Jones, William V., EMNRD

From: Jones, William V., EMNRD

Sent: Monday, August 06, 2007 11:57 AM

To: 'Lane, Myke (E&P)'

Cc: Ezeanyim, Richard, EMNRD; Chavez, Carl J, EMNRD; Perrin, Charlie, EMNRD; Lepich, Mark (E&P); Katirgis, Stergie (E&P)

Subject: RE: Status on Request to Recieved WFS produced water

Hello Myke:

As far as the engineering bureau, I think this email acknowledging your submittal should suffice.

Say hello to Sterg....

William V. Jones PE New Mexico Oil Conservation Division 1220 South St. Francis Santa Fe, NM 87505 505-476-3448

From: Lane, Myke (E&P) [mailto:Myke.Lane@Williams.Com]
Sent: Monday, August 06, 2007 11:30 AM
To: Jones, William V., EMNRD
Cc: Ezeanyim, Richard, EMNRD; Chavez, Carl J, EMNRD; Perrin, Charlie, EMNRD; Lepich, Mark (E&P); Katirgis, Stergie (E&P)
Subject: RE: Status on Request to Recieved WFS produced water

Attached is your 6/1/07 email to me requesting that I get with Charlie Perrin. The reformatted packet I sent in July was to meet the requirements outlined by Charlie for this request. I do not believe there are any issues and our request should be acceptable for the following reasons outlined in the request:

- The Williams Field Service water is RCRA exempt produced water
- Analytical indicates the water is not significantly different from the water currently produced and disposed of in the wells (if anything it is fresher)
- Both permits allow for the disposal of "produced water," and I did not find any other limits or restrictions specified in the permits related to the source of the water.
- Williams will continue to follow all of the NMOCD and permit conditions/requirements including recordkeeping and well
 integrity testing.

Charlie was provided a copy of the packet sent in July. Do you want me to contact Charlie, and will NMOCD provide some type of written approval?

Myke Lane WPX - EH&S Specialist 505/634-4219 (off) 505/330-3198 (mob)

"Every new beginning starts with some other beginning's end!" ---Closing Time by Semisonic

From: Jones, William V., EMNRD [mailto:William.V.Jones@state.nm.us]

Sent: Monday, August 06, 2007 10:44 AM
To: Lane, Myke (E&P)
Cc: Ezeanyim, Richard, EMNRD; Chavez, Carl J, EMNRD; Perrin, Charlie, EMNRD
Subject: RE: Status on Request to Recieved WFS produced water

Myke:

Forgot what we told you earlier - so if you would remind me it would help.

Without knowing what else we may have said, and without again checking with Carl Chavez of the environmental bureau (making sure this was all RCRA Exempt waters), all I need is the packet you sent with the notice of new waters and the water analysis of those waters. I will get it scanned into the permit file for this well.

All is a "GO" from this end. If Charlie or Carl wants something else, I'm sure they will let you know.

Thank You,

William V. Jones PE New Mexico Oil Conservation Division 1220 South St. Francis Santa Fe, NM 87505 505-476-3448

From: Lane, Myke (E&P) [mailto:Myke.Lane@Williams.Com]
Sent: Monday, August 06, 2007 10:11 AM
To: Jones, William V., EMNRD
Subject: Status on Request to Recieved WFS produced water

Will:

Any word on the request for Williams Production to receive Williams Field Service (Midstream) produced water. I reformatted our request to meet the submittal suggested by Charlie Perrin.

Please let me know if there is anything further we need to do to get this going?

Thanks for your time and consideration.

