HITP - 6

TEMPORARY PERMISSION

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

March 26, 2008

Mr. Bill Vander Lyn
Transwestern Pipeline Company, LLC
711 Louisiana Street, Suite 900
Houston, Texas 77002

Re: Hydrostatic Test Water Discharge - Temporary Permission (HITP-006)
Transwestern Pipeline Company, LLC
Loop A 36-inch Pipeline Project
SE ¼ of Section 9, Township 28 North, Range 11 West, NMPM,
San Juan County, New Mexico

Dear Mr. Vander Lyn:

The New Mexico Oil Conservation Division (OCD) has received Transwestern Pipeline Company, LLC's (Transwestern) notice of intent (NOI) submitted on Transwestern's behalf by TRC, dated March 11, 2008, to hydrostatically test a new 8.9 mile section of 36-inch natural gas pipeline that is approximately 3 miles south of Bloomfield, New Mexico. The NOI indicates the Transwestern proposes to generate approximately 1,440,600 gallons of wastewater from a hydrostatic test of new pipeline. The hydrostatic test wastewater will be discharged into frac tanks for temporary storage, transferred from the frac tanks to vacuum trucks, and delivered to Key Energy Services for injection and disposal into a Class I well.

Based on the information provided in the request, temporary permission is hereby granted for the disposal of the hydrostatic test water generated from the new pipeline test with the following understandings and conditions:

1. no discharge will occur at the hydrostatic test wastewater collection/discharge location: Latitude 36° 40' 15.7" North and Longitude 108° 00' 5.3" West;
2. the source of the hydrostatic test water will be obtained from Citizens Ditch (Duggan's Ditch);
3. approximately 1,440,600 gallons of hydrostatic test wastewater generated from the test will be slowly discharged into 8 frac tanks for temporary storage, while awaiting transfer and disposal into a Class I well at Key Energy Services;
4. the 8 temporary storage tanks shall have impermeable secondary containment (e.g., liners - visquene and berms – hay bales), which will contain a volume of at least one-third greater than the total volume of the largest tank or all interconnected tanks;
5. no hydrostatic test wastewater generated from the test will be discharged to the ground or within the existing easement right of right;

6. Key Energy Services will transfer the hydrostatic test wastewater via fluid extraction (vacuum) trucks to their Class I well for injection and disposal;
7. all hydrostatic test wastewater will be removed from the discharge and/or collection/retention location by May 7, 2008;
8. any surface area impacted or disturb from the approved activities shall be restored.
9. no collection or retention of hydrostatic test wastewater shall occur:
    a. within any lake, perennial stream, river or their respective tributaries that may be seasonal;
    b. where ground water is less than 10 feet below ground surface.
    c. within 200 feet of a watercourse, lakebed, sinkhole or playa lake;
    d. within an existing wellhead protection area;
    e. within, or within 500 feet of a wetland; or
    f. within 500 feet from the nearest permanent residence, school, hospital, institution or church;
10. best management practices must be implemented to contain the discharge and/or collection/retention onsite, not impact adjacent property, and to control erosion;
11. the discharge and/or collection/retention does not cause any fresh water supplies to be degraded or to exceed standards as set forth in Subsections A, B, and C of the 20.6.2.3103 NMAC (the New Mexico Water Quality Control Commission Regulations);
12. the landowner(s) of the proposed discharge and/or collection/retention or alternative discharge location must be properly notified of the activities prior to the proposed hydrostatic test event; and
13. Transwestern shall report all unauthorized discharges, spills, leaks and releases of hydrostatic test water and conduct corrective action pursuant to WQCC Regulation 20.5.12.1203 NMAC and OCD Rule 116 (19.15.3.116 NMAC).

It is understood that the hydrostatic test will occur sometime during the period of April 7, 2008 through May 5, 2008. This temporary permission will expire in 120 days of the effective date of the letter.

This approval does not relieve Transwestern of responsibility should its operation result in pollution of surface water, ground water, or the environment. In addition, OCD approval does not relieve Transwestern of responsibility for compliance with other federal, state or local regulations.

If there are any questions regarding this matter, please do not hesitate to contact Brad A. Jones at (505) 476-3487 or brad.a.jones@state.nm.us. On behalf of the staff of the OCD, I wish to thank you and your staff for your cooperation.

Sincerely,

Wayne Price
Environmental Bureau Chief

LWP/baj

cc: OCD District III Office, Aztec

21 Technology Drive
Irvine, CA 92618

949.727.9336 PHONE
949.727.7399 FAX

www.TRCsolutions.com

March 11, 2008

Mr. Brad Jones
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico

RE: Revised Notice of Intent
Hydrostatic Discharge Permit Application for
Transwestern Pipeline Company, LLC
Loop A 36-inch pipeline, San Juan County, New Mexico

Dear Mr. Jones:

On behalf of Transwestern Pipeline Company, LLC (Transwestern), TRC is providing a revised Notice of Intent (NOI) for the Hydrostatic Discharge Permit Application for Transwestern's 36-inch Loop A pipeline. The new pipeline would be used for the conveyance/transportation of natural gas. Waste streams generated from all hydrostatic testing activities are anticipated to be non-exempt from RCRA and will be disposed of at Key Energy Disposal located at 345 County Road 350, San Juan County, New Mexico. This revised NOI is in response to your comments on the revised NOI dated January 16, 2008, and also due to the alteration of the Hydrostatic Testing Plan.

We will be contacting you shortly to discuss this revised notice of intent and to resolve any remaining questions or concerns you may have. In the interim, please do not hesitate to contact either of the undersigned at 949-753-0101 (also sferrara@trcsolutions.com or eback@trcsolutions.com).

Thank you for your time and consideration.

Sincerely,

Steve Ferrara /Byes

Steve Ferrara
Vice President

Elisha Back

Elisha Back
Project Manager

Attachments:
Hydrostatic Test Discharge Permit Application

Appendix A – Figures

Figure 1	Transwestern Loop A Overview
Figure 2	Hydrostatic Test Water Discharge Location
Figure 3	Hydrostatic Test Water Discharge Location *Legal Description (on topo)*
Figure 4	Hydrostatic Test Water Discharge Location *Detail (including right-of-way easements)*
Figure 5	Hydrostatic Test Water Intake Location
Figure 6	San Juan County Assessors Parcel Map

Appendix B – Site Survey and Photographs

Appendix C – Excerpts from: Wetlands and Waters of the U.S. Investigation – Phoenix Expansion Project San Juan and McKinley Counties, New Mexico by TRC

Appendix D – Flood Insurance Rate Map, San Juan County, New Mexico

Appendix E –E-mail and Personal Communications

Appendix F – BLM Record of Decision, Phoenix Expansion Project

Appendix G – Proposed Water Sampling Plan

Appendix H – Soil Survey Information

Appendix I – Well Data

Appendix J – Public Notice

cc: B. Vander Lyn, Transwestern

File (TRC)

Hydrostatic Test Discharge Permit Application
Transwestern Pipeline Company, LLC
Loop A Milepost 5.64/Station 298+00

A. Name and address of the proposed discharger:

Transwestern Pipeline Company, LLC (Transwestern)
Attn: Bill Vander Lyn
711 Louisiana Street, Suite 900
Houston, TX 77002

B. Location of discharge, including a street address, if available, and sufficient information to locate the facility with respect to surrounding landmarks:

The discharge site would be located at milepost (MP) 5.64, station 298+00, of an 8.9-mile-long pipeline loop (Loop A) being installed adjacent to Transwestern's existing natural gas pipeline (see Figures 1 and 2 in Appendix A). The discharge site is within a utility corridor that includes nine existing pipelines and an overhead power line. It is rural and does not have a street address but is located 150 feet southwest of County Road 5500 (West Hammond Road) and approximately 0.53 mile west of Highway 550. The site is located approximately 700 feet south of the Kutz Canyon Wash. If looking south from County Road 5500 the site is located along the eastern side of the several ROW's, at the base of an approximately 100 foot tall hill. The discharge site is located at Latitude 36° 40' 15.7" North and Longitude 108° 00' 5.3" West (NAD 83 Datum).

C. Legal description (Section/Township/Range) of the discharge location:

The discharge site is located on land managed by the U.S. Bureau of Land Management (BLM) in the SE 1/4 of Section 9, T28N, R11W (see Figure 3 in Appendix A).

D. Maps (site specific and regional) indicating the location of the pipelines to be tested and the proposed discharge location:

Appendix A includes the following maps:

Figure 1	Transwestern Loop A Overview
Figure 2	Hydrostatic Test Water Discharge Location
Figure 3	Hydrostatic Test Water Discharge Location *Legal Description (on topo)*
Figure 4	Hydrostatic Test Water Discharge Location *Detail (including right-of-way easements)*
Figure 5	Hydrostatic Test Water Intake Location
Figure 6	San Juan County Assessors Parcel Map

E. A demonstration of compliance to the following siting criteria or justification for any exceptions:

The discharge site was surveyed on February 28, 2008 by Daniel Grijalva, Archaeological Field Director for TRC. The area was surveyed in pursuant to the conditions set forth in the New Mexico Oil Conservation Division *Guidelines for*

Hydrostatic Test Dewatering. The signed survey form and field photographs can be found in Appendix B.

i. A delineation of waters and wetlands on the Transwestern project was completed. Please refer to Appendix C. The discharge site is not within 200 feet of any existing lakebed, sinkhole, watercourse or playa. The nearest watercourse, the Kutz Canyon intermittent wash (designated SJL-SJ-020-X), is approximately 700 feet north of the discharge site. The channel ranges from 75-150 feet in width and 1-4 feet in depth (see Figure 2 in Appendix A).

ii. Based on existing FEMA Floodplain mapping, the discharge site is not within a 100-year floodplain. FEMA Flood Insurance Rate Map No. 350064 0540, which illustrates the discharge site and vicinity, is provided Appendix C. Based on review of GIS data compiled and maintained by the New Mexico Office of the State Engineer (NMOSE 2006), the discharge location is not within a wellhead protection area. The nearest well is located approximately 3,000 feet northwest of the discharge location. (see Figure 2 in Appendix A).

iii. Based on the delineation of wetlands within and in the vicinity of the San Juan Lateral, Loop A pipeline, the discharge site is not within 500 feet of any wetland. The nearest waterbody, the Kutz Canyon Wash, is located approximately 700 feet north of the discharge location and is not classified as a wetland due to the absence of hydric soils (TRC 2006) (see Figure 2 in Appendix A for the location of water features).

iv. According to Gretchen Hoffman, Senior Geologist at the New Mexico Division of Mining and Minerals the discharge site and vicinity do not overlay any subsurface mine. There are no abandoned coal mines in this area of the San Juan Basin (see Appendix E for the email communication).

v. Based on the February 28, 2008 site survey and 2007 aerial imagery maintained by Environmental Systems Research Institute (ESRI), the discharge site is not within 500 feet of any permanent residence, school, hospital, institution or church (see Figure 2 in Appendix A). The nearest permanent residence, school, hospital, institution or church is located over 0.75 mile north of the discharge site and is 200 feet higher in elevation. All land within 500 feet of the discharge location is managed by the BLM (see Figure 6 in Appendix A).

F. A brief description of the activities that produce the discharge:

The Transwestern San Juan Lateral Loop A Pipeline is a new 36-inch steel line constructed to transport natural gas. The hydrostatic testing of Loop A is divided into three (3) Test Sections. Water will be sampled, collected and drawn into the line from Citizens Ditch (Duggan's Ditch) at the northern end of the loop into Test Section 1 (see Figures 1 and 4 in Appendix A). No chemicals or other substances will be added to the water prior to hydrostatic testing. Test Section 1 will require 358,000 gallons of water. The hydrostatic test water will be used to test the new steel pipeline for structural integrity. The pipeline section will be pressurized

commensurate to the maximum allowable operating pressure and class location, and pressure will be maintained for a period of 8 hours. Once testing of Section 1 has been completed, water will be transferred directly into (water will not leave line) Test Section 2. An additional 1,082,600 gallons will be drawn in from Citizens Ditch and through Test Section 1 in order to fill the much longer Test Section 2. Once full, Test Section 2 will be pressurized commensurate to the maximum allowable operating pressure and class location, and pressure will be maintained for a period of 8 hours. After completion of Section 2 testing, 600,000 gallons of water will be transferred from Test Section 2 directly into (water will not leave line) Test Section 3. Section 3 will be pressurized commensurate to the maximum allowable operating pressure and class location, and pressure will be maintained for a period of 8 hours.

Test Water discharge will occur subsequent to the completion of Test Section 3. Prior to discharge wastewater within the pipeline will be analyzed by Animas Environmental in Farmington, New Mexico. The wastewater is anticipated to be non-exempt from RCRA and non-hazardous. Animas Environmental will verify that it is non-hazardous, and it will be injected into a Class 1 well at Key Energy Services Disposal, County Road 350, #345, San Juan County, New Mexico. Once the wastewater has been analyzed, all water will be forced out of the line with bi-directional criss-cross, pigs. A total of 1,440,600 gallons will be discharged at MP 5.64 (station 298+00). (Please refer to Figures 1, 2, 3 and 5 of Appendix A) Wastewater will be discharged directly into frac tanks (temporary storage) which will be located directly adjacent to the pipeline. Key Energy Services Disposal will transfer the wastewater, via qualified (Key Energy holds an Authorization to Move Produced Water [permit #0934307] granted by the NMOCD) fluid extraction trucks (vac trucks) to their disposal facility.

G. The method and location for collection and retention of fluids and solids:

The source of water for the hydrostatic test will be Citizens Ditch, in Bloomfield, New Mexico. Water will be sampled and drawn into the pipeline approximately 150 feet east of Arroyo Drive (36.7238°N, 107.9508°W) (see Figure 4 of Appendix A). The water in Citizens Ditch is obtained from the San Juan River about 20 miles east of the hydrostatic test water intake location. From the San Juan River, the water flows through Citizens Ditch into Aragon Reservoir. From the reservoir, some water is conveyed via pipeline to a treatment plant for domestic water use in the City of Bloomfield, and the remaining water flows year round in Citizens Ditch to be utilized for agriculture. The Bloomfield Irrigation District is not aware of any specific water quality problems, however it is non-potable (personal communication, March 6, 2008 [505] 632-2800).

A total of 1,440,600 gallons will be extracted from Citizens Ditch for hydrostatic testing. Once hydrostatic testing of all three sections is completed, wastewater within the pipeline will be analyzed by Animas Environmental in Farmington, New Mexico.

H. A brief description of best management practices to be implemented to contain the discharge onsite and to control erosion:

The discharge of approximately 1,440,600 gallons of the hydro test water (approximately 34,000 barrels) will be placed temporarily into frac tanks (capacity per tanks is approximately 400 barrels or about 17,000 gallons). The discharge rate from the pipeline to the frac-tanks will be approximately 1,200-1,500 gallons per minute.

An area near the pipeline hydro test (immediately adjacent to MP 5.64, Station 298+00) will be graded flat (if required) and soil from the ground disturbance will be used along with visquene and hay / straw bales to create a temporary berm and storage area within the pipeline easement/ work space (see Figure 5 in Appendix A). The combined depth/ height of the berm will be approximately 2 feet. Approximately 10 to 15 temporary storage frac-tanks (more than 200,000 gallons of storage) will placed on the right-of-way near the area where the hydro test water will be removed from the pipeline. The frac-tanks will be piped together so as to utilize the entire capacity of the tanks at one time during water removal from the pipeline. All valves and fittings will be in working order with no leaks. Catch basins will be positioned below pipes, hoses and valves during dewatering to ensure that any leaks are captured.

During the water removal from the pipeline and transfer to the temporary frac-tank storage, between 8 and 10 vacuum trucks will simultaneously remove test water from the frac-tanks. These trucks have a capacity of between 80 and 120 (3,500 – 5,000 gallons) barrels. The trucks will be loading at the same time the water is being discharged to the temporary storage tanks. During truck-loading water will be managed so as not to leak or discharge to the ground surface.

After water is loaded to the vacuum trucks it will be hauled approximately 5 miles from the discharge site to an approved Class I disposal facility. Water will be discharged (stored temporarily) at the disposal site into a State Approved Class I well.

I. A request for approval of an alternative treatment, use, and/or discharge location (other than the original discharge site), if necessary:

Original plans for the Loop A Hydrostatic Test dewatering involved the discharge of wastewater into flow dissipating structures on the pipeline ROW. Discharge into frac tanks (temporary storage) was listed as the alternative in previous NOI's submitted to the OCD (December 2007 and January 2008). Transwestern has decided to discharge directly into frac tanks and inject the wastewater into disposal wells. There are no quality alternatives to the plan set forth in this NOI.

J. A Proposed hydrostatic test wastewater sampling plan:

See Appendix G for water sampling plan.

K. A proposed method of disposal of fluids and solids after test completion, including closure of any pits, in case the water generated from text exceeds the standards as set forth in Subsections A, B, and C of the 20.6.2.3103 NMAC (the New Mexico Water Quality Control Commission Regulations):

Test Water discharge will occur subsequent to the completion of Test Section 3. Prior to discharge wastewater within the pipeline will be analyzed by Animas Environmental in Farmington, New Mexico. Wastewater is anticipated to be non-hazardous, RCRA non-exempt waste. Animas Environmental will verify that it is non-hazardous, and it will be injected into a Class 1 well at Key Energy Services Disposal, County Road 350, #345, San Juan County, New Mexico. Once the wastewater has been analyzed, all water will be forced out of the line with bi-directional criss-cross, pigs. A total of 1,440,600 gallons will be discharged at MP 5.64 (station 298+00). Wastewater will be discharged directly into frac tanks (temporary storage) which will be located directly adjacent to the pipeline (see Figure 5 of Appendix A). Key Energy Services Disposal will transfer the wastewater, via qualified (Key Energy holds an Authorization to Move Produced Water [permit #0934307] granted by the NMOCD) fluid extraction trucks (vac trucks) to their disposal facility. Key Energy Services disposal has confirmed the ability to receive 1,440,600 gallons of exempt (into class 1 well onsite) wastewater from the Loop A hydrostatic testing (personal and e-mail communication, February 29, 2008). A completed Form C-138 will be submitted to Key Energy Services and the OCD prior to disposal of wastewater.

L. A brief description of the expected quality and volume of the discharge:

Approximately 1,440,600 gallons of hydrostatic test water will be discharged at the discharge site. No chemicals or other substances will be added to the water obtained from Citizens Ditch prior to testing. Hydrostatic testing activities are anticipated to produce RCRA regulated wastewater.

M. Geological characteristics of the subsurface at the proposed discharge site:

According to 2007 Soil Survey of San Juan County, New Mexico, soil underlying the discharge site is composed of Fruitland Loam. The Fruitland Loam formed in alluvium derived dominantly from sandstone and shale. This soil unit is typically found in alluvial fans and stream terraces with slopes of 5-8 percent. The Fruitland Loam is deep, and is well drained with rapid permeability and low runoff. Water capacity is moderate, and erosion potential is low to moderate (USDA 2008). (see Appendix

N. The depth to and total dissolved solids concentration of the ground water most likely to be affected by the discharge:

A review of the New Mexico Office of the State Engineer's well data indicated that groundwater at and in the vicinity of the discharge site is found approximately 30 feet below ground surface (NMOSE 2006, well number SJ 03666). (see Appendix I)

Based on review of the USGS Groundwater Atlas of the United States (1995), the discharge location overlies the Uinta-Animas aquifer. Dissolved solid concentrations in this aquifer are expected to range from approximately 1,000 mg/L to 4,000 mg/L.

O. Identification of landowners at and adjacent to the discharge and collection/retention site:

The discharge site is utility right-of-way on land leased from the BLM, Farmington Field Office, 1235 La Plata Highway, Farmington, NM, 87401. No private land is directly adjacent to the discharge and temporary storage site. The nearest private land owners are as follows: the Thriftway Company (approximately 0.25 mile northwest), Witt Joseph Bouldin (approximately 0.30 mile north), and the Navajo Nation (approximately 0.31 m northwest) (see Figure 6 in Appendix A).

REFERENCES

Banta, E.R. and Robson, S.G. United States Geologic Survey. 1995. *Groundwater Atlas of the United States, Arizona, Colorado, New Mexico, Utah.* http://capp.water.usgs.gov/gwa/ch_c/index.html . Accessed 2/26/2008.

E-mail Communication with Gretchen Hoffman, Senior Geologist, New Mexico Division of Mining and Minerals. February 29, 2008

Email Communication with Ray Fuller, District Manager, Key Energy Services Disposal, Farmington, New Mexico. February 29, 2008

New Mexico Office of the State Engineer. 2006. *Water Administration Technical Engineering Resource System.* Well Data http://www.ose.state.nm.us/water_info_data.html . Accessed 2/27/2008.

Personal Communication with Karen Barrera, Bloomfield Irrigation District. March 6, 2008 ([505] 632-2800).

TRC. 2006. *Wetlands and Waters of the U.S. Investigation, Phoenix Expansion Project, San Juan and McKinley Counties, New Mexico.* Lowell, MA.

United States Department of Agriculture, Natural Resources Conservation Service. National Cooperative Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/ . Accessed 2/26/2008.

United States Federal Emergency Management Agency. 1996. *FEMA Flood Insurance Rate Map No. 350064 0540.* http://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1_. Accessed on 2/25/2008.

