Bratcher, Mike, EMNRD

From: David_Luna@xtoenergy.com
Sent: Tuesday, March 20, 2012 2:19 PM
To: Dade, Randy, EMNRD; Bratcher, Mike, EMNRD; Shapard, Craig, EMNRD
Cc: renee.lebas@halliburton.com; Randy_Green@xtoenergy.com
Subject: Treating produced water
Attachments: Nash Site Locations.pdf; Nash 56H C144.doc; Nash 29 SWD C-144 Permit.pdf; Nash 29 plat.pdf; Nash 4 SWD Sundrys.pdf; Nash Maps.pdf; CleanWave_Service.pdf

Randy/Mike,

We are planning on cleaning our produced water and then using the treated water to frac with. Our plan is to have Halliburton set up their "Clean Wave" unit at our SWD Battery (Nash 4 SWD = Water Treatment Site: State Land, Lease K-6606 API:30-015-21777). They will clean up the produced water and then send it over to a temporary above ground tank (41,000 bbls) (Nash 29 SWD = Treated water storage site: BLM Land, Lease NM-17589 API:30-015-29434). The treated water will then be transfered over to the location that we are currently fracing.
This will allow us to not haul or use fresh water for our frac jobs. This is a huge environmental plus.

My question is what permits do you need us to fill out? We have staked the location of the large above ground temporary tank at our Nash Unit #29 SWD location . We have also put white flagging material to locate where the transfer line will be laid to get treated water to the frac location. The attached maps show the location where this will happen. I have also attached some other Sundry notices and c-144 permits for these locations.

Thanks in advance,

David Luna
Senior Operations Engineer (SE New Mexico)
XTO Energy a subsidiary of ExxonMobil
200 N. Loraine, Suite 800
Midland, Tx. 79701
Cell: 432-296-3955
Office: 432-620-6742
email: David_Luna@xtoenergy.com

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

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

Form C-144 CLEZ
July 21, 2008

For closed-loop systems *that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure*, submit to the appropriate NMOCD District Office.

Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action: ☒ Permit ☐ Closure

Instructions: Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

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

1.

Operator: **XTO ENERGY INC** OGRID #: **5380**

Address: **200 N. LORAINE ST., STE. 800, MIDLAND TEXAS 79703**

Facility or well name: **NASH UNIT 56H**

API Number: _____ OCD Permit Number: _____

U/L or Qtr/Qtr **H** Section **14** Township **23S** Range **29E** County: **EDDY**

Center of Proposed Design: Latitude **N 32.306999** Longitude **W 103.947526** NAD: ☒ 1927 ☐ 1983

Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC

Operation: ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☐ P&A

☐ Above Ground Steel Tanks or ☐ Haul-off Bins

3.

Signs: Subsection C of 19.15.17.11 NMAC

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

☐ Signed in compliance with 19.15.3.103 NMAC

4.

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

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

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC

☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC

☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

☐ Previously Approved Operating and Maintenance Plan API Number: _____

5.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)

Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: **CONTROLLED RECOVERY INC** Disposal Facility Permit Number: **R9166**

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☒ No

Required for impacted areas which will not be used for future service and operations:

☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6.
Operator Application Certification:

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

Name (Print): **CHIP AMROCK** Title: **SR DRILLING ENGINEER**

Signature: _____ Date: **NOVEMBER 5, 2010**

e-mail address: chip_amrock@xtoenergy.com Telephone: **432-620-4323**

7.
OCD Approval: ☐ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: _____ **Approval Date:** _____

Title: _____ **OCD Permit Number:** _____

8.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ **Closure Completion Date:** _____

9.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

10.
Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

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

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APR 17 2009
HOBBSOCD

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

APR 22 2009

Form C-144 CLEZ
July 21, 2008

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Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action: **X** Permit Closure

Instructions: Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

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

1.

Operator: **XTO Energy, Inc.** OGRID #: **005380**

Address: **200 N. Loraine, Ste. 800 Midland, TX 79705**

Facility or well name: **Nash Unit #29**

API Number: **30-015-29434** **OCD Permit Number:**

U/L or Qtr/Qtr **J** Section **13** Township **T-23S** Range **R-29E** County: **Eddy**

Center of Proposed Design: Latitude Longitude NAD: ☐ 1927 ☐ 1983

Surface Owner: **X** Federal State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

X **Closed-loop System:** Subsection H of 19.15.17.11 NMAC

Operation: ☐ Drilling a new well **X** Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) P&A

X Above Ground Steel Tanks or ☐ Haul-off Bins

3.