MICHAEL K. (MYKE) LANE, PE EH&S SPECIALIST WILLIAMS EXPLORATION & PRODUCTION, LLC PO Box 640 721 South Main Aztec, NM 87410 505/634-4219 (off); -4205(fax); 505-330-3198 (mobile)

"The problems we face cannot be resolved at the same level of thinking as that which gave rise to them"

-- shared with me by Brent Hale

This inbound email has been scanned by the MessageLabs Email Security System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may

8/6/2007



Exploration & Production PO Box 640 Aztec, NM 84710 505/634-4219 505/634-4205 Fax

July 23, 2007

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Mr. William Jones New Mexico Oil Conservation Division Engineering and Geological Services Bureau 1220 South St. Francis Drive Santa Fe, NM 87505

Re: Request to Expand Use and Allow Acceptance of Produced Water for Injection

Dear Mr. Jones:

Williams Four Corners, LLC (WFS) would like to use the following injections wells operated by Williams Production Company, LLC (WPX) for the disposal of recovered produced water from some of their facilities located in Rio Arriba Co., New Mexico.

Per discussions with your office and the Aztec District Office, WPX request permission from NMOCD to expand use of the following Injection wells which we operate under the reference permits.

Verification of Permit Status:

| API Number | ULSTR | Footages |
|---------------------------------|------------------------------------|---------------------------------|
| 3003923035 | K-16-31N-5W | 1650 FSL & 1820 FWL |
| Well Name & Number: ROS | SA UNIT No. 094 | |
| Operator: WILLIAMS PRC | DUCTION COMPANY, LI | _C |
| Permit: Case 9401 R-868 | 35 | |
| | | |
| API Number | ULSTR | Footages |
| API Number 3003927055 | ULSTR I-23-31N-6W | Footages 2420 FSL & 1210 FEL |
| | I-23-31N-6W | |
| 3003927055 | I-23-31N-6W SA UNIT SWD No. 001 | 2420 FSL & 1210 FEL |

Allowance within Permit for Expansion:

The produced water will be coming from the following compressor stations/CDP operated by WFS and located in Rio Arriba Co, NM.

| Facility | GW Discharge Permit | STR |
|---------------|---------------------|--------------|
| Eul Canyon | | S24 T32N R6W |
| Bancos Canyon | | S32 T32N R5W |
| Quintana Mesa | GW 309 | S32 T32N R5W |
| Laguna Seca | GW 307 | S19 T31N R5W |
| Martinez Draw | GW 308 | S17 T31N R5W |
| 31-6 CDP | GW 118 | S1 T31N R6W |
| 30-5 CDP | GW 108 | S18 T30N R5W |

Request to Expand Use of Rosa Injection Wells Williams Production Co, LLC

Produced water samples were collected from each of the listed sites earlier this spring and copies of the analytical are attached. All produced water to be received from WFS is according to the Resource Conservation and Recovery Act (RCRA) and the US Environmental Protection Agency's July 1988 regulatory determination, RCRA Exempt (Oil field wastes generated from oil and gas exploration and production operations and are not mixed with non-exempt waste).

Injection of this produced water is consistent with each permit. Both wells are permitted as Class II UIC injection wells, permitted to inject produced water meeting the RCRA Exempt waste status, and there is no restrictions regarding the source of the produced water in the permits (e.g. production wells, location or volumes). Please refer to the highlighted sections of each permit, attached.

Time Period of Expanded Use:

If approved by the Division, WPX would like to accept the subject produced water from WFS as long as the wells are operational.

Temporary Water Storage Restrictions:

There will be no change in the water storage system associated with either well. No water will be stored in pits or ponds following acceptance at the facility and prior to injection.

Notice to the Surface Management Agency

Please refer to the attached formal notice to the Bureau of Land Management –FFO of our intent to expand use of the subject injection wells.

Certification:

WPX is not requesting any variance from the general permit conditions, NMOCD rules, regulations, and/or any pertinent orders governing the operation and use of these wells.

Please contact myself (505) 634-4219 for Williams Production Co, LLC and Mr. David Bays of Williams Four Corners, LLC (505) 634-4951 if you require any additional information. Thank you for your time and consideration.