APPENDIX A

Figures

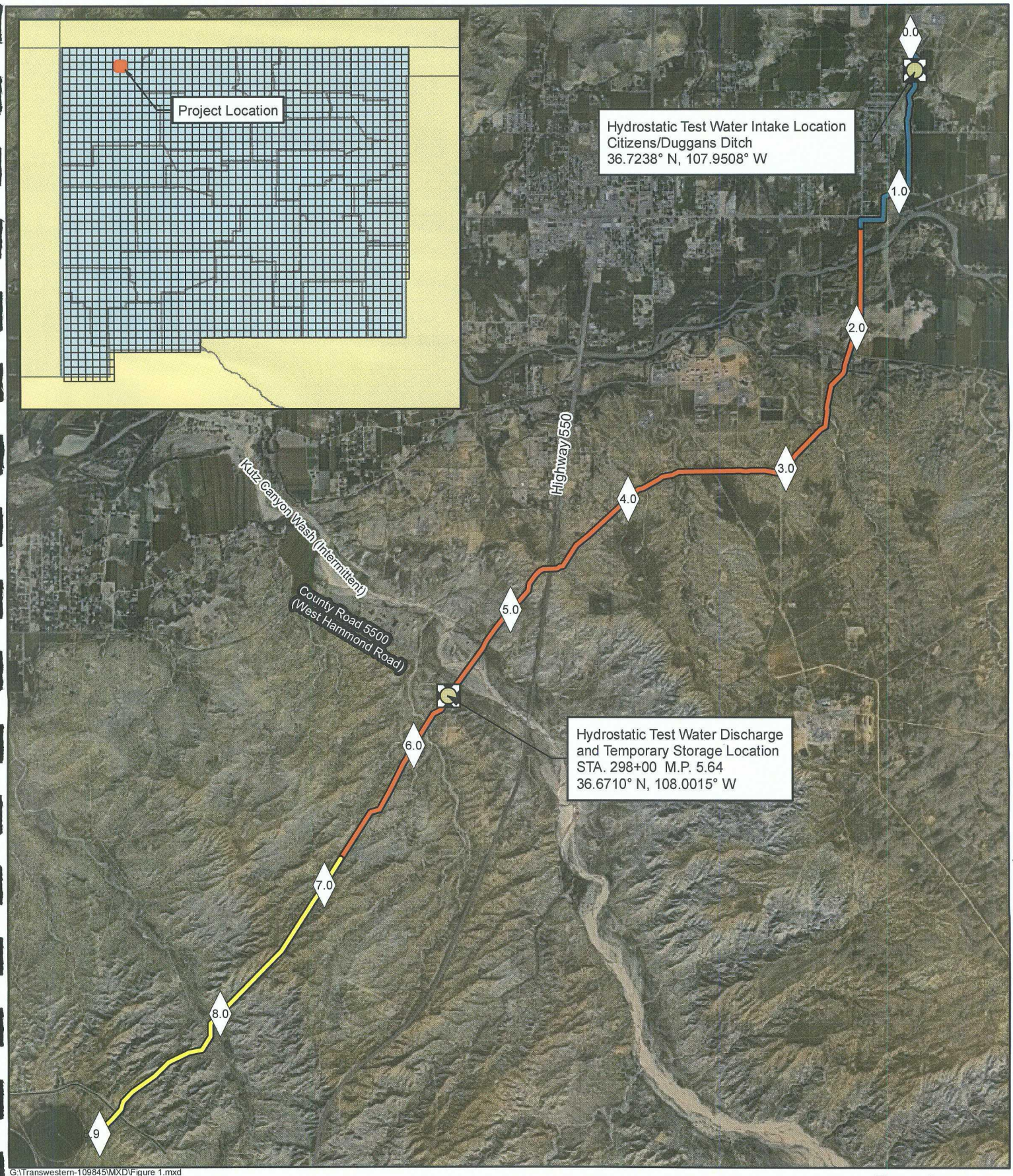


Figure 1
Loop A
Overview Map

Transwestern Pipeline
San Juan Lateral

San Juan County, NM

TRC

G:\Transwestern-109845\MXD\Figure 5.mxd

Well Locations

Proposed Pipeline (Loop A)

Mile Post Markers

1" = 1,000'

1,000 500 0 1,000 2,000 Feet

N

Source:

Well locations obtained from New Mexico Office of the State Engineer, 2006.

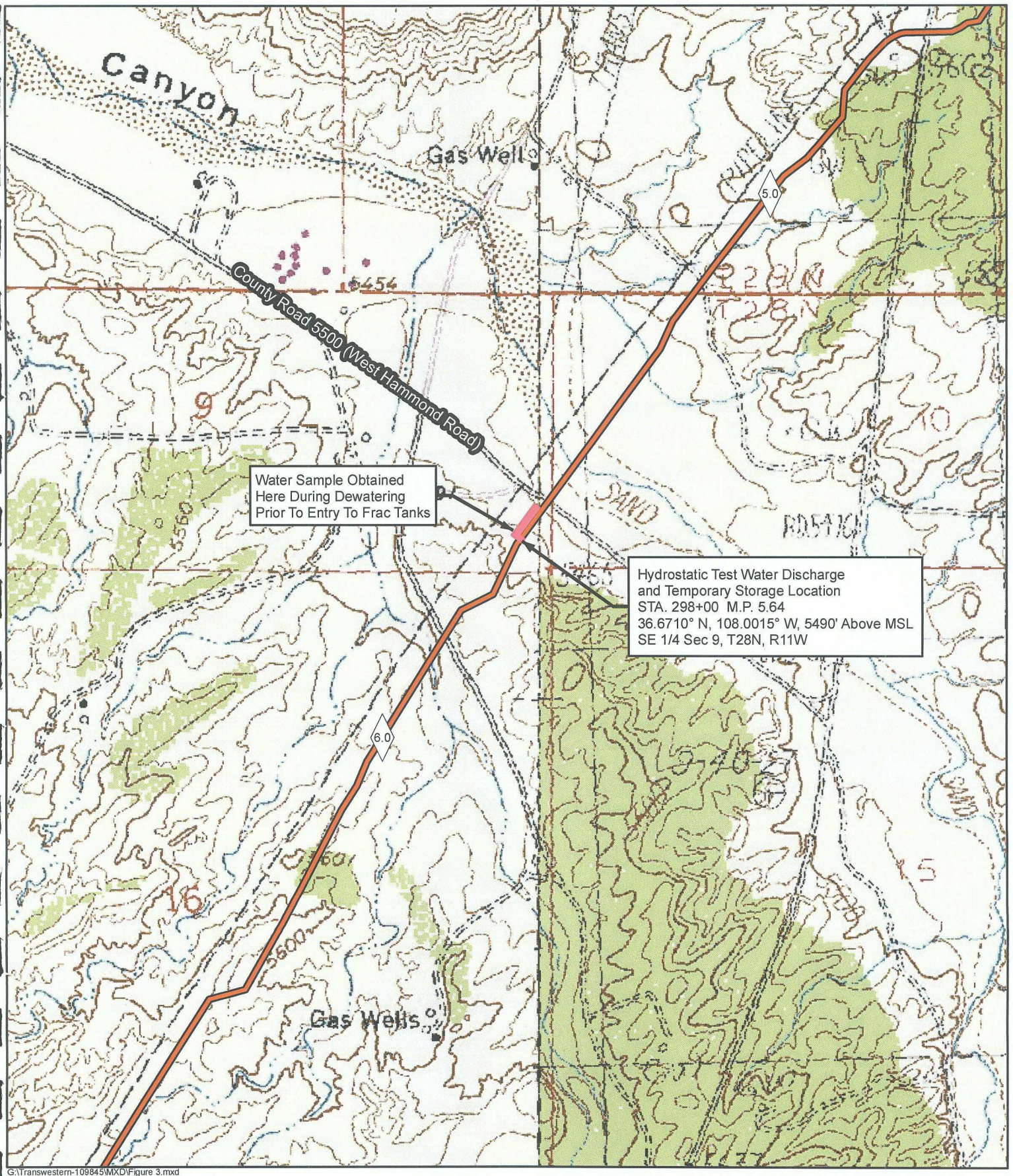
Figure 2

Location of Discharge

Transwestern Pipeline
San Juan Lateral

San Juan County, NM

TRC



G:\Transwestern-109845\MXD\Figure 3.mxd

Proposed Pipeline (Loop A)

Discharge Location

Mile Post Markers

1" = 1,000'

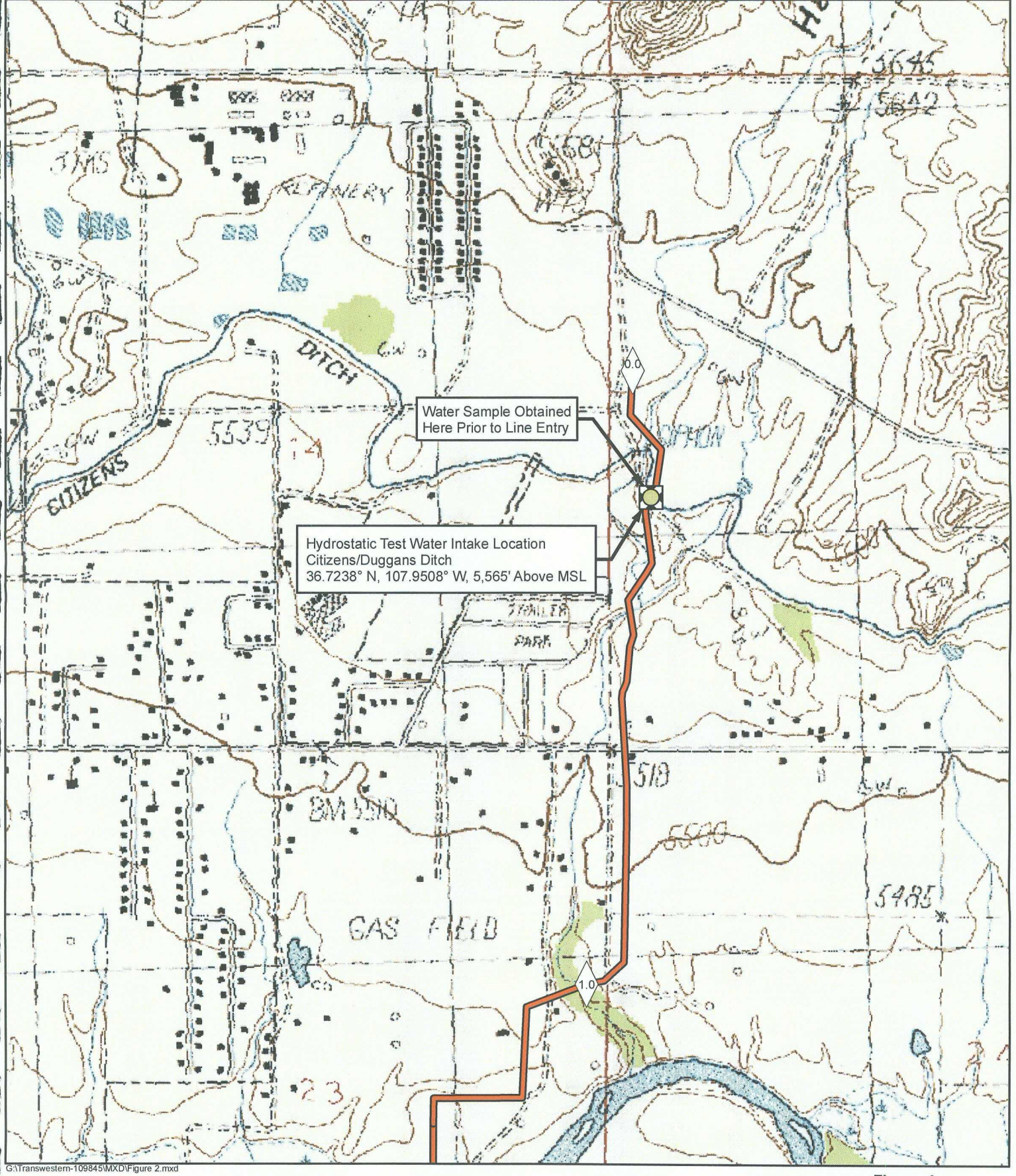
1,000 500 0 1,000 2,000 Feet

N

Source:
USGS Topographic
Quadrangle Bloomfield,
Horn Canyon 2008

Figure 3
Legal Description
Water Discharge Location
Topographic Map
Transwestern Pipeline
San Juan Lateral
San Juan County, NM

TRC



G:\Transwestern-109845\MXD\Figure 2.mxd

Proposed Pipeline (Loop A)

Mile Post Markers

1" = 1,000'

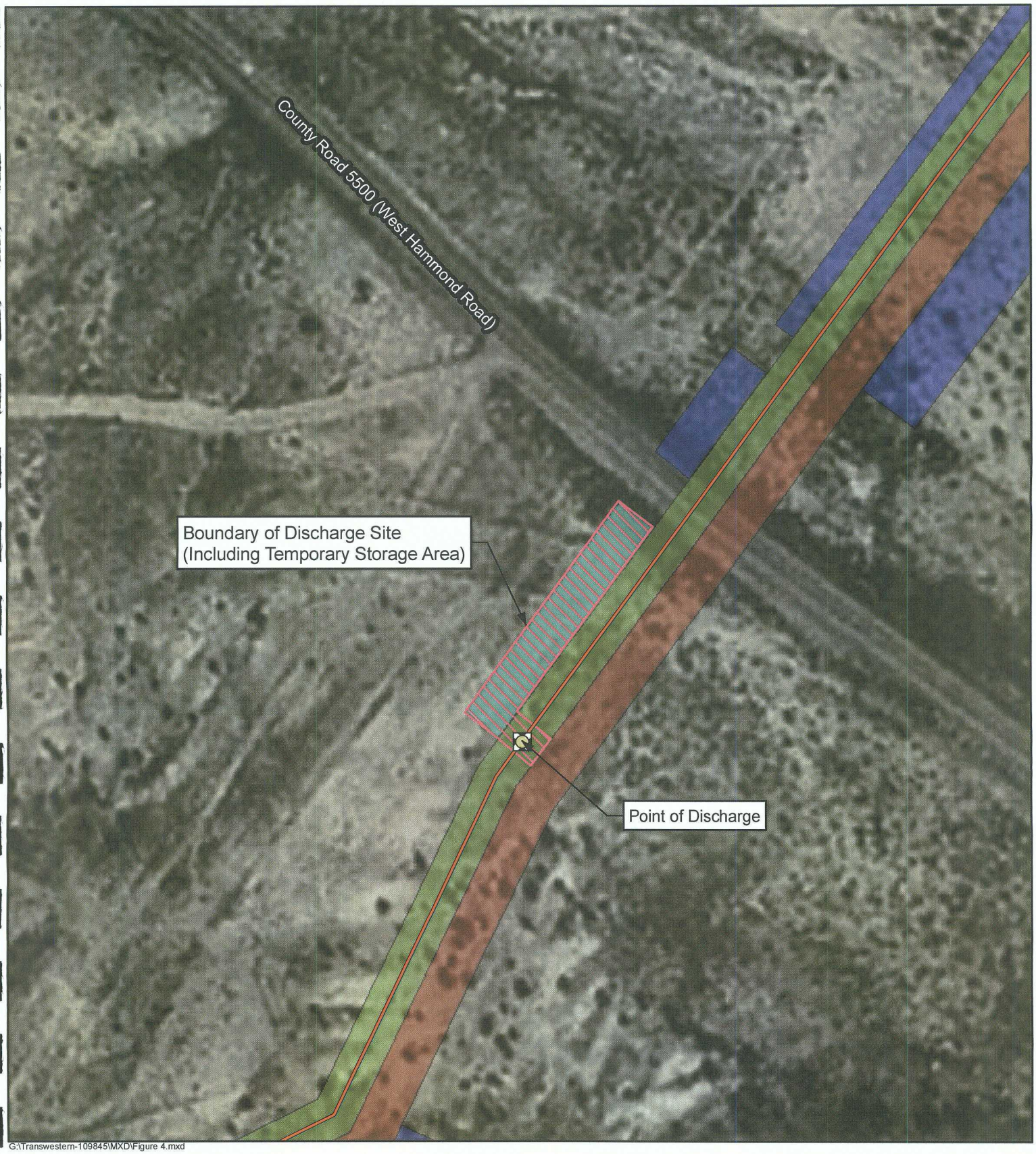
N

1,000 500 0 1,000 2,000 Feet

Source:
USGS Topographic
Quadrangle Bloomfield
2008

Figure 4
Hydrostatic Test
Water Intake Location
Transwestern Pipeline
San Juan Lateral
San Juan County, NM

TRC



G:\Transwestern-109845\MXD\Figure 4.mxd

Figure 5

Hydrostatic Test Water Discharge Location

Detail

Transwestern Pipeline
San Juan Lateral

San Juan County, NM

- Proposed Pipeline (Loop A)
- Loop A -Temporary Storage Area
- Loop A -Extra Workspace
- Loop A -Permanent Easement
- Loop A -Temporary Workspace

N

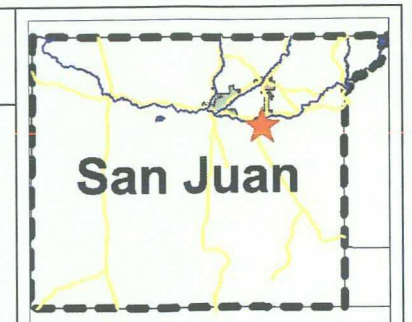
1" = 150'

150 75 0 150 300 Feet

Source:
ESRI_Imagery_World_2D, 2007

TRC

Figure 6- Assessors Parcel Map



Legend

- RIVERS
- LAKES
- FARMINGTON CITY LIMITS
- SJC Road Status
- Major Roads
- Private
- County Maintained
- Limited County Maintained
- City
- Oil and Gas roads
- ROADS
- SAN JUAN COUNTY
- NAVAJO RESERVATION
- PARCELS
- 2005_DOQQ

0 250 500 750 m.

Scale: 1:8,678

APPENDIX B

Site Survey Form and Photographs

Transwestern Pipeline, LLC
Application for Discharge of Hydrostatic Test Water

Site Assessment - Discharge Site Survey
Loop A Milepost 5.64 / Station 298+00

Date of Survey:	2/28/08
Compliance with Siting Criteria:	• Within 200 feet of a watercourse, lakebed, sinkhole or playa lake: NO • Within an existing wellhead protection area or 100year floodplain NO • Within, or within 500 feet, of a wetland NO • Within the area overlying a subsurface mine NO • Within 500 feet from the nearest permanent residence, school, hospital, institution or church NO
Site Description:	In a pipeline corridor with six existing pipelines. Location in a bottom between low ridges. Dominant species are: grasses – sand dropseed, Indian ricegrass; shrubs; sage, four wing saltbush; trees – juniper. OHV activity throughout the area. See Figure 1.
Visual inspection of site for undocumented wells:	NMAC 19.15.1.7 DEFINITIONS: W. Definitions beginning with the letter "W". (11) Wellhead protection area shall mean the area within 200 horizontal feet of a private, domestic fresh water well or spring used by less than five households for domestic or stock watering purposes or within 1000 horizontal feet of any other fresh water well or spring. Wellhead protection areas shall not include areas around water wells drilled after an existing oil or natural gas waste storage, treatment or disposal site was established. No undocumented wells as defined in NMAC 19.15.1.7 above
Comments:	The Hydrostatic Test Water Discharge and temporary storage locations are on the south side of County Road 5500 at the bottom of a ridge. 75%-80% vegetation cover was noticed. At the time of the survey the trench for the proposed pipeline had already been excavated. The temporary storage location had large back dirt pile covering the entire workspace.

Survey completed by: Daniel Solomon Grijalva
(print)

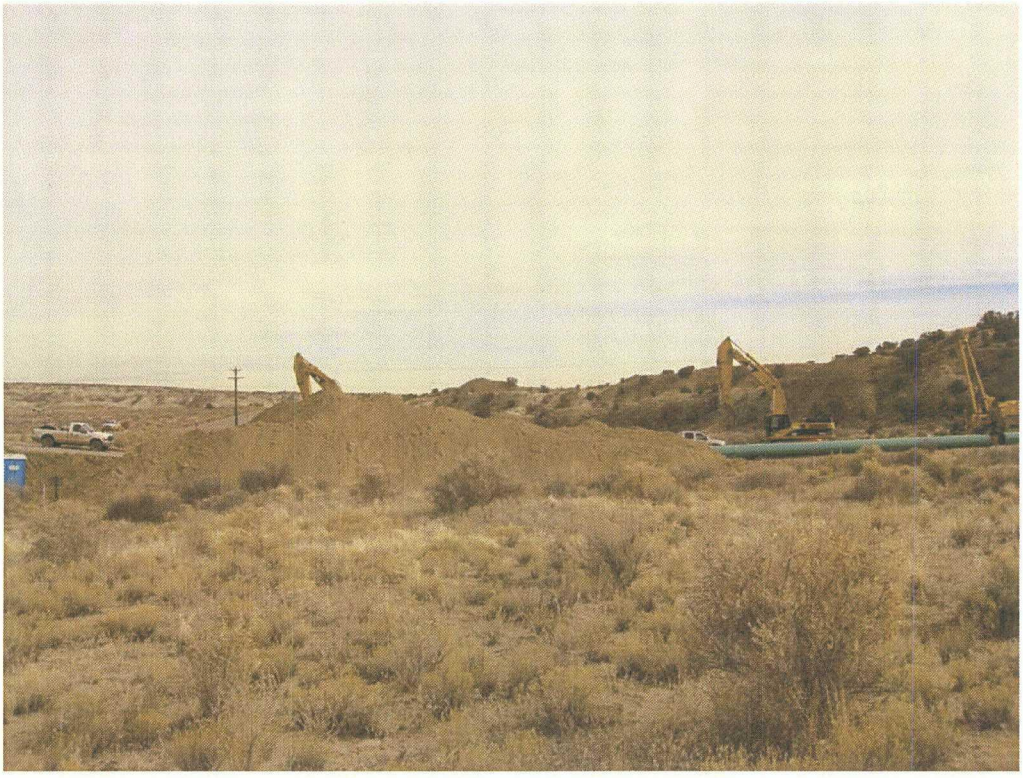
(signature)

Transwestern Pipeline
San Juan Lateral, Loop A
Hydrostatic Test Dewatering
Notice of Intent

Site Survey Photographs

MP 5.64, Station 298+00
Site Survey Conducted on 2/28/2008 by Daniel Grijalva (TRC)

Photograph 1: Looking northeast across discharge and temporary storage site.



Photograph 2: Looking east across discharge site and temporary storage area.

Photograph 3: Looking north, down ROW, across discharge site and temporary storage area. Note County Road 5500 (West Hammond Road) and Kutz Canyon Wash background.

APPENDIX C

Excerpts from: Wetlands and Waters of the U.S. Investigation – Phoenix Expansion Project – San Juan and McKinley Counties, New Mexico

Excerpts from: WETLANDS AND WATERS OF THE U.S. INVESTIGATION PHOENIX EXPANSION PROJECT SAN JUAN AND MCKINLEY COUNTIES, NEW MEXICO

August 2006

Methods

The delineation of wetlands on the Phoenix Expansion Project conforms to the methods outlined in the Corps of Engineers Wetlands Delineation Manual (COE 1987). Prior to fieldwork, background information was obtained from several sources to identify areas likely to contain wetlands, including USGS 7.5' topographic maps and the National Wetlands Inventory (NWI) maps from the U.S. Department of Interior (DOI, 1982).

During the onsite inspection, vegetative, hydrologic, and geomorphic characteristics of the areas identified as wetlands on the National Wetlands Inventory were investigated to determine whether or not jurisdictional wetlands are present. At each area, sample sites were selected for completion of the wetland delineation forms (Appendix A).

Plant communities were identified throughout the site area and characterized to determine species composition and the occurrence of wetland vegetation. The National List of Plants that Occur in Wetlands (U.S. Fish and Wildlife Service 1996) was used to determine the indicator status of dominant plant species within each community. Plant species were classified as obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL). Positive (+) and negative (–) modifiers subdivide the three facultative categories. The positive sign indicates that the species is more frequently found in wetlands, and a negative sign indicates that it is less frequently found in wetlands.

The site area was investigated to determine the presence of primary wetland hydrology indicators, including inundation, saturation, water marks, sediment deposits, drainage patterns, and drift lines. Where needed soil pits were dug to a depth of 16 inches, using a shovel and allowed to stand undisturbed for at least 10 minutes. Observations were recorded as to depth of free water in the pit and depth to saturated soil. Apparent man-induced changes to hydrology were noted.

