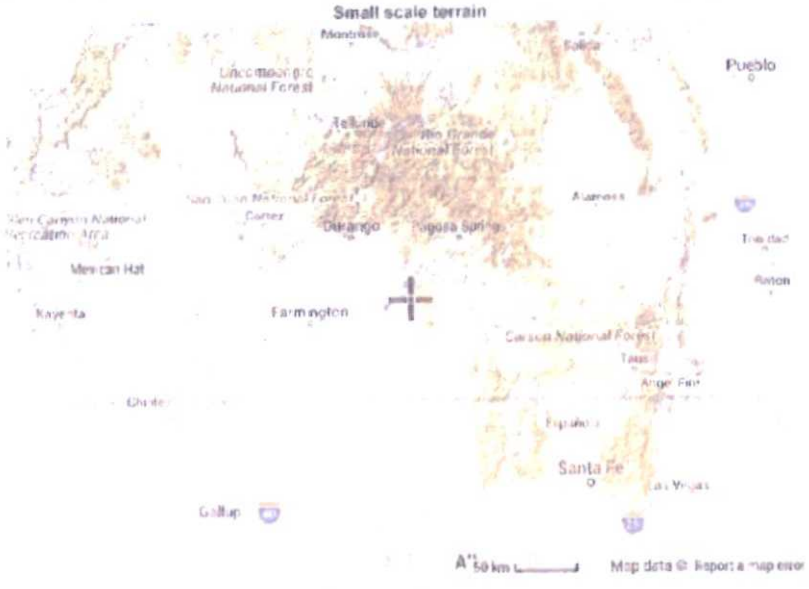


Maps & aerials

NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Wed Aug 5 17:10:15 2015

Small scale terrain



Large scale terrain

NOAA Atlas 14, Volume 1, Version 5
Location name: Navajo Dam, New Mexico, US*
Latitude: 36.8771°, Longitude: -107.3984°
Elevation: 6320 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

Sarah Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF tabular | PF graphical | Maps & aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.169 (0.146-0.187)	0.218 (0.188-0.252)	0.292 (0.252-0.339)	0.352 (0.302-0.408)	0.437 (0.371-0.507)	0.507 (0.427-0.588)	0.581 (0.484-0.675)	0.660 (0.543-0.772)	0.774 (0.623-0.911)	0.868 (0.688-1.03)
10-min	0.257 (0.223-0.299)	0.331 (0.286-0.384)	0.444 (0.383-0.516)	0.536 (0.459-0.622)	0.665 (0.566-0.771)	0.771 (0.650-0.894)	0.883 (0.737-1.03)	1.01 (0.828-1.18)	1.18 (0.948-1.39)	1.32 (1.05-1.57)
15-min	0.319 (0.276-0.371)	0.410 (0.355-0.476)	0.550 (0.475-0.639)	0.664 (0.569-0.771)	0.824 (0.701-0.956)	0.956 (0.805-1.11)	1.10 (0.914-1.27)	1.25 (1.03-1.46)	1.46 (1.18-1.72)	1.64 (1.30-1.95)
30-min	0.429 (0.371-0.499)	0.552 (0.476-0.641)	0.741 (0.640-0.861)	0.894 (0.766-1.04)	1.11 (0.944-1.29)	1.29 (1.08-1.49)	1.48 (1.23-1.72)	1.68 (1.38-1.96)	1.97 (1.58-2.32)	2.21 (1.75-2.63)
60-min	0.531 (0.459-0.618)	0.684 (0.591-0.794)	0.917 (0.792-1.07)	1.11 (0.949-1.28)	1.37 (1.17-1.59)	1.59 (1.34-1.85)	1.83 (1.52-2.12)	2.08 (1.71-2.43)	2.43 (1.96-2.87)	2.73 (2.16-3.25)
2-hr	0.603 (0.526-0.700)	0.767 (0.672-0.894)	1.01 (0.881-1.18)	1.22 (1.06-1.41)	1.51 (1.29-1.75)	1.75 (1.48-2.03)	2.01 (1.69-2.33)	2.29 (1.89-2.67)	2.70 (2.18-3.17)	3.03 (2.40-3.59)
3-hr	0.663 (0.585-0.761)	0.836 (0.736-0.951)	1.08 (0.948-1.24)	1.28 (1.12-1.47)	1.57 (1.38-1.80)	1.81 (1.55-2.08)	2.07 (1.75-2.38)	2.36 (1.96-2.72)	2.75 (2.24-3.21)	3.09 (2.47-3.63)
6-hr	0.782 (0.688-0.869)	0.975 (0.875-1.11)	1.23 (1.10-1.39)	1.44 (1.28-1.63)	1.74 (1.53-1.96)	1.99 (1.74-2.26)	2.26 (1.94-2.57)	2.55 (2.16-2.91)	2.96 (2.45-3.41)	3.29 (2.67-3.82)
12-hr	0.926 (0.804-1.03)	1.15 (1.04-1.28)	1.42 (1.28-1.59)	1.66 (1.48-1.83)	1.96 (1.75-2.16)	2.21 (1.95-2.47)	2.47 (2.10-2.77)	2.75 (2.37-3.09)	3.12 (2.65-3.55)	3.44 (2.88-3.84)
24-hr	1.08 (0.999-1.16)	1.35 (1.24-1.47)	1.67 (1.53-1.82)	1.93 (1.77-2.10)	2.29 (2.09-2.49)	2.57 (2.34-2.78)	2.86 (2.59-3.12)	3.16 (2.85-3.45)	3.60 (3.19-3.91)	3.90 (3.45-4.28)
2-day	1.25 (1.15-1.36)	1.54 (1.43-1.66)	1.90 (1.75-2.06)	2.18 (2.01-2.37)	2.57 (2.36-2.79)	2.87 (2.63-3.12)	3.19 (2.90-3.46)	3.51 (3.17-3.81)	3.94 (3.53-4.30)	4.27 (3.81-4.66)
3-day	1.37 (1.27-1.46)	1.69 (1.57-1.80)	2.07 (1.92-2.23)	2.37 (2.20-2.56)	2.78 (2.57-3.00)	3.11 (2.86-3.36)	3.44 (3.15-3.71)	3.77 (3.43-4.07)	4.21 (3.81-4.57)	4.56 (4.10-4.96)
4-day	1.49 (1.39-1.60)	1.84 (1.71-1.98)	2.24 (2.08-2.40)	2.55 (2.38-2.75)	3.00 (2.78-3.21)	3.34 (3.09-3.57)	3.68 (3.38-3.95)	4.03 (3.69-4.33)	4.49 (4.06-4.84)	4.84 (4.38-5.23)
7-day	1.76 (1.64-1.86)	2.17 (2.02-2.30)	2.62 (2.44-2.81)	2.98 (2.78-3.19)	3.46 (3.22-3.70)	3.83 (3.54-4.09)	4.19 (3.87-4.47)	4.54 (4.16-4.86)	5.01 (4.56-5.37)	5.35 (4.87-5.74)
10-day	1.99 (1.85-2.14)	2.46 (2.28-2.64)	2.97 (2.76-3.19)	3.37 (3.13-3.61)	3.90 (3.61-4.18)	4.30 (3.97-4.61)	4.70 (4.33-5.04)	5.09 (4.68-5.47)	5.60 (5.11-6.03)	5.97 (5.43-6.45)
20-day	2.63 (2.43-2.84)	3.24 (2.99-3.50)	3.88 (3.58-4.19)	4.39 (4.05-4.74)	5.07 (4.67-5.46)	5.57 (5.11-6.01)	6.07 (5.55-6.55)	6.56 (5.98-7.09)	7.19 (6.52-7.79)	7.65 (6.91-8.31)
30-day	3.18 (2.95-3.41)	3.91 (3.63-4.20)	4.66 (4.32-5.00)	5.23 (4.85-5.62)	5.96 (5.52-6.41)	6.50 (6.01-6.99)	7.03 (6.47-7.55)	7.53 (6.91-8.11)	8.15 (7.46-8.80)	8.60 (7.84-9.32)
45-day	3.88 (3.61-4.16)	4.76 (4.43-5.13)	5.66 (5.27-6.07)	6.34 (5.90-6.79)	7.20 (6.69-7.71)	7.81 (7.24-8.37)	8.40 (7.77-9.03)	8.95 (8.28-9.61)	9.62 (8.86-10.3)	10.1 (9.25-10.8)
60-day	4.49 (4.18-4.82)	5.52 (5.13-5.93)	6.52 (6.07-7.00)	7.28 (6.77-7.81)	8.26 (7.66-8.84)	8.93 (8.28-9.57)	9.57 (8.86-10.3)	10.2 (9.41-10.9)	10.9 (10.1-11.7)	11.4 (10.5-12.3)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Attachment 1

Point Precipitation Frequency Estimates,
NOAA Atlas 14, Vol. 1, Version 5, Lat. 36.8771, Long. -107.3984

TETRA TECH

The Flood Insurance Study also cites that:

> *"The hydrologic and hydraulic analyses for the original unincorporated areas of Rio Arriba County FIS were performed by the U. S. Geological Survey (USGS), for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-85-E-1823. That study was completed in April 1987 (Reference 1)."*

It is my opinion that the use of the 1983 USGS topographic mapping with a 20 foot contour interval did not pick up the deeper primary active channel, and the fact that the 1983 USGS mapping indicates a water course with an intermittent blue line (that was apparently not field checked) led to the incorrect mapping of this portion of the tributary arroyo floodplain.

While the abandoned channel appears to be active in 1935 and 1950, construction of stock watering dams before 1971 and after 1950 effectively diverted all flows in the tributary arroyo to the current primary active channel. Recent construction activity and placement of surplus excavation in the abandoned channel and filling it in up to surrounding grade absolutely makes the FEMA panels in this reach incorrect as currently mapped.

This investigation makes use of the information cited herein, as well as my observations during the site visit and review of current topography provided through WPX Energy by NCE Surveys, Inc. No hydrologic or hydraulic computer modelling was performed. A cursory review of the construction plans prepared by Huitt-Zollars, Inc. was performed to establish the Containment site location and set back distances from the tributary arroyo.

Certification of Investigator:

JOHN P. KELLY
NEW MEXICO
10715
REGISTERED PROFESSIONAL ENGINEER

John P. Kelly, PE
Senior Program Manager
Tetra Tech, Inc.

Attachments:

1. *Point Precipitation Frequency Estimates*, NOAA Atlas 14, Vol. 1, Version 5, Lat. 36.8771, Long. -107.3984
2. FEMA Flood Insurance Rate Map, Rio Arriba County, New Mexico, Excerpt from Panel 175 (Map No. 35039C0175D)
3. Additional Survey Data Acquired by NCE Surveys, Inc.

invert of the secondary active channel is 3 feet higher than that of the primary active channel at the upstream confluence; and 4 feet higher where the secondary active channel rejoins the primary active channel.

Given the relatively small contributing watershed, and the existing rangeland conditions, it is my professional opinion that the capacity of the existing primary active channel well exceeds the peak flowrates in the tributary arroyo resulting from the 100-year 6 hour (2.26 inches) and 100-year 24 hour (2.86 inches) precipitation events in the tributary arroyo watershed. Flooding potential of the Containment site from overtopping the primary active channel and secondary active channel is not a risk associated with the 100-year event. Furthermore, even if the primary active channel did overtop to the north, the flow would be spread out over the entire valley floor, resulting in very low depth and velocity. The dominate down-valley slope to the west would direct these sheet flows away from the Containment site.

I further find that the potential for lateral erosion of the tributary arroyo to impact the Containment site is negligible, given the distance between the tributary arroyo and the Containment site, the dominate down-valley slope to the west away from the Containment site, and the placement of fill in the abandoned channel that precludes any avulsion of the arroyo to a different flow path closer to the Containment site. Lateral erosion of the primary active channel is also a long-term multi-event process, allowing ample opportunity to monitor and respond if necessary.

Incorrect Mapping of Portions of FEMA Flood Insurance Rate Map, Rio Arriba County, New Mexico Panel 175 (Map No. 35039C0175D)

I have reviewed:

- *C-147 Registration package for Section 30 Recycling Containment, Section 30, T31N, R5W, Rio Arriba County*, Prepared for WPX Energy production, LLC, by R.T. Hicks Consultants, Ltd., dated May 2015
- *Jurisdictional Determination, Action No. SPA-2015-00109 Section 30 Drainage,* by the U.S. Army Corps of Engineers, April 29, 2015
- *Description of Abandoned Drainage,* EIS LLC, March 24, 2015
- FEMA Flood Insurance Rate Maps Rio Arriba County, New Mexico, Panels 175 (Map No. 35039C0175D) and 525 (Map No. 35039C0525D)
- *Flood Insurance Study, Rio Arriba County, NM*, performed by FEMA, effective March 15, 2012 (Flood Insurance Study Number 35039CV000A)
- *Point Precipitation Frequency Estimates,* NOAA Atlas 14, Vol. 1, Version 5, Lat. 36.8771, Long. -107.3984, accessed 8/5/15 at http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=nm
- USGS 7.5 Minute Series Quad Maps for Gomez Ranch and Bancos Mesa NW, 1983

Based on this review, I concur with the US Army Corps of Engineers Jurisdictional Determination that the abandoned channel is not waters of the United States. This supports the reasonable conclusion that the abandoned channel was incorrectly mapped in 1987 as the FEMA floodplain; rather than mapping the primary active channel of the tributary arroyo.

The FEMA FIRM Panels map the non-jurisdictional abandoned channel as a Zone "A". Zone A is defined by FEMA as "*Areas subject to inundation by the 1-percent-annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown.*"

The Flood Insurance Study, Rio Arriba County, NM, performed by FEMA, effective March 15, 2012 (Flood Insurance Study Number 35039CV000A) cites the USGS 7.5 Minute Series Quad Maps for Gomez Ranch and Bancos Mesa NW, 1983, among the reference sources (Reference 19).

TETRA TECH

Flood Risk of WPX Section 30 Containment Site

I have investigated the on-going construction at the site, as well as completing a pedestrian survey (August 4, 2015) of the tributary arroyo to Laguna Seca Draw. This tributary arroyo runs generally southeast to northwest across the northern half of section 30, and is at its closest, 400 feet southwest of the Containment site. A portion of the tributary arroyo is paralleled by a secondary active channel to the west for approximately 530 feet. An abandoned channel, now filled in, is north of the primary active channel; these features all as shown on Figure 1.

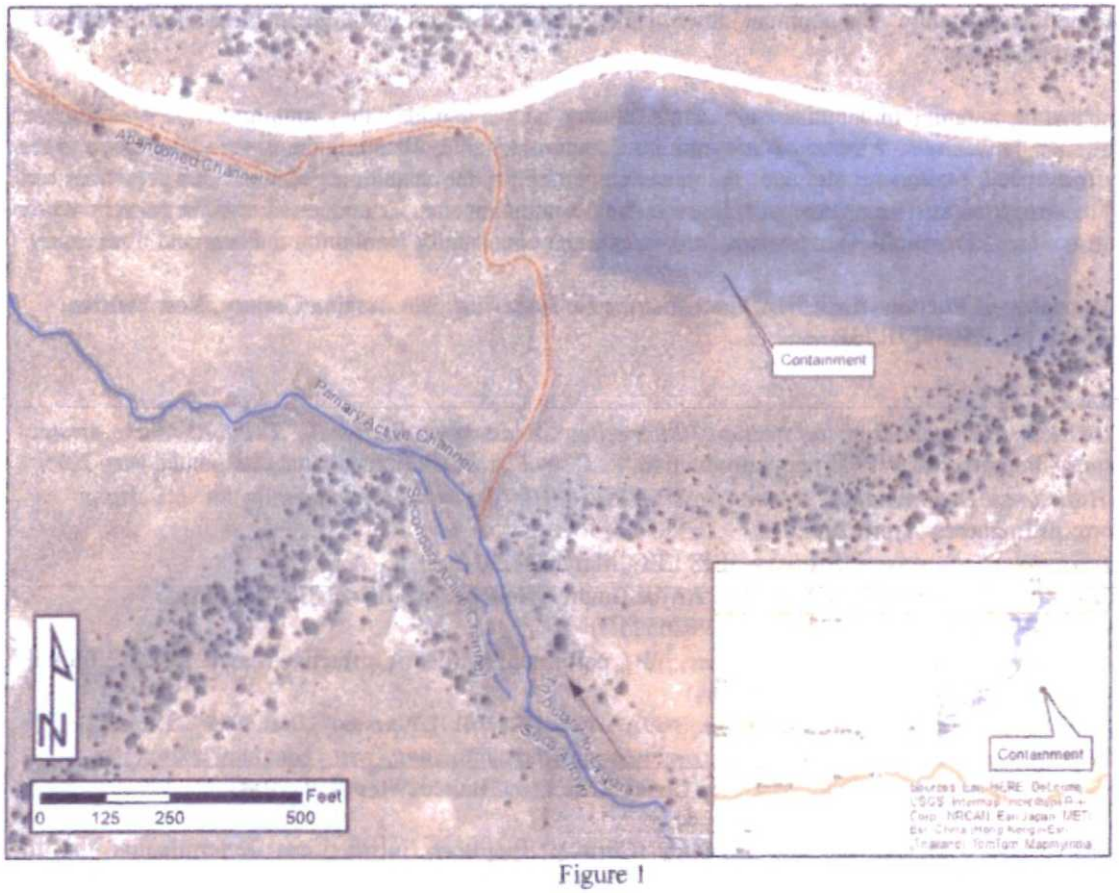


Figure 1

During the site visit on August 4th, I directed the acquisition of detailed survey data for the tributary arroyo. This survey data included profiles of the primary and secondary active channels, and cross sections through both channels adjacent to the WPX Containment site. Cross sections were extended over to the Containment site for four cross sections. This detailed survey supplements the USGS topography I used to evaluate the contributing watershed.

The primary active channel is at an elevation typically 12 feet lower than the bank elevation to the north and east towards the containment site. The primary active channel shows the sinuosity typical for arroyos in the southwest. The profile grade reflects a head cut in the arroyo, with consistent grade downstream to where the secondary channel re-joins the active channel. The secondary active channel parallels the active channel for approximately 530 feet on the west side between the sandstone walls of the small canyon south of the containment site. The

TETRA TECH

Expert Opinion Regarding Flood Risk at WPX Energy Section 30 Containment Site

Located at Section 30, T31N, R5W, Rio Arriba County, NM
Latitude 36.877084, Longitude -107.398405

Name and Qualifications of Investigator

John P. Kelly, PE, NMPE 10715, 1988 - present
BS Civil Engineering, UNM, 1981
MBA, Management, NMSU, 1983
Numerous Construction, Environmental and Water Law; and Construction Inspection courses throughout career.