Respectfully submitted,

Michael K. Lane EHS Specialist Williams Production - San Juan Basin Operations

- CC: Charlie Perrin, NMOCD Aztec District Office David Bays, WFS Mark Lepich, WPX Coal Team Lead WPX Env. Well Files
- Encl: Analytical Permits BLM-FFO Sundries

CATION / ANION ANALYSIS

| Client: | Williams Four Corners | Project #: | 00068-005 |
|--------------------|-----------------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40719 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2332 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| | Analytical | | | |
|-------------------------------|------------|----------|-------|-------|
| Parameter | Result | Units | | |
| рН | 6.82 | S.U. | | |
| Conductivity @ 25° C | 5,230 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 3,030 | mg/L | | |
| Total Dissolved Solids (Calc) | 3,010 | mg/L | | |
| SAR | 26.6 | ratio | | |
| Total Alkalinity as CaCO3 | 774 | mg/L | | |
| Total Hardness as CaCO3 | 294 | mg/L | | |
| Bicarbonate as HCO3 | 774 | mg/L | 12.69 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 2.3 | mg/L | 0.04 | meg/L |
| Nitrite Nitrogen | <0.001 | mg/L | 0.00 | meq/L |
| Chloride | 1,360 | mg/L | 38.37 | meq/L |
| Fluoride | <0.01 | mg/L | 0.00 | meq/L |
| Phosphate | 19.4 | mg/L | 0.61 | meq/L |
| Sulfate | <0.1 | mg/L | 0.00 | meq/L |
| Iron | 14.7 | mg/L | 0.53 | meq/L |
| Calcium | 93.6 | mg/L | 4.67 | meq/L |
| Magnesium | 14.7 | mg/L | 1.21 | meq/L |
| Potassium | 2.00 | mg/L | 0.05 | meq/L |
| Sodium | 1,050 | mg/L | 45.68 | meq/L |
| Cations | | | 51.60 | meq/L |
| Anions | | | 51.70 | meq/L |
| Cation/Anion Difference | | | 0.19% | |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Eul

Analyst

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| Client / Project Name With the Four Corners | Project Location | | | | | ANALY | SIS / PAR | ANALYSIS / PARAMETERS | | | |
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CATION / ANION ANALYSIS

| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40720 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2333 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| | Analytical | | | |
|-------------------------------|------------|----------|--------|--------|
| Parameter | Result | Units | | |
| рН | 7.83 | s.u. | | Kaline |
| Conductivity @ 25° C | 11,700 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 6,970 | mg/L | х | |
| Total Dissolved Solids (Calc) | 6,930 | mg/L | | |
| SAR | 114 | ratio | | |
| Total Alkalinity as CaCO3 | 3,710 | mg/L | | |
| Total Hardness as CaCO3 | 102 | mg/L | | |
| Bicarbonate as HCO3 | 3,710 | mg/L | 60.81 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 2.7 | mg/L | 0.04 | meq/L |
| Nitrite Nitrogen | 0.006 | mg/L | 0.00 | meq/L |
| Chloride | 1,970 | mg/L | 55.57 | meq/L |
| Fluoride | 0.77 | mg/L | 0.04 | meq/L |
| Phosphate | 15.2 | mg/L | 0.48 | meq/L |
| Sulfate | <0.1 | mg/L | 0.00 | meq/L |
| Iron | 1.23 | mg/L | 0.04 | meq/L |
| Calcium | 32.0 | mg/L | 1.60 | meq/L |
| Magnesium | 5.37 | mg/L | 0.44 | meq/L |
| Potassium | 8.85 | mg/L | 0.23 | meq/L |
| Sodium | 2,640 | mg/L | 114.84 | meq/L |
| Cations | | | 117.11 | meq/L |
| Anions | | | 116.94 | meq/L |
| Cation/Anion Difference | | | 0.14% | |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Bancos