Soil profiles were examined for color and texture. Soil color was determined using a Munsell Soil Color Chart and hydric soil characteristics such as sulfidic odor, low-chroma colors and mottling were identified. Soil series were identified and described using the soil surveys of San Juan and McKinley Counties, New Mexico (Neher 1984).

Dominant plant species identified during the survey are listed in Appendix B.

Results and Discussions

Table 1 Information on Loop A and Loop B Crossings

Site Name	Mile Post	UTM East	UTM North	Waterway Proximity	Waterway	Ecological System	Water Type
SJL-SJ-020-X	5.2	232105	4062602	in a tributary to	San Juan River	Riverine	Intermittent
SJL-SJ-021-X	5.7	231626	4062012	in a tributary to	San Juan River	Riverine	Ephemeral
SJL-SJ-022-X	6.5	230887	4060943	in a tributary to	San Juan River	Riverine	Ephemeral
SJL-SJ-023-X	6.6	230791	4060800	in a tributary to	San Juan River	Riverine	Ephemeral

Crossing SJL-SJ-020-X

Crossing SJL-SJ-020-X, an intermittent stream feature known as Kutz Canyon, is located approximately 2.6 miles south of Bloomfield, NM, 0.3 mile west of US 550. The coordinates for this feature are UTM Zone 13, NAD, 27, 232105 E and 4062602 N. The drainage feature is characterized by sandy soils. The NWI designation for this feature is R4SBA. Figure 2.33 shows upstream and downstream views of this feature. The drainage flows into the San Juan River. The width of the channel is approximately 200 feet.

Figure 2.33 Crossing SJL-SJ-020-X

Crossing SJL-SJ-020

Upstream View **Downstream View**

- Vegetation – The crossing has hydrophytic vegetation adjacent to the stream channel. Vegetation includes salt cedar (*Tamarix ramosissima*), spectacle pod (*Dimorphocarpa wislizenii*), fourwing saltbush (*Atriplex canescens*), coyote willow (*Salix exigua*), cottonwood (*Populus deltoides*), rabbitbrush (*Ericameria nauseosa*), Russian olive (*Elaeagnus angustifolia*), and alkali sacaton (*Sporobolus airoides*).
- Hydrology – Recorded flow data for the site is not available but the stream is intermittent in nature and only flows following local precipitation events. Stream flow was present.
- Soils – Soils at the site are sandy. The color of the soil is light-medium brown.

The site is considered to be non-wetland as there are no hydric soils.

Crossing SJL-SJ-021-X

Crossing SJL-SJ-021-X is an arroyo feature located approximately 3 miles south of Bloomfield, NM, 0.6 mile west of US 550. The coordinates for this feature are UTM Zone 13, NAD, 27, 231626 E and 4062012 N. The drainage feature is characterized by sandy soils. Figure 2.34 shows upstream and downstream views of this feature. The drainage flows into the San Juan River. The width of the channel is approximately 35 feet.

Figure 2.34 Crossing SJL-SJ-021-X

Crossing SJL-SJ-021

Upstream View **Downstream View**

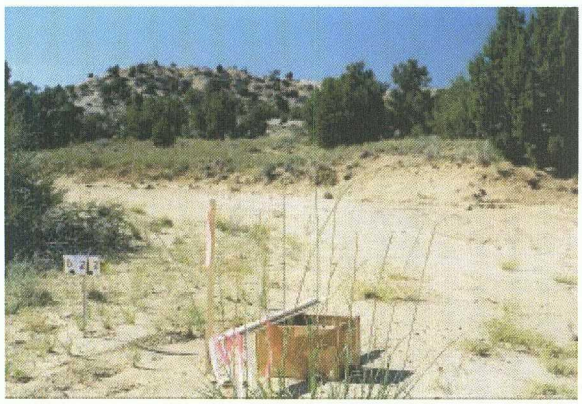
- Vegetation – The crossing has no hydrophytic vegetation within or adjacent to the stream channel. Vegetation includes rabbitbrush (*Ericameria nauseosa*) and snakeweed (*Gutierrezia sarothrae*).
- Hydrology – Recorded flow data for the site is not available but the stream is ephemeral in nature and only flows following local precipitation events. No surface water or saturated soil exists at the site. No primary or secondary signs of wetlands hydrology indicators were present at the site.
- Soils – Soils at the site are sandy. The color of the soil is light-medium brown.

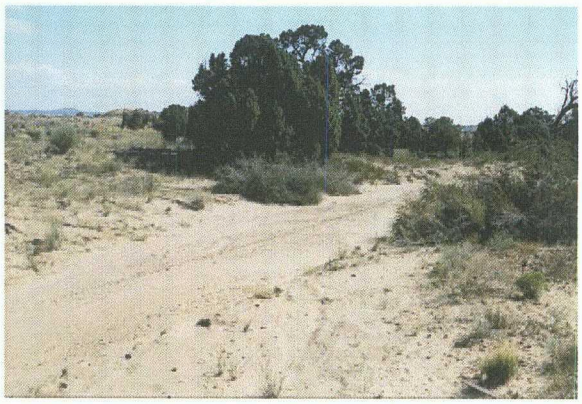
The site is considered to be non-wetland as it is has no hydrophytic vegetation, wetland hydrology, or hydric soils.

Crossing SJL-SJ-022-X

Crossing SJL-SJ-022-X is an arroyo feature located approximately 3.7 miles south of Bloomfield, NM, 0.8 mile west of US 550. The coordinates for this feature are UTM Zone 13, NAD, 27, 230887 E and 4060943 N. The drainage feature is characterized by sandy soils. Figure 2.35 shows upstream and downstream views of this feature. The drainage flows into the San Juan River. The width of the channel is approximately 50 feet.

Figure 2.35 Crossing SJL-SJ-022-X





Crossing SJL-SJ-022

Upstream View **Downstream View**

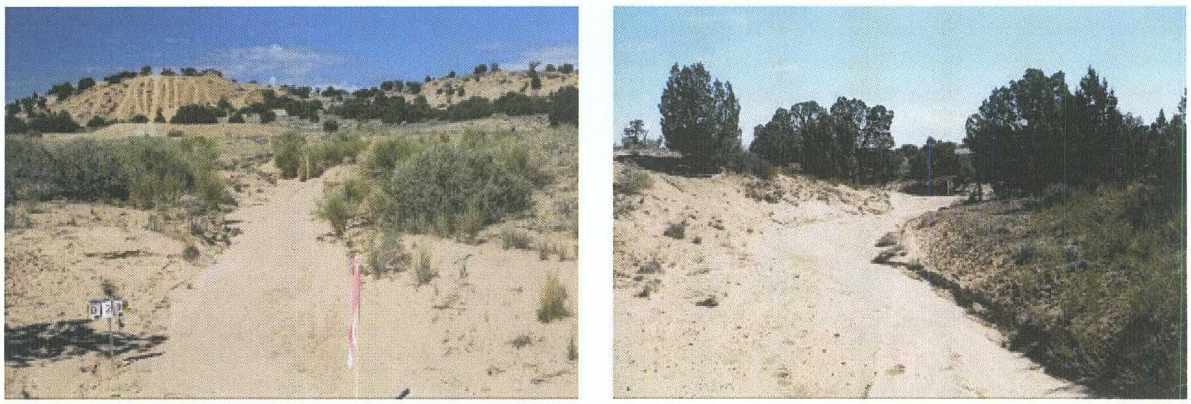
- Vegetation – The crossing has no hydrophytic vegetation within or adjacent to the stream channel. Vegetation includes spike dropseed (*Sporobolus contractus*), Utah juniper (*Juniperus osteosperma*), rabbitbrush (*Ericameria nauseosa*), and snakeweed (*Gutierrezia sarothrae*).
- Hydrology – Recorded flow data for the site is not available but the stream is ephemeral in nature and only flows following local precipitation events. No surface water or saturated soil exists at the site. No primary or secondary signs of wetlands hydrology indicators were present at the site.
- Soils – Soils at the site are sandy. The color of the soil is light-medium brown.

The site is considered to be non-wetland as there are no hydrophytic vegetation, wetland hydrology, or hydric soils.

Crossing SJL-SJ-023-X

Crossing SJL-SJ-023-X is an arroyo feature located approximately 3.8 miles south of Bloomfield, NM, 0.8 mile west of US 550. The coordinates for this feature are UTM Zone 13, NAD, 27, 230791 E and 4060800 N. The drainage feature is characterized by sandy soils. Figure 2.36 shows upstream and downstream views of this feature. The drainage flows into the San Juan River. The width of the channel is approximately 15 feet.

Figure 2.36 Crossing SJL-SJ-023-X



Crossing SJL-SJ-023

Upstream View **Downstream View**

- Vegetation – The crossing has no hydrophytic vegetation within or adjacent to the stream channel. Vegetation includes rabbitbrush (*Ericameria nauseosa*), blue grama (*Bouteloua gracilis*), and snakeweed (*Guiterrezia sarot*hrae).
- Hydrology – Recorded flow data for the site is not available but the stream is ephemeral in nature and only flows following local precipitation events. No surface water or saturated soil exists at the site. No primary or secondary signs of wetlands hydrology indicators were present at the site.
- Soils – Soils at the site are sandy. The color of the soil is light-medium brown.

The site is considered to be non-wetland as there are no hydrophytic vegetation, wetland hydrology, or hydric soils.

References

Neher, Raymond E.
1984 Soil Surveys of San Juan and McKinley Counties, New Mexico. Natural Resource Conservation Service (NRCS).

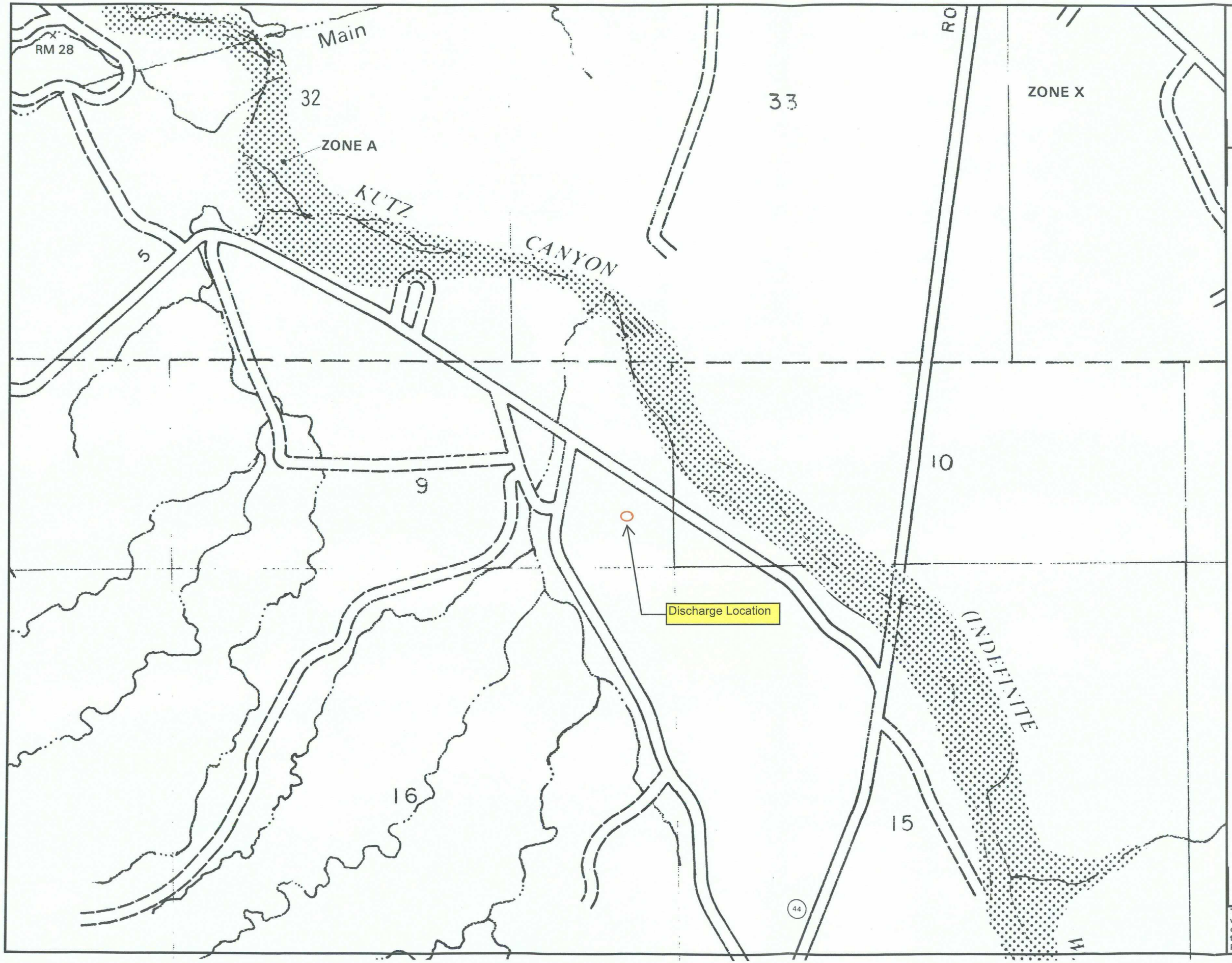
U.S. Army Corps of Engineers (COE)
1987 Wetlands Delineation Manual, Technical Report Y-8, U.S Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100pp+ as appended

U.S. Department of Interior (DOI)
1982 National Wetlands Inventory, San Juan, McKinley, Torrance and Socorro Counties, New Mexico, 1:24,000, May 1982.

U.S. Fish and Wildlife Service
1996 National List of Plant Species that Occur in Wetlands. Found on the web at: www.fws.gov/nwi/bha/download/1996/national.txt.

APPENDIX D

Flood Insurance Rate Map, San Juan County, New Mexico



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY,
NEW MEXICO
UNINCORPORATED AREAS

PANEL 540 OF 1450
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PANEL LOCATION

COMMUNITY-PANEL NUMBER
350064 0540

EFFECTIVE DATE:
AUGUST 4, 1988

Federal Emergency Management Agency

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99	To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
ZONE V	Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X	Areas determined to be outside 500-year flood plain.
ZONE D	Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

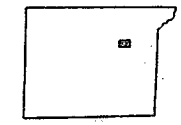
RM7X — Elevation Reference Mark

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY, NEW MEXICO
UNINCORPORATED AREAS

PANEL 540 OF 1450
(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION

COMMUNITY-PANEL NUMBER
350064 0540

EFFECTIVE DATE:
AUGUST 4, 1988

Federal Emergency Management Agency

APPENDIX E

E-mail and Personal Communications

From: Gretchen Hoffman [gretchen@gis.nmt.edu]

Sent: Friday, February 29, 2008 7:28 AM

To: Henry, Sean (Irvine,CA-US)

Subject: Re: Abandoned Mine Info Needed for Hydrostatic Test Dewatering

Application

Sean:

Thank you for the location information - according to my calculations this locality would be on the Horn Canyon quadrangle, near Bloomfield NM. There are no abandoned coal mines in this area of the San Juan Basin. The Fruitland coals here are at a depth of 1370-1500 ft, determined from geophysical logs from an oil and gas test in section

10(36.6716 N 107.9939 W). The Pictured Cliffs is at 1503 ft in this drill hole.

Hope this information is helpful.

Regards,

Gretchen Hoffman

Henry, Sean (Irvine,CA-US) wrote:

> Hello Gretchen,

>

> Susan Lucas Kamat referred me to you in the email below. I would like

> to check and see if there are any abandoned mines within the following

> section New Mexico Meridian T28N,R11W,sec10 (coordinates

> are 36.6710°N, 108.0015°W).

>

> Thank you for your help,

>

>

>

>

>

> Sean Henry

>

> Staff Planner

>

>

>

> 21 Technology Drive

>

> Irvine, CA, 92618

>

>

>

> 949.727.7359 phone

> 949.753.0111 fax

> 949.439.7723 cell

> shenry@trcsolutions.com <mailto:shenry@trcsolutions.com>

>

>

>

> ---

> --

> *From:* LucasKamat, Susan, EMNRD [mailto:Susan.LucasKamat@state.nm.us]

> *Sent:* Thursday, February 28, 2008 3:23 PM

> *To:* Henry, Sean (Irvine,CA-US)

> *Cc:* Back, Elisha (Irvine,CA-US); Ohara, Jim, EMNRD; Pfeil, John,

> EMNRD

> *Subject:* RE: Following Up on Subsurface Mine Info Needed for

> Hydrostatic Test Dewatering Application

>

> Sean:

>

> I am writing to follow up on our conversation from Tuesday regarding

> GIS shapefiles for subsurface mine workings in San Juan County.

>

> The coal mine permit shapefile is available for download off the New

> Mexico Resource Geographic Information System, Geology Theme datasets

> (http://rgis.unm.edu/loader_div.cfm?theme=Geology). The coal mine

> permit boundaries reflect surface disturbance and may not reflect

> underground workings.

>

> Only one underground coal mine is active in San Juan county - San Juan

> Coal's San Juan Mine. The Coal Mine Reclamation Program has a dwg file

> of the mine life plan that details the extent of the planned

> underground workings. While the plan is part of the public permit, it

> is too large to email. You can contact Jim O'Hara, Cal Program

> Manager, at jim.ohara@state.nm.us <mailto:jim.ohara@state.nm.us> or

> (505) 476-3413 to discuss the extent of the map.

>

> To research abandoned workings, you should contact the New Mexico

> Bureau of Geology and Mineral Resources, our state geological survey.

> They maintain an archive of all known underground maps and have a mien

> map database for use in situations such as yours. The contacts for the

> database are Gretchen Hoffman

> (http://geoinfo.nmt.edu/staff/hoffman/home.html) and Maureen Wilks

> (http://geoinfo.nmt.edu/staff/wilks/home.html).

>

> If you have any further questions, please do not hesitate to contact me.

>

>

> Regards,

>

>

> Susan A. Lucas Kamat

> Geologist

> New Mexico Mining and Minerals Division 1220 South St. Francis Drive

> Santa Fe, New Mexico 87505

> Phone: 505-476-3408

> Fax: 505-476-3402

>

>

> ----------

> --

> *From:* Henry, Sean (Irvine,CA-US) [mailto:shenry@trcsolutions.com]

> *Sent:* Wednesday, February 27, 2008 4:11 PM

> *To:* LucasKamat, Susan, EMNRD

> *Cc:* Back, Elisha (Irvine,CA-US)

> *Subject:* Following Up on Subsurface Mine Info Needed for Hydrostatic

> Test Dewatering Application

>

> Hello Susan,

>

> I am following up per our conversation yesterday. Do you have contact

> info for the individual that could help me with abandoned mines? Also,

> have you heard back regarding subsurface mine info?

>

> Thank you for your time,

>

>

> Sean Henry

>

> Staff Planner

>

>

>

> 21 Technology Drive

>

> Irvine, CA, 92618

>

>

>

> 949.727.7359 phone

> 949.753.0111 fax

> 949.439.7723 cell

> shenry@trcsolutions.com <mailto:shenry@trcsolutions.com>

>

>

>

> _____

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> System.

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> the sole use of the intended recipient(s) and may contain confidential

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> Checked by AVG Free Edition.

> Version: 7.5.516 / Virus Database: 269.21.1/1303 - Release Date:

> 2/28/2008 12:14 PM

--

Gretchen Hoffman

Senior Coal Geologist, Database Coordinator New Mexico Bureau of Geology phone (575) 835-5640 fax (575) 835-6333 gretchen@gis.nmt.edu

From: Fuller, Ray
To: Henry, Sean (Irvine,CA-US);
CC: Rupp, Ray;
Subject: RE: TW Hydrostatic Test Discharge Water Disposal
Date: Friday, February 29, 2008 12:15:33 PM
Attachments: image001.gif
image002.jpg

Sean,
Hi ,I am the district manager here in Farmington, New Mexico for yard 455. Ray and I have talked extensively on this project and to answer you concerns about the room we have got a pond that will hold the capacity of two foot ball fields and where the water level is at this point we can handle five hundred thousand barrels of extra fluid .So in that respect we have enough room to help you in your endeavor.
As far as the paper work is concerned you will need a n analytical in place with Ray Rupp at the disposal along with the C 138 which you and Mr. Rupp have already discussed.
Our qualifications I have attached our permit to haul disposal fluid and any time fell free to call Ray or myself with any questions or concerns.
Thank you for your business.

Ray Fuller| District Manager | Key Energy Services, Inc.
5651 US HWY 64, Farmington, NM 87401
| o: 505.327.0416 | f: 505.327.4962 | c: 505.486.1285 |
e: rfuller@keyenergy.com

Santa Fe Office

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-133
Revised 1-1-89

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, New Mexico 87504-2088

AUTHORIZATION TO MOVE PRODUCED WATER

Transporter Name KEY ENERGY SERVICES, INC. / FOUR CORNERS DIVISION

Address
P.O. BOX 900
FARMINGTON, NM 87499

Office Location (If different)
5651 US HIGHWAY 64
FARMINGTON, NM 87401

Phone Number (s) (505) 327 - 0416

State Corporation Commission Permit No. 0934307

CANCEL THE C-133 PERMITS OF THE FOLLOWING COMPANIES:
SUNCO TRUCKING COMPANY - BIG A WELL SERVICES & FOUR CORNERS DRILLING
AND TRANSFER TO KEY ENERGY SERVICES, INC. / FOUR CORNERS DIVISION

NOTE: It is the responsibility of each holder of an approved Form C-133 to familiarize its personnel with the content of Division Rules 709 and 710 and to assure operations in compliance therewith. Failure to move and dispose of produced water in accordance with Division Rules 709 and 710 are cause for cancellation of Form C-133 and the authority to move produced water.

-----Original Message-----
From: Rupp, Ray
Sent: Friday, February 29, 2008 5:48 AM
To: Fuller, Ray
Subject: FW: TW Hydrostatic Test Discharge Water Disposal

-----Original Message-----
From: Henry, Sean (Irvine,CA-US) [mailto:shenry@trcsolutions.com]
Sent: Thursday, February 28, 2008 8:04 PM
To: Rupp, Ray
Cc: Back, Elisha (Irvine,CA-US)
Subject: TW Hydrostatic Test Discharge Water Disposal

Hello Again.

To follow up on our conversation today I have a few questions.