Signs: Subsection C of 19.15.17.11 NMAC

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

X Signed in compliance with 19.15.3.103 NMAC

4.

Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

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

X Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC

X Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC

X Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

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

☐ Previously Approved Operating and Maintenance Plan API Number:

5.

Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19 15.17.13.D NMAC)

Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name: **CRI** Disposal Facility Permit Number: **NM-01-0006**

Disposal Facility Name: Disposal Facility Permit Number:

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) **X** No

Required for impacted areas which will not be used for future service and operations:

☐ Soil Backfill and Cover Design Specifications - - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC

☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6.

Operator Application Certification:

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

Name (Print): **Kristy Ward** Title: **Regulatory Analyst**

Signature: Kristy Ward Date: **April 9, 2009**

e-mail address: **kristy_ward@xtoenergy.com** Telephone: **432-620-6740**

OCD

020984

7.
OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only)

OCD Representative Signature: Jacqui Reese **Approval Date:** 05-01-09

Title: Geologist **OCD Permit Number:** 0209284

8.
Closure Report (required within 60 days of closure completion): Subsection K of 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

Closure Completion Date: _____

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Disposal Facility Name: _____ Disposal Facility Permit Number: _____

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Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) **X** No

Required for impacted areas which will not be used for future service and operations:

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
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Operator Closure Certification:

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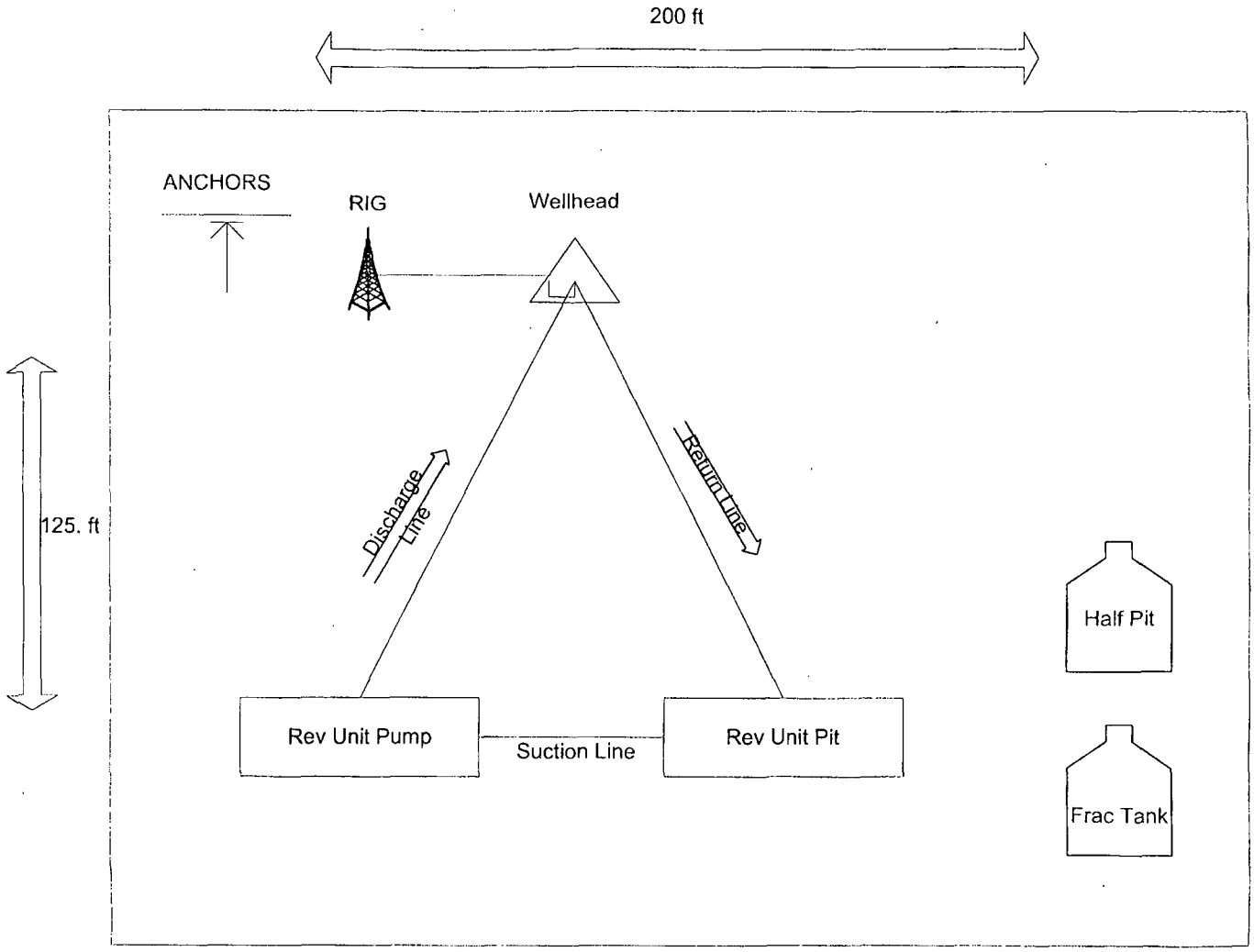
Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____