Leters Analyst

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CATION / ANION ANALYSIS

| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40721 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2334 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| | Analytical | | | |
|-------------------------------|------------|----------|-------|-------|
| Parameter | Result | Units | | |
| рН | 7.21 | s.u. | | |
| Conductivity @ 25° C | 4,230 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 3,490 | mg/L | | |
| Total Dissolved Solids (Calc) | 3,320 | mg/L | | |
| SAR | 22.7 | ratio | | |
| Total Alkalinity as CaCO3 | 1,360 | mg/L | | |
| Total Hardness as CaCO3 | 436 | mg/L | | |
| Bicarbonate as HCO3 | 1,360 | mg/L | 22.29 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 6.5 | mg/L | 0.10 | meq/L |
| Nitrite Nitrogen | 0.030 | mg/L | 0.00 | meq/L |
| Chloride | 1,160 | mg/L | 32.72 | meq/L |
| Fluoride | <0.01 | mg/L | 0.00 | meq/L |
| Phosphate | 48.1 | mg/L | 1.52 | meq/L |
| Sulfate | <0.1 | mg/L | 0.00 | meq/L |
| Iron | 0.495 | mg/L | 0.02 | meq/L |
| Calcium | 170 | mg/L | 8.46 | meq/L |
| Magnesium | 2.92 | mg/L | 0.24 | meq/L |
| Potassium | 19.2 | mg/L | 0.49 | meq/L |
| Sodium | 1,090 | mg/L | 47.42 | meq/L |
| Cations | | | 56.61 | meq/L |
| Anions | | | 56.64 | meq/L |

Cation/Anion Difference

0.05%

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Quintana Mesa

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5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

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| Sample No./ Sample Sample Identification Date Time | Lab Number | Sample Matrix | InoO | I d | | . – | | | | |
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CATION / ANION ANALYSIS

| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40722 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2335 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| | Analytical | | | |
|-------------------------------|------------|----------|-------|-------|
| Parameter | Result | Units | | |
| рН | 7.02 | s.u. | | |
| Conductivity @ 25° C | 5,190 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 3,170 | mg/L | | |
| Total Dissolved Solids (Calc) | 3,140 | mg/L | | |
| SAR | 57.4 | ratio | | |
| Total Alkalinity as CaCO3 | 1,740 | mg/L | | |
| Total Hardness as CaCO3 | 80.0 | mg/L | | |
| Bicarbonate as HCO3 | 1,740 | mg/L | 28.52 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 17.5 | mg/L | 0.28 | meq/L |
| Nitrite Nitrogen | 0.002 | mg/L | 0.00 | meq/L |
| Chloride | 700 | mg/L | 19.75 | meq/L |
| Fluoride | <0.01 | mg/L | 0.00 | meq/L |
| Phosphate | 147 | mg/L | 4.64 | meq/L |
| Sulfate | <0.1 | mg/L | 0.00 | meq/L |
| Iron | 11.7 | mg/L | 0.42 | meq/L |
| Calcium | 32.0 | mg/L | 1.60 | meq/L |
| Magnesium | <0.01 | mg/L | 0.00 | meq/L |
| Potassium | 7.00 | mg/L | 0.18 | meq/L |
| Sodium | 1,180 | mg/L | 51.33 | meq/L |
| Cations | | | 53.11 | meq/L |
| Anions | | | 53.19 | meq/L |

Cation/Anion Difference

0.16%

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Laguna Seca

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| | | ENVIROTECH INC | TECF | | | | | Sample Receipt | ceipt | |
| | | | | | - , | | | | Z Z | N/A |
| | | 5796 U.S. Highway 64 Farmington. New Mexico 87401 | 5796 U.S. Highway 64 hington. New Mexico 8 | 64 0 87401 | | | Received Intact | d Intact | | |
| | | (505) | (505) 632-0615 | , , , | | | Cool - Ice/Blue Ice | Blue Ice | | |
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CATION / ANION ANALYSIS

| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40723 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2336 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| | Analytical | | | |
|-------------------------------|------------|----------|-------|-------|
| Parameter | Result | Units | | |
| pH | 7.88 | s.u. | | |
| Conductivity @ 25° C | 9,800 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 5,850 | mg/L | | |
| Total Dissolved Solids (Calc) | 5,630 | mg/L | | |
| SAR | 112 | ratio | | |
| Total Alkalinity as CaCO3 | 4,080 | mg/L | | |
| Total Hardness as CaCO3 | 66.0 | mg/L | | |
| Bicarbonate as HCO3 | 4,080 | mg/L | 66.87 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 1.0 | mg/L | 0.02 | meq/L |
| Nitrite Nitrogen | 0.017 | mg/L | 0.00 | meq/L |
| Chloride | 980 | mg/L | 27.65 | meq/L |
| Fluoride | 0.80 | mg/L | 0.04 | meq/L |
| Phosphate | 2.5 | mg/L | 0.08 | meq/L |
| Sulfate | <0.1 | mg/L | 0.00 | meq/L |
| Iron | 0.137 | mg/L | 0.00 | meq/L |
| Calcium | 20.8 | mg/L | 1.04 | meq/L |
| Magnesium | 4.15 | mg/L | 0.34 | meq/L |
| Potassium | 0.20 | mg/L | 0.01 | meq/L |
| Sodium | 2,140 | mg/L | 93.09 | meq/L |
| Cations | | | 94.47 | meq/L |
| Anions | | | 94.65 | meq/L |
| Cation/Anion Difference | | | 0.19% | |

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: Martinez Draw

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| Client / Project Name | | Project Location | c z Draw | | | | AN | ALYSIS / P | ANALYSIS / PARAMETERS | | | | |
| | | 890 | 8 | ainers | | 50 | 50.0 | 5003 | | Вел | Remarks | | · · · · · |
| Sample No./ Sample Identification Date | e Sample Time | Lab Number | Sample Matrix | | Hd | 11 | ٩٣ | 17 | | | | | |
| Produced H20430 | 27 1050 | 40723 | Water | | X | × | × | ~ | | | | | ····· |
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| Relinquished by: (Signature) | | | Bec | Received by: (Signature) | Signature | (6 | | | | | | | |
| | | | FOUROTECH INC | L U L | | | | | Sa | Sample Receipt | ceipt | | |
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| | | | 5796 U.S. Highway 64 Farminoton, New Mexico 87401 | ghway 6 Mexico | 4 87401 | | | | Received Intact | ntact | | | |
| | | | (505) 632-0615 | -0615 | | | | | Cool - Ice/Blue Ice | ue Ice | | | |
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CHAIN OF CUSTODY RECORD

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R(ACTICAL SOLUTIONS FOR A BETTER TOMORROW

CATION / ANION ANALYSIS

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| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-----------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40724 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2337 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04-05-07 |
| Condition: | Cool & Intact | | |

| Parameter | Analytical Result | Units | | |
|-------------------------------|----------------------|----------|------|-------|
| pH | 6.28 | S.U. | | |
| • | | | | |
| Conductivity @ 25° C | 742 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 490 | mg/L | | |
| Total Dissolved Solids (Calc) | 426 | mg/L | | |
| SAR | 3.7 | ratio | | |
| Total Alkalinity as CaCO3 | 168 | mg/L | | |
| Total Hardness as CaCO3 | 140.0 | mg/L | | |
| Bicarbonate as HCO3 | 168 | mg/L | 2.75 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 1.9 | mg/L | 0.03 | meq/L |
| Nitrite Nitrogen | 0.018 | mg/L | 0.00 | meq/L |
| Chloride | 108 | mg/L | 3.05 | meq/L |
| Fluoride | 0.13 | mg/L | 0.01 | meq/L |
| Phosphate | 8.0 | mg/L | 0.25 | meq/L |
| Sulfate | 51.0 | mg/L | 1.06 | meq/L |
| Iron | 76.9 | mg/L | 2.75 | meq/L |
| Calcium | 52.8 | mg/L | 2.63 | meq/L |
| Magnesium | 1.95 | mg/L | 0.16 | meq/L |
| Potassium | 0.73 | mg/L | 0.02 | meq/L |
| Sodium | 99.7 | mg/L | 4.34 | meq/L |
| Cations | | | 7.15 | mea/L |
| Anions | | | 7.15 | meq/L |