1. What qualifications does Key hold to haul waste?

2. Do you have the space neccessary to contain 1,440,600 gallons of wastewater (either RCRA exempt or non-exempt) ?

3. What paperwork is necessary to dispose at Key?

Thanks again for all of your help,

Sean Henry
Staff Planner

TRC
21 Technology Drive
Irvine, CA, 92618

949.727.7359 phone
949.753.0111 fax
949.439.7723 cell
shenry@trcsolutions.com

TRC

Telephone Conversation Log

Date:	03/06/08	**Time:**	11:00 AM
Call From:	*Sean Henry, TRC Staff Planner*		
Call To:	*Bloomfield Irrigation District* *Karen Barrera*		
Phone:	(505) 632-2800		
Subject:	Spoke with Karen Barerra about general water quality of Citizens/ Duggan's Ditch. She stated that water within the ditch is non-potable and the water quality is unknown and subject to change. Water flows directly, by gravity flow, into Citizens/Duggan's Ditch from the San Juan River below Navajo Dam.		

APPENDIX F

BLM Record of Decision, Phoenix Expansion Project

United States Department of the Interior
Bureau of Land Management
Bureau of Reclamation
United States Department of Agriculture
Forest Service

Environmental Impact Statement CP06-459-000 (0208)
Cases File Number: (AZA-33350 and NMN-119513)

Record of Decision

Phoenix Expansion Project
Decision to Grant Rights-of-Way
And Temporary Use Permits

Location: Arizona and New Mexico

U.S. Department of the Interior
Bureau of Land Management
Phoenix District Office
Farmington Field Office
Bureau of Reclamation
Lower Colorado Regional Office
U.S. Department of Agriculture
Forest Service
Prescott National Forest
Kaibab National Forest

21605 North 7th Avenue
Phoenix, Arizona 85027-2929
(623) 580-5500

December 2007

Record of Decision
Phoenix Expansion Project

Introduction

The Federal Energy Regulatory Commission (FERC) is responsible for authorizing the construction and operation of interstate natural gas pipelines. It issues certificates of public convenience and necessity for such pipelines under Section 7 of the Natural Gas Act of 1938 (NGA), as amended, and authorizes the construction and siting of facilities for the import or export of natural gas under Section 3 of the NGA. It also authorizes the construction and operation of natural gas pipelines pursuant to the Natural Gas Policy Act. The FERC is the lead Federal agency for Transwestern Pipeline Company, LLC's (Transwestern) Phoenix Expansion Project (PEP) and utilized the Final Environmental Impact Statement (EIS) in issuing its Certificate of Public Convenience and Necessity for the Phoenix Expansion Project on November 15, 2007.

The Bureau of Land Management (BLM), within the U.S. Department of the Interior (DOI), is responsible for the management of public lands. The BLM is principally responsible for issuing right-of-way (ROW) permits authorizing natural gas pipelines to cross Federal lands. Section 28 of the Mineral Leasing Act of 1920 (MLA), as amended, gives the BLM the authority to issue ROW permits for natural gas pipelines through lands held by the United States, except lands in the National Park System, lands held in trust for Native American or Native American tribe, and lands on the Outer Continental Shelf.

The BLM is responsible for issuing ROW grants across Federal lands in accordance with Title 43 Code of Federal Regulations (CFR) Part 2880. Specifically, Title 43 CFR Part 2881.11 requires a BLM ROW grant for any oil or gas pipeline or related facility that crosses Federal land under the BLM's jurisdiction or under the jurisdiction of two or more Federal agencies. Federal lands crossed by the selected alternative for the PEP include lands managed by the DOI, BLM; DOI, Bureau of Reclamation (BOR); and U.S. Department of Agriculture, Forest Service (FS), Kaibab and Prescott National Forests. In accordance with Title 43 CFR Parts 2800 and 2880, the BLM, Phoenix District Office with concurrence of the FS and the BOR will issue a ROW grant to Transwestern for the selected alternative for the PEP located on Federal lands. The BLM will also issue temporary use permits (TUPs) for the temporary use of Federal lands required for construction including borrow material and rock disposal areas and access roads. The decision will specifically affect Federal lands as detailed in Attachments A through F and as described in the Final EIS for the project and below. The BLM cooperated in the preparation of the Final EIS and adopts the Final EIS per Title 40 CFR Part 1506.3.

On Federal lands the selected alternative for the PEP includes construction of 104.95 miles of new 36- and 42-inch-diameter buried natural gas pipeline in Arizona and New Mexico. Federal lands crossed in Arizona are managed by the BLM, Phoenix District Office and the FS, Prescott National Forest and Kaibab National Forest as well as the BOR. Federal lands crossed in New Mexico are managed by the BLM, Farmington Field Office.

On Federal lands permanent facilities would include the pipeline and access roads. Authorized temporary facilities would include access roads, construction space adjacent to the pipeline, and the use of borrow pits and rock disposal sites.

This document constitutes the Record of Decision (ROD) of the DOI, BLM for Transwestern's PEP. This ROD is prepared in accordance with the National Environmental Policy Act (NEPA), the MLA, the Federal Land Policy and Management Act of 1976 (FLPMA), and other applicable Federal laws and regulations. The Final EIS was used in making the decision.

EIS Availability: Copies of the Final EIS (CP06-459-000 (0208)), dated September 2007 are available at the BLM's Phoenix District Office, Farmington Field Office, and Price Field Office. In addition, the document is available at the Prescott National Forest Office and the Kaibab National Forest Office. The document may also be found online at the FERC's Internet website (http://www.ferc.gov).[1]

Federal and Proponent Purpose and Need for the Project:

Federal Purpose and Need: The BLM's purpose and need is to consider the proposal to authorize the PEP in an efficient, orderly, and environmentally sensitive manner. The BLM is considering this project in accordance with its multiple-use mandate and the goals and objectives of the President's National Energy Plan. National policies, and the regulations by which they are enforced, recognize the statutory right of leaseholders to develop mineral resources including natural gas to meet the continuing demand for natural gas, as long as undue environmental degradation is not incurred.

The development and transportation of natural gas resources is consistent with the mission of the BLM. The MLA, as amended, provides that exploration and development of domestic oil and gas is in the best interest of the United States. The intent of the MLA and its implementing regulations are to allow, and essentially encourage, lessees or potential lessees to explore for oil and gas or other mineral reserves on federally administered lands and to allow for its transportation across federally owned lands. The FLPMA mandates that the BLM manage public lands on the basis of multiple use (43 United States Code (U.S.C.) § 1701(a) (7)). Minerals are identified as one of the principal uses of public lands in section 103 of the FLPMA (43 U.S.C. § 1702(c)).

Proponent Purpose and Need: According to the U.S. Census Bureau, the population in the Phoenix metropolitan area grew by 34.3 percent between 1990 and 2000, the fastest growth rate among the 10 largest U.S. cities during that period. In that same period, the population in Maricopa County grew by 44.8 percent. The Arizona Corporation Commission (ACC), which is an elected body responsible for regulating public utilities in Arizona, estimates that electricity generation in the States of Arizona, New Mexico, and Nevada will increase nearly 50 percent by 2009, with the majority of that increase being fueled by natural gas. Accordingly, the ACC is considering mechanisms to encourage

[1] Using the "eLibrary" link, select "General Search" from the eLibrary menu and enter the docket number excluding the last three digits in the "Docket Number" field (i.e., CP06-459). Be sure to select an appropriate date range.

utilities to invest in the infrastructure needed to provide additional natural gas supplies and thereby meet the projected demand for electricity.

Nationally, demand for natural gas is expected to increase by 2 percent per year. The increased demand has been driven primarily by the nation's recent dramatic economic growth, which has been relying heavily upon gas-fired power plants to meet new energy generation needs (Essential Services Task Force, 2005). This is particularly true for Arizona where the average yearly increase in natural gas consumption from 2000 to 2004 was 15 percent. In 2004, Arizonans consumed over 350 billion cubic feet of natural gas, a 28.8 percent increase over the total consumption in the state during 2003. Of the state's total gas consumption in 2004, 70 percent was from electric power generation (U.S. Department of Energy (DOE), Energy Information Administration (EIA), 2004). In-state production of natural gas accounts for less than 0.1 percent of statewide demand, thus, Arizona relies extensively on out-state sources to satisfy its natural gas demand (DOE, EIA, 2004).

Forty-three new power plants totaling more than 8,000 megawatts have come online in Arizona since 2001 (California Energy Commission, 2005). These plants are intermediate load and peaking power plants, which often ramp up quickly to meet changing electricity demand. Under normal circumstances, this practice is not troublesome if the demand can be balanced by taking gas out of storage. In the Phoenix area, however, the nearest storage is over 300 miles away and it is becoming increasingly common for pipeline pressure to drop during periods of high demand. El Paso Natural Gas Company (EPNG) is currently the only natural gas infrastructure system serving the Phoenix area. EPNG has modified its system in response to these constraints; however, the growing demand for natural gas in the project area continues to strain the existing transmission system. In the past 12 months, EPNG has posted on its website 8 warnings of strained operating conditions, 5 notices declaring strained operating conditions, 1 critical operating condition notice, and 1 emergency critical operating condition notice on its system.

The ability of Arizona consumers to pay for natural gas is also of statewide concern. Even though prices have moderated since the peaks of the recent energy crisis in neighboring California (which resulted in part from short- and mid-term imbalances in natural gas supply and demand), the price consumers currently pay for natural gas is significantly greater than the price consumers paid in the 1990s. Any action that can increase both supply and competition in the local energy market will reduce prices and have a significant impact on economic growth because the Phoenix area is among the fastest growing metropolitan regions in the United States. The new natural gas supplies that would result from the selected alternative would benefit consumers in the project area by increasing competition and putting downward pressure on prices.

PROPOSED ACTION AND ALTERNATIVES CONSIDERED

Proposed Action

Transwestern proposes to expand its existing natural gas transmission pipeline system in New Mexico and Arizona, and would acquire an undivided interest in the existing 36.7-mile-long, 24-inch-diameter East Valley Lateral, which extends between Pinal and Maricopa Counties, Arizona.

Specifically, the project facilities would include:

- 24.6 miles of new 36-inch-diameter pipeline loop[2] (the San Juan Lateral Loops A and B) extending along the existing San Juan Lateral in San Juan and McKinley Counties, New Mexico. In New Mexico, the project would affect 5.47 miles of Federal land.

- 259.3 miles of new 42- and 36-inch-diameter lateral[3] pipeline (the Phoenix Lateral), consisting of 95.7 miles of 42-inch-diameter pipeline extending from milepost (MP) 0.0 in Yavapai County, Arizona to MP 95.2 in Maricopa County, Arizona, and 163.6 miles of 36-inch-diameter pipeline extending from MP 95.2 in Maricopa County, Arizona to MP 255.1 in Pinal County, Arizona. In Arizona, the project would affect 99.48 miles of Federal land (please see table 1 below).

- 1.4 miles of new 24-, 20-, 16-, and 6-inch-diameter lateral pipeline (the customer laterals) connecting the Phoenix Lateral to meter stations that are not located immediately adjacent to the Phoenix Lateral ROW;

- piping modifications at the existing Bloomfield Compressor Station in San Juan County, New Mexico and the installation of pressure controls on valves at the existing Seligman Compressor Station No. 1 in Mohave County, Arizona;

- installation of the Ash Fork Facility at MP 0.0 of the Phoenix Lateral in Yavapai County, Arizona including 2 filter separators, odorant injection facilities, and telecommunications equipment;

- installation of 4 taps, 31 valves, 11 meter stations, 6 pig[4] launchers, and 3 pig receivers; and

- the use of 3 rock disposal and borrow material sites on Federal lands.

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[2] A loop is a segment of pipeline that is usually installed adjacent to an existing pipeline and connected to it at both ends. The loop allows more gas to be moved through the system.

[3] A lateral pipeline typically takes gas from the main system to deliver it to a customer, local distribution system, or another interstate transmission system.

[4] A pig is an internal tool that can be used to clean and dry a pipeline and/or to inspect it for damage or corrosion.

The project would be constructed in two overlapping phases. The first phase would involve construction of the Phoenix Lateral, customer laterals, and associated aboveground facilities including the Ash Fork Facility. Construction of these facilities is expected to occur over a 12- to 13-month period beginning in late 2007. The second phase would involve the construction of the San Juan Lateral Loops and the compressor station modifications. Transwestern estimates that these facilities would be constructed over a 3-month period beginning in early 2008.

Alternatives Considered

Alternatives to the selected alternative were considered by the FERC, the BLM, and the FS and were addressed in the Final EIS. The No Action Alternative, Postponed Action Alternative, route alternatives, and route variations are discussed in detail in section 3.0 of the Final EIS. These alternatives are summarized below.

The No Action and Postponed Action Alternatives were considered. The environmental impacts identified in the Final EIS would not occur or would be delayed under the No Action or Postponed Alternative; however, the likely outcome of this decision would be the construction of other new pipeline facilities that could have similar or greater environmental impacts.

Eight route alternatives to the proposed alignment of the Phoenix Lateral were considered and analyzed in the Final EIS. These route alternatives were not selected as they would not be environmentally preferable, would pose significant constructability constraints, would be uneconomic, or would create additional safety and reliability concerns when compared to their corresponding segments of the Phoenix Lateral.

Six route variations that could potentially reduce impacts on specific, localized resource issues or communities along the proposed route of the Phoenix Lateral were evaluated in detail in the Final EIS. Four of the six route variations would not offer an environmental advantage or reduce impact on the communities in which they would be located when compared to the corresponding segment of the proposed route and, therefore, were not selected. For one of the remaining variations, the Waste Management Arizona Variation, the FERC required that Transwestern follow this variation. The FERC also required that Transwestern adopt the Pinal County EPNG Collocation Variations that would reduce impacts on five specific approved or proposed developments in Pinal County. As such, these variations are part of the selected alternative for the PEP.

Approximately 86 percent of the proposed pipeline facilities would be constructed within or adjacent to existing rights-of-way (ROWs). Transwestern has proposed 31 deviations from existing ROWs based on site-specific terrain conditions, existing structures, Federal special-use designations, or residential/commercial development that has occurred along these existing ROWs. As described in the Final EIS, the FERC and the cooperating agencies determined that 30 of these deviations were warranted and environmentally acceptable. The remaining deviation was analyzed to avoid impacts on a flood control structure, but could have an impact on a proposed development referred to as Desert Creek. The FERC required that Transwestern develop a route variation within Desert

Creek that would minimize the impact of the permanent ROW on planned residential lots by utilizing other planned ROWs, green spaces, and other land uses within the Desert Creek development. This route variation is also part of the selected alternative for the PEP.

DECISION AND RATIONALE

Decision

After extensive environmental analysis and consideration of public comments and applicable pertinent Federal laws and policies, it is the decision of the DOI, BLM with concurrence from the FS and the DOI, BOR to authorize ROW AZA-33350-and NM-119513 grants and associated TUPs for the construction, operation, and maintenance of the selected alternative for Transwestern's PEP. Specifically, it is the decision of the BLM with FS and BOR concurrence to:

1. Grant a ROW authorizing the construction, operation, and maintenance of a 36- and 42-inch-diameter natural gas pipeline. On Federal lands the permanent ROW would be 50 feet in width (plus the ground occupied by the pipeline), 554,129 feet in length (104.95 miles), and encompass approximately 675.45 acres. The legal descriptions for the permanent ROW on Federal lands is shown in Attachment A. The term of the ROW shall be thirty (30) years with the right of renewal. The subject grant is issued under authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.) and the FLPMA (43 U.S.C. 1701 et seq.).

2. Issue a TUP in association with the pipeline ROW authorizing the construction of a natural gas pipeline. The TUP would encompass an area that varies from 100 feet in width in flatter areas to 120 feet in width on the steeper slopes, is 554,129 feet (104.95) miles in length, and encompasses approximately 981.38 acres. The term of the TUP shall be three (3) years. The subject TUP is issued under authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.) and the FLPMA (43 U.S.C. 1701 et seq.).

3. Grant a ROW authorizing the upgrade, use, and maintenance of 10 permanent access roads. The subject roads would be used to access the pipeline ROW including one valve site on Federal lands. The permanent ROW would be 30 feet in width, 133,531 feet in length (25.3 miles), and encompass approximately 92.01 acres. The legal descriptions for the permanent access roads are shown in Attachment D. The term of the ROW shall be thirty (30) years with the right of renewal. The subject grant is issued under authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.) and the FLPMA (43 U.S.C. 1701 et seq.).

4. Issue a TUP authorizing the upgrade, use, and maintenance of seventeen (17) existing access roads. The TUP would be 30 feet in width, 445,210 feet (84.32 miles) in length, and encompass approximately 306.58 acres. The subject roads are also identified and discussed in Appendix A of the Plan of Development (POD), which is included in this document as Attachment F. The term of the

TUP shall be one (1) year. The subject grant is issued under authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.) and the FLPMA (43 U.S.C. 1701 et seq.).

5. Issue a TUP authorizing the use of three separate areas on Forest System lands for rock disposal and borrow material purposes. This TUP would encompass approximately 95.7 acres. These areas are also identified and discussed in Appendix A of the POD. The term of the TUP shall be three (3) years. Rental will not be assessed for the use of these sites due to the public benefit. The subject permit is issued under authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.) and the FLPMA (43 U.S.C. 1701 et seq.).

Acreage calculations for the ROWs and TUPs are presented in table 1 below.

TABLE 1 - Acreage Calculations for ROWs and TUPs

COUNTY/STATE	Permanent ROW (Pipeline)	Temporary ROW (Pipeline)	Temporary Use Site (FS)	Temporary Existing Access Roads		Permanent Existing Access Roads		New Permanent Access Roads	
				Length (miles)	Acres Affected	Length (miles)	Acres Affected	Length (miles)	Acres Affected
San Juan County, New Mexico	33.17	55.43	0.00	4.82	17.51	0.00	0.00	0.00	0.00
Coconino County, Arizona	5.61	10.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maricopa County, Arizona	344.22	381.69	0.00	21.70	78.90	23.26	84.59	0.00	0.00
Pinal County, Arizona	6.75	6.86	0.00	1.88	6.82	0.00	0.00	0.00	0.00
Yavapai County, Arizona	285.70	527.29	95.70	55.92	203.35	1.94	7.07	0.09	0.35
TOTAL	**675.45**	**981.38**	**95.70**	**84.32**	**306.58**	**25.20**	**91.66**	**0.09**	**0.35**

Authorities: The authorizations are pursuant to the authority of the MLA, as amended and supplemented (30 U.S.C. 185 et seq.), the FLPMA (43 U.S.C. 1701 et seq.), and implementing regulations found in Title 43 CFR Parts 2800 and 2880. Under the MLA, the BLM has authority to issue the ROW grant and TUPs for all Federal lands.

Agency Standards: The ROW grant and TUPs must comply with agency (BLM, FS, BOR, U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers, and FERC) stipulations described and referenced in the attachments to this document.

Bonding: Transwestern will post a performance bond in the amount of $2,711,000.00 to ensure adequate adherence to all terms and conditions. The bond will apply to the following:

1. Accommodating all cultural resources post-field work costs associated with implementing the approved treatment plans in Arizona and New Mexico or other

cultural resources mitigation measures. Such costs may include, but are not limited to: treatment; field work, post-field analyses, research, and final report preparation, interim and summary report preparation, and the curation of project documentation and artifacts collected (except for Native American Graves Protection and Repatriation Act-related human remains and cultural artifacts) in a BLM-approved curation facility. Twenty-five percent of the bond amount ($542,200) is applied to ensure compliance with this condition.

2. Restoration and reclamation of disturbed areas and other requirements relative to the construction phase of the project. Upon completion, or partial completion of construction-related reclamation requirements, the Authorized Officer (AO) may reduce or terminate the amount of the bond.

3. Liability for damages or injuries resulting from releases or discharges of hazardous materials.

The bond may be released as specific tasks are completed and accepted by the BLM. This bond must be maintained in effect until temporary improvements used during construction are removed, and restoration and reclamation of the ROW has been accepted by the (Authorized Officer) AO.

Decommissioning: Upon termination of the ROW, the facilities on Federal lands would be decommissioned in accordance with an abandonment plan that would be reviewed by the BLM, the FS, and the BOR. The aboveground pipeline at compressor and meter stations would be completely removed, including all related aboveground equipment and foundations, and the station sites would be restored to as near original condition as possible. The underground pipe would be purged of gas, cleaned, isolated from interconnections with other pipelines, sealed, and left in place. All access roads not required to meet Federal transportation needs would be removed and the sites reclaimed to agency standards.

State and Federal Legal Requirements: This decision also requires Transwestern to meet the requirements of the other major authorizing agencies for this project concerning any necessary Federal and state permits, licenses, and/or approval and consultation requirements as identified in table 1.6-1 found on pages 1-22 to 1-24 of the Final EIS for the PEP.

Compliance and Monitoring: The holder shall provide compliance environmental inspectors/monitors for pipeline construction, access road upgrades, and aboveground facility construction. These monitors will report directly to the BLM, the FS, the BOR, and the FERC and ensure compliance with all terms, conditions, and stipulations of the ROW grant and TUPs as well as the FERC's Certificate of Public Convenience and Necessity (Certificate). The environmental inspectors/monitors shall follow the inspection and monitoring plan outlined in Appendix B of the POD. Transwestern will also be responsible for monitoring the reclamation and stabilization of the pipeline over the long term. Included in this requirement is the yearly monitoring of the ROW for noxious weeds and, if necessary, spraying as outlined in Appendix Q of the POD.

Terms/Conditions/Stipulations: The decision is contingent on meeting all stipulations and monitoring requirements listed below:

1. Transwestern shall follow the construction procedures and mitigation measures described in its application and supplements as identified in the EIS as modified by the conditions of approval (FERC and BLM EIS No. 0208, FERC Docket No. CP06-459-000).

2. The ROW and TUPs are subject to the standard stipulations of the ROW grant and TUPs.

3. Prior to any construction or other surface disturbance associated with the ROW grant and TUPs, the AO or delegated agency representative will issue written Notices to Proceed (NTPs). Any NTP shall authorize construction or use only as therein expressly stated and only for the particular location, segment, area, or use described.

4. In accordance with Title 43 CFR Part 2800, Transwestern shall provide the BLM with a POD detailing how the pipeline and associated facilities would be constructed in compliance with the ROWs and TUPs terms, conditions, and stipulations. The POD would be approved by the BLM prior to the issuance of the NTPs for Federal lands. The NTPs are subject to the condition that Transwestern complies with all required environmental protection measures outlined in the POD to the satisfaction of the BLM. These measures include the standard stipulations of the ROW grant and TUPs.

5. Transwestern shall construct, operate, and maintain the facilities, improvements, and structures within the ROW and areas authorized by the TUPs in strict conformity with the POD entitled the Transwestern Phoenix Expansion Project Plan of Development dated November 28, 2007(Attachment F), which, when approved, will be made part of the grant. Any relocation, additional construction, or use that is not in accordance with the approved POD shall not be initiated without the prior written approval of the AO.

6. The holder is subject to all requirements set forth by the FERC in its Order Issuing Certificate (Docket No. CP06-459-000) found in Attachment C of this document.

7. The holder is subject to the terms and conditions of the Biological Opinion (BO) written by the FWS found in Attachment D of this document.