32 Year Career in all aspects of storm water management.
2011- Current, Senior Program Manager, Tetra Tech, Inc.
1999-2010, Executive Engineer, Albuquerque Metropolitan Arroyo Flood Control Authority
1997-1999, Chief Engineer, Albuquerque Metropolitan Arroyo Flood Control Authority
1988-1989, Field Engineer, Albuquerque Metropolitan Arroyo Flood Control Authority
1983-1988, Liquid Waste and Arroyo Maintenance Superintendent, City of Albuquerque

Prior to retiring in 2010, Mr. Kelly was Executive Engineer (1999-2010) for the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA"). He managed all aspects of the local flood control district, implementing a $12M/year capital program and $3.5M annual operating budget. He was responsible for all engineering and financial aspects of the organization, including setting mill levies, bond ratings, bond sales, and debt service. He was responsible for developing requests for proposals, project scoping, consultant procurement, and design contract negotiations. He drafted and negotiated cost sharing and joint powers agreements with local, state, and federal agencies. Responsible for compliance with EPA MS-4 program, and project coordination with Corps of Engineers, USGS, USFWS, BOR, FEMA, and two Indian tribes. Mr. Kelly oversaw numerous FEMA submittals for map revisions resulting from the construction of new flood control facilities as well as map amendments for incorrectly mapped floodplains. AMAFCA policy implemented by Mr. Kelly was to submit a LOMR to document the floodplain reduction for each flood control project completed. Mr. Kelly also worked with both the City and County Floodplain Administrators to jointly submit LOMA's to correct improperly mapped floodplains within the greater Albuquerque area. As Field and Chief Engineer (1988-1999), he managed AMAFCA's construction contracting program, and implemented equitable risk sharing provisions between contractor and owner. As Field Engineer Mr. Kelly was responsible for investigation of flooding and sediment impacted sites within the greater Albuquerque area. He evaluated flood risk, prioritized responses, developed appropriate maintenance and repair plans, and oversaw repair construction work. Prior to work at AMAFCA, Mr. Kelly was Liquid Waste and Arroyo Maintenance Superintendent for the City of Albuquerque (1983-1988). He set up the City's storm drainage maintenance division, and managed arroyo, storm drain, and storm water pump station maintenance crews.

Affiliations: Former Chair & Current Director, New Mexico Watershed and Dam Owners Coalition
Director, Middle Rio Grande Conservancy District Board of Directors (elected)
Director, Middle Rio Grande Flood Control Association

TETRA TECH

August 11, 2015

Mr. Randall Hicks
R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. – F-142
Albuquerque, NM 87104

Re: WPX Energy Section 30 Containment Flood Risk Assessment

Dear Mr. Hicks:

Please find attached my expert opinion regarding the flood risk of the WPX Energy Section 30 Containment. I am competent in the disciplines of surface water hydrology, sediment and erosion issues common in the arid southwest environment, and in the design and construction of flood control projects.

My opinion is that the Containment is at no risk of flooding from the 100-year 6 hour or 100-year 24 hour storm event in the tributary arroyo to Laguna Seca Draw. This tributary arroyo runs generally southeast to northwest across the northern half of section 30, and is at its closest, 400 feet southwest of the Containment.

I further find based on historical photography, available reports, and evidence at the site, that the FEMA Flood Insurance Rate Map, Rio Arriba County, New Mexico Panel 175 (Map No. 35039C0175D), very likely incorrectly mapped the floodplain in this area in 1987. The floodplain is mapped in the abandoned channel rather than in the active channel of the arroyo as it currently exists. Recent construction activity and placement of surplus excavation in the abandoned channel and filling it in up to surrounding grade absolutely makes the FEMA panel in this reach incorrect as currently mapped.

I trust this opinion covers the issues I was requested to investigate. If you have any questions, please do not hesitate to call.

Sincerely,

John P. Kelly, PE
Senior Program Manager
Tetra Tech, Inc.

6121 Indian School Rd. N.E. Suite 205, Albuquerque, NM 87110
Tel: 505.881.3188 Fax: 505.881.3283
www.tetratech.com

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

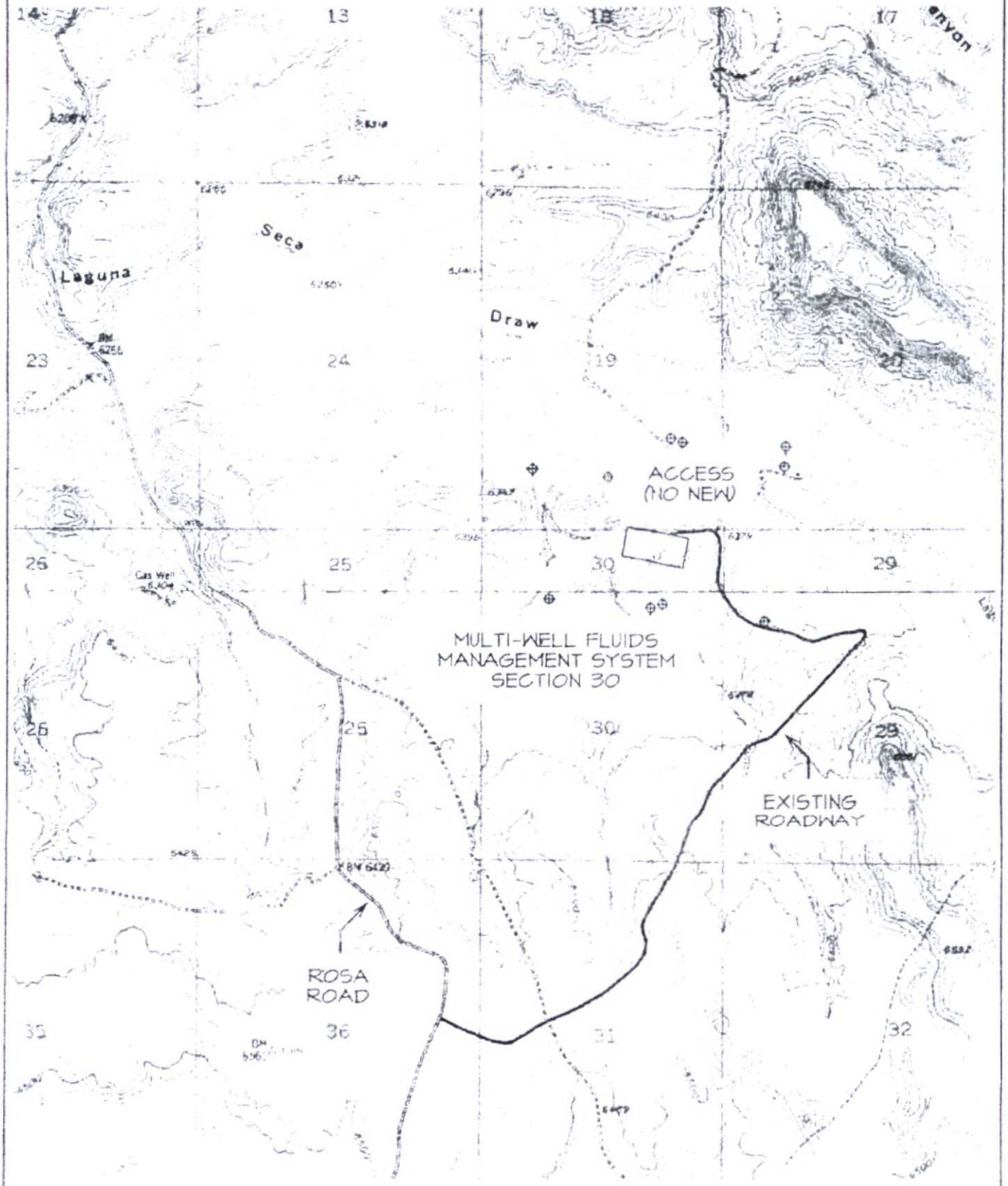
Appendix A

Corps of Engineers Communications

1. Findings of the COE
2. Submission by WPX

WPX ENERGY PRODUCTION, LLC
MULTI-WELL FLUIDS MANAGEMENT SYSTEM SECTION 30

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

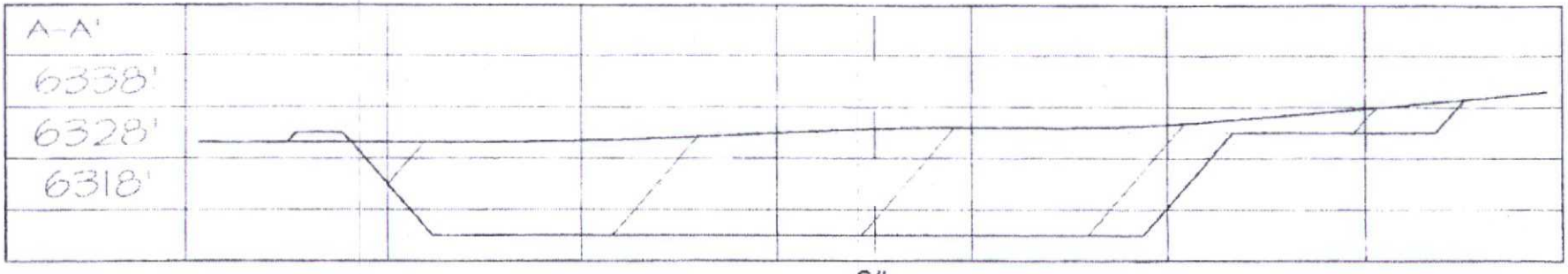


TOPO MAPS : BANCOS MESA NW & GOMEZ RANCH

⊕ PRODUCING WELL ⊗ PLUGGED & ABANDONED WELL

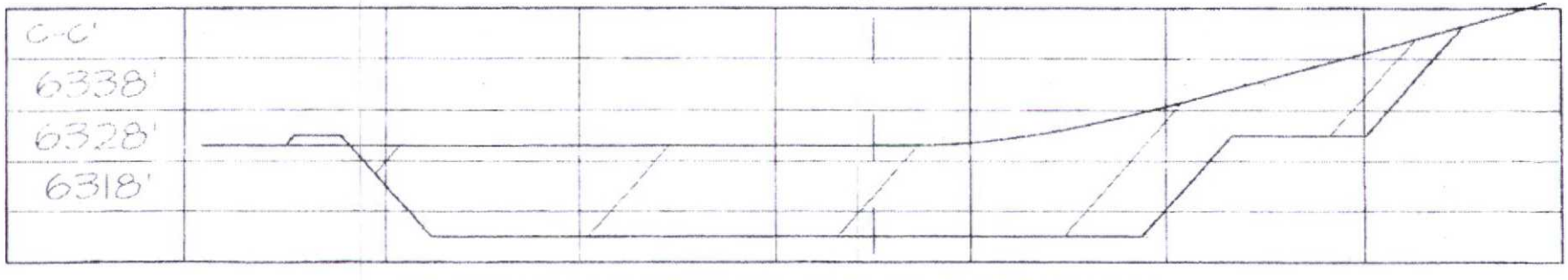
WPX ENERGY PRODUCTION, LLC
MULTI-WELL FLUIDS MANAGEMENT SYSTEM SECTION 30
LOCATED IN SW/4 SE/4 SECTION 19 & N/2 NE/4 SECTION 30, T31N, R5W
NMPM, RIO ARRIBA COUNTY, NEW MEXICO ELEVATION: 6328'

HORIZONTAL SCALE 1"=120' C/L VERTICAL SCALE 1"=30'



C/L

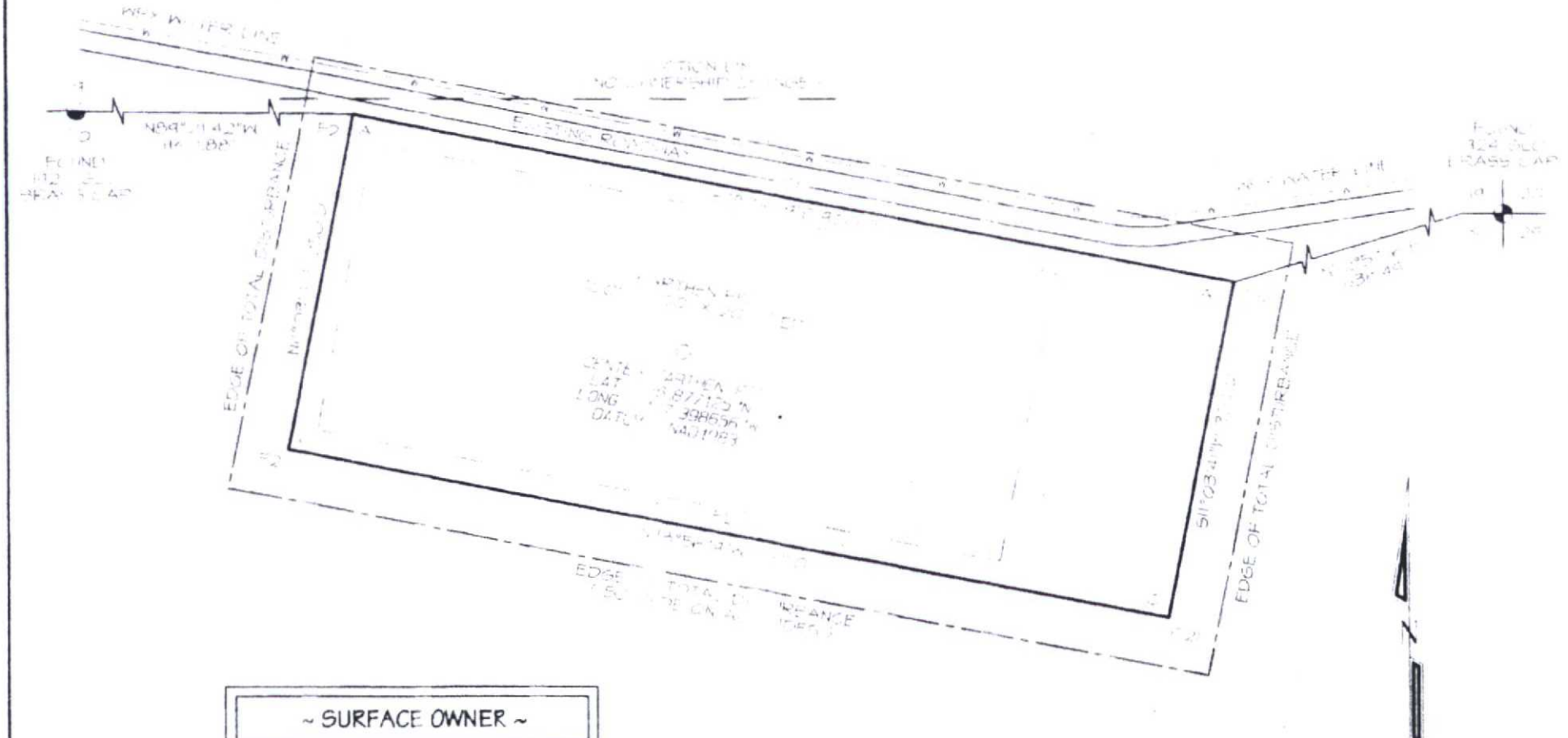
C/L



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.

WPX ENERGY PRODUCTION, LLC
MULTI-WELL FLUIDS MANAGEMENT SYSTEM SECTION 30
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 ~

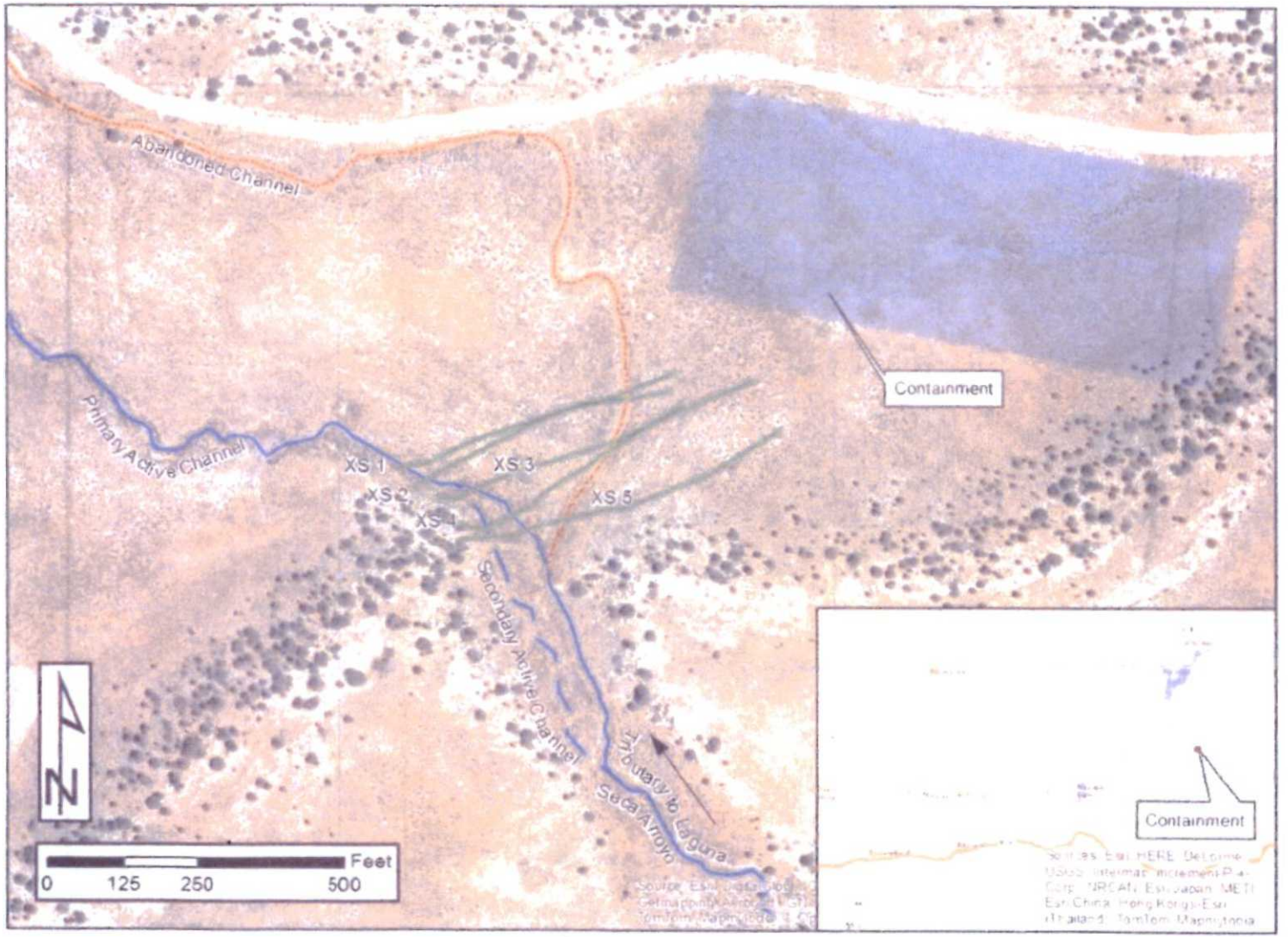
Bureau of Land Manangement
450' X 1000' = 10.33 ACRES