200 ft
ANCHORS
RIG
Wellhead
125. ft
Discharge Line
Return Line
Half Pit
Rev Unit Pump
Suction Line
Rev Unit Pit
Frac Tank

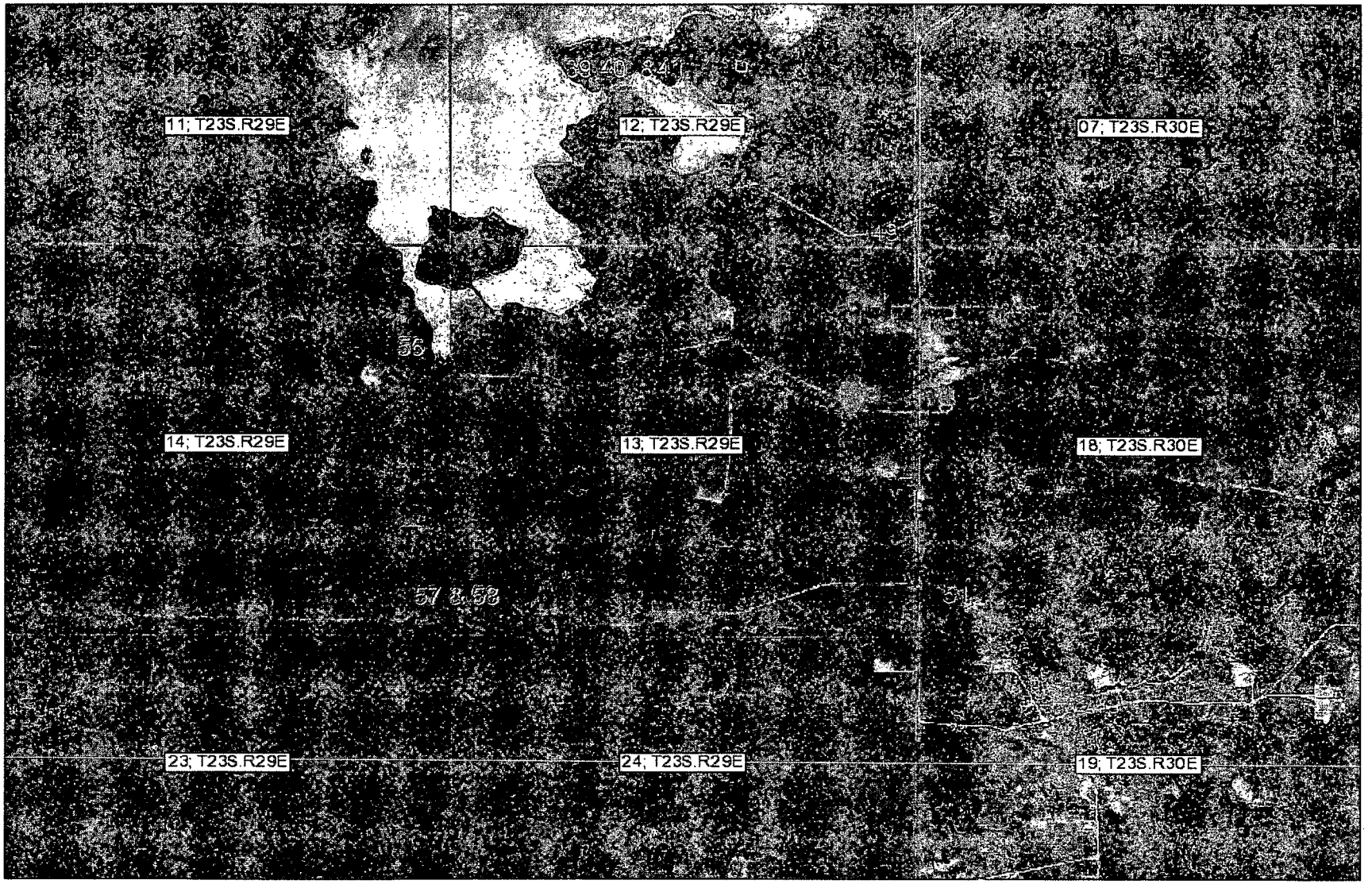
WORKOVER

Operating and Maintenance Procedure:

- Will submit C-144 (short form) to OCD to get permit to set steel tank at well location to be used to collect fluid during workover.
- When permit received from OCD, steel tank will be set at well location prior to work performed (without any type of liner).
- Operator will do daily visual tank inspection to locate any leak that might cause soil or ground water contamination.
- If leak is detected the OCD will be notified immediately.

Closure Plan – based upon the appropriate requirements of Subsection C:

Solids and Fluids will be removed from steel tanks and hauled off by trucking companies. They will then be taken to the closest approved public disposal: **See C-144 Form – (CRI – Disposal Facility Permit No. NM-01-0006)**