8. The holder is subject to all requirements sets forth in the Programmatic Agreement written by the FERC and signed by the consulting parties found in Attachment E of this document.

9. Transwestern shall provide financial compensation for the loss of desert tortoise habitat in Maricopa and Yavapai Counties, Arizona as discussed in section 4.6.5 of the Final EIS. Compensation has been determined to be $227,700.00 (two-

hundred twenty-seven thousand, seven-hundred dollars). The compensation formula may be found in Attachment B of this document.

Rationale

Management Considerations

The impacts associated with construction of the selected alternative, regardless of land ownership, have been addressed in the Final EIS, dated September 2007. The BLM and the FS have selected the proposed action analyzed in the Final EIS as modified by the FERC, the BLM, and the FS required mitigation measures. Review of data supplied for the project; field investigations; scoping; literature research; alternatives analysis; and contacts with Federal, tribal, state, and local agencies and members of the public indicates the selected alternative would result in limited adverse environmental impacts. Throughout the application permitting process, the FERC, the BLM, and the FS used information derived from interaction with interested parties and data from resource surveys to make refinements to Transwestern's proposed centerline to mitigate adverse effects. The selected alternative will be constructed and operated in accordance with applicable laws, regulations, and mitigating measures. As discussed above in the section titled Alternatives Considered, the other alternatives evaluated were dismissed because they would not offer an environmental advantage or reduce impact on the communities in which they would be located, would pose significant constructability constraints, would be uneconomic, or would create additional safety and reliability concerns when compared to their corresponding segments of the selected alternative.

It is the policy of the BLM to: 1) authorize all ROW uses on Federal lands in the most efficient and economical manner possible...; 2) manage ROW use of Federal lands through a system of...ROW corridors; 3) maximize the use of performance stipulations through the use of construction, operation, and maintenance plans (PODs); and 4) assure to the greatest extent possible that all identified impacts are mitigated and that the terms and conditions of the ROW grant are complied with (BLM manual 2801).

The FS determined that the use of three rock disposal sites and borrow pits will be allowed without assessing rent or other fees. This determination was made because allowing Transwestern to dispose of excess rock in the two smaller old cinder pits is a public benefit in that it will effectively close and reclaim the cinder pits, which could not be done otherwise without using appropriated funds. This will eliminate a safety hazard as well as improve the aesthetics of this area. Disposing of excess rock and utilizing borrow pit material from the Cruice Cinder pit will also eliminate a safety hazard and improve the visual quality of the area and allow for the reclamation of the pit without the use of appropriated funds. The estimated cost to reclaim all three of these sites is in excess of $100,000.00.

My decisions in this ROD are consistent with BLM policy. The selected alternative is in compliance with existing Federal land use plans, including BLM Resource Management Plans (RMPs) for the affected field offices as well as FS Plans. The selected alternative would utilize existing designated and non-designated utility corridors. The decisions of

this ROD are in conformance with BLM RMPs and are consistent with FS and BOR land use plans. On balance, the benefits of implementing the BLM selected alternative as proposed by Transwestern and modified by the terms and conditions of this ROD and the Final EIS minimize both natural resource and social impacts.

Environmentally Preferred Alternative

The environmentally preferred alternative is the proposed action as described in section 2.0 of the Final EIS as modified by the FERC, the BLM, and the FS required mitigation measures (referred to in this ROD as the selected alternative). All practicable mitigation measures were added to the selected alternative.

The environmental protection measures Transwestern incorporated into its POD and the additional terms and conditions stipulated in this ROD will minimize the resource impacts of this project. These measures constitute all practical means to minimize environmental harm and are detailed in the POD and the other attachments to this ROD. Monitoring and environmental compliance during construction will ensure all environmental protection measures are completed in accordance with the POD, the ROD, and the FERC's authorizing Order.

Land Use Plan Conformance/Consistency

Conformance with Current BLM Land Use Plans and Ongoing BLM Planning Efforts

The selected alternative will cross Federal land under the jurisdiction of the BLM Farmington District (Farmington Field Office) in New Mexico and the BLM Phoenix District (Hassayampa and Lower Sonoran Field Offices) in Arizona. In addition, the selected alternative will cross Federal lands administered by the FS, Kaibab National Forest and Prescott National Forest. The selected alternative is in conformance with the BLM land use plans and is consistent with the FS land use plans. The RMPs and FS Plans are summarized below.

Farmington Planning Area, New Mexico

Within the BLM's Farmington District, the San Juan Lateral Loop A will cross 5.7 miles of land under the jurisdiction of the Farmington Field Office within the Farmington Planning Area. The Farmington Planning Area is managed under the Farmington RMP (BLM, 2003). Installation of Loop A, along with Loop B, which will not cross BLM lands, would complete looping of the San Juan Lateral that was constructed by Transwestern in 2005. Loop A will be installed adjacent to the San Juan Lateral and is in conformance with the current RMP.

Bradshaw-Harquahala Planning Area, Arizona

Within the Phoenix District, the Phoenix Lateral would cross the Bradshaw-Harquahala Planning Area under the jurisdiction of the Hassayampa Field Office between MP 0.0 in Yavapai County and approximate MP 153.8, where the Phoenix Lateral would cross

Interstate 10 in Maricopa County. The Bradshaw-Harquahala Planning Area is currently managed under three separate plans: the Phoenix RMP; the Lower Gila North Management Framework Plan; and the Kingman Resource Area RMP. The proposed project would only cross lands currently managed under the Phoenix RMP (BLM, 1988).

The Phoenix RMP, adopted in 1988, established an approximately 1-mile-wide multi-use transportation and utility corridor on Federal lands along Interstate 17, extending from Cordes Junction on the north to Black Canyon City on the south. The existing EPNG pipeline, which the Phoenix Lateral would follow for the majority of its length between MPs 0.0 and 107.8, is located within the designated transportation and utility corridor. However, to avoid construction in the Agua Fria National Monument (AFNM), the Phoenix Lateral would deviate from the EPNG ROW for a distance of about 17.9 miles between MPs 68.4 and 86.3 in the area between Cordes Junction and Black Canyon City.

Although this segment of the Phoenix Lateral would not be located in the current multi-use transportation and utility corridor outlined in the Phoenix RMP, it is in conformance with the multi-use decisions made in the Phoenix RMP for the reasons discussed below.

The general management guidance for the Phoenix RMP under Land Use Authorization states: "Land use authorizations (rights-of-way, leases, permits, easements) would continue to be issued on a case-by-case basis and in accordance with recommendations in this proposed RMP/Final EIS. Rights-of-way would be issued to promote the maximum utilization of existing right-of-way routes including joint use whenever possible." The RMP under Utility Corridors then states: "All major utilities would be routed through designated corridors. This would prevent the proliferation of major routes across public lands and would reduce the impacts to sensitive resources."

It should be noted, however, that in the program-specific decisions of the Phoenix RMP under Issue 2 – Utility Corridors and Communication Sites it states: "The recommended utility corridors identify the BLM's preferred utility system routing. However, with the exception of those areas identified in this RMP as closed to right-of-way development, the RMP area is generally open to right-of-way development on a case-by-case basis."

Since the signing of the ROD for the Phoenix RMP in 1989, the BLM has generally tried to keep all major utilities within the designated corridors as preferred, although the plan allowed for development in other areas on a case-by-case basis. This practice has helped meet management objectives in preventing the proliferation of major access routes.

As discussed above, the selected alternative will deviate from the existing EPNG ROW to avoid construction in the AFNM, which was created by Presidential Proclamation 7263 in January 2000. The AFNM comprises approximately 70,900 acres of BLM-managed land and 1,444 acres of scattered private parcels located entirely east of Interstate 17.

The EPNG pipeline was constructed about 45 years before the creation of the AFNM and crosses the AFNM for approximately 10 miles in a location northeast of Black Canyon City. As discussed in section 3.4.2.3 of the Final EIS, it is concluded that construction of the Phoenix Lateral through the AFNM would result in new land disturbance outside of

the existing EPNG ROW and, thus, would not be consistent with the Presidential Proclamation.

In response to the creation of the AFNM and to address future management for the planning area, the BLM issued the Agua Fria National Monument and Bradshaw-Harquahala Draft RMP and Draft EIS in January 2006. When finalized, the Bradshaw-Harquahala RMP will replace and consolidate the Phoenix RMP, the Lower Gila North Management Framework Plan, and the Kingman Resource Area RMP into a comprehensive RMP for the Bradshaw-Harquahala Planning Area and AFNM (BLM, 2006a). In the Bradshaw-Harquahala Draft RMP, the BLM evaluated several new and modified transportation and utility corridor alternatives to accommodate future utilities in proximity to the AFNM area. The Phoenix Lateral is expected to be within the preferred future transportation and utility corridor

Lower Sonoran Planning Area, Arizona

Within the BLM's Phoenix District, the Phoenix Lateral would cross the Lower Sonoran Planning Area under the jurisdiction of the Lower Sonoran Field Office between approximate MP 153.8 in Maricopa County and MP 255.1 in Pinal County. The Lower Sonoran Planning Area is currently managed in accordance with six RMPs and RMP amendments, including the Lower Gila North Management Framework Plan (BLM, 1983); the Lower Gila South RMP (BLM, 1988); the Phoenix RMP (BLM, 1988); the Lower Gila South RMP Goldwater Amendment (1990); the Arizona Standards for Rangeland Health and Guidelines for Grazing Administration (1997); and the Arizona Statewide Land Use Plan Amendment Fire, Fuels, and Air Quality Management (2005) (BLM, 2006b). The Lower Sonoran Planning Area includes the Sonoran Desert National Monument, which was established by Presidential Proclamation No. 7397 on January 17, 2001.

The BLM is currently developing a Lower Sonoran and Sonoran Desert National Monument Management Draft Resource Management and Environmental Impact Statement (DRMPs/DEIS). Through this planning area, the Phoenix Lateral would be within a designated utility corridor, which is north of three existing pipelines that are routed along the northern border of the Sonoran Desert National Monument. The Lower Sonoran and Sonoran Desert National Monument DRMPs/DEIS does not include any proposed changes to the existing utility corridor (BLM, 2006c). As such, the Phoenix Lateral is consistent with the existing land management plans and is expected to be consistent with the final Lower Sonoran and Sonoran Desert National Monument DRMPs/DEIS.

Consistency with Other Agency Plans

Kaibab National Forest, Arizona

The FS manages the Kaibab National Forest under the *Kaibab National Forest Land Management Plan, as amended* (Kaibab Forest Plan) dated 1988. The selected alternative is consistent with the land management plan for the Kaibab National Forest.

A decision that allows the Phoenix Lateral to cross the Kaibab National Forest must be compatible with the Kaibab Forest Plan, including the *Kaibab National Forest Recreation Opportunity Spectrum and Scenery Management System Guidebook* (ROS-SMS Guidebook). Direction in the Kaibab Forest Plan for Ecosystem Management Area 1 contains guidelines to "Minimize the number of electronic sites and utility corridors" and "allow expansion of existing major utility corridors."

The selected alternative is consistent with the FS plan because the entire length of the Phoenix Lateral that located in the Kaibab National Forest would be parallel to the existing EPNG pipeline ROW, reducing the amount of clearing for a new utility corridor. The pipeline would also be installed underground. Therefore, the Phoenix Expansion Project would be consistent with the recreational land use management plans detailed in the Kaibab Forest Plan and the ROS-SMS Guidebook. Maintenance of the permanent pipeline ROW would not impact the overall use or character of surrounding lands.

Prescott National Forest, Arizona

The FS manages the Prescott National Forest under the *Prescott National Forest Land and Resource Management Plan* (Prescott Forest Plan) dated 1986. The selected alternative is consistent with the land management plan for the Prescott National Forest.

The Prescott Forest Plan adopts the ROS as a framework for recreation planning. The Prescott Forest Plan uses the same ROS classes as described in the ROS-SMS Guidebook but without the class of Roaded Modified. The Prescott Forest Plan indicates that approximately 50 percent of the Prescott National Forest is considered Roaded Natural. The Prescott Forest Plan does not provide maps showing the inventoried ROS; instead, the Prescott Forest Plan manages land use planning with forest-wide guidelines and additional guidelines for specific management areas. The proposed pipeline would fall entirely within the Roaded Natural ROS class. As discussed above, the guidelines in the SMS-ROS Guidebook for special uses management in the Roaded Natural ROS class suggest, "Attempt to avoid clearing of new major utility corridors within sensitive travel corridor foregrounds," and also suggest that new utilities be constructed underground.

The Phoenix Lateral would be parallel to the EPNG pipeline for its entire length across the Prescott National Forest, and would be installed underground. Therefore, the Phoenix Lateral would be compatible with the ROS for the area.

Bureau of Reclamation, Arizona

The Phoenix Lateral would be adjacent to existing ROW for its entire 0.8-mile-long crossing of BOR land. Therefore, the Phoenix Lateral would be consistent with the existing land use on BOR land.

Agency and Public Involvement

Agency and public involvement in the environmental review process for the PEP is summarized below and presented in detail in section 1.3 of the Final EIS.

Environmental Review Process: The FERC was the lead Federal agency under NEPA responsible for the preparation of the EIS for the PEP with the BLM; the FS; the DOI, Bureau of Indian Affairs (BIA); the Navajo Nation; and the U.S. Department of Transportation (DOT), Office of Pipeline Safety (OPS) as cooperating agencies. The cooperating Federal agencies provided comments, information, and analysis for the EIS.

Consultation with Other Agencies: In addition to the FERC and the formal cooperating agencies, other Federal, state, and local agencies will use the EIS for issuing permits or approvals for all or part of the proposed project. Because of the need for data input, permits, and approvals from other agencies, consultations took place with the Federal, state, and local governments for the EIS.

The FERC initiated informal and formal consultation pursuant to the Endangered Species Act with the FWS, consultation pursuant to the National Historic Preservation Act (NHPA) with the Arizona and New Mexico State Historic Preservation Officers (SHPOs) and the Advisory Council on Historic Preservation, and consultation with known or interested and potentially impacted Native American tribes. A detailed discussion of Native American consultation can be found in section 4.9.3 of the Final EIS.

Public Outreach and Comments: In January of 2006, Transwestern held open houses in Prescott Valley, Sun City West, Black Canyon City, and Casa Grande, Arizona; and Bloomfield, New Mexico, to provide the public an opportunity to learn about the project and express their concerns. The FERC and BLM staffs attended the open houses to explain the NEPA environmental review process to interested stakeholders and take comments about the project.

On February 6, 2006, the FERC issued a Notice of Intent (NOI) that briefly described the project and the EIS process. The NOI also invited written comments on the environmental issues to be addressed in the EIS and listed the date and location of four public scoping meetings to be held in the project area. The NOI was published in the Federal Register and mailed to more than 5,800 individuals and organizations.

The four public scoping meetings were held to provide an opportunity for agencies and the general public to learn more about the proposed project and participate in the environmental analysis by commenting on the issues to be addressed in the EIS. The first meeting was held in Black Canyon City, Arizona on February 27, 2006; the second meeting was in Casa Grande, Arizona on February 28, 2006; the third meeting was in Prescott Valley, Arizona on March 1, 2006; and the fourth meeting was held in Avondale, Arizona on March 2, 2006.

On March 2, May 11, and June 28, 2006, the FERC staff conducted interagency scoping meetings in the project area to solicit comments and concerns about the project from other jurisdictional agencies.

The transcripts of the public scoping meetings, a summary of the interagency scoping meetings, and all written scoping comments are part of the public record for the PEP and are available for viewing on the FERC's Internet website (http://www.ferc.gov).

The FERC staff also attended or conducted other meetings in the project area. These meetings included an appearance before the Resources Committee of the Navajo Nation Council on February 23, 2006; a meeting with the Arizona State Land Department on March 1, 2006; a meeting with the Town of Prescott Valley, Arizona on May 10, 2006; meetings with the City of Casa Grande, Arizona on January 12 and June 28, 2006; and a meeting with Native American tribes on June 28, 2006. The FERC staff also attended technical conferences in the City of Casa Grande and the Town of Buckeye, Arizona on December 13 and 14, 2006, respectively, to discuss route alternatives and potential project-related impacts on approved and proposed developments in those areas. In addition to participating in numerous meetings in the project area, the FERC staff conducted aerial inspections of the proposed route on January 10 and May 10, 2006, and a ground reconnaissance of the proposed route in the Buckeye, Arizona area on December 14, 2006.

Throughout the scoping process, the most frequently raised issues associated with the project were related to general pipeline safety and route alternatives to reduce impacts on existing, approved, and proposed developments. Other issues raised related to protection of waterbodies and the special status species they support; impacts on soils, vegetation, cultural resources, and visual resources; and concerns regarding restoration of the ROW. Table 1.3-1 found on pages 1-8 to 1-11 of the Draft EIS listed the environmental issues identified during the scoping process and indicated the section of the Draft EIS in which each issue was addressed.

The Notice of Availability (NOA) of the Draft EIS was published by the U.S. Environmental Protection Agency (EPA) in the Federal Register on May 4, 2007. The public was given 45 days to review and comment on the Draft EIS both in the form of written comments and at public meetings that were held in five communities along the pipeline route. These meetings were held in Prescott Valley, Black Canyon City, Buckeye, and Casa Grande, Arizona and Crownpoint, New Mexico on June 4, 5, 6, 7, and 12, 2007, respectively. The meetings were announced in the Draft EIS, in the NOA, on the FERC Internet website, and in several local newspapers. Each meeting was recorded. In addition to the oral comments received at the public meetings, written comments were received from Federal, state, and local agencies; a Native American tribe; companies/organizations; individuals; and Transwestern. The 45-day comment period for receiving written comments on the Draft EIS closed on June 18, 2007.

The majority of the comments received on the Draft EIS related to concerns regarding pipeline safety, impacts on existing and planned developments, and routing alternatives to the proposed Phoenix Lateral. Commentors asserted that the Draft EIS did not contain an adequate analysis of terrorism and public safety; cumulative impacts; environmental justice issues; and the timing, availability, and accuracy of information about the proposed project.

The transcripts from the public meetings and the written comment letters on the Draft EIS are available for viewing on the FERC's Internet website and are included in Volume II of the Final EIS with the responses of the environmental staffs of the FERC, the BLM, the FS, the OPS, the BIA, and the Navajo Nation to each comment. All comments

related to environmental issues received on the Draft EIS within a time frame that allowed for their review were addressed in the Final EIS, including those submitted outside of the comment period.

The Final EIS considers and responds to the concerns expressed, and concludes that construction and operation of Transwestern's proposed expansion project would result in limited adverse environmental impacts. The NOA for the Final EIS was published by the EPA in the Federal Register on September 28, 2007.

Environmental Analysis

Throughout the environmental review period, the environmental staffs of the FERC, the BLM, the FS, the OPS, the BIA, and the Navajo Nation evaluated the impacts on geology; soils; water resources; vegetation; wildlife and aquatic resources; special status species; land use, recreation and special interest areas, and visual resources; socioeconomics; cultural resources; air quality and noise; and reliability and safety. The cumulative impacts of the project with current and foreseeable projects in the area were also considered. The best available science was considered as the basis for the decision.

My conclusion is based on a review of the record that shows a thorough review of relevant scientific information; a consideration of responsible opposing views; and the acknowledgement of incomplete or unavailable information, scientific uncertainty, and risk.

Construction of the project would temporarily affect about 5,992.2 acres of land, the majority of which (66 percent) would be rangeland. Operation of the project would affect 2,078.8 acres, including 1,731.0 acres of permanent ROW, 19.7 acres of aboveground facility sites, and 328.1 acres of permanent access roads. To reduce construction impacts, Transwestern would implement its project-specific Upland Erosion Control, Revegetation, and Maintenance Plan (UECRM Plan) for construction in upland areas and its project-specific Wetland and Waterbody Construction and Mitigation Procedures (WWCM Procedures) for construction across wetlands and waterbodies. Transwestern would also implement its project-specific Spill Prevention and Response Procedures (SPR Procedures) and it's Restoration Plan. The SPR Procedures identifies measures to reduce the likelihood of a spill and to contain and clean up a spill should one occur. The Restoration Plan describes preconstruction planning, construction and restoration activities, and post-construction monitoring and reporting efforts that would be implemented to minimize construction impacts and enhance successful revegetation in an arid environment.

Transwestern has submitted site-specific horizontal directional drill (HDD) and wet open-cut crossing plans for the San Juan River to the FERC staff. Due to the presence of the federally listed endangered Colorado pikeminnow and razorback sucker in the river and the uncertainty over whether the river can be successfully crossed using the HDD method; the FERC staff initiated formal consultation with the FWS regarding the impact of the project on these species as discussed below.

Transwestern proposes to cross the Verde River using a variation of the flume method. The Verde River is considered an intermediate waterbody because it is approximately 20 feet wide at the crossing location. In accordance with the WWCM Procedures, in-stream construction activities (not including blasting and other rock breaking measures) would be completed within 48 hours, unless site-specific conditions make completion within 48 hours infeasible. The FERC staff initiated formal consultation with the FWS to address the potential effects of the project on the spikedace and its designated critical habitat as discussed below.

Based on consultation with the FWS, 15 federally listed threatened and endangered species were identified as potentially occurring in the proposed project area in New Mexico and Arizona. Eight species would not be affected due to lack of habitat in the project area or the unlikelihood of occurrence and were eliminated from further consideration. In consultation with the cooperating agencies, it was determined that, with the implementation of Transwestern's UECRM Plan, WWCM Procedures, SPR Procedures, Restoration Plan, HDD Plan, and proposed conservation measures, the proposed project is not likely to adversely affect four species. Three species (the Colorado pikeminnow, the razorback sucker, and the spikedace) were identified as likely to be adversely affected by the proposed project. It was also determined that the project is likely to result in the destruction or adverse modification of designated critical habitat for the spikedace, which occurs at the proposed crossing location of the Verde River.

In compliance with Section 7 of the Endangered Species Act, the FERC staff submitted a Biological Assessment to the FWS with a request for concurrence with these determinations of effect and to initiate formal consultation. In a letter dated June 7, 2007, the FWS indicated that it concurred with the FERC's determinations of effect and that formal Section 7 consultation for the PEP was initiated on May 9, 2007.

In its BO, the FWS concluded that after reviewing the current status of the spikedace and its critical habitat, the Colorado pikeminnow, and the razorback sucker, the environmental baseline for the action area, the effects of the selected alternative, and the cumulative effects, it is the FWS' BO that the selected alternative is not likely to jeopardize the continued existence of the spikedace, Colorado pikeminnow, and razorback sucker, and is not likely to destroy or adversely modify designated critical habitat for the spikedace. Critical habitat for the razorback sucker has been designated outside of the action area. Although critical habitat for the Colorado pikeminnow falls within the action area, the FWS concluded that this action would not result in destruction or adverse modification of that critical habitat.

When Transwestern receives written notification from the Director of the Office of Energy Projects (OEP) that construction and/or implementation of conservation measures may begin construction activities can commence. Activities on Federal lands will not commence until a written NTP is issued.