GRAPHIC SCALE 1" 150'

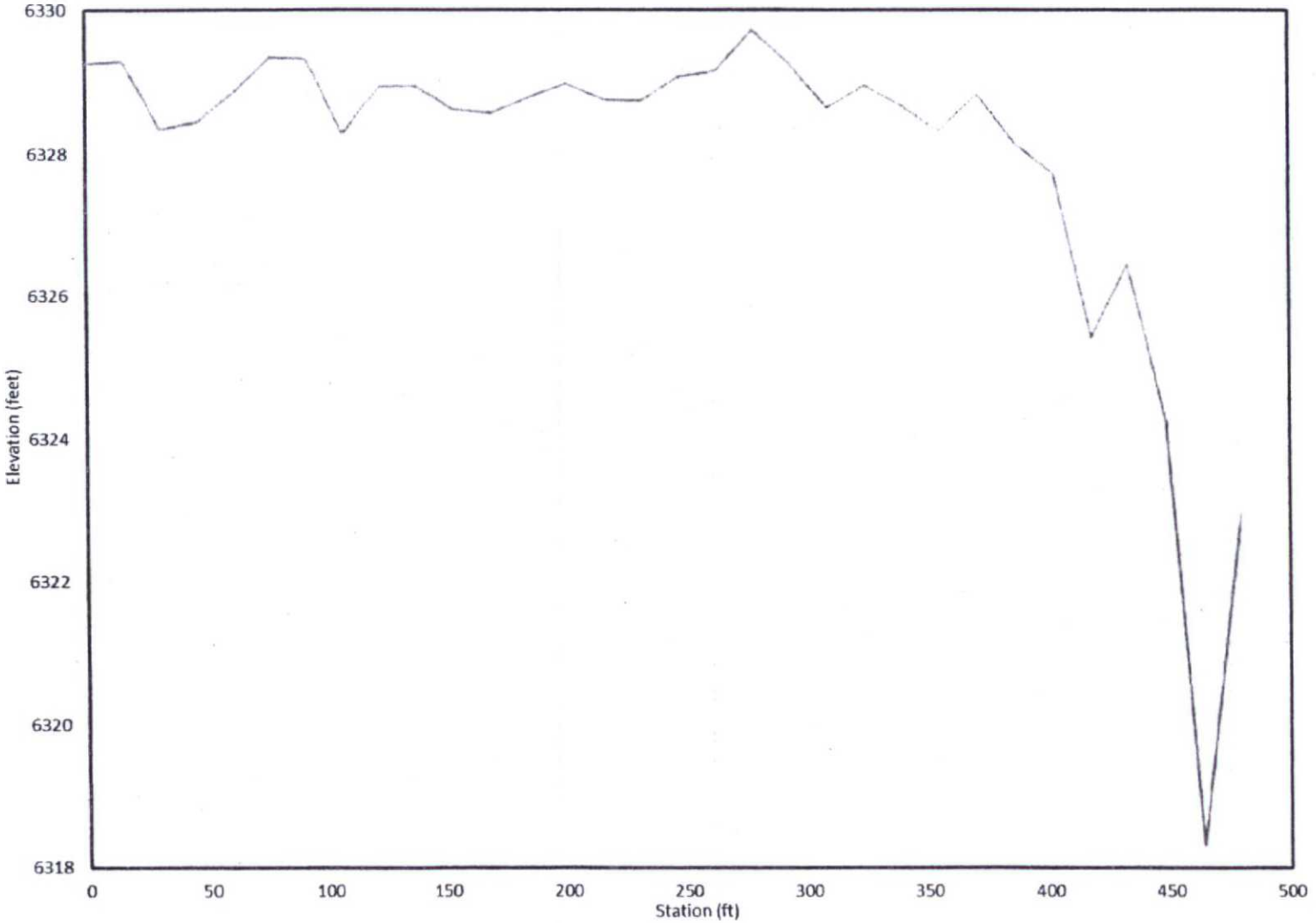
0 150 300

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

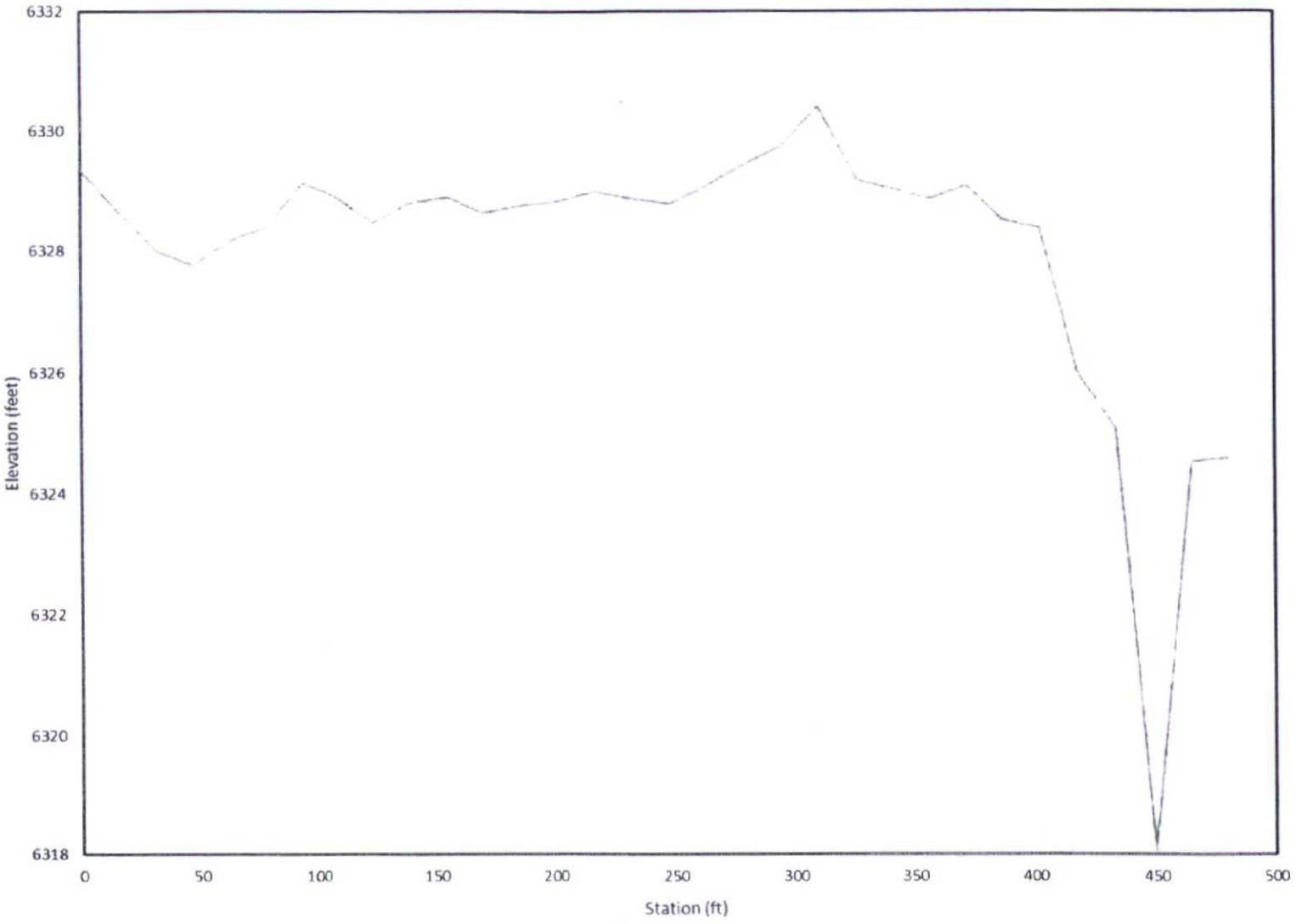
Figure 8 – View south from within blue-line arroyo showing no evidence of bed, bank or visible evidence of occaisional water flow.



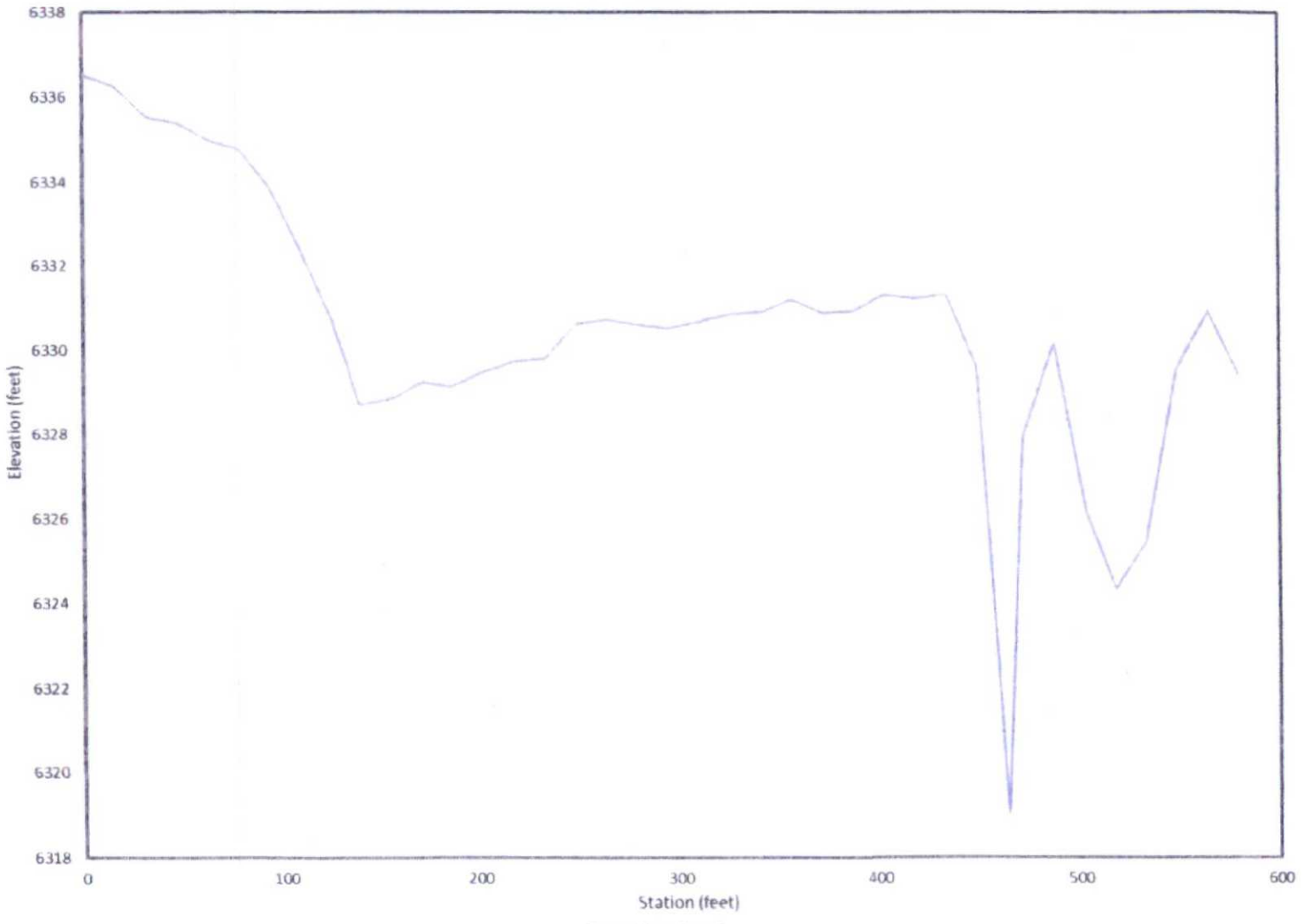
Cross Section Location Map



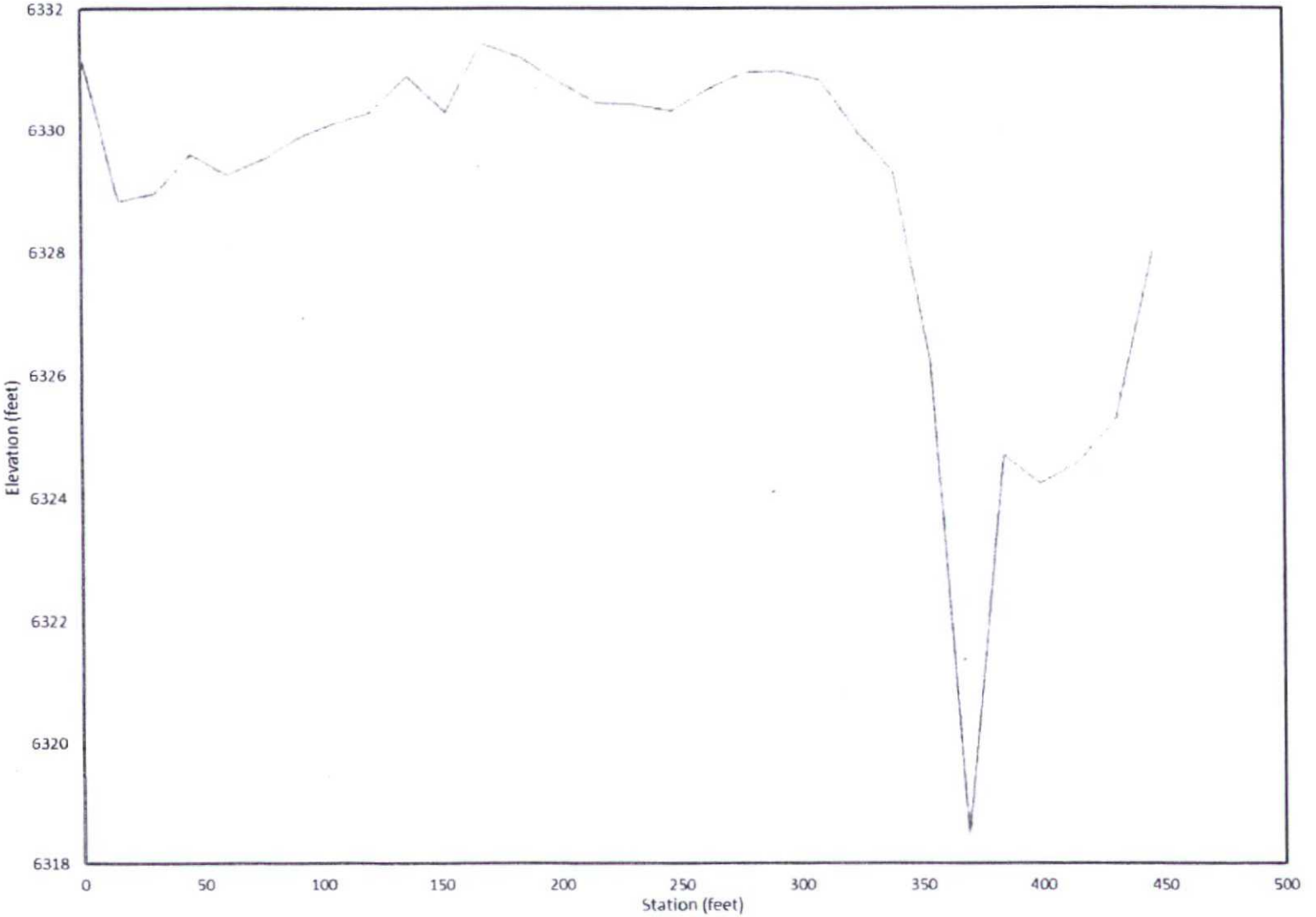
Cross Section 1



Cross Section 2



Cross Section 3



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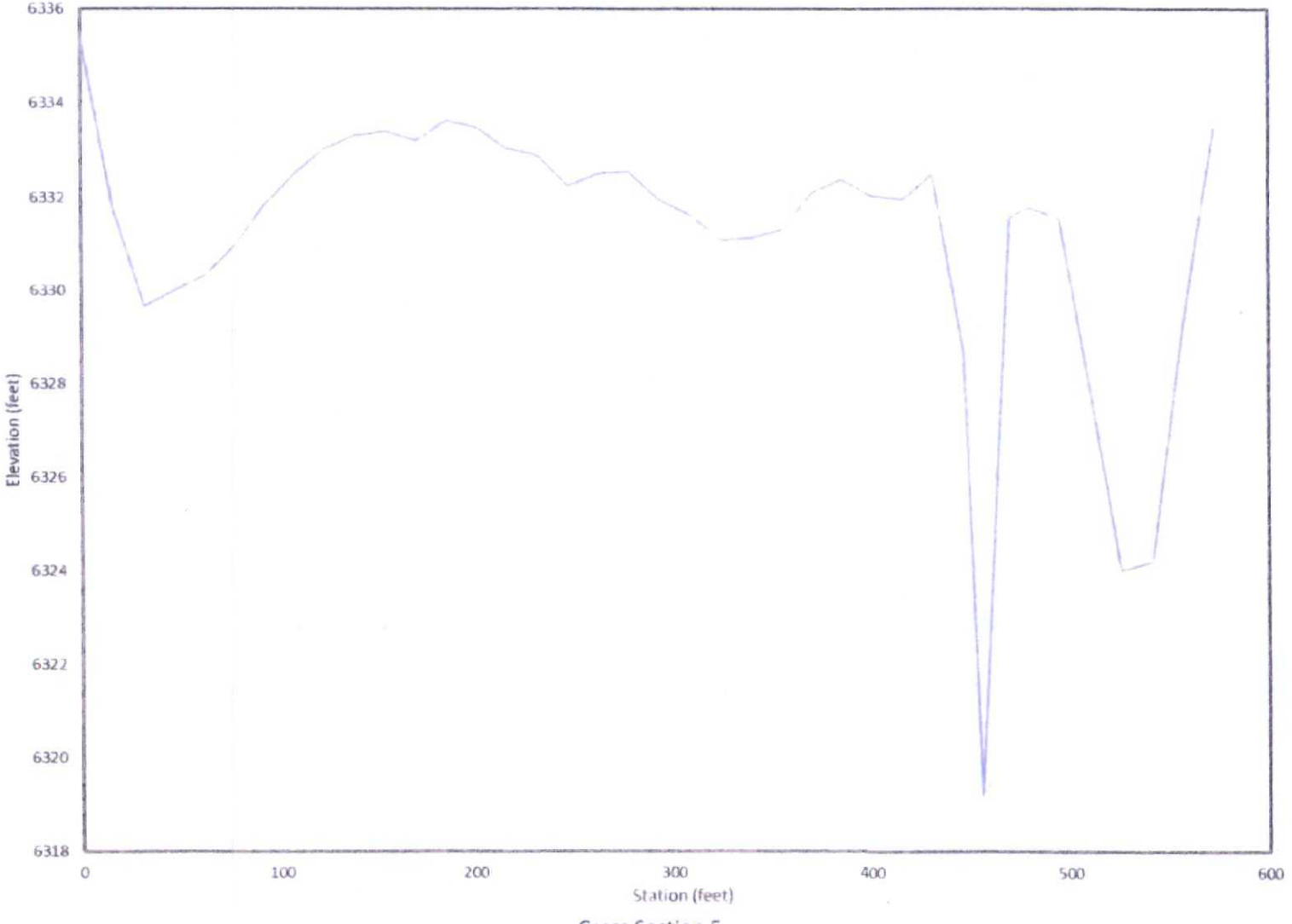

Cross Section 5

DEPARTMENT OF THE ARMY
ALBUQUERQUE DISTRICT, CORPS OF ENGINEERS
4101 JEFFERSON PLAZA NE
ALBUQUERQUE, NEW MEXICO 87109

REPLY TO
ATTENTION OF

April 29, 2015

Regulatory Division

SUBJECT: Jurisdictional Determination – Action No. SPA-2015-00109, Section 30 Drainage

Mindy Paulek
Senior Biologist
EIS
752 Main Ave, Suite 201
Durango, CO 81301

Dear Ms. Paulek:

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. We have assigned Action No. SPA-2015-00109 to your request. Please reference this number in all future correspondence concerning the site.