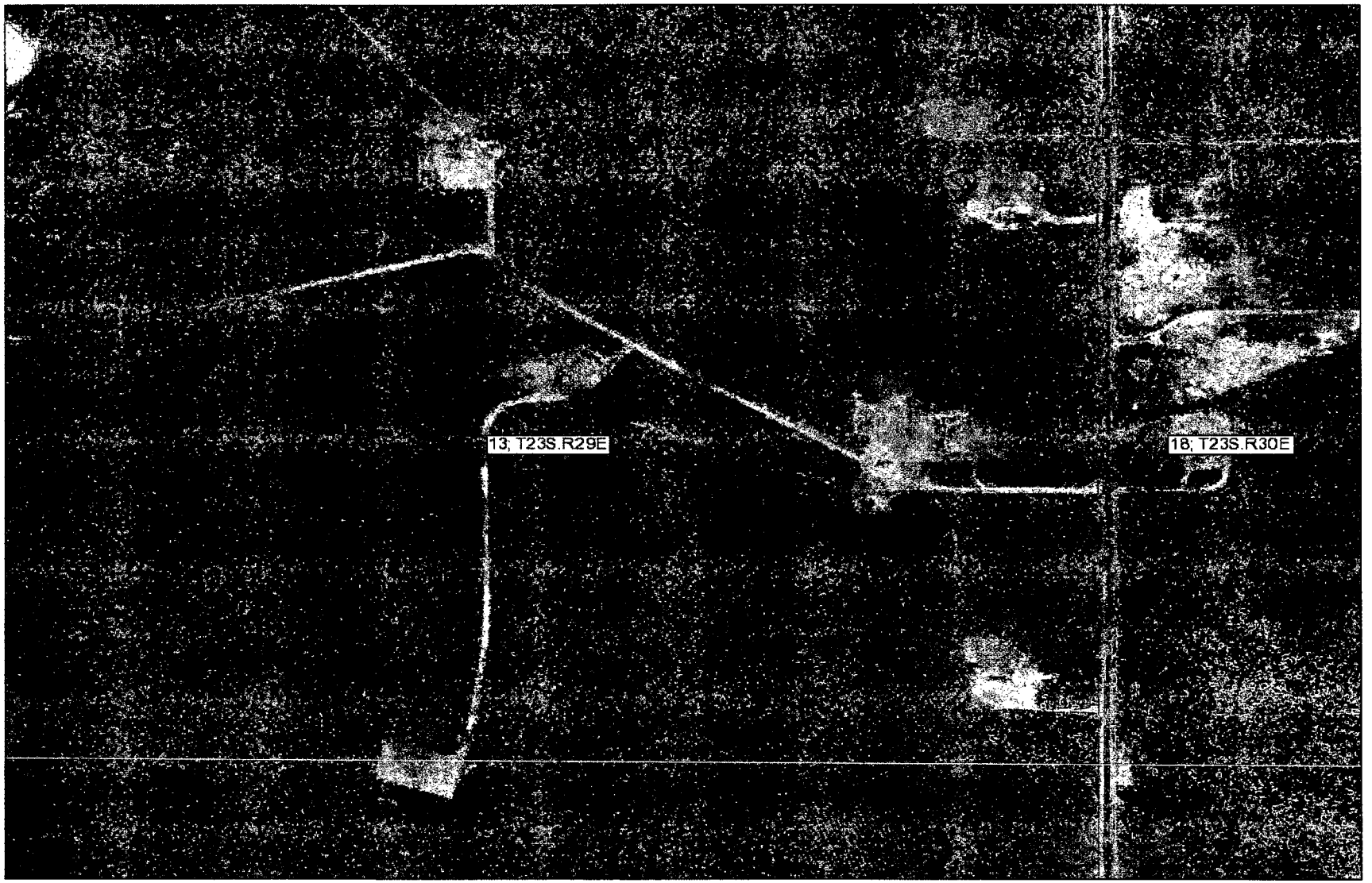


Frac Sites

0 1000 2000ft

N W E S

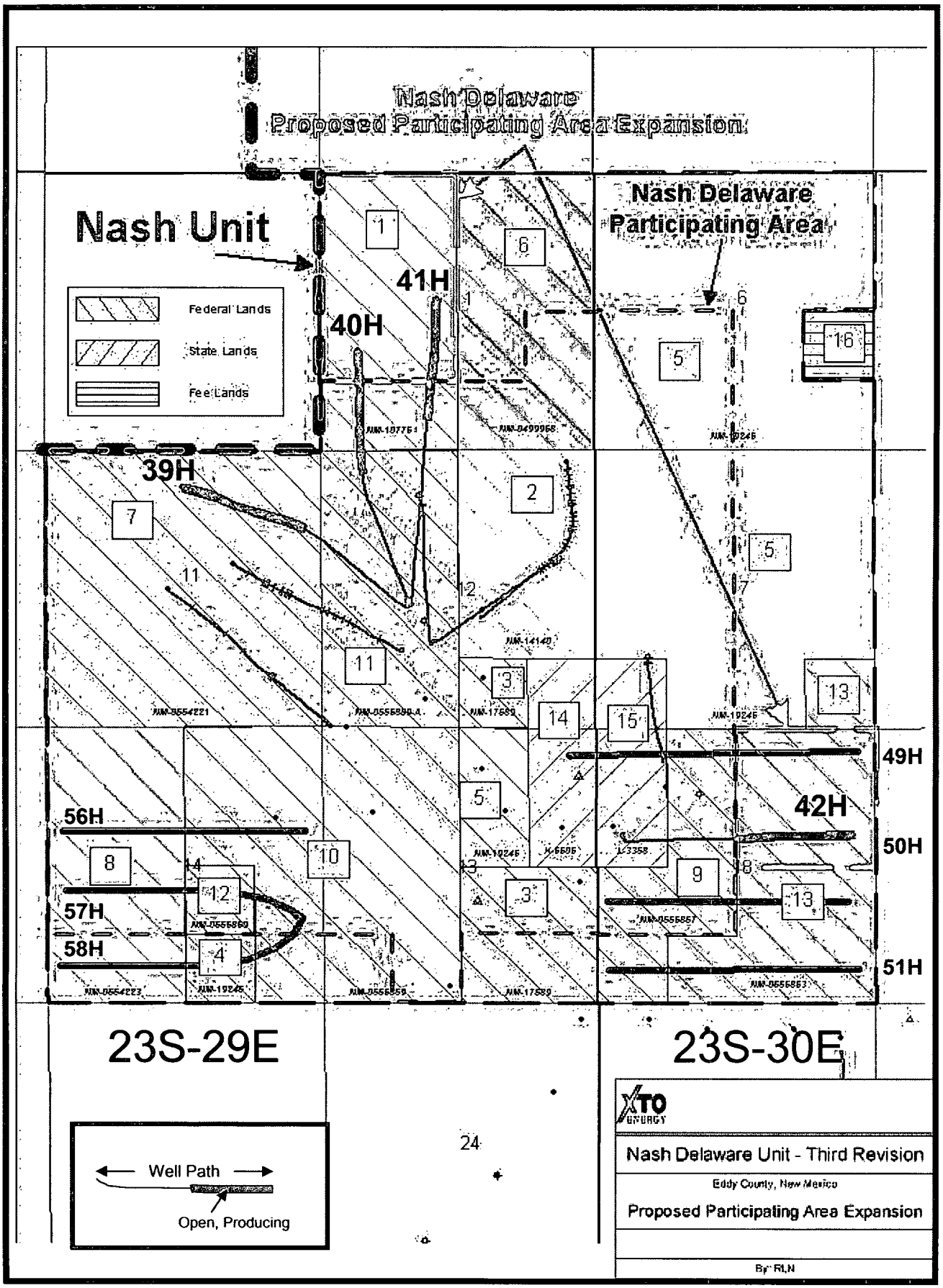
Petroleum Recovery Research Center	Nash Unit	Figure: ##
	Location of Water Treatment Site and Storage Site	Mar 14, 2012