Cation/Anion Difference

0.03%

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: 31-6 CDP

مد Analyst

ens Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

| Project Location 3:-6 CDP 3:-6 CDP 2:-6 CDP 2:-6 CDP 2:-6 Cooce 2:40 Value 4-3-07 Value 4-3-07 Value 1:40 Value 4-3-07 Value | ANALYSIS / | _ | |
|--|--------------------------|-----------------------|---------|
| lient No. 00068 - 005 Lab Number Matrix 40724 Water | | ANALYSIS / PARAMETERS | |
| Lab Number Sample Matrix 40724 Water | | Remarks | arks |
| 40724 Water | Cont Cont LT | | |
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| Recei | Received by: (Signature) | | |
| EDVIROTECH INC | CHINC | Sample Receipt | eipt |
| | | | X N N/A |
| 5796 U.S. Highway 64 Earmington Now Movico o | hway 64 | Received Intact | |
| (505) 632-0615 | 0615 | Cool - Ice/Blue Ice | |

CATION / ANION ANALYSIS

| Client: | Williams | Project #: | 00068-005 |
|--------------------|----------------|-----------------|-------------------|
| Sample ID: | Produced Water | Date Reported: | 04-06-07 |
| Laboratory Number: | 40725 | Date Sampled: | 04-03-07 |
| Chain of Custody: | 2338 | Date Received: | 04-03-07 |
| Sample Matrix: | Water | Date Extracted: | N/A |
| Preservative: | Cool | Date Analyzed: | 04 - 05-07 |
| Condition: | Cool & Intact | | |

| Parameter | Analytical Result | Units | | |
|-------------------------------|----------------------|----------|---|-------|
| pH | 6.50 | s.u. | ал анд намандай и долгон и полот и соторого соторой () () () () () () () () () (| |
| Conductivity @ 25° C | 2,450 | umhos/cm | | |
| Total Dissolved Solids @ 180C | 1,480 | mg/L | | |
| Total Dissolved Solids (Calc) | 1,410 | mg/L | | |
| SAR | 38.1 | ratio | | |
| Total Alkalinity as CaCO3 | 240 | mg/L | | |
| Total Hardness as CaCO3 | 32.0 | mg/L | | |
| Bicarbonate as HCO3 | 240 | mg/L | 3.93 | meq/L |
| Carbonate as CO3 | <0.1 | mg/L | 0.00 | meq/L |
| Hydroxide as OH | <0.1 | mg/L | 0.00 | meq/L |
| Nitrate Nitrogen | 4.9 | mg/L | 0.08 | meq/L |
| Nitrite Nitrogen | 0.094 | mg/L | 0.00 | meq/L |
| Chloride | 500 | mg/L | 14.11 | meq/L |
| Fluoride | 0.73 | mg/L | 0.04 | meq/L |
| Phosphate | 16.7 | mg/L | 0.53 | meg/L |
| Sulfate | 203 | mg/L | 4.22 | meq/L |
| Iron | 105 | mg/L | 3.75 | meq/L |
| Calcium | 9.60 | mg/L | 0.48 | meq/L |
| Magnesium | 1.95 | mg/L | 0.16 | meq/L |
| Potassium | 28.0 | mg/L | 0.72 | meq/L |
| Sodium | 495 | mg/L | 21.53 | meq/L |
| Cations | | | 22.89 | meq/L |
| Anions | | | 22.90 | meq/L |

Cation/Anion Difference

0.06%

Reference: U.S.E.P.A., 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination of Water And Waste Water", 18th ed., 1992.