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

The basis for this approved JD (attached) is that the project site contains an abandoned drainage; which currently functions as an erosional feature. A copy of this JD is also available at http://www.spa.usace.army.mil/reg/JD. This approved JD is valid for five years unless new information warrants revision of the determination before the expiration date.

You may accept or appeal this approved JD or provide new information in accordance with the attached Notification of Administration Appeal Options and Process and Request for Appeal (NAAOP-RFA). If you elect to appeal this approved JD, you must complete Section II of the form and return it to the Army Engineer Division, South Pacific, CESPD-PDS-O, Attn: Tom Cavanaugh, Administrative Appeal Review Officer, 1455 Market Street, Room 1760, San Francisco, CA 94103-1399 within 60 days of the date of this notice. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.

If you have any questions, please contact me at 505-342-3216 or by e-mail at Kelly.E.Allen@usace.army.mil. At your convenience, please complete a Customer Service Survey on-line available at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

Kelly E. Allen
Regulatory Project Manager

Enclosure(s)

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 29, 2015

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:CESPA-RD, Section 30 Drainage, SPA-2015-00109

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:New Mexico County/parish/borough: Rio Arriba City: Laguna Seca Mesa

Center coordinates of site (lat/long in degree decimal format): Lat. 36.87686° **N**, Long. -107.40052° **W**.

Universal Transverse Mercator: 285962.41 X & 4083891.21 Y Zone 13

Name of nearest waterbody: Laguna Seca Draw

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: San Juan River

Name of watershed or Hydrologic Unit Code (HUC): 14080101

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: April 27, 2015

☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain:

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**

   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]

   ☐ TNWs, including territorial seas
   ☐ Wetlands adjacent to TNWs
   ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
   ☐ Non-RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
   ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
   ☐ Impoundments of jurisdictional waters
   ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
   Non-wetland waters: linear feet: width (ft) and/or acres.
   Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
   Elevation of established OHWM (if known):

2. **Non-regulated waters/wetlands (check if applicable):**[3]

   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **An ephemeral water feature with bed and banks exists within the review area, however, no OHWM indicators are present within the subject reach beginning at a point just upstream of an existing impoundment used for stock**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

watering and constructed sometime between 1950-1971, and ending at a point located approximately 1,510 channel linear feet downstream below a second impoundment. Both impoundments have prevented flows through the channel and only appear to contain water after large storm events. Flows through the small watershed have moved to the lowest point in the valley around a small topographic high in the landscape where a channel formed sometime before 1950. Construction of the first or southern-most impoundment on the subject reach forced a majority of stormwater runoff through this channel located southwest of the review area. Therefore, the subject reach has been abandoned and flows no longer occur even though remnants of historic flows, the bed and banks, remain. The subject reach currently functions as an erosional feature with ponding behind the impoundments when large precipitation events occurs.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: .
   Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain:
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain:		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:
Presence of run/riffle/pool complexes. Explain:
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime:
Other information on duration and volume:

Surface flow is: **Pick List.** Characteristics:

Subsurface flow: **Pick List**. Explain findings:
☐ Dye (or other) test performed:

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain:
Identify specific pollutants, if known:

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[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☐ Other environmentally-sensitive species. Explain findings:
  - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

- ☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain:
  - ☐ Ecological connection. Explain:
  - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☐ Other environmentally-sensitive species. Explain findings:
  - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):
- ☐ Tributary waters: linear feet width (ft).
- ☐ Other non-wetland waters: acres.
  Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
   - ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional waters within the review area (check all that apply):
   - ☐ Tributary waters: linear feet width (ft).
   - ☐ Other non-wetland waters: acres.
     Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
     - ☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
   - ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

   Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
   - ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

   Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
   As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
   - ☐ Demonstrate that impoundment was created from "waters of the U.S.," or
   - ☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
   - ☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
- ☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
- ☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- ☐ which are or could be used for industrial purposes by industries in interstate commerce.
- ☐ Interstate isolated waters. Explain: .
- ☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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[8] See Footnote # 3.

[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

[10] **Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.***

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **Review area contains an abandoned ephemeral stream channel that retains a bed and bank within the subject reach, but no longer conveys flows and subsequently no OHWM is present due to the construction of two on-channel impoundments. The subject reach currently functions as an erosional feature instead of a stream channel or tributary.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. **Data reviewed for JD (check all that apply** - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:"Jurisdictional Determination Request for Section 30 Abandoned Drainage" prepared by EIS, LLC, dated March 23, 2015.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas:Upper San Juan.
☒ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24, NM-BANCOS MESA NW.
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date):Google.
or ☒ Other (Name & Date):"Jurisdictional Determination Request for Section 30 Abandoned Drainage" prepared by EIS, LLC, dated March 23, 2015.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

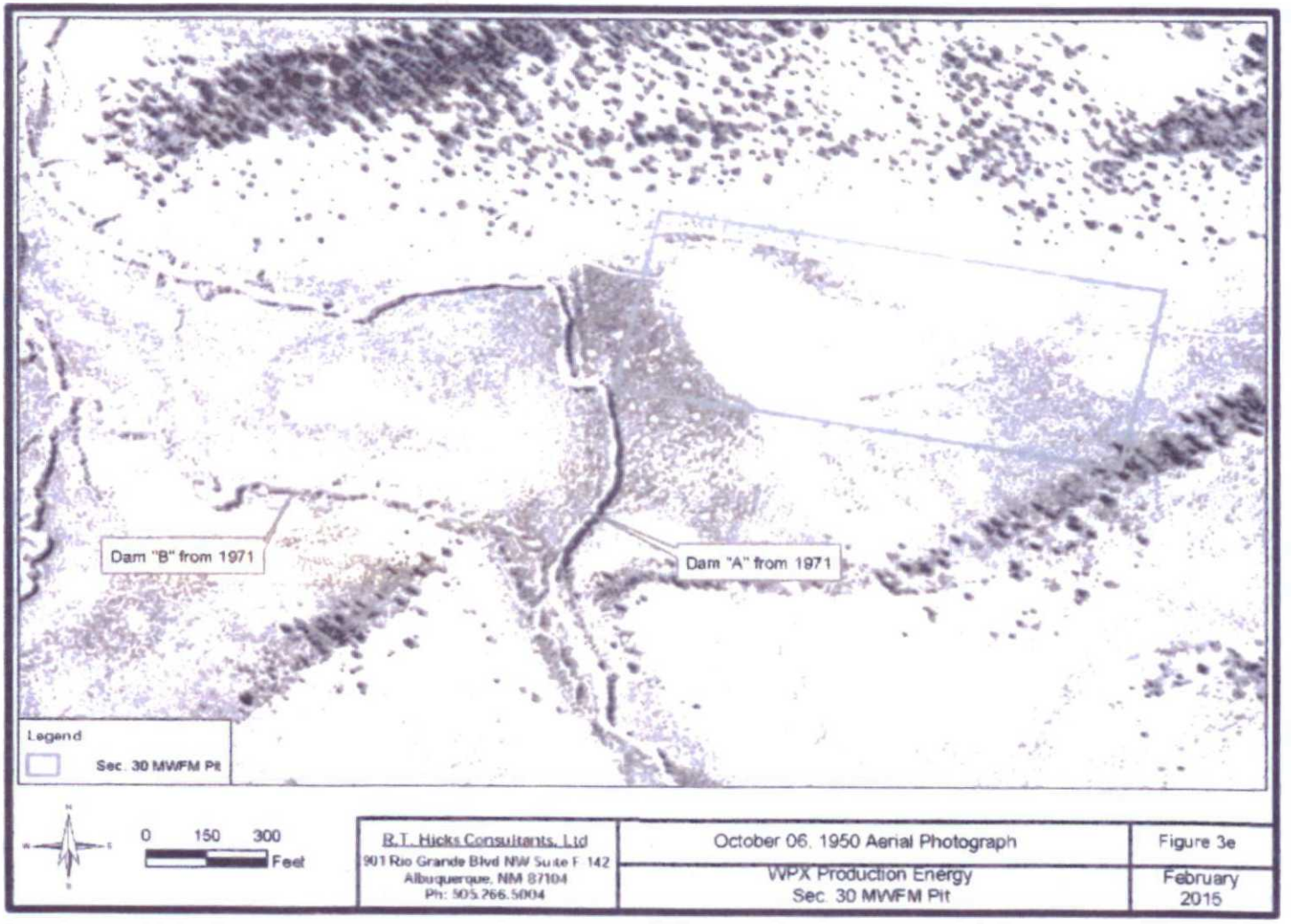
Description of Abandoned Drainage:

EIS, LLC. is requesting a jurisdictional determination for a stretch of drainage that has been disconnected and no longer conveys water flow. While it has steep side slopes and a bottom from past incising when it was active, it no longer contains an ordinary high water mark as defined by "A field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States – A Delineation Manual" and thus would not be jurisdictional under the U.S. Army Corps of Engineers. The Bureau of Land Management (BLM) is the surface owner. The BLM wishes to have the area reclaimed as a range improvement. Water tends to backup within the lower portion of the drainage where it connects to the active channel and a culvert, as well as past activities, restricts flow. A delineation of the OHWM within the abandoned drainage was conducted. The point where the OHWM begins within the abandoned drainage is identified as Point A in the following maps and photos. The "subject stretch" we are requesting a determination on would be from Dam A to Point A. Below is a series of aerial photos showing the history and nature of the subject stretch of abandoned drainage believed to be non-jurisdictional. The main points of mention are as follows:

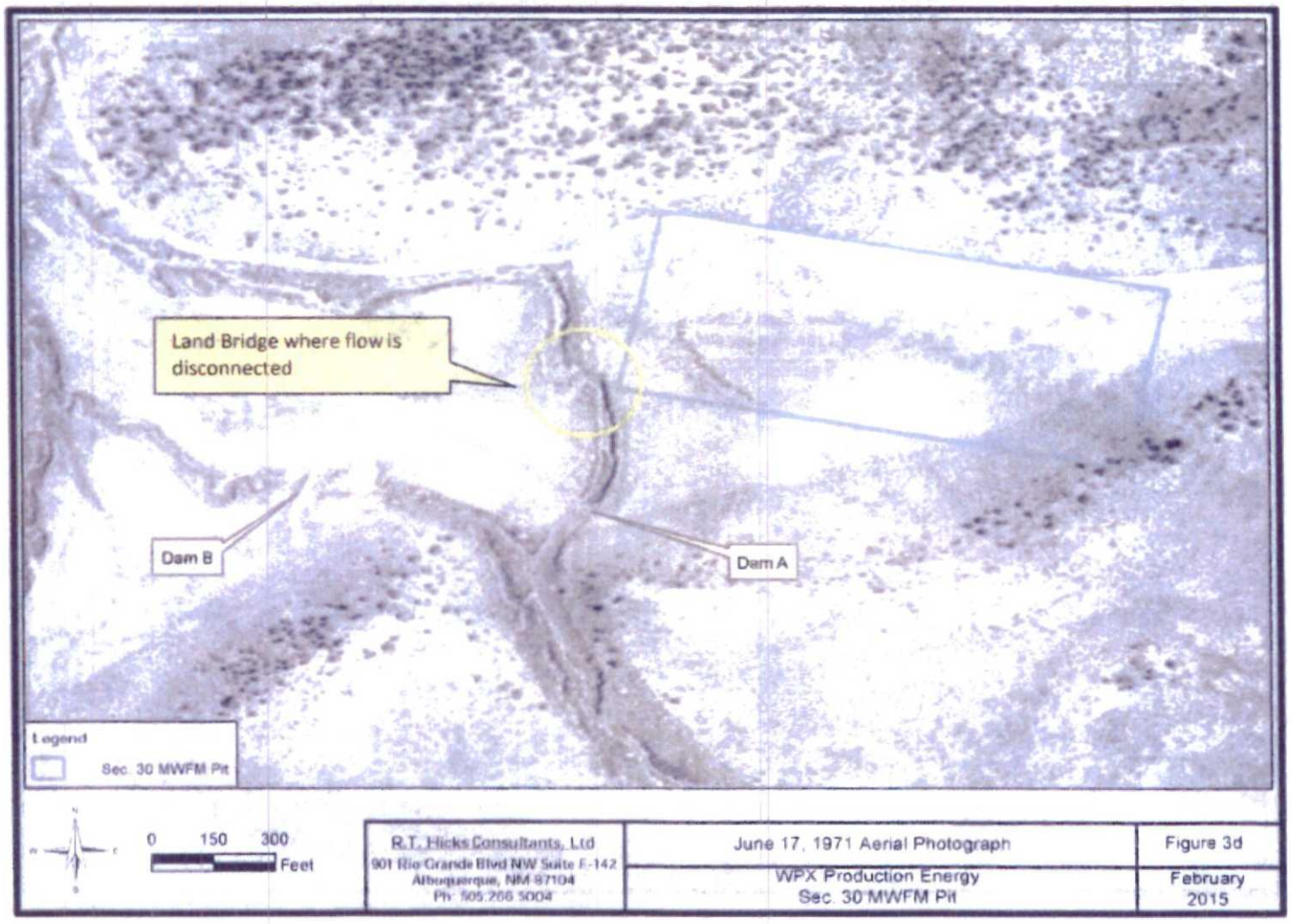
- A dam (Dam A) was constructed during or prior to 1971 and after 1950 that effectively and permanently cut off all flow to this drainage, causing the subject portion of the drainage to lose connectivity.
- A type of "land bridge" has been created where livestock and wildlife cross the incised, abandoned drainage and has created a second point of disconnect down-gradient of Dam A.
- Point A identifies the beginning of an ordinary high water mark as delineated by "A field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States – A Delineation Manual"
- Portions of the drainage down-gradient of Point A lose a defined OHWM and water flow turns to sheet flow in areas. As such, it is questionable whether the drainage down-gradient of Point A is jurisdiction. However, for the purpose of this request we are only concerned with the drainage up-gradient of Point A, which does not exhibit an OHWM and as such would not be jurisdictional.
- Water likely flowed thru the subject portion of the drainage in 1950 (Map A). However, water flow was completely disconnected from the subject portion of the drainage after 1971 (Map B) and continues to be disconnected (Map C and Figures 2, 4, & 6).
- Maps B and C and Figures 2, 4, 7, & 8 illustrate where Dam A and the land bridge have cut off the conveyance of water.
- Figures 1, 2, 3, & 9 illustrate no indicators of OHWM within the abandoned drainage.
- Figures 10, 11, & 12 illustrate the indicators of an OHWM from water backing up and ponding in the abandoned drainage.
- Indicators of OHWM down-gradient of Point A include: dessication/mud cracks, reduction in presence of vegetation compared to areas up-gradient of Point A, and presence of debris collected during ponding.