The PEP would cross or abut 39 different residential developments that are either under construction, approved, or proposed. At this time, the proposed construction work area is within 50 feet of two existing residences within these developments. Transwestern has

committed to working with developers and local governments to reduce the impact of the proposed project on developments. Further, it was directed that Transwestern prepare and file site-specific residential and structural implementation plans for all residences, businesses, and structures within 50 feet of the construction work area before construction.

The selected alternative would cross 64.7 miles of Federal lands managed by the BLM under the jurisdiction of the Farmington Field Office in New Mexico and the Hassayampa and Lower Sonoran Field Offices in Arizona. About 9.0 miles and 20.4 miles of the Phoenix Lateral would be located on Federal lands within the Kaibab National Forest and Prescott National Forest, respectively.

Several areas on BLM-managed and Forest System lands are particularly known for their visual resource values. Measures Transwestern would implement to reduce impacts on vegetation and improve revegetation potential, which would reduce impacts on visual resources, are included in its Restoration Plan found in Appendix Q of the POD (Attachment F). Implementation of mitigation measures approved by the BLM and the FS included in the Restoration Plan would reduce the adverse visual effects of pipeline construction and maintenance.

Transwestern has completed cultural resources investigations for the majority of the proposed pipeline corridor and ancillary facilities. A total of 221 cultural resources were recorded during these surveys. Based on consultations with the Tribal Historic Preservation Officers, the SHPOs, and staff of other Federal agencies, the FERC has determined that the project would have an effect on historic properties. Therefore, a Programmatic Agreement (Attachment E) has been prepared for the project that provides for developing and implementing treatment plans to minimize effects on historic properties, and completing studies to identify and to evaluate these effects.

The Director of OEP will notify Transwestern when treatment plans/mitigation measures may be implemented or construction may proceed project wide. The BLM will issue an NTP for those areas located on Federal lands.

The only portions of the selected alternative that would be constructed in currently designated nonattainment or maintenance areas for the National Ambient Air Quality Standards would be in Maricopa County, Arizona. Project emissions during construction in 2008 would exceed general conformity pollutant thresholds for nitrogen oxides (NO_x) emissions in a portion of Maricopa County that is designated as a Subpart 1 ozone nonattainment area. NO_x is considered an ozone precursor pollutant. Therefore, a General Conformity Determination is required for Maricopa County.

The FERC worked with the Maricopa Association of Governments; the Arizona Department of Environmental Quality; and the EPA, Region IX to ensure that appropriate documentation was received to complete the general conformity analysis and allow the issuance of a Final General Conformity Determination for the project. The FERC has completed its final analysis and determined that the selected alternative would be in conformance with the Federal General Conformity requirements.

The pipeline and aboveground facilities associated with the selected alternative would be designed, constructed, operated, and maintained to meet or exceed the DOT's Minimum Federal Safety Standards in Title 49 CFR Part 192 and other applicable Federal and state regulations. By designing and operating the proposed project in accordance with the applicable standards, the selected alternative would not result in a significant increase in risk to public safety.

This ROD addresses the committed mitigation measures Transwestern is required to comply with under the terms of the FERC Order dated November 15, 2007 and additional mitigation measures imposed by the BLM in the form of Terms and Conditions of Approval to address impacts not addressed in Transwestern's POD. This ROD does not address those additional mitigation measures proposed by the FERC in the form of recommendations in the Final EIS when those recommendations do not apply to Federal lands or in the minor situations when the FERC and BLM differ in application of a mitigation measure.

Based on review of the Final EIS and associated appendices, the BLM has determined that with application of Terms and Conditions of Approval, the environmental impacts of the selected alternative would result in limited adverse environmental impacts that would remain after application of the committed mitigation proposed by Transwestern. The BLM has considered the appropriate and reasonable terms and conditions that would further reduce potential project-related impacts. These additional Terms and Conditions of Approval are included in the ROW grant offered by the BLM.

The Final EIS also discusses the significant unavoidable impacts, irreversible/ irretrievable commitment of resources, short- and long-term uses of the environment, and cumulative impacts. By applying Transwestern's required mitigation from the POD and the additional Terms and Conditions of Approval that shall be added to the BLM ROW grants and TUPs, the BLM concludes the proposal would result in no significant unavoidable impacts. The major nonrenewable resources that would be consumed by the selected alternative that are irreversible are fossil fuels used to power construction equipment; soils (water and wind erosion could occur in disturbed areas); crop production (crops are generally lost or reduced for one season; however, in the case of orchards, the impacts would be permanent because the crop would be restricted from growing over the permanent easement); land use (aboveground facilities and permanent access roads would replace rangeland, agricultural, and developed/disturbed cover types for the life of the project); vegetation (ROW maintenance activities would result in the permanent conversion of riparian cover types); visual resources (the presence of aboveground facilities would permanently affect viewsheds); wildlife habitat (ROW maintenance activities would result in the permanent loss of riparian habitat); and special status species (mortalities could occur during construction; additionally, the FERC staff has determined that the project is likely to adversely affect the Colorado pikeminnow, the razorback sucker, and the spikedace and its designated critical habitat).

Cumulative impacts are addressed in detail in the Final EIS (see section 4.12). Existing and foreseeable projects that overlapped or could overlap the selected alternative were identified throughout the length of the pipeline and evaluated. The selected alternative

was found to increase the width of the existing pipeline corridors it follows, particularly where the selected alternative and EPNG pipelines are routed adjacent to each other. A corresponding expansion of wildlife habitat fragmentation in shrubland and woodlands would inhibit or limit wildlife movement and increase predation on some species.

Environmental issues associated with construction, operation, and maintenance of the selected alternative were analyzed using information provided by Transwestern, and further developed from data requests; field investigations; scoping; literature research; alternatives analysis; contacts with Federal, tribal, state, and local agencies; and input from public groups and organizations.

Transwestern prepared specific plans (included by reference in the Terms and Conditions of Approval and POD) that include measures to mitigate potential impacts. The BLM requires that these plans be implemented:

- Environmental Inspection and Monitoring Plan;
- Access Management Plan;
- Cultural Resources Unanticipated Discovery Plans;
- Fire Prevention and Suppression Plan;
- Upland Erosion Control, Revegetation, and Maintenance Plan;
- Restoration Plan;
- Blasting Procedure;
- Wildlife Conservation Plan;
- Desert Tortoise Plan;
- Wetland and Waterbody Construction and Mitigation Procedures;
- Hydrostatic Test Plan;
- Best Management Practices for Erosion and Sedimentation Control;
- Spill Prevention Response Procedures;
- Horizontal Directional Drill Plan;
- Dust Control Plan; and
- Noxious Weed Management Plan.

Land Use Conflicts

Nearly all of the Federal lands along the selected alternative contain various valid existing rights. The selected alternative contains multiple existing ROW authorizations for other pipelines, access roads, fiber optic, and electric lines. The selected alternative would physically locate and avoid all existing ROW facilities during its construction activities. The ROW grant issued to Transwestern on Federal lands would generally overlap with the ROW grant for the nearest utility. Where the new PEP pipeline would cross or intersect with existing pipelines or other utilities, the PEP pipeline would be buried below or underneath the existing ROW facility in accordance with DOT specifications and any site-specific crossing agreements that were required.

The selected alternative would affect two range allotments: the Irishman Dam cattle allotment, which is located between MPs 0.0 and 5.5, and the Hat sheep allotment, which

is located between MPs 5.5 and 9.5. In order to maintain the grazing permit, the permittee must have a base property (private land) of at least 40 acres. As long as the permittee is leasing and not selling part of their base property, this lease would have no effect on the ability to maintain the grazing permit. If the grazing permittee sold part of their base property, a reduction below the minimum 40 acres may affect their ability to maintain the grazing permit. Permittees would be notified prior to construction on their grazing allotment.

Because the disturbance associated with pipeline construction is temporary, there would be no reductions in grazing preference at the Hat sheep allotment as a result of the selected alternative. However, the site for the Ash Fork Facility, which is located in the Irishman Dam cattle allotment, would reduce the amount of land available for grazing. Transwestern would negotiate a long-term lease with the permittee of this allotment for the Ash Fork Facility, thus avoiding any financial loss to the permittee. Transwestern would perform mitigation measures such as bracing any fence that must be cut, installing gates if necessary to minimize impacts on livestock, and notifying operators prior to construction.

Appeals Language:

This decision is effective upon the date it is signed by the AO. As stated in the regulations at Title 43 CFR Parts 2804.1 and 2884.1, the provisions of Title 43 CFR Part 4.21(a) do not apply, and the decision shall remain effective pending appeal unless the Board determines otherwise. Within 30 days of receipt of the decision, an appeal must be filed to: Interior Board of Land Appeals, Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203. A copy of the notice of appeal must also be filed in this office (Phoenix District Office, 21605 North 7th Avenue, Phoenix, Arizona 85027-2929) as well as with: Office of the Solicitor Office of the Field Solicitor, USDI; Attn: John Gaudio, Sandra Day O'Connor U.S. Courthouse, Suite 404; 401 West Washington Street, SPC 404; Phoenix, Arizona 85003-2151. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition for stay pursuant to Title 43 CFR Parts 2804.1, 2884.1, and 3165.4, the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

(1) The relative harm to the parties if the stay is granted or denied;

(2) The likelihood of the appellant's success on the merits;

(3) The likelihood of irreparable harm to the appellant or resources if the stay is not granted; and

(4) Whether the public interest favors granting the stay.

Approval Signatures

Teresa A. Raml, Phoenix District Manager
Bureau of Land Management

Date

We Concur with the Decision noted above:

Alan Quan, Forest Supervisor
Prescott National Forest

Date

Michael Williams, Forest Supervisor
Kaibab National Forest

Date

Carol Erwin, Area Manager
Bureau of Reclamation
Lower Colorado Regional Office

Date

Contact Person

Mark A. Mackiewicz, PMP
Project Manager
Bureau of Land Management
Washington Office
125 South 600 West
Price, UT 84501
(435) 636-3616

Attachments (6)

1. Attachment A, List of all Federal Lands
2. Attachment B, Desert Tortoise Compensation Formula
3. Attachment C, FERC Order issuing Certificate
4. Attachment D, Biological Opinion
5. Attachment E, Programmatic Agreement
6. Attachment F, Plan of Development

APPENDIX G

Proposed Water Sampling Plan

Hydrostatic Test Discharge Permit Application
Transwestern Pipeline Company, LLC
Loop A Milepost 5.64/Station 298+00

Water Sampling Plan

Transwestern will be constructing approximately 8.9 miles of pipeline adjacent to its existing San Juan Lateral pipeline in San Juan County, New Mexico. This pipeline is referred to as Loop A. Both source and discharge locations are within the San Juan River Watershed. Transwestern will employ Environmental Inspectors (EI) who will be responsible for acquiring all water samples and incorporating quality control measures.

Sample Bottles will be obtained from a certified testing laboratory. Each sample bottle will be marked with:

- Source of water with pipeline station number, milepost or latitude and longitude.
- Date taken
- Laboratory Order Number, and
- Name of EI taking the sample.

Prior to Hydrostatic Testing

Transwestern's construction contractor will notify Transwestern's EI at least 72 hours before hydrostatic testing begins to allow pre-test water sample collection at the source site.

Equipment blanks, utilizing de-ionized water purified and provided by a certified laboratory, will be taken after decontamination of all pumps and other equipment to confirm that decontamination procedures are sufficient to not introduce error in the laboratory results.

The EI will collect water samples from the source/collection location at Citizens Ditch (Duggan's Ditch) in Bloomfield, New Mexico (the coordinates of the intake sample location are 36.7238°N, 107.9508°W [NAD 83]). A duplicate sample will be collected for quality control verification of the consistency of laboratory results. The samples will be sent to and analyzed by Animas Environmental in Farmington, New Mexico.

Upon Completion of Hydrostatic Testing

At the conclusion of hydrostatic testing, the EI will collect samples from the pipe prior to discharge (wastewater sample location coordinates are 36° 40' 15.7" N, 108° 00' 5.3" W [NAD 83 Datum]). A duplicate sample will be collected for quality control verification of the consistency of laboratory results. The samples will be sent to and analyzed by Animas Environmental in Farmington, New Mexico. The samples will be analyzed to ensure the quality of the water meets all applicable New Mexico requirements as set forth in the hydrostatic test water discharge permit and Subsections A, B, and C of the 20.6.2.3103 NMAC (the New Mexico Water Quality Control Commission Regulations). Animas Environmental will analyze and make a final determination before the wastewater is injected into a Class 1 disposal well at Key Energy Disposal Services near Aztec, New Mexico.

APPENDIX H

Soil Survey Information

USGS

GROUND WATER ATLAS of the UNITED STATES
Arizona, Colorado, New Mexico, Utah
HA 730-C

Preview and download Colorado Plateaus aquifers figures--(107 thru 134)

Download the text (This is the text for all of HA 730-C in ascii format, no links, no page formatting) C-text.ascii--(192k)

COLORADO PLATEAUS AQUIFERS

INTRODUCTION

The Colorado Plateaus aquifers underlie an area of approximately 110,000 square miles in western Colorado, northwestern New Mexico, northeastern Arizona, and eastern Utah (fig. 107). This area is approximately coincident with the Colorado Plateaus Physiographic Province. The distribution of aquifers in the Colorado Plateaus is controlled in part by the structural deformation and erosion that has occurred since deposition of the sediments that compose the aquifers. The principal aquifers in younger rocks are present only in basins such as the Uinta, Piceance, and San Juan Basins (fig. 108). In uplifted areas, such as the Monument and Defiance Uplifts and the Coconino Plateau, younger rocks have been eroded away, and aquifers are present in older rocks that underlie more extensive parts of the Colorado Plateaus area. Although the quantity and chemical quality of water in the Colorado Plateaus aquifers are extremely variable, much of the land in this sparsely populated region is underlain by rocks that contain aquifers capable of yielding usable quantities of water of a quality suitable for most agricultural or domestic use.

In general, the aquifers in the Colorado Plateaus area are composed of permeable, moderately to well-consolidated sedimentary rocks. These rocks range in age from Permian to Tertiary and vary greatly in thickness, lithology, and hydraulic characteristics. The stratigraphic relations of the rocks are complicated in places, and the stratigraphic nomenclature consequently is diverse. Many water-yielding units have been identified in these rocks, and most publications that pertain to the hydrogeology of the area describe only a few of the units or pertain to only part of the Colorado Plateaus. In this Chapter, the many water-yielding units in the area have been grouped into four principal aquifers for purposes of discussion. The principal aquifers are the Uinta-Animas aquifer, the Mesaverde aquifer, the Dakota-Glen Canyon aquifer system, and the Coconino-De Chelly aquifer (fig. 107). Most widespread and productive water-yielding units are included in these aquifers; however, some locally productive water-yielding

units have been excluded.

Water-yielding units excluded from the principal aquifers can form aquifers of local importance, but these units either are not extensive enough or not productive enough to be considered as principal aquifers for the purposes of this Atlas. In general, these rocks are considered to be confining units containing minor water-yielding units.

Relatively impermeable confining units separate each of the four principal aquifers in the Colorado Plateaus. The two thickest units are the Mancos confining unit, which immediately underlies the Mesaverde aquifer, and the Chinle-Moenkopi confining unit, which immediately underlies the Dakota-Glen Canyon aquifer system. Thinner and less extensive confining units separate some water-yielding zones within the principal aquifers; however, these units generally form less effective barriers to ground-water movement than the confining units between the principal aquifers. Where the intra-aquifer confining units are thin or absent, water can move between adjacent water-yielding zones within an aquifer.

UINTA-ANIMAS AQUIFER

The Uinta-Animas aquifer primarily is composed of Lower Tertiary rocks in the Uinta Basin of northeastern Utah, the Piceance Basin of northwestern Colorado, and the San Juan Basin of northwestern New Mexico (fig. 108). Aquifers in each basin are present in different parts of the stratigraphic section (fig. 109). Some formations are considered to be an aquifer in more than one basin; however, some formations vary so much in their hydraulic characteristics that they are considered to be an aquifer in one basin and a confining unit in another.

Hydrogeologic Units

The Uinta-Animas aquifer in the Uinta Basin is present in water-yielding beds of sandstone, conglomerate, and siltstone of the Duchesne River and Uinta Formations, the Renegade Tongue of the Wasatch Formation, and the Douglas Creek Member of the Green River Formation (fig. 109). The Duchesne River Formation consists mostly of permeable fluvial sandstone and conglomerate. Grain size of these sediments decreases with distance from the Uinta Uplift, and relatively impermeable shale is common in the center of the basin. The Uinta Formation consists of permeable, poorly sorted, fine to coarse sandstone with some siltstone and mudstone. These rocks become more coarse-grained and permeable toward the top of the formation. Coarse-grained rocks adjacent to the Uinta Uplift and the Wasatch Plateau grade into finer-grained sediments away from the uplifted areas. The Renegade Tongue of the Wasatch Formation and the Douglas Creek Member of the Green River Formation contain an aquifer along the southern and eastern margins of the basin where the rocks primarily consist of fluvial, massive, irregularly bedded sandstone and siltstone. Water-yielding units in the Uinta-Animas aquifer in the Uinta Basin commonly are separated from each other and from the underlying Mesaverde aquifer by units of low permeability composed of claystone, shale, marlstone, or limestone.

The Uinta-Animas aquifer in the Piceance Basin consists of the Uinta Formation and the Parachute Creek Member of the Green River Formation. The Uinta Formation consists of silty sandstone, siltstone, and marlstone. Much of the intergranular space in these rocks has been filled by sodium and calcium bicarbonate cements, but fractures are numerous and produce substantial permeability. The Parachute Creek Member primarily consists of dolomitic marlstone. Kerogen, which is a waxlike hydrocarbon, is present in some parts of the member in the Piceance and Uinta Basins. Marlstone that contains large concentrations of kerogen is known as oil shale and generally is less fractured than marlstone that contains smaller concentrations of kerogen (lean marlstone). Fractures and dissolution openings along fractures in the lean marlstone form the principal pathways for water movement in the aquifer. Oil shale generally is less permeable and forms confining units. The Mahogany zone in the Piceance Basin is an example of one such confining unit (fig. 110). In the central part of the Piceance Basin, a saline zone in the marlstone contains the minerals nahcolite and halite, is not extensively fractured, and forms part of the relatively impermeable lower confining unit of the aquifer. The lower part of the Green River Formation and the Wasatch Formation form most of the lower confining unit of the aquifer.

The Uinta-Animas aquifer in the San Juan Basin consists of the San Jose Formation, the underlying Animas Formation and its lateral equivalent, the Nacimiento Formation, and the Ojo Alamo Sandstone. The San Jose Formation is the uppermost significant bedrock formation in the San Juan Basin and primarily consists of permeable, coarse, arkosic sandstone interlayered with mudstone. The Animas and Nacimiento Formations and the Ojo Alamo Sandstone primarily consist of permeable conglomerate and medium to very coarse sandstone interlayered with relatively impermeable shale and mudstone.

The thickness of the Uinta-Animas aquifer generally increases toward the central part of each basin. In the Uinta Basin, for example, the part of the aquifer in the Duchesne River and Uinta Formations ranges in thickness from 0 feet at the southern margin of the aquifer to as much as 9,000 feet in the north-central part of the aquifer. The part of the aquifer in the Renegade Tongue and Douglas Creek Member in the Uinta Basin is about 500 feet thick. In the Piceance Basin, the Uinta-Animas aquifer is as much as 2,000 feet thick in the central part of the basin. In the northeastern part of the San Juan Basin, the maximum thickness of the Uinta-Animas aquifer is about 3,500 feet.

Recharge and Discharge

Ground-water recharge to the Uinta-Animas aquifer generally occurs in the areas of higher altitude along the margins of each basin. Ground water is discharged mainly to streams, springs, and by transpiration from vegetation growing along stream valleys.

In the Uinta Basin, the part of the aquifer in the Duchesne River and Uinta Formations has about 200,000 acre-feet per year of recharge. The rate of ground-water withdrawal is small, and natural discharge is approximately equal to recharge. In the Renegade Tongue and Douglas Creek Member part of the aquifer, recharge and discharge also are approximately equal and total about 1,000 acre-feet per year. Recharge occurs near the southern margin of the aquifer, and discharge occurs near the White and Green Rivers.

The Uinta-Animas aquifer in the Piceance Basin receives about 24,000 acre-feet per year of recharge, primarily in the upland areas near the margins of the aquifer. Discharge is approximately equal to recharge and primarily occurs in the valleys of Piceance Creek and other tributaries to the White River or in the valley of the Colorado River and its tributaries.

In the San Juan Basin, water recharges the Uinta-Animas aquifer in the higher altitude areas that nearly encircle the basin. Ground water generally flows toward the San Juan River and its tributaries where it is discharged to streamflow, to the alluvium that locally is present in the valleys, or to evapotranspiration. During 1985, about 28,000 acre-feet of ground water was withdrawn from the aquifer in the San Juan Basin.

Water-Level Conditions

The potentiometric surface of the Uinta-Animas aquifer generally ranges from about 100 feet above land surface to about 500 feet below land surface; the surface generally is near or above land surface in valleys in areas of ground-water discharge. Large depths to water are more common in highland areas that are remote from streams or other sources of recharge.

The potentiometric surfaces in the three basins containing the Uinta-Animas aquifer are similar in that the surfaces are higher near the margins of the basins and lower near one or two principal streams draining the basins. In the Uinta Basin, the potentiometric surface ranges in altitude from about 5,000 to 8,000 feet, and ground water primarily flows toward the discharge area along the Strawberry River (fig. 111). In the Piceance Basin, the potentiometric surface ranges in altitude from about 6,000 to 8,500 feet, and ground water primarily flows toward the discharge areas along Piceance and Yellow Creeks (fig. 112). In the San Juan Basin, the potentiometric surface is incompletely known but ranges in altitude from about 5,500 to 7,000 feet in the southern part of the basin (fig. 113). The valley of the San Juan River forms the principal area of ground-water discharge in this basin.

Ground-Water Quality

Dissolved-solids concentrations in water in the Uinta-Animas aquifer in the Uinta Basin generally range from 500 to 3,000 milligrams per liter; concentrations can exceed 10,000 milligrams per liter in some of the deeper parts of the Uinta Formation. Smaller dissolved-solids concentrations are prevalent near recharge areas where the water usually is a calcium or magnesium bicarbonate type. Larger dissolved-solids concentrations are more common near discharge areas where the water generally is a sodium bicarbonate or sulfate type. Dissolved-solids concentrations in water from the upper part of the aquifer in the Piceance Basin generally range from about 500 to more than 1,000 milligrams per liter (fig. 114). Concentrations in the lower part of the aquifer exceed 10,000 milligrams per liter (fig. 115) where extensive fracturing of the saline zone that underlies the aquifer has enabled upward movement of brine. The Uinta-Animas aquifer in the San Juan Basin contains fresh to moderately saline water. Dissolved-solids concentrations generally increase along the groundwater flow path from less than 1,000

milligrams per liter near recharge areas to about 4,000 milligrams per liter near the discharge area along the valley of the San Juan River.