Comments: 30-5 CDP

Daeters stin $-\infty1$ Analyst

Review

| | CHAIN | OF CUSTODY RECORD | | × Z E | COR | Δ | 2338 | 38 | | |
|--|------------------|---|--------------------------|-------------|------|-----------------------|---------------------|-------------------------------|---------------|-----|
| Client / Project Name | Project Location | 9 C.D | | | ANAL | ANALYSIS / PARAMETERS | METERS | | | [|
| Sampler: | CD (| - soo | of ainers | | 500 | 5001 | | Remarks | | |
| Sample No./ Sample Sample Identification Date Time | Lab Number | | | a I. Ha | V | + ∀) | | | | |
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| Relinquished by: (Signature) | | | Received by: (Signature) | Signature) | | | | | | |
| | | FOUROTF | H C H | 20 | | | Sample | Sample Receipt | | |
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| | | 5796 U.S. Highway 64 Farmington New Mexico 87401 | ighway 6 Mexico 3 | ;4 87401 | | | Received Intact | | | T |
| | | (505) 632-0615 | 2-0615 | | | | Cool - Ice/Blue Ice | ġ | | |
| | | | | | | | | san juan reproduction 578-129 | duction 578-1 | 82 |

| | UNITED STATES PARTMENT OF THE IN EAU OF LAND MANA | NTERIOR | | | Ol Exp 5. Lease Serial No. | MB N | APPROVED o. 1004-0137 March 31, 2007 |
|---|--|---|---|--------------------------------------|--|-------------------------|--|
| Do not use this f | IOTICES AND REPOR form for proposals to Use Form 3160-3 (AF | drill or to re | enter an | • | SF-078771 6. If Indian, Allottee or | Trib | e Name |
| SUBMI | T IN TRIPLICATE – Other in | nstructions on pa | nge 2. | <u> </u> | 7. If Unit of CA/Agree | ment, | Name and/or No. |
| 1. Type of Well | | | | | - Rosa 8. Well Name and No. | | <u> </u> |
| 2. Name of Operator | /ell 🖌 Other | | | | Rosa Unit SWD #1 9. API Well No. | | |
| Williams Production Co. | | | <u> </u> | | 30-039-27055 | | |
| 3a. Address PO Box 640, Aztec, NM | | b. Phone No. <i>(in</i> 505-634-4200 | clude area cod | e) | 10. Field and Pool or E Entrada | _ | atory Area |
| 4. Location of Well (Footage, Sec., T., 2420'FSL & 1210' FEL, Sec23, Twp 31N, Rng C | R., M., or Survey Description) 6W, NMPM | <u> </u> | | | 11. Country or Parish, Rio Arriba Co., NM | State | |
| 12. CHEC | K THE APPROPRIATE BOX | (ES) TO INDICA | TE NATURE | OF NOTI | CE, REPORT OR OTHE | ER DA | АТА |
| TYPE OF SUBMISSION | | | ТҮР | E OF ACT | TION | | |
| Notice of Intent | Acidize | Deepen Fracture | Freat | Ξ | luction (Start/Resume) amation | | Water Shut-Off Well Integrity |
| Subsequent Report | Casing Repair | New Cor | struction | _ | omplete | | Other |
| Final Abandonment Notice | Change Plans | Plug and Plug Bac | | - | porarily Abandon er Disposal | | |
| the proposal is to deepen direction Attach the Bond under which the v following completion of the involv testing has been completed. Final determined that the site is ready fo Once approval recieved from NMO0 Mesa, Laguna Seca, Martinez Draw | vork will be performed or prov red operations. If the operation Abandonment Notices must be r final inspection.) CD, plan to accept produced r, 31-6 CDP, and 30-5 CDP. | ide the Bond No. a results in a multi filed only after a d water from Will | on file with BI ple completion l requirements | M/BIA. I or recomp , including | Required subsequent rep- oletion in a new interval, reclamation, have been | orts n a Foi comp | nust be filed within 30 days rm 3160-4 must be filed once leted and the operator has |
| Name (Printed/Typed) Michael K. Lane | | Ti | ile EH&S Sp | ecialist - S | San Juan Basin Opera | tions | |
| Signature | Dee | D | the 7/23 | 107 | • | | |
| | THIS SPACE F | OR FEDER | L OR STA | TE OF | FICE USE | | |
| Approved by | | | Title | | | | |
| Conditions of approval, if any, are attache that the applicant holds legal or equitable entitle the applicant to conduct operations | title to those rights in the subject | | Y Office | | IL | Date . | |
| Title 18 U.S.C. Section 1001 and Title 43 fictitious or fraudulent statements or repr | | | n knowingly an | 1 willfully (| to make to any department | t or ag | ency of the United States any false, |
| (Instructions on page 2) | | | | | | | |