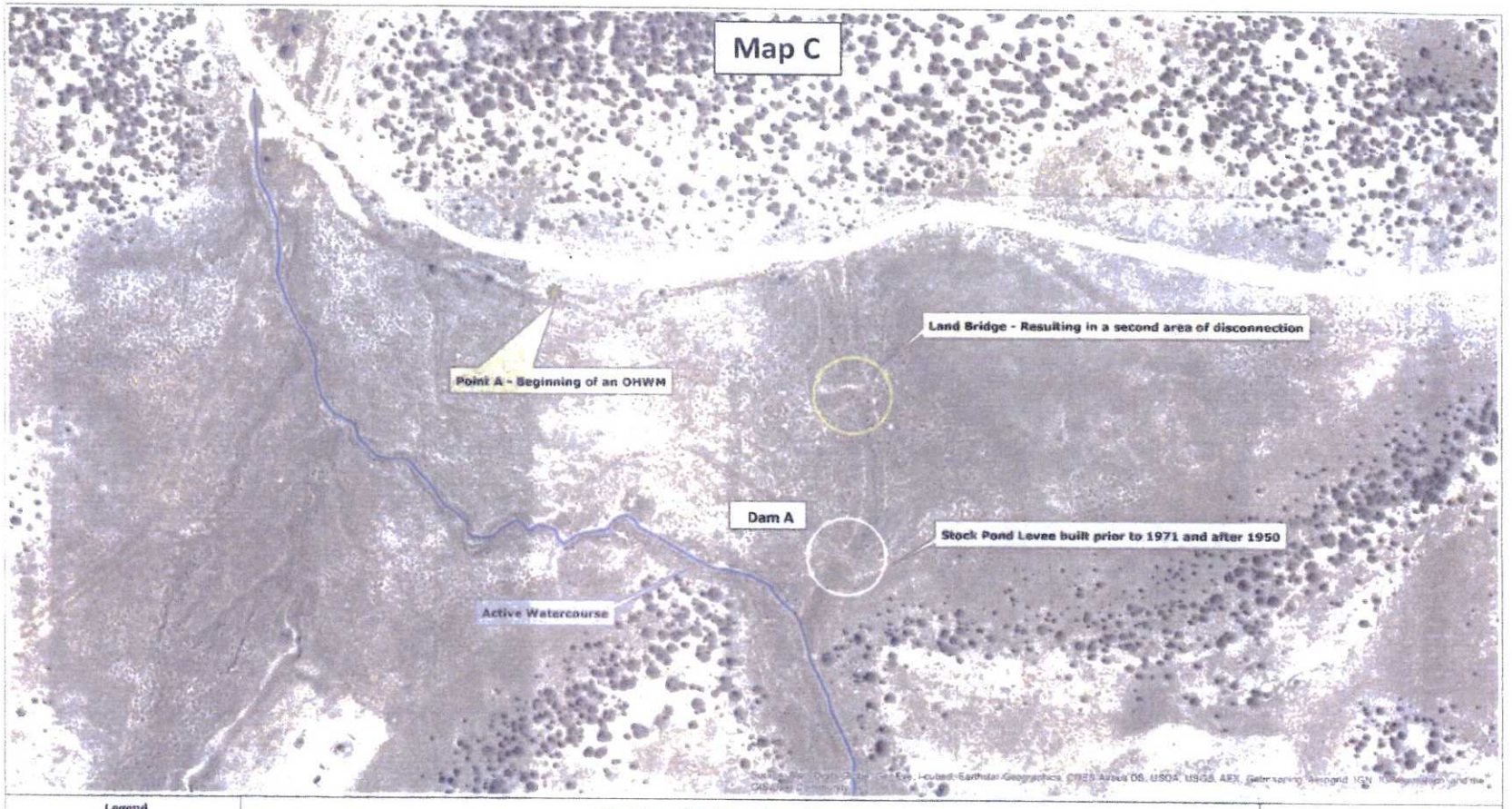
Abandoned Drainage Maps

Map A


Dam "B" from 1971
Dam "A" from 1971
Legend
Sec. 30 MWFM Pit
N
W
E
S
0 150 300
Feet
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F 142
Albuquerque, NM 87104
Ph: 505.266.5004
October 06, 1950 Aerial Photograph
WPX Production Energy
Sec. 30 MWFM Pit
Figure 3e
February
2015

Map B


Land Bridge where flow is disconnected
Dam B
Dam A
Legend
Sec. 30 MWFM Pit
0 150 300
Feet
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004
June 17, 1971 Aerial Photograph
WPX Production Energy
Sec. 30 MWFM Pit
Figure 3d
February 2015


Map C
Land Bridge - Resulting in a second area of disconnection
Point A - Beginning of an OHWM
Dam A
Stock Pond Levee built prior to 1971 and after 1950
Active Watercourse
Legend
Point A - Beginning Point of OHWM
Active Watercourse (Blueline at least 1968)
Section 30 Inactive Drainage
Aerial Map
Section 30, Township 31 North, Range 5 West
New Mexico Principle Meridian
Rio Arriba County, New Mexico
0 150 300 600
Feet
WPXENERGY
EIS
Projection
Date 3/23/2015 Author mpaulek

Abandoned Drainage Images

Image showing photo location and direction

Figure 1. Inactive/Abandoned Drainage Bottom

Figure 2. Dam A at Bottom of Inactive/Abandoned Drainage

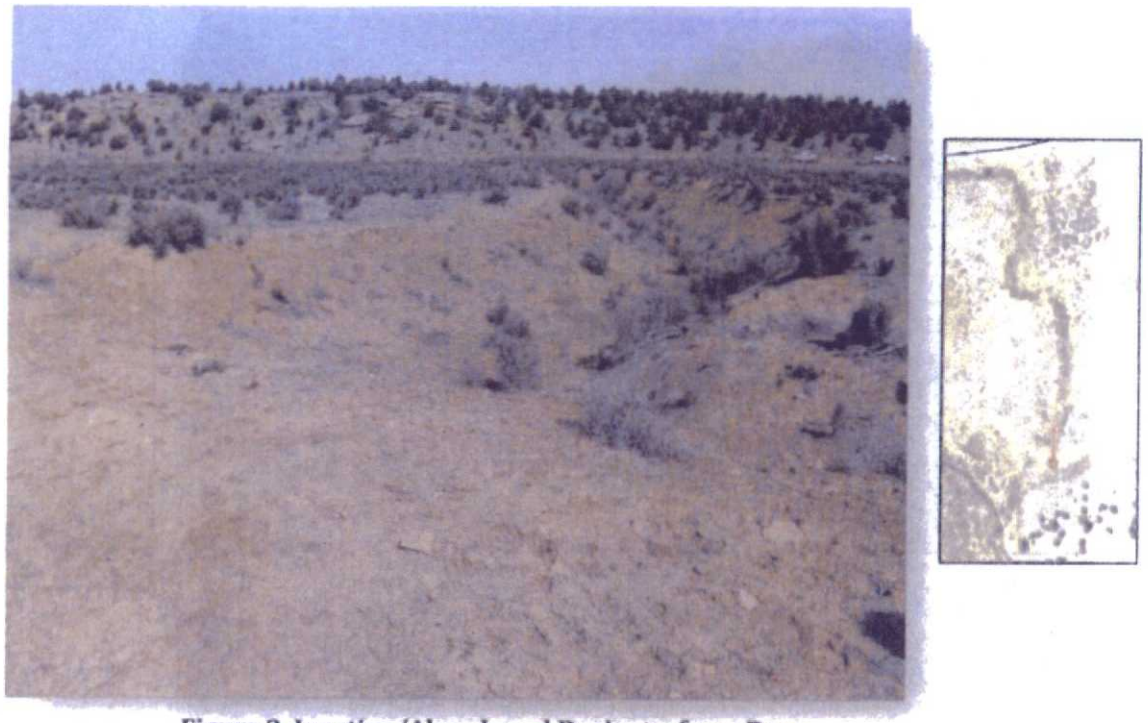


Figure 3. Inactive/Abandoned Drainage from Dam

Figure 4. Top View of Dam

Figure 5. Old Stock Pond Created from Dam A

Figure 6. Active Drainage Where it Disconnects from Abandoned Drainage

Figure 7. Land Bridge, View from Drainage Bottom

Figure 8. Land Bridge, View from Top

Figure 9. Photo taken from Point A, looking up-gradient towards the abandoned drainage showing no OHWM

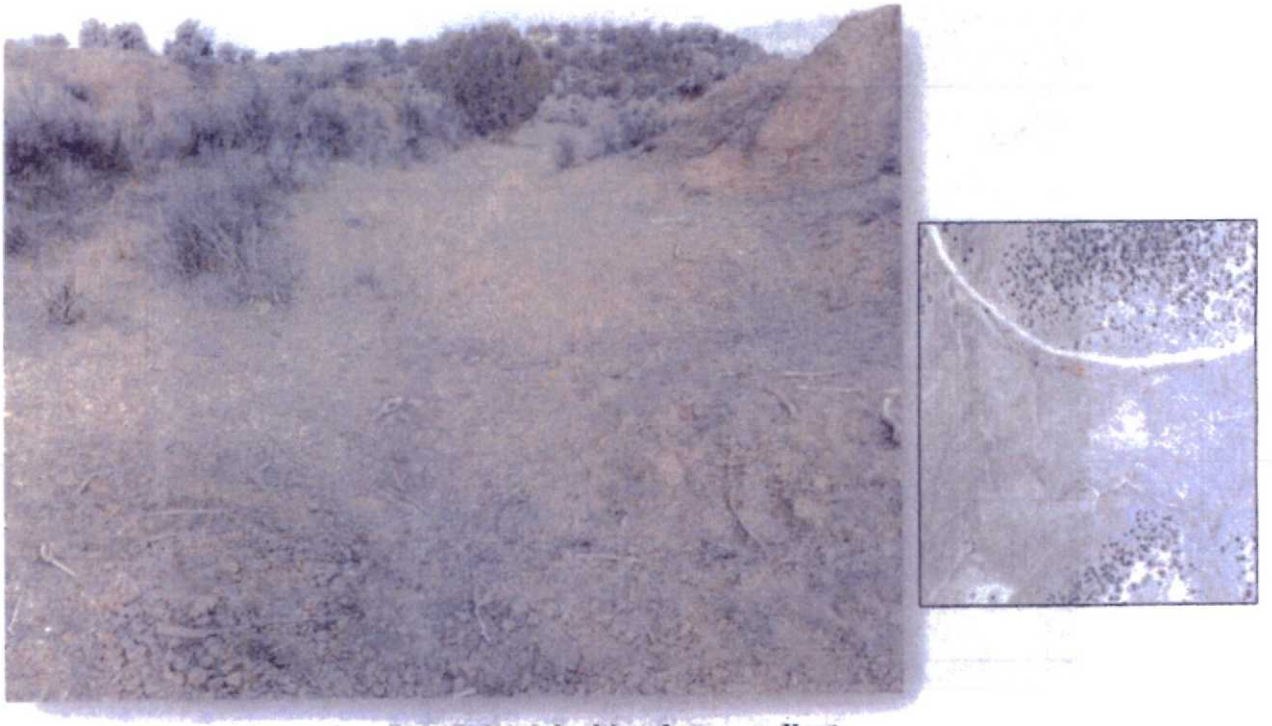


Figure 10. Photo taken from Point A, looking down-gradient towards area exhibiting indicators of ponding and an OHWM

Figure 11. Photo taken down-gradient of Point A, looking towards Point A

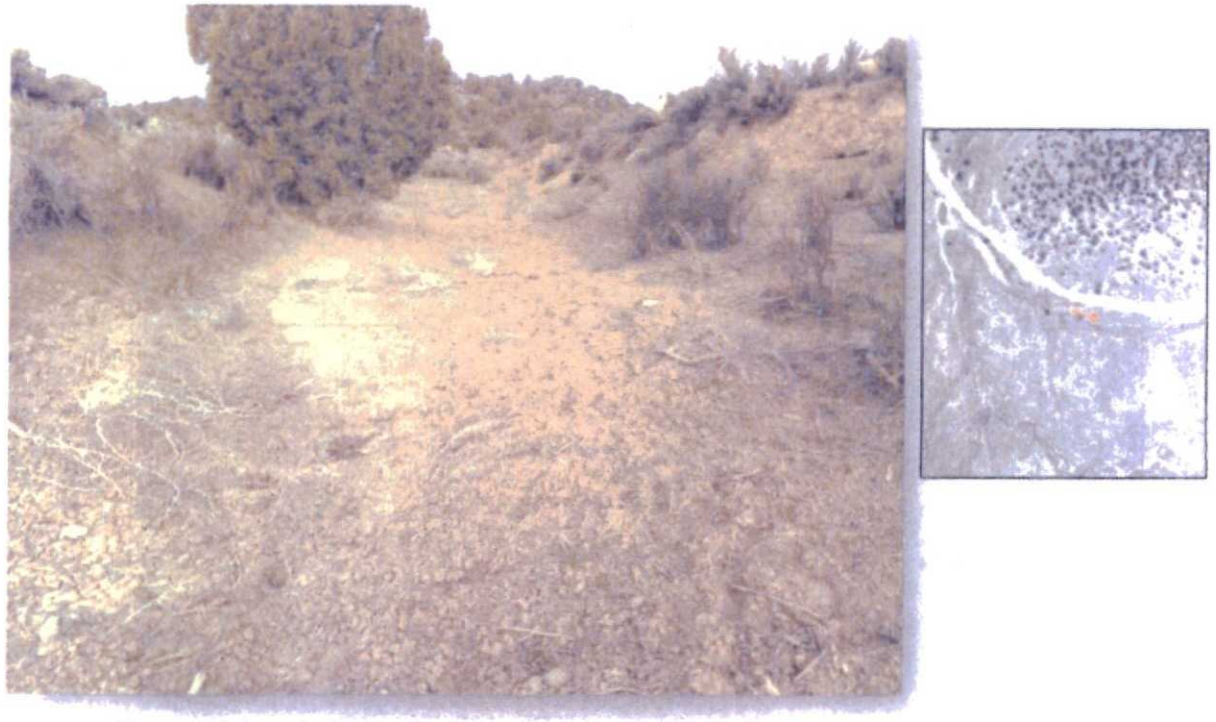
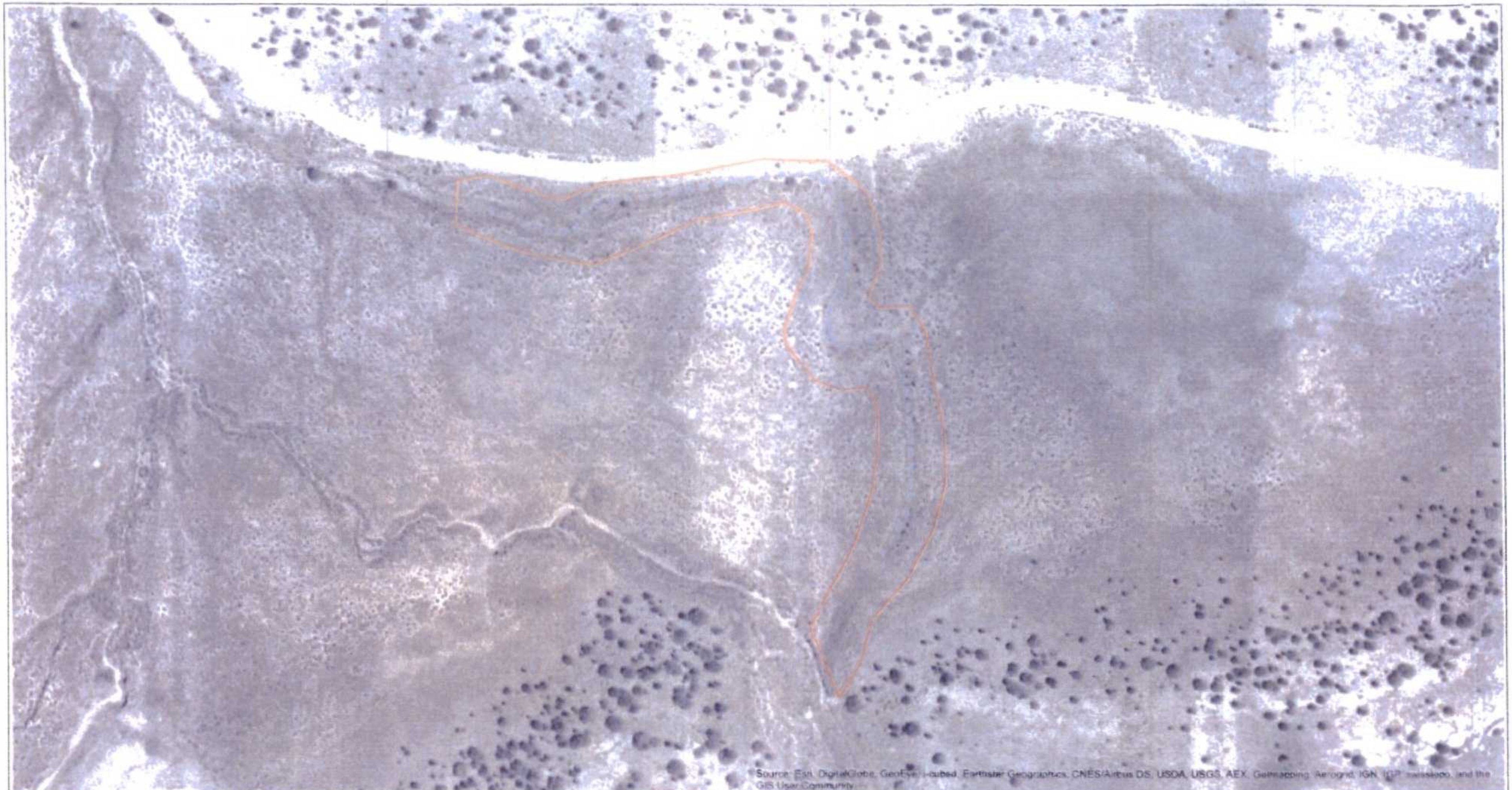


Figure 12. Ponded area down-gradient of Point A, looking towards connection point with active drainage



Legend

Approximate Boundary of Project Area

Section 30 Inactive Drainage Project Area
Aerial Map

Section 30, Township 31 North, Range 5 West
New Mexico Principle Meridian
Rio Arriba County, New Mexico