MESAVERDE AQUIFER

The Mesaverde aquifer comprises water-yielding units in the Upper Cretaceous Mesaverde Group, its equivalents, and some adjacent Tertiary and Upper Cretaceous formations. The Mesaverde aquifer is at or near land surface in extensive areas of the Colorado Plateaus and underlies the Uinta-Animas aquifer. The aquifer is of regional importance in the Piceance, Uinta, Kaiparowits, Black Mesa, and San Juan Basins and is of lesser importance in the Wasatch Plateau and High Plateaus areas (fig. 116). Some of the rocks that form the Mesaverde aquifer contain coal beds, some of which have been mined for at least a century. The hydrologic effects of mining have been of increasing concern in the areas underlain by the aquifer.

Hydrogeologic Units

In the Piceance, Black Mesa, and San Juan Basins, the Mesaverde aquifer is present in rocks of the Mesaverde Group. In the western part of the Uinta Basin and in parts of the Wasatch Plateau, the Tertiary and Cretaceous North Horn Formation overlies the Mesaverde Group and also is considered part of the aquifer (fig. 117). In the Kaiparowits Basin, the aquifer is in the Cretaceous Straight Cliffs and Wahweap Sandstones, and the Kaiparowits Formation, which together are approximate equivalents of the Mesaverde Group, and the overlying Tertiary and Cretaceous Canaan Peak Formation. The Cretaceous Mancos Shale and its equivalent in the Kaiparowits Basin, the Tropic Shale, generally do not yield water. However, in the Uinta Basin, the water-yielding Frontier Sandstone Member is at the top of the Mancos Shale and is considered to be part of the Mesaverde aquifer. The non-water-yielding strata of the Mancos Shale and the Tropic Shale compose the Mancos confining unit, which underlies the Mesaverde aquifer everywhere the aquifer is present (fig. 117).

The rocks that compose the Mesaverde aquifer are conglomerate, sandstone, siltstone, mudstone, claystone, carbonaceous shale, limestone, and coal. Because these rocks primarily were deposited in environments that changed as sea level changed during the Late Cretaceous, lithology varies vertically and laterally, and intertonguing is common among the various formations and strata that make up the aquifer.

In the Piceance and Uinta Basins, the Mesaverde Group predominantly consists of sandstone with interbedded shale and coal. The North Horn Formation, which forms part of the aquifer in the Uinta Basin and Wasatch Plateau, consists of shale interbedded with sandstone and minor amounts of fresh-water limestone and conglomerate. In the Kaiparowits Basin, the upper part of the Mesaverde aquifer is in the Canaan Peak Formation, which mainly consists of conglomerate and conglomeratic sandstone with minor amounts of mudstone. The Kaiparowits Formation and the Wahweap and Straight Cliffs Sandstones predominantly consist of fine to coarse sandstone interbedded with shale, mudstone, and coal beds. In the Black Mesa Basin, the upper part of the Mesaverde Group consists of sandstone; the

lower part consists of sandstone or silty sandstone interbedded with siltstone and coal. In most of the Black Mesa area, the upper part of the Mesaverde Group has been removed by erosion, so the interbedded sequence of the lower part of the group forms the Mesaverde aquifer. Although rocks of the Mesaverde Group are present on the High Plateaus, information concerning these rocks is sparse. The lithology of the rocks probably is similar to that of equivalent rocks in the Wasatch Plateau and the Kaiparowits Basin. In the San Juan Basin, the Mesaverde aquifer consists of sandstone, coal, siltstone, and shale of the Mesaverde Group. The formations of the Mesaverde Group intertongue extensively with the Mancos Shale and, to a lesser extent, with the Lewis Shale. The Point Lookout Sandstone is the most areally extensive of the Mesaverde Group formations in the San Juan Basin.

The Mancos confining unit generally comprises the Mancos Shale or its equivalent in the Kaiparowits Basin, the Tropic Shale. The thickness of the confining unit typically ranges from 1,000 to 6,000 feet. The rocks that compose the Mancos confining unit predominantly are marine shale, mudstone, and claystone; interbedded minor sandstone, siltstone, and limestone also are common. Some of the sandstone strata locally are water-yielding. However, in general, the Mancos confining unit is a thick barrier to vertical and lateral groundwater flow.

The altitude of the top of the Mesaverde aquifer has been mapped in parts of the Uinta, Piceance, and San Juan Basins. In the Uinta Basin, the altitude of the top of the aquifer ranges from about 10,000 feet below sea level in the north-central and deepest part of the basin to about 5,000 feet above sea level near the margins of the basin. In the Piceance Basin, the top of the aquifer ranges in altitude from about sea level in the central part of the basin to between 5,000 and 7,500 feet above sea level near the margins of the basin. In the San Juan Basin, the top of the aquifer is about 2,500 to 5,000 feet above sea level. In the Piceance and Uinta Basins, the thickness of the Mesaverde aquifer generally is between 2,000 and 4,000 feet. However, the thickness exceeds 7,000 feet locally in the eastern part of the Piceance Basin and is less than 1,000 feet near the margins of the basins. In the San Juan Basin, the Mesaverde aquifer has a maximum thickness of about 4,500 feet in the southern part of the basin.

Recharge and Discharge

Water generally recharges the Mesaverde aquifer in upland areas that receive more precipitation than lower altitude areas. In the Piceance Basin, recharge occurs on the northern flanks of the West Elk Mountains, in the area near Grand Mesa, and along the Roan Plateau. Ground water in the Uinta Basin is recharged near the basin margins. Interbasin flow from the Piceance Basin contributes water to the Uinta Basin. Ground-water flow directions in much of the west-central part of the Uinta Basin are poorly defined by available data. The available data in the San Juan Basin indicate recharge in the area of the Zuni Uplift, Chuska Mountains, and in northern Sandoval County, N. Mex.

Ground water discharges from the aquifer directly to streams, springs, and seeps, by upward movement through confining layers and into overlying aquifers, or by withdrawal from wells. The natural discharge areas generally are along streams and rivers, such as the Colorado River and the North Fork of the Gunnison River in the Piceance Basin; the Strawberry, Duchesne, and Green Rivers in the Uinta Basin;

the Colorado River and its tributaries in the Kaiparowits Basin; and the San Juan River and the Chaco River and its tributaries in the San Juan Basin.

Water-Level Conditions

In most areas of the Mesaverde aquifer, ground-water withdrawals have been small. Consequently, water-level declines have been limited to localized areas; elsewhere, the potentiometric surface generally represents predevelopment conditions. Water-level measurements and reports of measurements made during the period of development of the aquifer and during oil and gas test-well drilling were combined to generate a generalized potentiometric-surface map (fig. 118).

Ground water in the Uinta, Piceance, and San Juan Basins generally flows from recharge areas near the margins of the basins to discharge areas near principal stream valleys. The altitude of the potentiometric surface in these basins generally ranges from about 5,000 to 8,000 feet. In the Kaiparowits Basin, ground-water flow generally is toward the southeast. In the Black Mesa Basin, ground-water flow is localized because of the shallow canyons cut by tributaries of the Little Colorado River into the rocks that form the Mesaverde aquifer. In other areas of the Mesaverde aquifer, data are insufficient to define the potentiometric surface and ground-water flow directions.

Aquifer Characteristics

Transmissivity of the Mesaverde aquifer is less than 50 feet squared per day in large areas of the Colorado Plateaus but exceeds 2,000 feet squared per day locally in the western part of the Uinta Basin and the eastern part of the Wasatch Plateau. Fracturing of rocks that form the Mesaverde aquifer locally increases the secondary permeability; as a result, the transmissivity also is increased locally to values as much as 100 times greater than those for the unfractured rock. In areas where the aquifer is deeply buried, such as in the Piceance Basin, overburden pressure, compaction, and cementation have caused hydraulic conductivity to be small. As a result, although the thickness of the aquifer generally is large in these areas, transmissivity is small.

Ground-Water Quality

The quality of the water in the Mesaverde aquifer is extremely variable. The dissolved-solids concentration of water from the aquifer is less than 1,000 milligrams per liter in many of the basin-margin areas but locally can be very large (more than 35,000 milligrams per liter in the central part of the Uinta Basin, and more than 10,000 milligrams per liter in the central part of the Piceance Basin) (fig. 119). In general, areas of the aquifer that are recharged by infiltration from precipitation or surface-water sources contain relatively fresh water. Sparse data indicate that the dissolved-solids concentration ranges from about 1,000 to 4,000 milligrams per liter in parts of the Kaiparowits and San Juan Basins and the High and Wasatch Plateaus.

DAKOTA-GLEN CANYON AQUIFER SYSTEM

Water-yielding rocks ranging in age from late Cretaceous to Triassic underlie most of the Colorado Plateaus area. These rocks contain a series of aquifers and confining units, which, for the purposes of this chapter, are referred to as the Dakota-Glen Canyon aquifer system. In much of the area underlain by the aquifer system (fig. 120), the great depth to the aquifers or poor water quality make the aquifers unsuitable for development. However, in areas where an aquifer is near land surface, the aquifer may be an important source of water.

Rocks that compose the Dakota-Glen Canyon aquifer system are older than the Mancos and Tropic Shales, which form the overlying Mancos confining unit; and are younger than the Chinle, Ankareh, or Moenkopi Formations, which form the underlying Chinle-Moenkopi confining unit. In general, both confining units are thick, low-permeability zones that severely restrict vertical flow between the Dakota-Glen Canyon aquifer system and overlying and underlying aquifers.

The Dakota-Glen Canyon aquifer system includes four permeable zones that herein are referred to as the Dakota aquifer, the Morrison aquifer, the Entrada aquifer, and the Glen Canyon aquifer. The units that form the bulk of these aquifers are, respectively: (1) The Dakota Sandstone and adjacent water-yielding rocks; (2) water-yielding rocks generally of the lower part of the Morrison Formation; (3) the Entrada Sandstone and its equivalent in the western part of the Uinta Basin, the Preuss Sandstone; and (4) the Glen Canyon Sandstone or Group and its equivalent in the western part of the Uinta Basin, the Nugget Sandstone. These rocks are at land surface or at reasonable drilling depths below land surface primarily on the flanks of the San Rafael Swell, White River, and Circle Cliffs Uplifts, in the Henry Mountains Basin, in parts of the Paradox Basin, Uncompahgre Uplift, and Four Corners Platform, in the Black Mesa Basin, and in the Acoma Sag (fig. 120). The stratigraphic relations among the formations that contain these aquifers and the adjacent confining units are shown in figure 121.

Sandstone, conglomerate, and conglomeratic sandstone are the major water-yielding materials in this series of aquifers. The aquifers commonly also contain interbedded siltstone. Mudstone, claystone, siltstone, shale, and limestone generally form the confining units that separate these aquifers (table 1).

The aquifers described in this section are grouped together as an aquifer system because they are separated everywhere from overlying and underlying aquifers by thick confining units and because some hydraulic connection exists between each of the aquifers in the system at some point in the Colorado Plateaus area. For example, in the Black Mesa Basin, the Morrison and Curtis-Stump confining units are missing; as a result, the Dakota, Morrison, and Entrada aquifers are in direct contact (fig. 122). This contact likely allows interaquifer flow among these three aquifers, although the rate of interaquifer flow may be limited by low-permeability zones within the aquifers. The confining units in the aquifer system generally are not as thick as the more substantial Mancos and Chinle-Moenkopi confining units, and interaquifer flow is more likely among the aquifers of the Dakota-Glen Canyon aquifer system than between these aquifers and those that overlie or underlie the aquifer system.

In a regional context, recharge areas, discharge areas, ground-water flow directions, and water quality

are similar among the four aquifers. The uppermost aquifer (the Dakota) and the lowermost aquifer (the Glen Canyon) are best defined by data, and these two aquifers are discussed here as examples of the hydrogeology near the top and bottom of the aquifer system.

Hydrogeologic Units

The Dakota aquifer is in the Upper Cretaceous Dakota Sandstone and underlying Lower Cretaceous Burro Canyon and Cedar Mountain Formations (fig. 121). The lithology of the Dakota Sandstone varies widely and includes conglomerate, sandstone, siltstone, mudstone, carbonaceous shale, and coal. Three units can be recognized over a large area: a basal conglomeratic sandstone; a middle sequence of interbedded carbonaceous shale, impure coal, and lenticular sandstone and siltstone; and an upper, massive, fine to medium sandstone. Sandstone, which is commonly interbedded with thin mudstone beds, constitutes about one-half of the total thickness of the Burro Canyon Formation; in some places, the sandstone forms a single, thick bed. Minor chert and limestone beds also are present in the formation. The lithology of the Cedar Mountain Formation is similar to that of the Burro Canyon Formation, except that sandstone generally composes less than 30 percent of the thickness of the Cedar Mountain Formation. In some places, the Cedar Mountain Formation includes a basal conglomeratic sandstone unit. The Dakota aquifer is present in the Piceance and Uinta Basins, along the Wasatch and High Plateaus, in the Kaiparowits, Henry Mountains, Black Mesa, and San Juan Basins, in the eastern part of the Four Corners Platform, and in parts of the Paradox Basin and Uncompahgre Uplift (fig. 120). The depth to the top of the aquifer is less than 2,000 feet in many areas but exceeds 12,000 feet in parts of the Piceance and Uinta Basins (fig. 123).

The Upper Jurassic Morrison Formation underlies the Dakota aquifer in the Colorado Plateaus (fig. 121). In most parts of the area, the Morrison Formation includes an upper, non-water-yielding unit called the Brushy Basin Member, which forms the Morrison confining unit. This member mainly consists of relatively impermeable siltstone, mudstone, and claystone. The member is absent in the Black Mesa Basin.

The middle and lower parts of the Morrison Formation consist of interbedded fine to medium sandstone, siltstone, and mudstone. This sequence is called the Morrison aquifer, although only the coarser-grained strata generally can be expected to yield water. In the Four Corners Platform and San Juan and Black Mesa Basins, the Morrison aquifer includes two underlying water-yielding sandstone units, the Middle Jurassic Cow Springs and Junction Creek Sandstones.

In most places in the Colorado Plateaus, the Morrison aquifer is underlain by non-water-yielding Middle Jurassic rocks that form the Curtis-Stump confining unit. The formations that make up the Curtis-Stump confining unit are the Curtis, Summerville, Stump, and Wanakah Formations. These formations predominantly consist of siltstone with interbedded shale and sandstone. Minor amounts of limestone and gypsum also are present.

The Middle Jurassic rocks that form the Entrada aquifer underlie either the Curtis-Stump confining unit

or the Morrison aquifer. The Entrada aquifer mainly is in the Entrada Sandstone: in the western part of the Uinta Basin, the Preuss Sandstone, which is an equivalent of the Entrada, forms the aquifer. In the Kaiparowits Basin, the Romana Sandstone overlies the Entrada Sandstone, and the aquifer includes both formations. The lithology of the formations that make up the Entrada aquifer generally is very fine to fine sandstone, which is commonly of eolian origin. In some places, the sandstone is interbedded with siltstone. The sandstone and siltstone locally are clayey. The degree of cementation of the Entrada Sandstone varies considerably.

In parts of Utah and northeastern Arizona, the Entrada aquifer is underlain by either the Middle Jurassic Carmel Formation or, in the western Uinta Basin, the Middle Jurassic Twin Creek Limestone (fig. 121). These two formations form the Carmel-Twin Creek confining unit. The Carmel Formation mainly consists of siltstone and shale interbedded with smaller amounts of limestone, sandstone, and gypsum; west of the San Rafael Swell, evaporites, including halite, are common. The Twin Creek Limestone consists of sandy to shaly limestone interbedded with siltstone and some sandstone. In part of the Colorado Plateaus, however, the Carmel-Twin Creek confining unit is absent, and the Entrada aquifer directly overlies the Glen Canyon aquifer.

Rocks of the Lower Jurassic Glen Canyon Group and its equivalents compose the Glen Canyon aquifer. In most areas, the Glen Canyon Group is divided into three formations; at the base is the Wingate Sandstone; above the Wingate Sandstone lies the Kayenta Formation; the uppermost formation is the Navajo Sandstone (fig. 121). In some areas of the Black Mesa Basin, the Glen Canyon Group includes a fourth formation, the Moenave Formation, which overlies the Wingate Sandstone. In northwestern Colorado and the eastern part of the Uinta Basin, the stratigraphic equivalent of the Glen Canyon Group is the Glen Canyon Sandstone, and, in the western Uinta Basin, the equivalent is the Nugget Sandstone. From the San Rafael Swell to the Black Mesa Basin, the Glen Canyon aquifer includes the Middle Jurassic Page Sandstone, which unconformably overlies the Glen Canyon Group. The Page, Navajo, Nugget, Glen Canyon, and Wingate units consist of sandstone that is for the most part of eolian origin; the Wingate Sandstone also contains some siltstone. The eolian sandstones vary in their degree of cementation. The variability of the cementation is visible where the erosive action of water and wind removes the less well-cemented parts of a rock outcrop and creates arches and other unusual features (fig. 124). The Kayenta Formation consists of sandstone, siltstone, mudstone, claystone, and minor amounts of limestone. The Moenave Formation comprises interbedded lenticular sandstone, siltstone, claystone, and minor amounts of limestone.

The depth to the top of the Glen Canyon aquifer is less than 2,000 feet in a large area, but the depth exceeds 12,000 feet in substantial parts of the Piceance and Uinta Basins (fig. 125). The Glen Canyon is the thickest of the aquifers of the Dakota-Glen Canyon aquifer system (table 1), and the water-yielding materials in the aquifer commonly are well sorted, permeable, and fractured in some areas. These factors produce relatively high transmissivity values for much of the aquifer.

The Dakota-Glen Canyon aquifer system is underlain by the Chinle-Moenkopi confining unit (fig. 121). The Triassic Chinle and Moenkopi Formations are the two main formations that compose the confining

unit. In the western Uinta Basin, the Ankareh Formation is the equivalent of the Chinle Formation and forms the upper part of the confining unit. In the eastern end of the Four Corners Platform, the Triassic Dolores Formation composes the entire confining unit. In eastern Utah and northeastern Arizona, the Kaibab Limestone and Toroweap Formation of Permian age underlie the Moenkopi Formation and compose the lower part of the confining unit. The thickness of the Chinle-Moenkopi confining unit typically is 1,000 to 2,000 feet. Shale and sandy shale are the most prevalent rock types in the confining unit; limestone, claystone, mudstone, siltstone, and shaly sandstone also are common. Conglomerate, sandstone, and conglomeratic sandstone locally are present. In some parts of northern Arizona, sandstone in the lowermost member of the Chinle Formation or the Kaibab Limestone yields small amounts of water to wells. Elsewhere, the formations generally do not yield water. Overall, the Chinle-Moenkopi confining unit is an effective barrier to interaquifer ground-water flow and forms the base of the Dakota-Glen Canyon aquifer system.

Recharge and Discharge

Water-level data for the Dakota aquifer are sparse, and as a result, the potentiometric surface can be defined only in the northeastern part of the aquifer (fig. 126). Major recharge areas indicated by the potentiometric surface are in the southeastern end of the Uncompahgre Uplift, the northern margin of the Uinta Basin, and the eastern side of the Piceance Basin. From these recharge areas, water in the Dakota aquifer flows toward discharge areas along the White, Colorado, and Gunnison Rivers.

The potentiometric surface for the Glen Canyon aquifer has been defined for much of the northern part of the aquifer (fig. 127). Ground-water flow directions inferred from the potentiometric surface indicate major recharge areas along the western margins of the San Rafael Swell and Circle Cliffs Uplift, in the northern part of the Four Corners Platform, in the southeastern parts of the Uncompahgre Uplift and Paradox Basin, at the eastern margin of the Piceance Basin, and at the northeastern margin of the Uinta Basin. Ground-water flow in the Glen Canyon aquifer is toward major discharge areas along the Green, Colorado, Dolores, and San Juan Rivers.

Aquifer Characteristics

The transmissivity of the Dakota aquifer is poorly defined but probably ranges from less than 10 to about 100 feet squared per day in the northeastern part of the Colorado Plateaus. The large thickness of permeable rocks in the Glen Canyon aquifer produces transmissivities that generally range from about 100 to 1,000 feet squared per day; fractures form the principal pathways for water movement in the well-consolidated materials.

Ground-Water Quality

In general, where the Glen Canyon aquifer is less than 2,000 feet below land surface, the dissolved-solids concentration of water in the aquifer is less than 1,000 milligrams per liter (fig. 128). However, in large areas where the aquifer is deeply buried, such as in parts of the Piceance and Uinta Basins, the

dissolved-solids concentration exceeds 35,000 milligrams per liter. In an area in extreme southeastern Utah where oil and gas exploration and production are concentrated, water in the Glen Canyon aquifer is highly mineralized. Analysis of the water chemistry indicates that the source of the mineralized water likely is deeper strata, which contain substantial deposits of evaporite minerals, particularly halite (rock salt). The water quality in the aquifer might have been caused by upward movement of saline water through unplugged or poorly plugged oil-test holes or leaking water-injection wells, which are used to dispose of saline water that is produced with oil and gas.

COCONINO-DE CHELLY AQUIFER

Water-yielding rocks of Early Permian age underlie the southern part of the Colorado Plateaus. In this chapter these rocks are referred to as the Coconino-De Chelly aquifer (fig. 129).

Hydrogeologic Units

The formations that comprise the Coconino-De Chelly aquifer are the Coconino, De Chelly, and Glorieta Sandstones; the San Andres Limestone; and the Yeso and Cutler Formations (fig. 130). The Coconino and De Chelly Sandstones generally consist of well-sorted quartz sandstone with thin interbeds of siltstone, mudstone, and carbonates. The Glorieta Sandstone consists of well-sorted, well-cemented, fine to medium quartz sandstone. The San Andres Limestone consists of dolostone, limestone, and fine-grained clastic rocks. The carbonate rocks in the San Andres Limestone are characterized by solution openings, which substantially increase the hydraulic conductivity of the formation. The Yeso Formation consists of interbedded sandstone, siltstone, limestone, anhydrite, and gypsum and forms a low-permeability zone in the aquifer. The Cutler Formation consists of shale, siltstone, sandstone, arkose, and arkosic conglomerate.

In most areas near the Grand Canyon, the Coconino Sandstone probably does not yield water because of the proximity to the canyon, where the formation has been truncated and drained (fig. 131). Fractures and associated solution openings in underlying rocks in the vicinity of the Grand Canyon allow water to discharge from the Coconino Sandstone. In much of the northern part of the Colorado Plateaus, rocks equivalent to those included in the aquifer are present, but the water in these rocks generally has dissolved-solids concentrations in excess of 10,000 milligrams per liter. The hydrogeology of the aquifer in this area is not described in this chapter because of the salinity of the water.