| Form 3160-5UNITED STATES(February 2005)DEPARTMENT OF THE INTERIORBUREAU OF LAND MANAGEMENT | | | | | FORM APPROVED OMB No. 1004-0137 Expires: March 31, 2007 5. Lease Serial No. SF-078769 | | |
|---|--|--|--|--|---|---|--|
| SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals. | | | | | 6. If Indian, Allottee or Tribe Name | | |
| SUBMIT IN TRIPLICATE – Other instructions on page 2. 1. Type of Well | | | | | 7. If Unit of CA/Agreement, Name and/or No. - Rosa | | |
| Oil Well Gas Well Other | | | | | 8. Well Name and No. Rosa Unit 094 9. API Well No. | | |
| 2. Name of Operator Williams Production Co. | | | | | 30-039-23035 | | |
| 3a. Address3b. Phone NoPO Box 640, Aztec, NM505-634-420 | | | (include area code) 10. Field and Pool or Exploratory Area Blanco Mesa Verde Ext. | | | | |
| 4. Location of Well (<i>Footage, Sec., T.,R.,M., or Survey Description</i>) 1650 'FSL & 1820' FEL, Sec 16, Twp 31N, Rng 05W, NMPM | | | · · · · | | 11. Country or Parish, State Rio Arriba Co., NM | | |
| 12. CHEC | K THE APPROPRIATE BC | X(ES) TO INDI | CATE NATURI | E OF NOTIC | CE, REPORT OR OTH | ER DATA | |
| TYPE OF SUBMISSION | TYPE OF ACTION | | | | | | |
| Notice of Intent | Acidize | Deepe | n re Treat | = | uction (Start/Resume) amation | Water Shut-Off Well Integrity | |
| Subsequent Report | Casing Repair | New (| Construction | Reco | mplete | Other | |
| | Change Plans | Plug a | nd Abandon | Temp | porarily Abandon | | |
| Final Abandonment Notice | Convert to Injection | 🔲 Plug I | Back Water Disposal | | | | |
| the proposal is to deepen directiona Attach the Bond under which the w following completion of the involv testing has been completed. Final determined that the site is ready for Once approval recieved from NMOO Mesa, Laguna Seca, Martinez Draw | vork will be performed or pro- ed operations. If the operation Abandonment Notices must la final inspection.) CD, plan to accept produce , 31-6 CDP, and 30-5 CDI | ovide the Bond N on results in a m be filed only afte ed water from V | lo. on file with B ultiple completio r all requirement | ELM/BIA. R on or recomp is, including | Required subsequent rep letion in a new interval reclamation, have been | orts must be filed within 30 days , a Form 3160-4 must be filed once completed and the operator has | |
| | | | | itle EH&S Specialist - San Juan Basin Operations | | | |
| Signature | Sole | | Date $7/2$ | 3/07 | . : | | |
| | THIS SPACE | FOR FEDE | RAL OR ST | ATE OFF | FICE USE | | |
| Approved by | | | Title | <u></u> " | | Date | |
| Conditions of approval, if any, are attached that the applicant holds legal or equitable t entitle the applicant to conduct operations | itle to those rights in the subject | | rtify | | <u> </u> 1 | , | |

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

(Instructions on page 2)

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