0 100 200 400 Feet

WPXENERGY

EIS

Projection: WGS 1984 Web Mercator Auxiliary Sphere

Date: 4/28/2015 | Author: mpaulek

Appendix B

Engineering Drawings

GENERAL NOTES

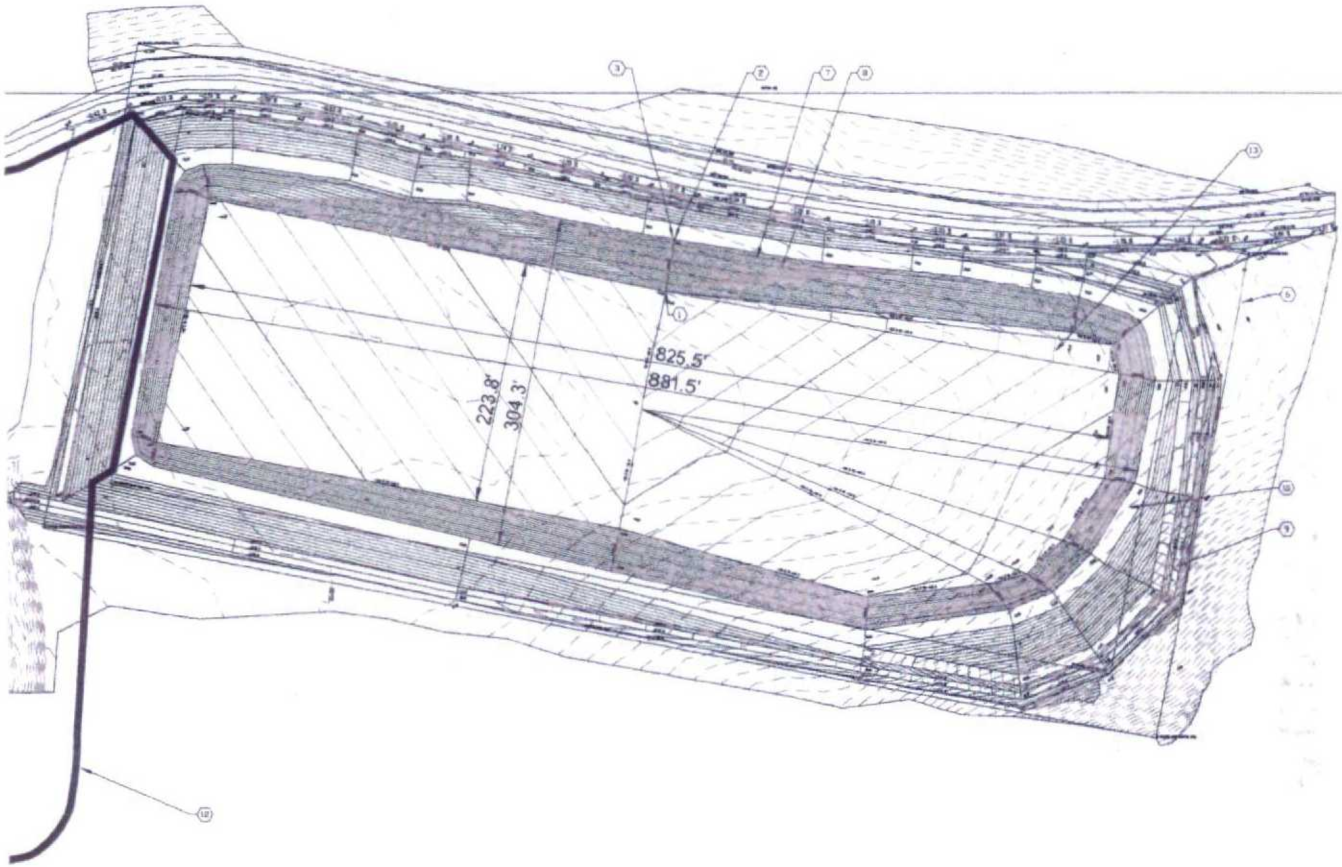
1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT CONSTRUCTION PLANS, SPECIFICATIONS, AND THE LATEST EDITION OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
2. OWNER AND CONTRACTOR ARE RESPONSIBLE TO DEVELOP, PERMIT, IMPLEMENT AND MAINTAIN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL AND STATE REQUIREMENTS. SWPPP IS INCIDENTAL TO THE PROJECT
3. BOTTOM OF PIT SHALL BE SLOPED AT LEAST 1.0% AND LESS THAN 2% AS SHOWN
4. PERIMETER OF THE PIT SHALL BE ENCLOSED WITH A GAME WIRE FENCE OR BETTER.
5. STRIP AND STOCKPILE TOPSOIL FOR FUTURE CLOSURE USE OR USE AS FILL. OWNER SHALL DIRECT LOCATION OF STOCKPILE
6. ENGINEERED FILL AND LINER FOUNDATION SHALL BE WETTED TO OPTIMUM MOISTURE CONTENT AND COMPACTED PER GEOTECHNICAL REPORT
7. STOCK PILE SHALL BE A MINIMUM OF 100 FT NORTH OF ACTIVE ARROYO
8. TOTAL CAPACITY W/3FT FREEBOARD = 975,000 BBL
9. VOLUME @ OVERFLOW CONDITION = 730,000 BBL

SHEET KEYNOTES

1. SUMP. SEE DETAIL A. SHEET C300
2. 3'x4.5' SUMP ACCESS. SEE DETAIL A. SHEET C301
3. BOLLARDS. SEE DETAIL C. SHEET C300
4. NOT USED
5. 12 FOOT SWING GATE (FENCE HEIGHT AND GUARD TO MATCH). TWO EACH
6. CONSTRUCTION ZONE
7. 3' FREEBOARD DEPTH
8. HIGH WATER ELEVATION
9. EROSION PROTECTION DITCH. 3' WIDTH AND 1' DEPTH
10. ANCHOR TRENCH. SEE DETAIL A. SHEET C300
11. GAME FENCE W/36" HIGH "CHICKEN WIRE" FIRMLY ATTACHED TO BOTTOM
12. STOCKPILE AREA
13. MULTI-WALL FLUID MANAGEMENT PIT

LEGEND

3740	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
3740	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	PROPOSED BARBED WIRE FENCE
	DITCH & FLOW DIRECTION



SITE PLAN

HUITT-ZOLLARS

WPX ENERGY INC.

REVISIONS (OR CHANGE NOTICES)

NO.	DESCRIPTION	DATE	BY
1			
2			
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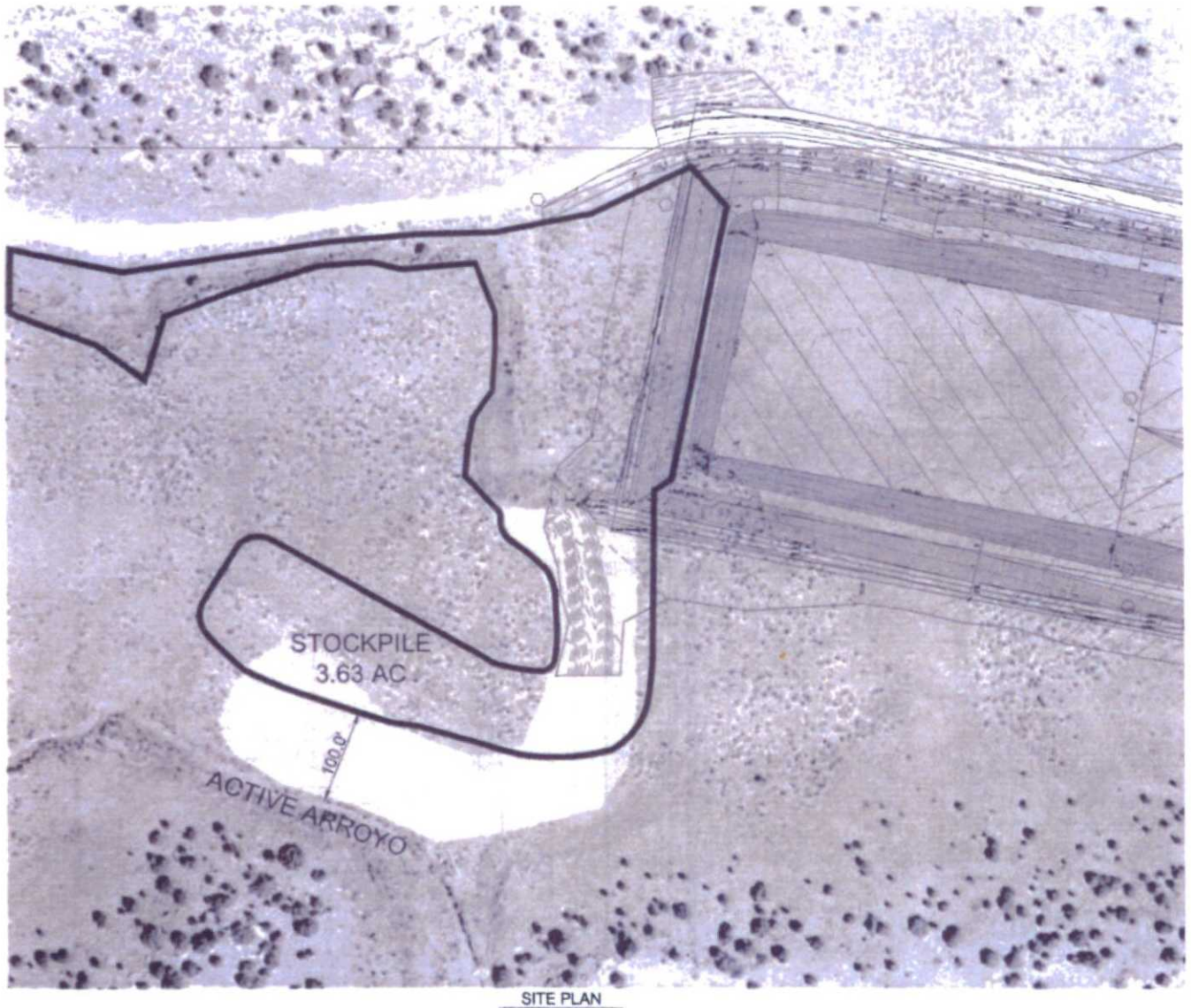
SITE PLAN

WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO.	R170879.04
DESIGNED BY:	RDV
DRAWN BY:	GJM
CHECKED BY:	SAE
DATE:	MAY 20, 2015
WPX CHK:	-

SHEET: C101



SITE PLAN

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT CONSTRUCTION PLANS, SPECIFICATIONS, AND THE LATEST EDITION OF THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. OWNER AND CONTRACTOR ARE RESPONSIBLE TO DEVELOP, PERMIT, IMPLEMENT AND MAINTAIN THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH FEDERAL AND STATE REQUIREMENTS. SWPPP IS INCIDENTAL TO THE PROJECT.
3. BOTTOM OF PIT SHALL BE SLOPED AT LEAST 0.5% AND LESS THAN 2% AS SHOWN.
4. PERIMETER OF THE PIT SHALL BE ENCLOSED WITH A GAME WIRE FENCE OR BETTER.
5. STRIP AND STOCKPILE TOPSOIL FOR FUTURE CLOSURE USE OR USE AS FILL. OWNER SHALL DIRECT LOCATION OF STOCKPILE.
6. COMPACTED FILL AND LINER FOUNDATIONS SHALL BE WETTED TO OPTIMUM MOISTURE CONTENT AND COMPACTED PER GEOTECHNICAL REPORT.
7. STOCK PILE SHALL BE A MINIMUM OF 100 FT WIDTH OF ACTIVE ARROYO.
8. TOTAL CAPACITY (WITH FREEBOARD) = 375,000 BBL.
9. VOLUME @ OVERFLOW LOCATION = 710,000 BBL.

LEGEND

- 5760 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 5740 — PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED BARBED WIRE FENCE
- DITCH & FLOW DIRECTION

NO.	DESCRIPTION	DATE	BY
1			
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3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

HUTT-ZOLLARS

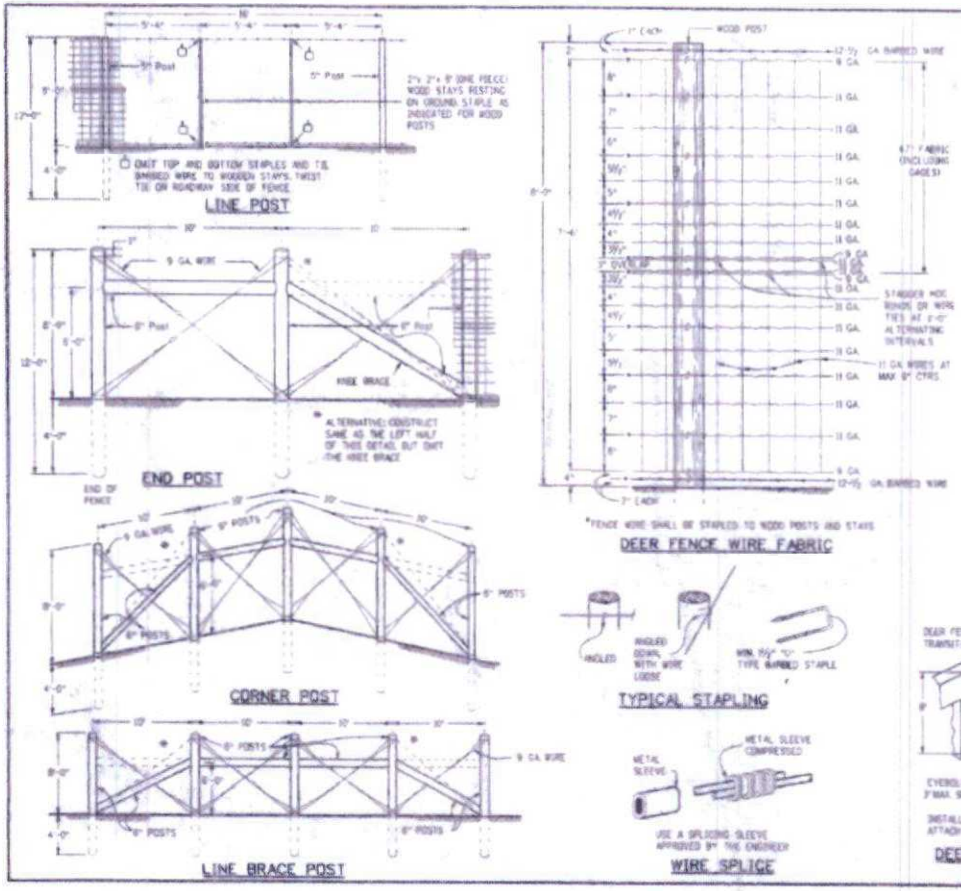
WPX ENERGY INC.

STOCK PILE SITE PLAN

WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO.	RHT0076.04
DESIGNED BY:	RDV
DRAWN BY:	GJM
CHECKED BY:	SAE
DATE:	MAY 28, 2015
WPX CHK:	

SHEET: C101A



GENERAL NOTES

1. AT EACH LOCATION WHERE AN ELECTRIC TRANSMISSION/DISTRIBUTION OR SECONDARY LINE CROSSES A BARBED WIRE FENCE, THE CONTRACTOR SHALL FURNISH AND INSTALL A GROUND CONFORMING TO ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE. THE GROUND ROD SHALL BE A MINIMUM DIAMETER OF ½ IN AND 8 FT IN LENGTH, AND DRIVEN AT LEAST 7½ FT INTO THE GROUND. THE ROD SHALL BE CONNECTED TO EACH WIRE (PHASE) BY A MINIMUM AWG NO. 6 STRANDED COPPER WIRE. GROUNDING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
2. END POST, CORNER POST, AND LINE BRACE POST SHALL BE ASSEMBLED AND PAID FOR BY THE UNIT ALL WORK AND MATERIAL ASSOCIATED WITH EACH ASSEMBLY SHALL BE INCLUDED IN THE UNIT PRICE FOR THAT ASSEMBLY.
3. LINE BRACE POSTS SHALL BE SPACED AT 660 FT. INTERVALS, WHERE FENCING IS CONTINUOUS AND WHERE END, CORNER AND LINE BRACE POSTS ARE NOT SPECIFIED.
4. ALL LINE POSTS SHALL BE 5 IN. MIN. DIA. AND 12 FT. LONG. ALL END, CORNER AND LINE BRACE POSTS SHALL BE 6 IN. MIN. DIA. AND 12 FT. LONG. ALL POSTS AND BRACES SHALL BE TREATED IN ACCORDANCE WITH SUBSECTION 710.07.
5. WOODEN STAYS SHALL BE UNTREATED NATIVE TIMBER. BOTTOM ENDS OF STAYS SHALL REST ON THE NATURAL GROUND AND SHALL BE WIRED AND STAPLED AS SHOWN.
6. BARBED WIRE SHALL BE DOUBLE WRAPPED AND TIED OFF AT END POSTS, CORNER POSTS AND LINE BRACE POSTS. WOVEN WIRE SHALL BE SINGLE WRAPPED AND TIED OFF. THE REST OF FENCE SHALL BE RESTARTED IN LIKE MANNER.
7. FENCE WIRE MAY BE PLACED ON EITHER THE HOAD SIDE OR THE FIELD SIDE OF POSTS, DEPENDING ON LOCAL CONDITIONS; i.e., ON CURVES, THE WIRE SHOULD BE PLACED ON THE SIDE WHICH WOULD RESULT IN THE LEAST AMOUNT OF TENSION ON THE STAPLES. THIS ALSO APPLIES WHERE WIND DRIFT OR OTHER CONDITIONS WOULD EXERT UNUSUAL PRESSURE AGAINST THE WIRE.
8. WHERE CONCRETE STRUCTURES ARE USED AS DEER PASSES, THE FENCE SHALL END AT EYEBOLTS IN RINGS OF THE STRUCTURE. EYEBOLTS IN FRESH CONCRETE SHALL BE ⅝ IN. ROUND BARS AND EMBEDDED A MINIMUM OF 6 IN. WITH A HOOKED OR BENT END IN EXISTING CONCRETE, ⅝ IN. ROUND BARS SHALL BE DOWELED AND GROUTED INTO DRILLED HOLES. EYEBOLTS SHALL HAVE A MINIMUM OF 1 IN. INSIDE EYE DIAMETER AND SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. COST OF EYEBOLTS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR FENCING.
9. WOVEN WIRE FENCE FABRIC SHALL CONFORM TO AASHTO M 279 (ASTM A 116) DESIGN NO. 1047-6-11 WITH CLASS 1 COATING.
10. STEEL BARBED WIRE SHALL CONFORM TO AASHTO M 280 (ASTM A 121) 12½ GAGE WITH CLASS 1 COATING.
11. ALL FENCE WIRE, TIES, BRACE WIRES, STAPLES AND OTHER WIRE APPURTENANCES SHALL BE GALVANIZED IN CONFORMANCE WITH AASHTO M 232.
12. DEER GATE AND TOP BRACES SHALL BE PAINTED WITH GREEN PAINT ACCORDING TO SUBSECTION 708.03 AND COLOR NO. 14089 OF FEDERAL STANDARD 595B.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RE-ESTABLISHING DISTURBED OR DESTROYED SURVEY MONUMENTS TO THE APPROPRIATE ACCURACY IN ACCORDANCE WITH SUBSECTION 625.05 OF THE STANDARD SPECIFICATIONS.

NO.	DESCRIPTION	DATE	BY
	REVISIONS (OR CHANGE NOTICES)		

HUITT-ZOLLARS

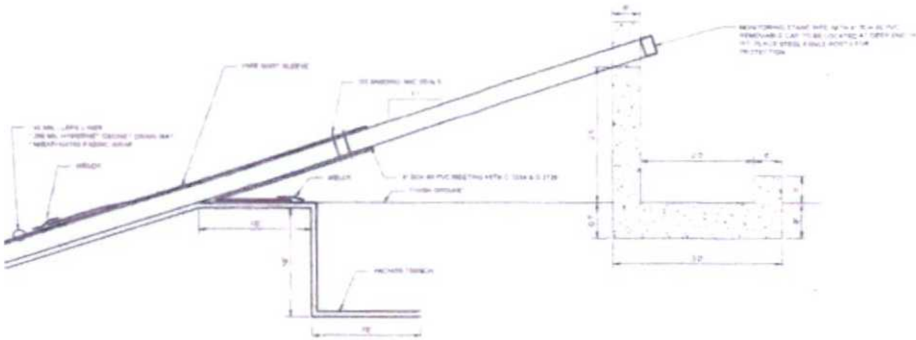
WPX ENERGY INC.