Recharge and Discharge

In the areas where the altitude of the potentiometric surface of the Coconino-De Chelly aquifer has been mapped, ground water generally flows from the structural uplifts toward the major surface-water drainages (fig. 132). The aquifer is recharged in the Uncompahgre Uplift, Paradox Basin, San Rafael Swell, Circle Cliffs Uplift, Defiance Uplift, Zuni Uplift, and Mogollon Slope (fig. 129). Discharge mainly is to the Colorado and Green Rivers. Water in the Coconino-De Chelly aquifer near the Black Mesa Basin generally flows northwestward toward a discharge area near the mouth of the Little

Colorado River. In the Grand Canyon, a series of springs issuing from the Mississippian Redwall Limestone (fig. 133) discharges water derived in part from the Coconino-De Chelly aquifer. Fractures and solution channels in the Redwall Limestone and the rocks separating the Redwall Limestone from the Coconino Sandstone provide conduits for the ground water. Similar processes affect the ground-water flow system elsewhere in the vicinity of the Grand Canyon.

Ground-Water Quality

In Utah, the dissolved-solids concentration in water from the Coconino-De Chelly aquifer ranges from less than 1,000 milligrams per liter in the San Rafael Swell and Monument Uplift to 10,000 milligrams per liter along the margin of the Uinta Basin (fig. 134). In northeastern Arizona and west-central New Mexico, the dissolved-solids concentration of water in the aquifer generally is less than 1,000 milligrams per liter. However, in an area near the southeastern margin of the Black Mesa Basin, the dissolved-solids concentration exceeds 25,000 milligrams per liter. The northwestward regional movement of ground water near the Black Mesa Basin may have produced the elongated distribution of the more mineralized water in that area.

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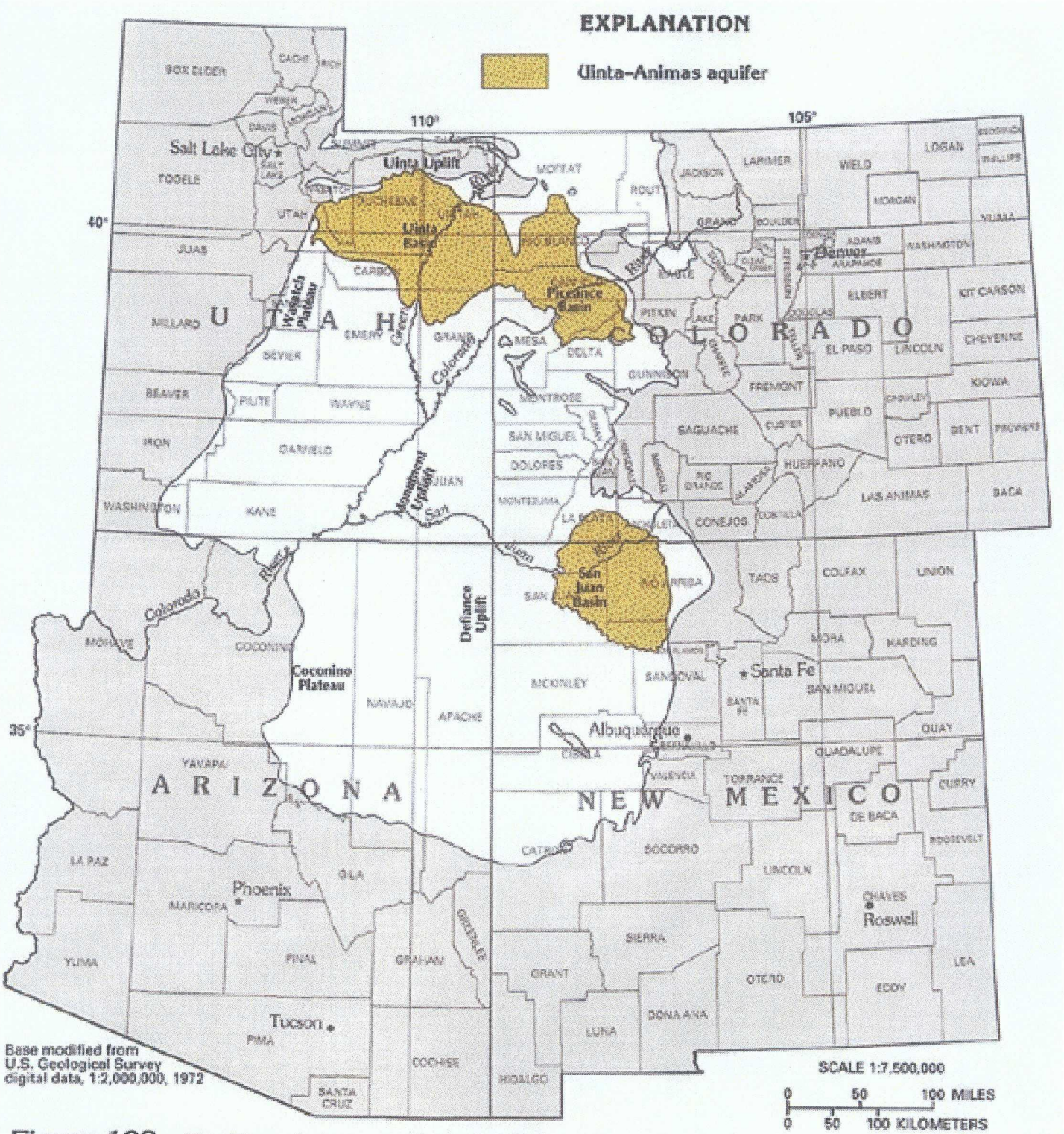
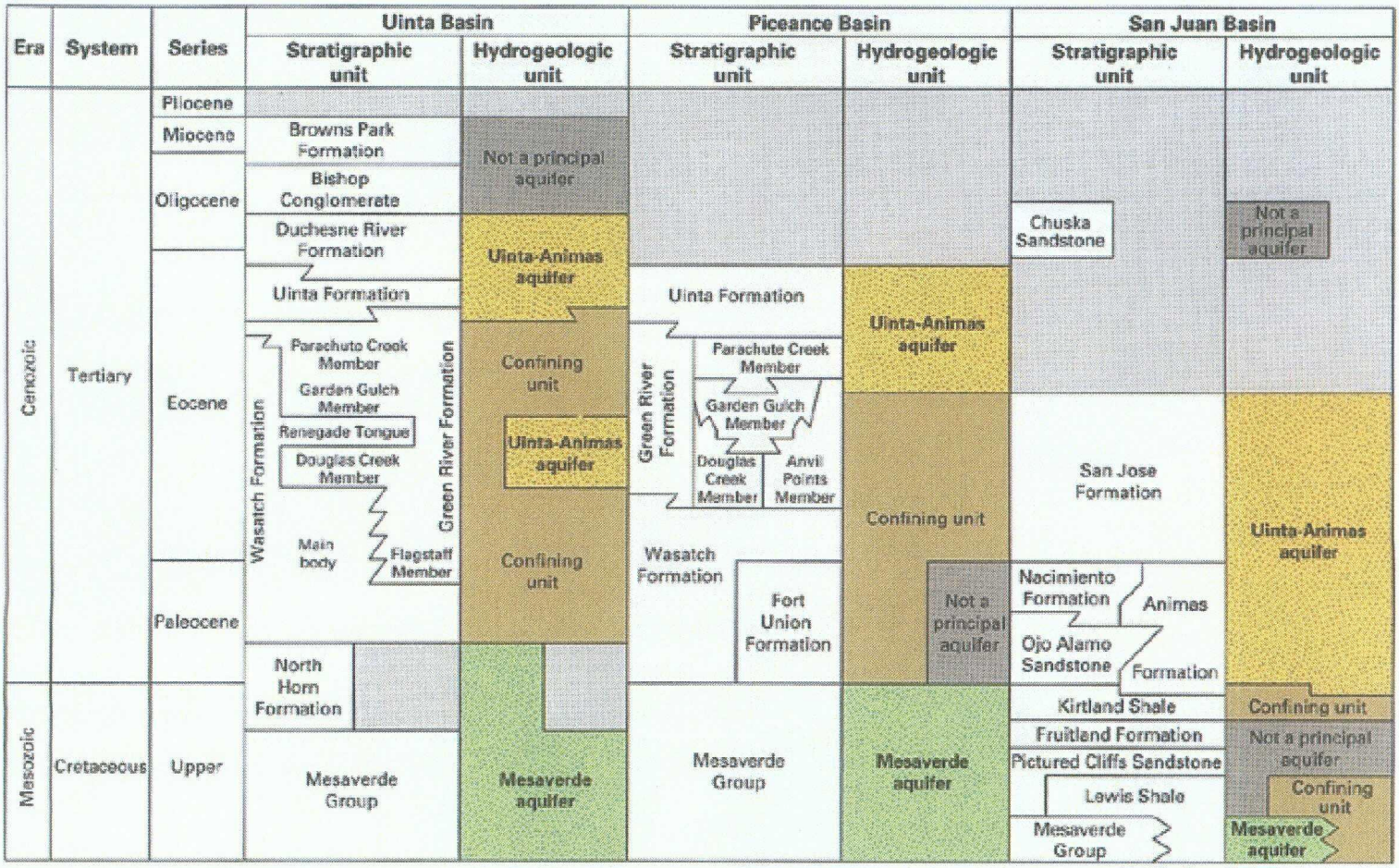


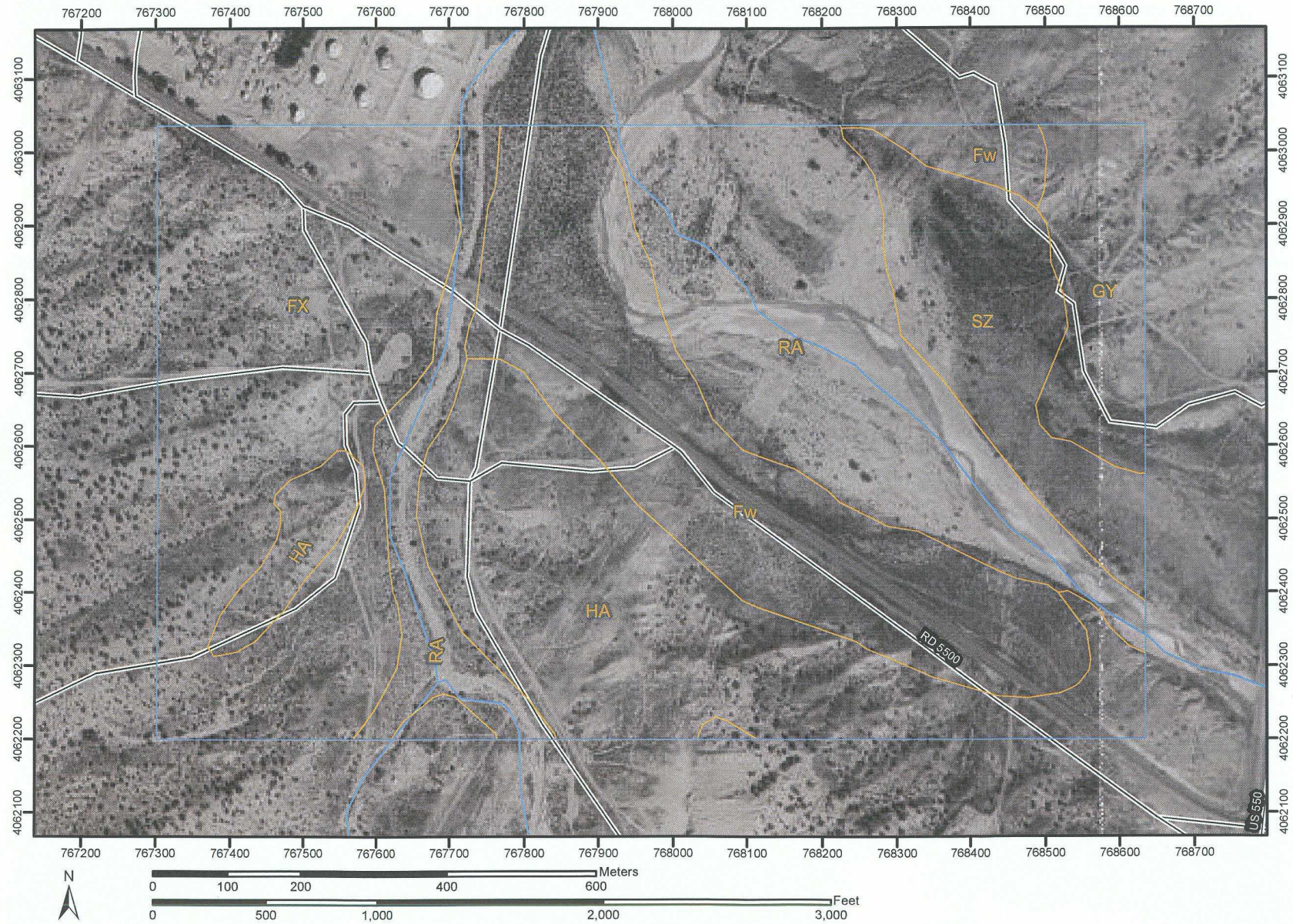
Figure 108. *The Uinta-Animas aquifer is the shallowest of the Colorado Plateaus aquifers and is present in the Uinta, Piceance, and San Juan Basins.*



Modified from Taylor and others, 1986; and Glover and others, in press

Figure 109. *Rock units that contain the Uinta–Animas aquifer are in different stratigraphic intervals in the three basins. The light gray areas represent missing rocks.*

Soil Map–San Juan County, New Mexico, Eastern Part
(Figure 9)



Natural Resources
Conservation Service

Web Soil Survey 2.0
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features

Municipalities
- Cities
- Urban Areas

Federal Land
- Bureau of Land Management
- Bureau of Reclamation
- Department of Defense
- Fish and Wildlife Service
- Forest Service
- National Park Service
- Tennessee Valley Authority

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Juan County, New Mexico, Eastern Part
Survey Area Data: Version 6, Jan 13, 2007

Date(s) aerial images were photographed: 10/9/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

San Juan County, New Mexico, Eastern Part (NM618)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Fw	Fruitland loam, 5 to 8 percent slopes	52.5	19.1%
FX	Fruitland-Persayo-Sheppard complex, hilly	67.8	24.7%
GY	Gypsiorthids-Badland-Stumble complex, moderately steep	14.2	5.2%
HA	Haplargids-Blackston-Torriorthents complex, very steep	55.7	20.3%
RA	Riverwash	61.7	22.5%
SZ	Stumble-Slickspots complex, gently sloping	22.8	8.3%
Totals for Area of Interest (AOI)		274.7	100.0%

Information

Map Unit Description

San Juan County, New Mexico, Eastern Part Version date: 1/13/2007 9:14:49 PM

Fw—Fruitland loam, 5 to 8 percent slopes

Map Unit Setting

Elevation: 4,800 to 6,000 feet
Mean annual precipitation: 6 to 10 inches
Mean annual air temperature: 51 to 55 degrees F
Frost-free period: 140 to 160 days

Map Unit Composition

Fruitland and similar soils: 75 percent

Description of Fruitland

Setting

Landform: Alluvial fans, stream terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Slope alluvium derived from sandstone and shale

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water capacity: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability (nonirrigated): 7e
Ecological site: Loamy (R037XA001NM)

Typical profile

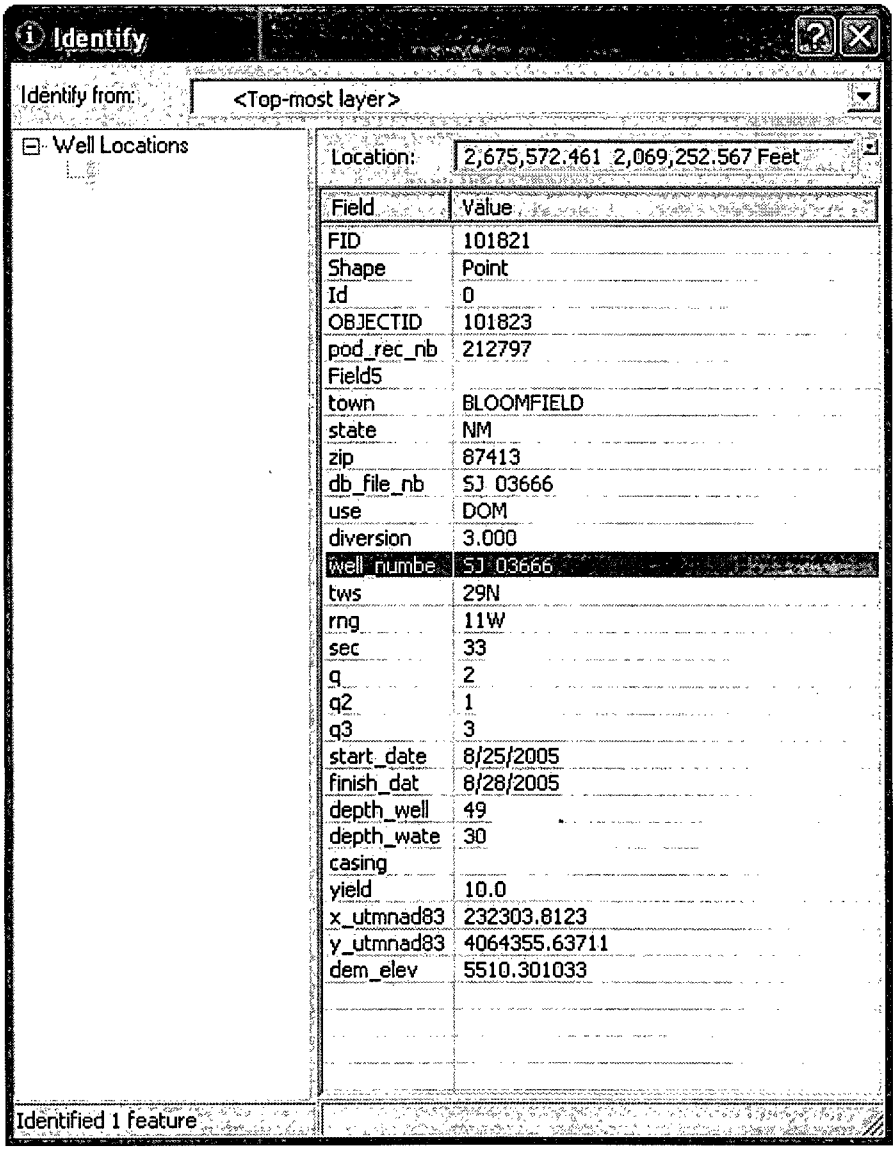
0 to 3 inches: Loam
3 to 60 inches: Fine sandy loam

Close

APPENDIX I

Well Data

The following screenshot was taken directly from the Geographic Information Systems (GIS) shape file called *ose_wells_may2006* which was downloaded from the New Mexico Office of the State Engineer's *Water Administration Technical Engineering Resource System* located at http://www.ose.state.nm.us/water_info_data.html



APPENDIX J

Draft Public Notice

PUBLIC NOTICE OF HYDROSTATIC TEST DEWATERING

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

Notice is hereby given that pursuant to New Mexico Water Quality Control Commission Regulations (20.6.2.3106 NMAC), the following discharge permit application has been submitted to the Director of the New Mexico Oil Conservation Division ("NMOCD"), 1220 S. Saint Francis Drive, Santa Fe, New Mexico 87505, Telephone (505) 476-3487:

Transwestern Pipeline Company, LLC (Transwestern), 711 Louisiana Street, Houston, TX 77002, has submitted an application for an Individual Hydrostatic Test Discharge Permit for the San Juan Lateral - Loop A, 8.9 mile long natural gas pipeline near Bloomfield, New Mexico. The entire 8.9 mile long 36" pipe will be hydrostatically tested using water from Citizens Ditch aka Duggans Ditch in the City of Bloomfield. Transwestern proposes to discharge approximately 1,440,600 gallons of test wastewater from the pipeline directly into portable storage tanks which will be located directly adjacent to the pipeline right-of way. The discharge site is located on land managed by the U.S. Bureau of Land Management (BLM) in the SE 1/4 of Section 9, Township 28N, Range 11W (Latitude 36° 40' 15.7" North and Longitude 108° 00' 5.3" West [NAD 83 Datum]) in San Juan County, New Mexico. The discharge site is within a utility corridor that includes nine existing pipelines and an overhead powerline. It is rural and does not have a street address but is located 150 feet southwest of County Road 5500 (West Hammond Road) and approximately 0.53 mile west of Highway 550. The site is located approximately 700 feet south of the Kutz Canyon Wash. If looking south from County Road 5500 the site is located along the eastern side of the several ROW's, at the base of an approximately 100 foot tall hill. Due to fact that the testing will be conducted on new pipeline designed to transport natural gas, the wastewater quality is expected to meet Water Quality Control Commission (WQCC) water quality standards but is anticipated to be Resource Conservation and Recovery Act (RCRA) regulated. Wastewater will be hauled to Key Energy Services Disposal near Aztec, NM to be injected into an OCD approved disposal well. Ground water most likely to be affected by an accidental discharge is at a depth of approximately 30 feet with a total dissolved solids concentration of 1,000 mg/L to 2,000 mg/L.

The NMOCD has determined that the application is administratively complete and has prepared a draft permit. The NMOCD will accept comments and statements of interest regarding this application and will create a facility-specific mailing list for persons who wish to receive future notices. Persons interested in obtaining further information, submitting comments or requesting to be on a facility-specific mailing list for future notices may contact the Environmental Bureau Chief of the Oil Conservation Division at the address given above. The administrative completeness determination and draft permit may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday, or may also be viewed at the NMOCD web site http://www.emnrd.state.nm.us/ocd/. Persons interested in obtaining a copy of the application and draft permit may contact the NMOCD at the address given above. Prior to ruling on any proposed discharge permit or major modification, the Director shall allow a period of at least thirty (30) days after the date of publication of this notice, during which interested persons may submit comments or request that NMOCD hold a public hearing. Requests for a public hearing shall set forth the reasons why a hearing should be held. A hearing will be held if the Director determines that there is significant public interest.
If no public hearing is held, the Director will approve or disapprove the proposed permit based on information available, including all comments received. If a public hearing is held, the director will approve or disapprove the proposed permit based on information in the permit application and information submitted at the hearing.

Para obtener más información sobre esta solicitud en espan.
ol, sirvase comunicarse por favor: New Mexico Energy, Minerals and Natural Resources Department (Depto. Del Energia, Minerals y Recursos Naturales de Nuevo México), Oil Conservation Division (Depto. Conservacio´n Del Petróleo), 1220 South St. Francis Drive, Santa Fe, New México (Contacto: Brad Jones, 505-476-3487)

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this ?? day of March, 2008.

STATE OF NEW MEXICO OIL CONSERVATION DIVISION
SEAL Mark Fesmire, Director