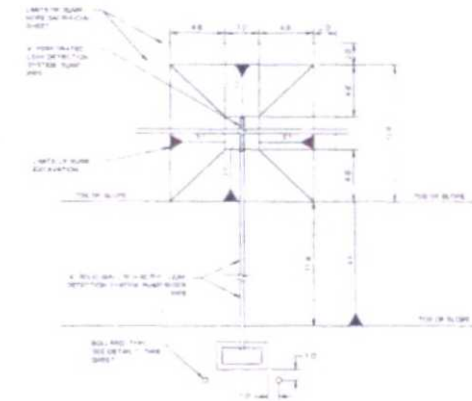
GAME FENCE DETAIL

WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO.	197057K.04
DESIGNED BY:	RDV
DRAWN BY:	LMT
CHECKED BY:	SAE
DATE:	MAY 20, 2015
WPX CHK:	

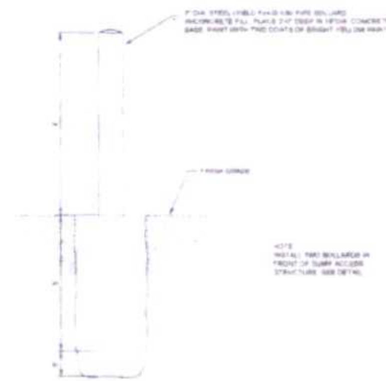
SHEET: C302





SUMP DETAIL (B)

POND LINER DETAIL (A)



BOLLARD DETAIL (TYP) (C)

Scale: N.T.S.

REVISIONS (OR CHANGE NOTICES)

HUITT-ZOLLARS

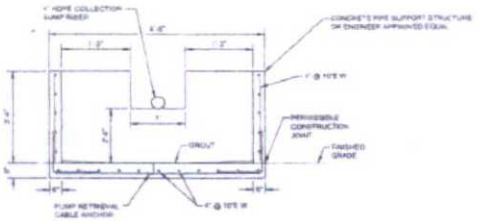
WPX ENERGY INC

DETAILS

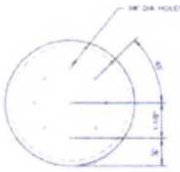
WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO.	[illegible]
DESIGNED BY:	RDV
DRAWN BY:	LAT
CHECKED BY:	SAS
DATE:	MAY 26, 2015
WPX CHK:	

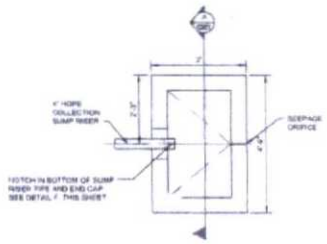
SHEET: C300



LEAK DETECTION SYSTEM PUMP ACCESS STRUCTURE SECTION (A)
Scale: N.T.S.



LEAK DETECTION SYSTEM COLLECTION SUMP PERFORATED END CAP DETAIL (B)
Scale: N.T.S.



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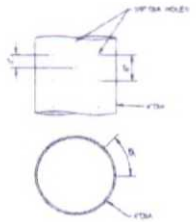
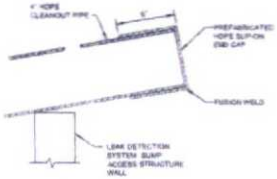
Scale: N.T.S.



4" DIA. LEAK DETECTION SYSTEM SUMP PIPE PERFORATION DETAIL (D)
Scale: N.T.S.



CLEANOUT RISER END (E)
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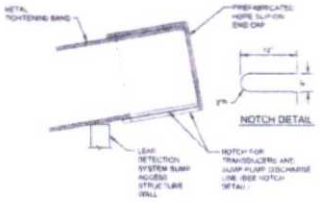

SUMP RISER END CAP (F)
Scale: N.T.S.

NO.	DESCRIPTION	DATE	BY
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2			
1	REVISIONS (OR CHANGE NOTICES)		

Prepared by:
HUITT-ZOLLARS
Albuquerque, NM

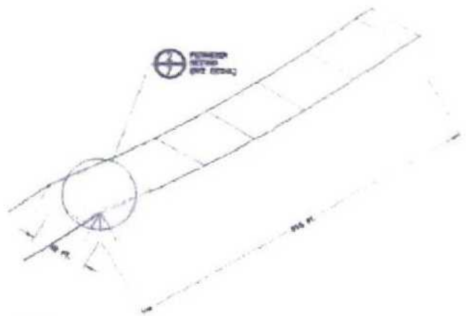
WPX ENERGY INC.

DETAILS

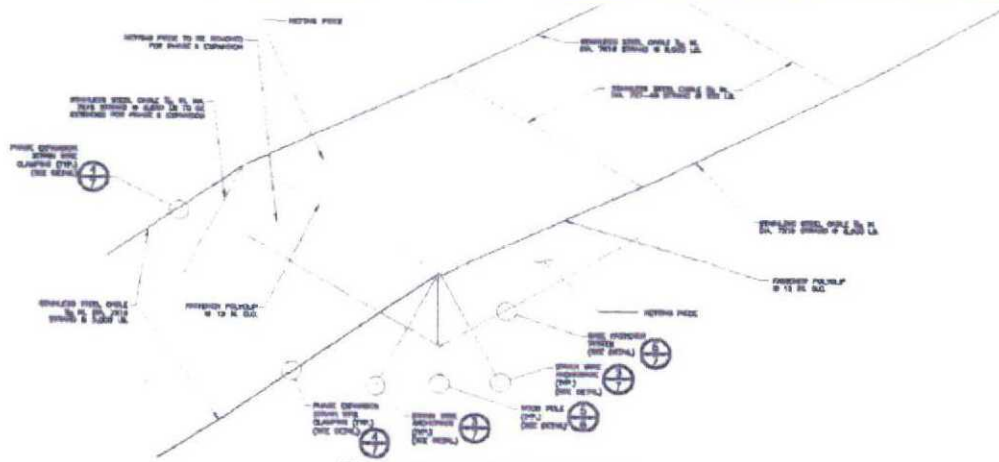
WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO:	NT09078.04
DESIGNED BY:	RDV
DRAWN BY:	GJM
CHECKED BY:	SAE
DATE:	MAY 25, 2010
WPX CHK:	

SHEET:
C301



1/7 WOOD POLE LOCATION AND NETTING PLACEMENT PARTIAL VIEW
N.T.S.



2/7 PERIMETER NETTING PLACEMENT DETAIL
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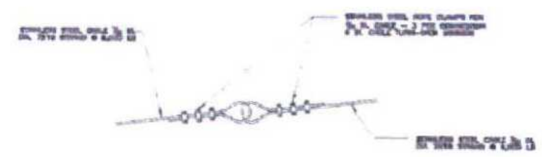

4/7 STRAIN WIRE CLAMPING DETAIL FOR PHASE II EXPANSION
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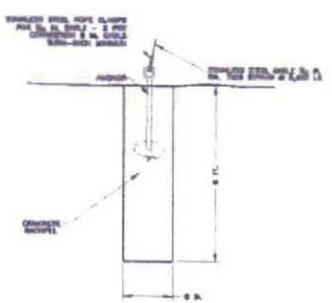
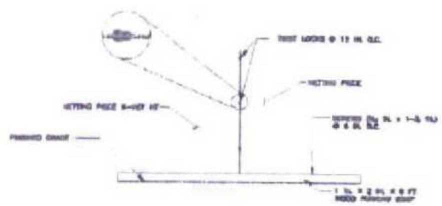


3/7 STRAIN WIRE ANCHORAGE
N.T.S.



5/7 BIRDNET BASE FASTENER SYSTEM
N.T.S.

NO.	DESCRIPTION	DATE	BY
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5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

HUITT-ZOLLARS

WPX ENERGY INC.

BIRD NETTING DETAILS

WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

PROJECT NO. R170976.04
DESIGNED BY: RDV
DRAWN BY: LRT
CHECKED BY: SAE
DATE: MAY 20, 2015
WPX CHK: -

SHEET: C303

SITE DESCRIPTION

PROJECT NAME AND LIMITS: WPX - SECTION 30 MWFM PIT
PROJECT IS LOCATED IN PORTIONS OF SECTION 30 T31N R5W

PROJECT DESCRIPTION: CONSTRUCTION OF A MWFM PIT

EXISTING CONDITIONS: THE SITE IS UNDEVELOPED RANGELAND WITH GAS PRODUCTION FACILITIES

MAJOR SOIL DISTURBING ACTIVITIES: CONSTRUCTION ACTIVITIES INCLUDE HEAVY DIRT MOVING AND LINER CONSTRUCTION

TOTAL PROJECT AREA: 10.00 ACRES

TOTAL AREA TO BE DISTURBED: 10.33 ACRES

WEIGHTED RUNOFF COEFFICIENT (AFTER CONSTRUCTION): 0.33

EXISTING CONDITION OF SOIL AND VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:

NAME OF RECEIVING WATERS: THE SITE IS GENTLY SLOPING TO THE WEST. SURFACE SOILS ON THIS PORTION OF THE SITE ARE BROWN LOAMY FINE SANDS. SITE SOILS ARE OF A POOR QUALITY FOR VEGETATION PRODUCTION. SITE VEGETATION CONSISTS OF SPARSE DESERT SHRUBS. THE SOILS ARE MODERATELY TO VERY PERMEABLE AND SUSCEPTIBLE TO BLOWING.

OWNER CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION. THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.

OWNER SIGNED ______ DATE

OWNER NAME ______ DATE

TITLE ______ DATE

EROSION AND SEDIMENT CONTROL

SOIL STABILIZATION PRACTICES

- ____ TEMPORARY SEEDING
- ____ PERMANENT PLANTING, SODDING, OR SEEDING
- ____ MULCHING
- ____ SOIL RETENTION BLANKET
- X BUFFER ZONES
- X PRESERVATION OF NATURAL RESOURCES

OTHER: ____

STRUCTURAL PRACTICES

- X SILT FENCES
- ____ HAY BALES
- ____ ROCK BERMS
- ____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- X DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ____ DIVERSION DIKE AND SWALE COMBINATION
- ____ PIPE SLOPE DRAINS
- ____ CONCRETE FLUMES
- ____ ROCK BEDDING AT CONSTRUCTION EXIT
- ____ TIMBER MATTING AT CONSTRUCTION EXIT
- ____ CHANNEL LINERS
- ____ SEDIMENT TRAPS
- ____ SEDIMENT BASINS
- ____ STORM INLET SEDIMENT TRAP
- ____ STONE OUTLET STRUCTURES
- ____ CURBS AND GUTTERS
- ____ STORM DRAINS
- ____ VELOCITY CONTROL DEVICES
- ____ VEGETATED SWALES & NATURAL DEPRESSIONS

OTHER: NEW EARTHEN SWALE

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES

1. CONSTRUCT TEMPORARY EROSION CONTROLS INCLUDING DITCHES AND FILTER FENCES
2. STRIP AND STOCKPILE TOPSOIL IN DESIGNATED AREAS. CONSTRUCT APPROPRIATE EROSION CONTROLS TO MAINTAIN NATURAL DRAINAGE PATTERNS TO THE EXTENT POSSIBLE
3. EXCAVATE TO THE ELEVATIONS SHOWN ON THE ENCLOSED GRADING PLAN AND STOCKPILE SOIL IN DESIGNATED AREAS
4. CONSTRUCT A COMPOSITE LINER IN ACCORDANCE WITH THE SOIL LINER QUALITY CONTROL PLAN

GENERAL CONTRACTOR CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT THAT AUTHORIZES STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION.

SIGNED: ______ COMPANY: ______
NAME: ______ ADDRESS: ______
TITLE: ______ TELEPHONE: ______
DATE: ______

SUB - CONTRACTOR CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I WILL COORDINATE, EITHER THROUGH THE GENERAL CONTRACTOR, OWNER OR DIRECTLY, WITH THE CONTRACTOR(S) AND/OR SUBCONTRACTOR(S) IDENTIFIED IN THE POLLUTION PREVENTION PLAN HAVING RESPONSIBILITY FOR IMPLEMENTING STORM WATER CONTROL MEASURES TO MINIMIZE ANY IMPACT MY ACTIONS MAY HAVE ON THE EFFECTIVENESS OF THESE STORM WATER CONTROL MEASURES.

SIGNED: ______ SIGNED: ______
NAME: ______ NAME: ______
TITLE: ______ TITLE: ______
COMPANY: ______ COMPANY: ______
ADDRESS: ______ ADDRESS: ______
TELEPHONE: ______ TELEPHONE: ______
DATE: ______ DATE: ______

BEST MANAGEMENT PRACTICES CONTROLS

I. WASTE MATERIALS:

ALL WASTE MATERIALS, INCLUDING CONSTRUCTION DEBRIS, SHALL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. NO CONSTRUCTION WASTE MATERIAL SHALL BE BURIED ON SITE. THE TRASH DUMPSTER SHALL COMPLY WITH ORDINANCE 18.52.510 (ENCLOSURE AND REMOVAL OF WASTE MATERIALS DURING CONSTRUCTION). THE DUMPSTER SHALL BE EMPTIED AS NECESSARY OR AS REQUIRED BY ORDINANCE 9.04 (SOLID WASTE MANAGEMENT) AND THE TRASH SHALL BE HAULED TO A LICENSED LANDFILL.

II. HAZARDOUS WASTE:

AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES SHALL BE CONSIDERED HAZARDOUS: PAINT, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SPILL STABILIZATION, CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION AND CONTACT THE FIRE DEPT. AND NMED.

III. SANITARY WASTE:

ALL SANITARY WASTE SHALL BE COLLECTED FROM THE CONSTRUCTION PORTABLE UNITS AS NECESSARY OR AS REQUIRED, CHAPTER 18.08 (BUILDING CODE), BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR. ALL WASTE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

IV. SPILL PREVENTION:

THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURES OF MATERIALS TO STORM WATER RUNOFF.

V. GOOD HOUSEKEEPING:

A. STORE ONLY ENOUGH PRODUCTS REQUIRED TO DO THE JOB
B. NEATLY STORE MATERIALS ON-SITE IN AN ORDERLY MANNER
C. KEEP PRODUCTS IN THEIR ORIGINAL CONTAINER
D. DO NOT MIX SUBSTANCES WITH ONE ANOTHER, UNLESS OTHERWISE RECOMMENDED BY THE MANUFACTURER
E. USE ENTIRE CONTENTS OF A PRODUCT BEFORE DISPOSING THE CONTAINER
F. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL

VI. HAZARDOUS PRODUCTS:

PRACTICES USED TO REDUCE RISKS:

A. KEEP PRODUCTS IN THEIR ORIGINAL CONTAINER IF AT ALL POSSIBLE
B. RETAIN ORIGINAL LABELS, PRODUCT INFORMATION AND MATERIAL SAFETY DATA SHEETS (MSDS)
C. DISPOSE SURPLUS PRODUCT IN ACCORDANCE WITH MANUFACTURER'S OR LOCAL & STATE RECOMMENDED METHODS

VII. PETROLEUM PRODUCTS:

ALL ON-SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ON-SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.

VIII. SPILL CONTROL PRACTICES:

A. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES.
B. MATERIALS AND EQUIPMENT NECESSARY FOR CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON-SITE.
C. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
D. SPILL AREA SHALL BE WELL VENTILATED AND APPROPRIATE CLOTHING WILL BE WORN.
E. ANY SPILL SHALL BE REPORTED TO THE APPROPRIATE GOVERNMENTAL AGENCY.
F. MEASURES SHALL BE TAKEN TO PREVENT A SPILL FROM REOCCURRING.

IX. MAINTENANCE AND INSPECTION PROCEDURES:

ALL POLLUTION PREVENTION MEASURES SHALL BE INSPECTED AT LEAST ONCE A MONTH OR WITHIN 24-HOURS PRIOR TO ANTICIPATED STORM EVENT AND FOLLOWING A STORM EVENT OF 0.5 INCHES OR MORE. INSPECTION IN FINAL STABILIZED AREAS OR DURING ARID PERIODS WILL BE CONDUCTED MONTHLY. BEST MANAGEMENT PRACTICES AND POLLUTION CONTROL PROCEDURES SHALL BE INSPECTED FOR ADEQUACY.

X. REMARKS:

DISPOSAL AREAS, STOCKPILES, AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, WATERBODY OR STREAMBED. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS. ALL WATERWAYS SHALL BE CLEANED AS SOON AS PRACTICABLE OF TEMPORARY EMBANKMENT, TEMPORARY BRIDGES, MATTING, FALSEWORK, PILING DEBRIS OR OTHER OBSTRUCTIONS PLACED DURING CONSTRUCTION OPERATIONS THAT ARE NOT A PART OF THE FINISHED WORK.

XI. OFFSITE VEHICLE TRACKING:

IN ADDITION TO THE STABILIZED CONSTRUCTION ENTRANCES, THE FOLLOWING MEASURES SHALL BE OBSERVED DURING CONSTRUCTION:

- HAUL ROADS SHALL BE DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS SHALL BE COVERED WITH TARPAULIN
- EXCESS DIRT ON ROAD SHALL BE REMOVED IMMEDIATELY
  STABILIZED CONSTRUCTION ENTRANCE
- OTHER: ____

MISCELLANEOUS

- X NO BATCH PLANT
- X NO ENDANGERED SPECIES

NO.	DESCRIPTION	DATE	BY
1			
2			
3			
4			
5			
6			
7			

REVISIONS (OR CHANGE NOTICES)

HUITT-ZOLLARS

Designed for: WPX ENERGY INC.

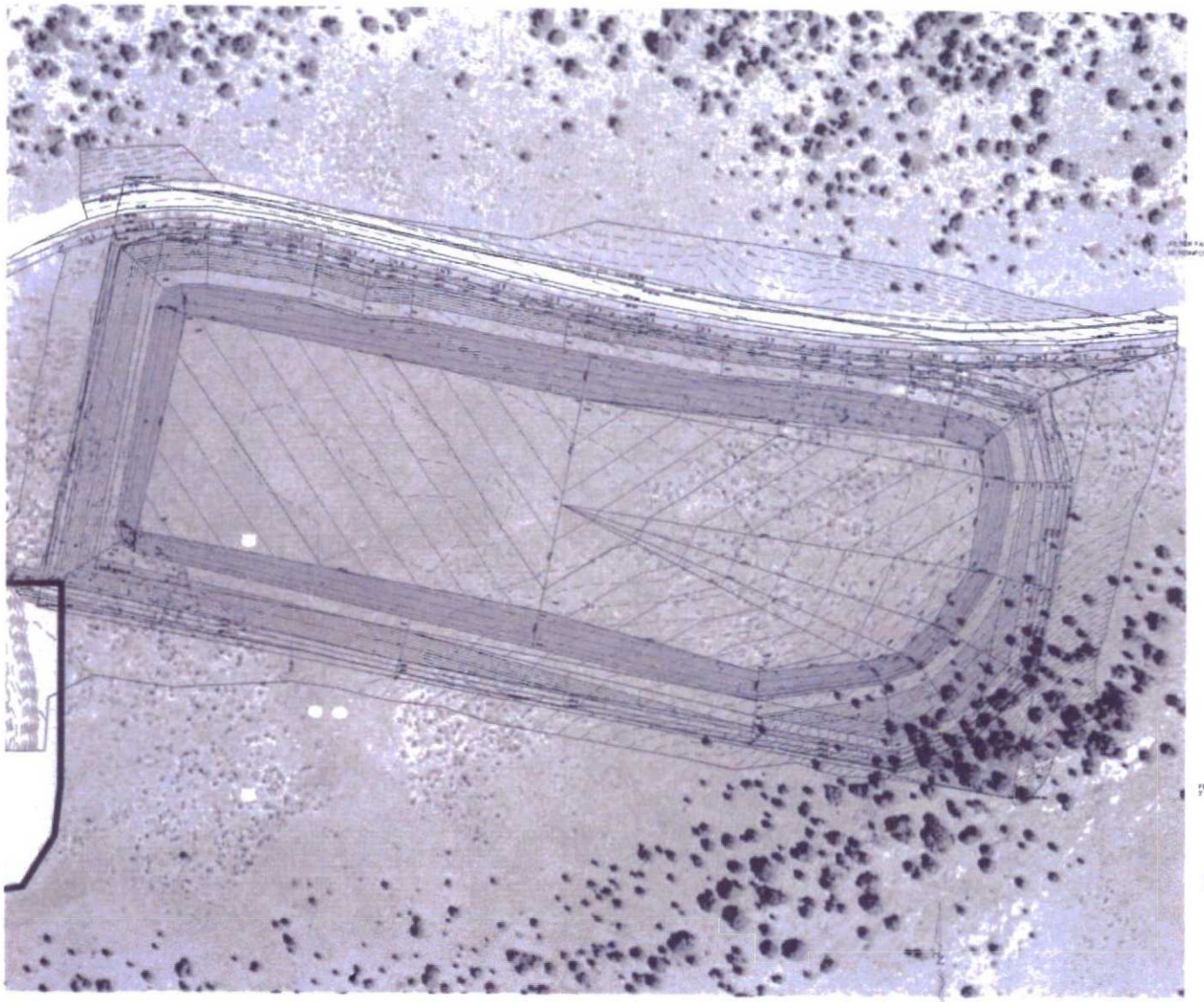
SWPPP NOTES

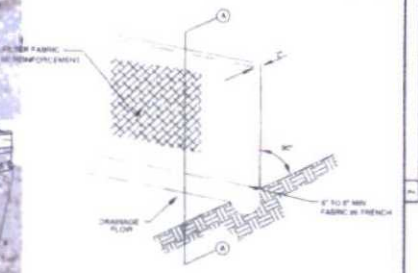
WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

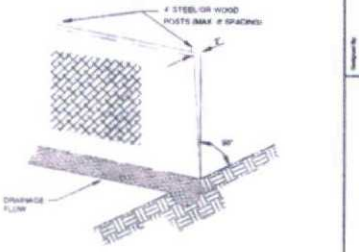
PROJECT NO. R170878.04
DESIGNED BY: RDV
DRAWN BY: GJM
CHECKED BY: SAE
DATE: MAY 20, 2015
DPW CHK: -
SHEET: C400

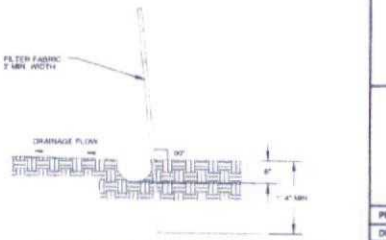
EROSION CONTROL

1. PIT SHALL BE SITED OUTSIDE OF ANY POSSIBILITY TO BE IMPACTED BY CONCENTRATED STORM WATER FLOWS.
2. STORM WATER SHEET FLOWS SHALL BE ROUTED AROUND PERIMETER OF PIT WITHIN AN EARTHEN SWALE. THE SWALE SHALL BE INSTALLED FROM THE HIGH POINT AND EXTEND TO THE LOW POINT. GRADES WITHIN SWALE SHALL NOT EXCEED 2% WITHOUT ADDITIONAL ARMORING OF FLOWLINE AND SIDE SLOPES.
3. STOCKPILE TOPSOIL ALONG FENCE LINE. WHEREIN STOCKPILED SOIL TO MINIMIZE STORMWATER RUN ON.
4. SEDIMENT SHALL BE FILTERED FROM SWALE IN ACCORDANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN.
5. EXPOSED SLOPES SHALL BE STABILIZED WITH CALICHE MATERIAL.
6. ALL DISTURBED AREAS SHALL BE SEEDED WITH NATIVE SEEDS AND STRAW CRIMPED UNLESS NOTED OTHERWISE.









REINFORCEMENT AND FILTER FABRIC TO BE DIRECTED BY THE ENGINEER

SEDIMENT CONTROL FENCE
STRUCTURE SECTION (A)
Scale: N.T.S.

NOTE: POULTRY NETTING SHALL NOT BE ALLOWED AS A REINFORCEMENT MATERIAL. CONTRACTOR SHALL POST NOTICE OF INTENT AT SITE ENTRANCE.

SCALE: 1"=50'

NO.	DESCRIPTION	DATE	BY
	REVISIONS (OR CHANGE NOTICE)		

HUNT-ZOLLARS

WPX ENERGY INC.

SWPPP

WPX - RECYCLING CONTAINMENT
SECTION 30 T31N R5W
RIO ARRIBA, NM

5/9/14

PROJECT NO: R170979.04
DESIGNED BY: RDV
DRAWN BY: GJM
CHECKED BY: SAE
DATE: MAY 30, 2014
DPW DWG: -

SHEET: C401

Appendix C

Design/Construction Plan

Applicable mandates in Rule 34 are underlined. This plan addresses construction of lined earthen containments. Appendix A presents Engineering Design Plans.

Field conditions may create the need for minor modification of the containment design (e.g. changing the length, width or depth.

Dike Protection and Structural Integrity
Design elements are addressed in the section as well as in the separate liner foundation recommendations (geotechnical report). The geotechnical foundation recommendations are based on site-specific data. The operator, engineer, and selected contractor will review the recommendations prior to beginning the earthwork and adhere to the specific recommendations.

The design and operation provide for the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall. Additionally, the design prevents run-on of surface water as the containment is surrounded by an above-grade levee (berm) and diversion ditch to prevent run-on of surface water.

Stockpile Topsoil
Where topsoil is present, prior to constructing the containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure. The topsoil will be segregated from other excavated material. The topsoil and other material (e.g. bedrock) will be stockpiled as shown in the drawings. Excavated bedrock and suitable material identified in the geotechnical report will be used to construct the levee.

Signage
The design calls for an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The sign is posted in a manner and location such that a person can easily read the legend. The sign will provide the following information:

- the operator's name,
- the location of the site by quarter-quarter or unit letter, section, township and range, and
- 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 (see detail on last page of engineering design). 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 in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Netting and Protection of Wildlife

The game fence on the containment levee will be effective in excluding antelope, coyotes and most other terrestrial wildlife.

The containment will contain *treated* produced water that has not shown to be a material threat to birds due to hydrogen sulfide gas or floating, free-phase hydrocarbons. With respect to protection of birds, the operator will regularly inspect the lined earthen containment and report, within 30 days of discovery, any migratory or wildlife death to the appropriate wildlife agency as required by OCD Rules. Additionally, in accordance with the requirements of the surface owner, the containment will be netted as shown in the design.

Thus, the recycling containment is otherwise protective of wildlife, including migratory birds. The O&M plan calls for the operator to inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring

Earthwork

As part of this plan, a geotechnical investigation will be performed to provide recommendations regarding the foundation for the containment liner (see following section). The containment will have 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. Geotextile may be placed under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity.

Appendix A shows the

a. levee has inside grade no steeper than two horizontal feet to one vertical foot (2H: 1V).
b. levee outside grade is no steeper than three horizontal feet to one vertical foot (3H: 1V)
c. top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance..
d. bedrock gravel may be placed on the outside levee provides additional erosion control.
e. The containment is excavated into the ground such that all of fluid force lies against native earth or the engineered foundation (see Appendix A)

Field conditions may create the need for changes to the design. Any changes to the construction or grade requirements due to unforeseen conditions will be reviewed and approved prior to initiating installation of the liner system. Any design change that does not conform to the NMOCD Rule will be the subject of a variance request and will be submitted to the OCD for review and approval.

Liner and Drainage Geotextile Installation

The containment has a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. The primary lienr is 45-mil LLDPE. The secondary liner is 30-mil LLDPE string reinforced. Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW -846 method 9090A.

The recycling containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists 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. The containment floor design calls for a slope of approximately greater than 0.5% and less than 2% toward the sump. This slope combined with the highly transmissive geonet drainage layer provide for the earliest possible leak detection.

The liners and drainage material will be installed consistent with the Manufacture's specifications. In addition to any specifications of the Manufacturer, protocols for liner installation include measures to:

i. minimizing liner seams and orient them up and down, not across, a slope of the levee.
ii. use factory welded seams where possible.
iii. use field seams in geosynthetic material are thermally seamed and prior to field seaming, overlap liners four to six inches.
iv. minimize the number of field seams and comers and irregularly shaped areas.
v. provide for no horizontal seams within five feet of the slope's toe.
vi. use qualified personnel to perform field welding and testing.
vii. avoid excessive stress-strain on the liner
viii. The edges of all liners are anchored in the bottom of a compacted earth-filled trench that is at least 18 inches deep

At points of discharge into the lined earthen containment the pipe configuration of the water transfer protocols (available upon request) effectively protects the liner from excessive hydrostatic force or mechanical damage during filling.

The water transfer protocols show that at any point of discharge into or suction from the recycling containment, the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines do not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, numerous lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped

with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid if the owner deems necessary during operations.

External discharge or suction lines do not penetrate the liner.

Leak Detection and Fluid Removal System Installation

The leak detection system, contains the following design elements

a. The 200-mil Hypernet drainage material between the primary and secondary liner that is sufficiently permeable to allow the transport of fluids to the observation ports.
b. The containment floor is sloped towards the monitoring riser pipe facilitate the earliest possible leak detection of the containment bottom. A pump may be placed in an observation port to provide for fluid removal.
c. Piping will withstand chemical attack from any seepage; structural loading from stresses and disturbances from overlying water, cover materials, equipment operation or expansion or contraction (see Appendix A).
d. The slope of the interior sub-grade is greater than 0.5% and less than 2%

Appendix D

Operating and Maintenance Plan

Operating and Maintenance Procedures

In this plan, underlined text represents the language of the Rule.

The operator will operate and maintain the lined earthen containment to contain liquids and solids (blow sand and minimal precipitates from the treated produced water) and maintain the integrity of the liner system in a manner that prevents contamination of fresh water and protects public health and the environment as described below. The purpose of the lined earthen containment is to facilitate recycling, reuse and reclamation of produced water derived from nearby oil and gas wells. During periods when water for E&P operations is not needed, produced water will discharge to one of the injection wells in the operator's SWD system. The containment will not be used for the disposal of produced water or other oilfield waste.

The operation of the containment is summarized below.

A. Via pipeline, produced water generated from nearby oil and gas wells is delivered to a treatment system located as indicated in the C-147.
B. After treatment, the produced water discharges into the containment
C. When required, treated produced water is removed from the containment for E&P operations. At this time, treated produced water will be used for drilling beneath the fresh water zones (beneath surface casing), for well stimulation (e.g. hydraulic fracturing) and other E&P uses as approved by OCD.
D. Whenever the maximum fluid capacity of the containment is reached, treatment and discharge to the containment ceases (see Freeboard and Overtopping Plan, below)
E. The operator will keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
F. The operator will maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.
G. The containment shall be deemed 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. The operator will 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.

The operation of the lined earthen containment will follow the mandates listed below:

1. The operator will not discharge into or store any hazardous waste (as defined by 40 CFR 261 and NMAC 19.15.2.7.H.3) in the containments.
2. If the containment's primary liner is compromised above the fluid's surface, the operator will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.
3. If the primary liner is compromised below the fluid's surface, the operator will 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.
4. If any penetration of the containment liner is confirmed by sampling of fluid in the leak detection system (see Inspection and monitoring plan), The operator will

a. Begin and maintain fluid removal from the leak detection/pump-back system
b. Notify the district office within 48 hours (phone or email) of the discovery
c. Identify the location of the leak and
d. Repair the damage or, if necessary, replace the containment liner

5. The operator will install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release and the operator will remove any visible layer of oil from the surface of the recycling containment.
6. The operator will report releases of fluid in a manner consistent with NMAC 19.15.29
7. The containment will be operated to prevent the collection of surface water run-on.
8. The operator will maintain the containment free of miscellaneous solid waste or debris.
9. The operator will maintain at least three feet of freeboard for the containment and will use a free-standing staff gauge to allow easy determination of the required 3-foot of freeboard.
10. As described in the design/construction plan, the injection or withdrawal of fluids from the containment is accomplished through a hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
11. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
12. The operator will maintain the fences in good repair

Monitoring, Inspection, and Reporting Plan

The operator will 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.

Weekly inspections consist of

- reading and recording the fluid height of staff gauges
- recording any evidence that the pond surface shows visible oil
- visually inspecting the containment's exposed liners
- checking the leak detection system for any evidence of a loss of integrity of the primary liner.

As stated above, if a liner's integrity is compromised, or if any penetration of the liner occurs above the water surface, then the operator will notify the District office within 48 hours (phone or email).

Monthly, the operator will

A. Inspect diversion ditches and berms around the containment to check for erosion and collection of surface water run-on.
B. Inspect the leak detection system for evidence of damage or malfunction and monitor for leakage
C. Inspect the containment for dead migratory birds and other wildlife. Within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.
D. Report to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

E. Record sources and disposition of all recycled water

The operator will maintain a log of all inspections and make the log available for the appropriate Division district office's review upon request.

Freeboard and Overtopping Prevention Plan

The method of operation of the containment allows for maintaining freeboard with very few potential problems. When the capacity of the containment is reached (3-feet of freeboard), the discharge of treated produced water ceases and the produced water generated by nearby oil and gas wells is managed by injection wells.

If rising water levels suggest that 3-feet of freeboard will not be maintained, the operator will implement one or more of the following options

I. Cease discharging treated produced water to the containment
II. Accelerate re-use of the treated produced water for purposes approved by the Division
III. Transfer treated produced water from the containment to injection wells

The reading of the staff gauge typically occurs daily when treatment operations are ongoing and weekly when discharge to the containment is not occurring.

Protocol for Leak Detection Monitoring, Fluid Removal and Reporting

As shown in Appendix A, the leak detection system includes a monitoring system. Any fluid released from the primary liner will flow to the collection sump where fluid level monitoring is possible at the monitoring riser pipe associated with the leak detection system (see Appendix A).

Staff may employ a portable electronic water level meter to determine if fluid exists in the monitoring riser pipe. Obtaining accurate readings of water levels in a sloped pipe beneath a containment can be a challenge. An electrician's wire snake may be required to push the probe to the bottom of the port and the probe may be fixed in a 2-inch pipe "dry housing" to avoid false readings due to water condensation on the pipe. There are many techniques to determine the existence of water in the sumps – including low flow pumps and a simple small bailer affixed to an electrician's snake. The operator will use the method that works best for this containment.

If seepage from the containment into the leak detection system is suspected by a positive fluid level measurement, the operator will

1. Re-measure fluid levels in the monitoring riser pipe on a daily basis for one week to determine the rate of seepage.
2. Collect a water sample from the monitoring riser pipe to confirm the seepage is treated produced water from the containment via field conductivity and chloride measurements.
3. Notify NMOCD of a confirmed positive detection in the system within 48-hours of sampling (initial notification).
4. Install a pump into the monitoring riser pipe sump to continually (manually on a daily basis or via automatic timers) remove fluids from the leak detection system into the containment until the liner is repaired or replaced.

5. Dispatch a liner professional to inspect the portion of the containment suspected of leakage during a "low water" monitoring event.
6. Provide NMOCD a second report describing the inspection and/or repair within 20 days of the initial notification

If the point of release is obvious from a low water inspection, the liner professional will repair the loss of integrity. If the point of release cannot be determined by the inspection, the liner professional will develop a more robust plan to identify the point(s) of release. The inspection plan and schedule will be submitted to OCD with the second report. The operator will implement the plan upon OCD approval.

Appendix E
Closure Plan

In this plan, underlined text represents the language of the Rule.

After operations cease, the operator will remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

The operator shall substantially restore the impacted surface area to

- the condition that existed prior to the construction of the recycling containment or
- to a condition imposed by federal, state trust land or tribal agencies on lands managed by those agencies as these provisions govern the obligations of any operator subject to those provisions,

Excavation and Removal Closure Plan – Protocols and Procedures

The workover pit is expected to contain a small volume of solids, the majority of which will be windblown sand and dust with some mineral precipitates from the water

1. The operator will remove all liquids from the pits and either:
    a. Dispose of the liquids in a division-approved facility, or
    b. Recycle, reuse or reclaim the water for reuse in drilling and stimulation.
2. The operator will close the recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility:

3. After the removal of the pit contents and liners, soils beneath the workover pit will be tested by collection of a five-point (minimum) composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in Table I of 19.15.34.14.
4. After review of the laboratory results
    a. If any contaminant concentration is higher than the parameters listed in Table I, additional delineation may be required and the operator must receive approval before proceeding with closure.
    b. If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator will proceed to
        i. backfill with non-waste containing, uncontaminated, earthen material. Or
        ii. undertake an alternative closure process pursuant to a variance request after approval by OCD

Reclamation and Re-vegetation

a. The operator will reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.
b. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
c. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

Closure Documentation

Within 60 days of closure completion, the operator 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 is correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

The operator shall notify the division when reclamation and re-vegetation are complete. Specifically the notice will document that 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.