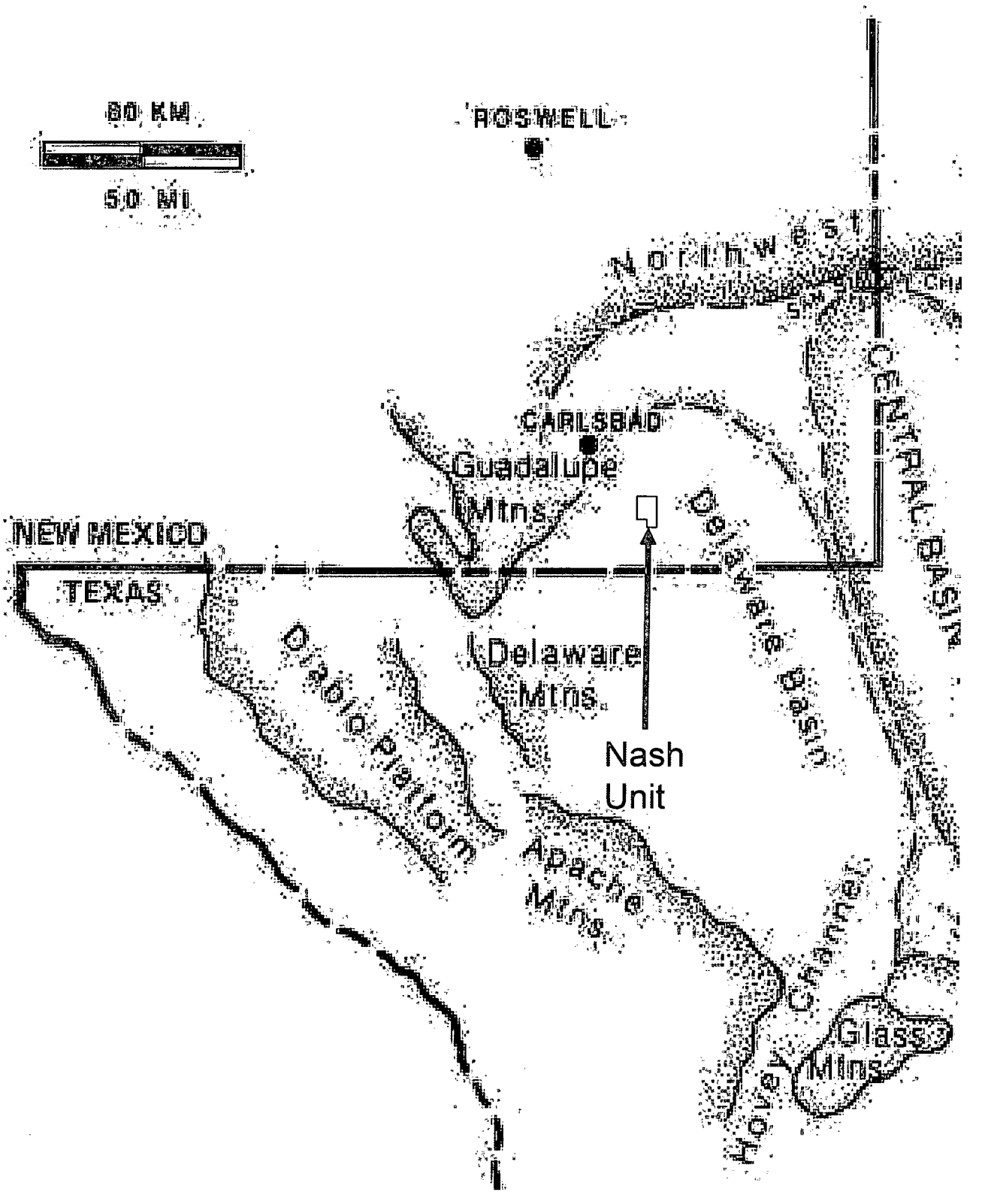


0 200 400ft

N
W E
S

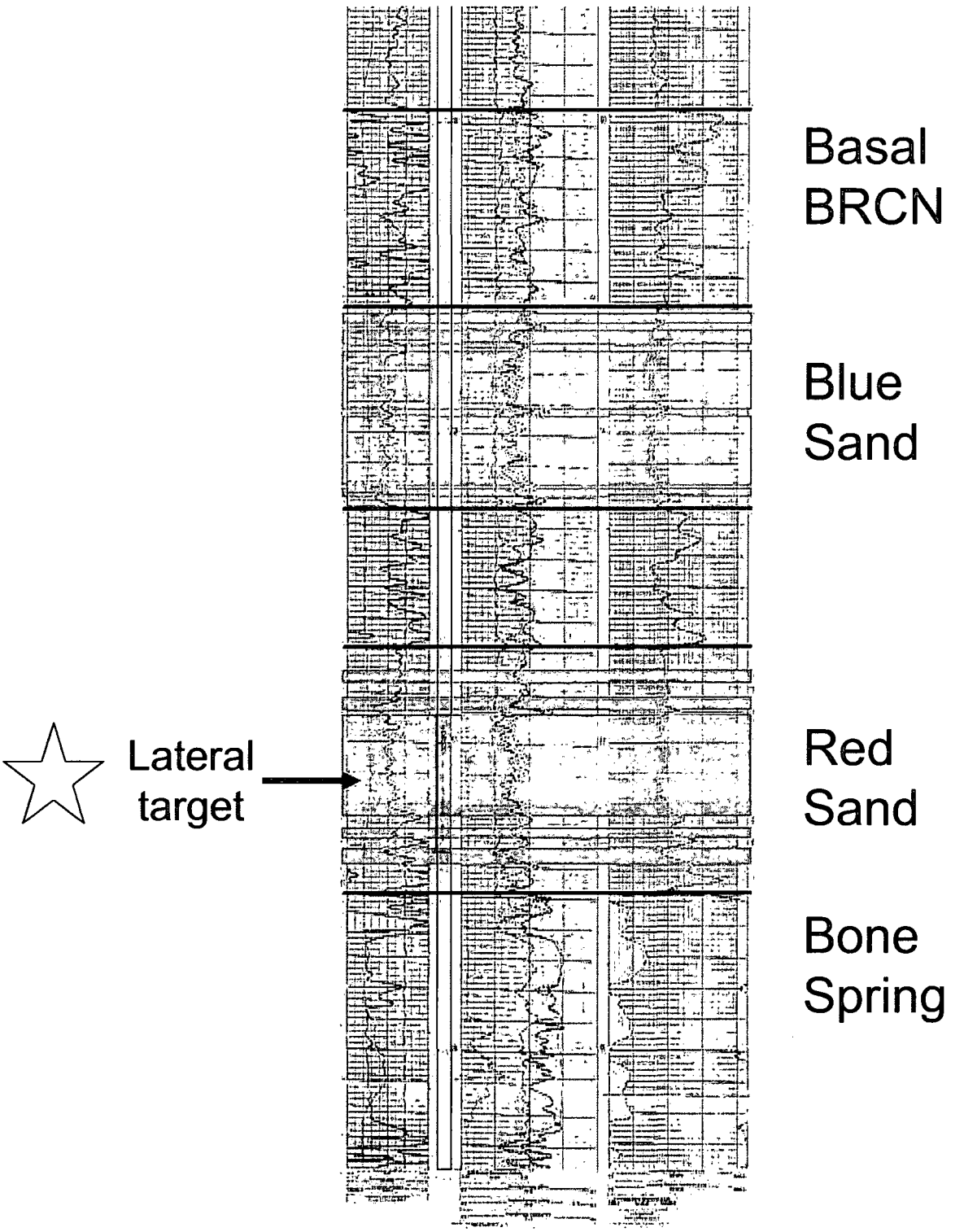
Petroleum Recovery Research Center	Nash Unit	Figure: ##
	Water Treatment and Storage Sites	Mar 14, 2012

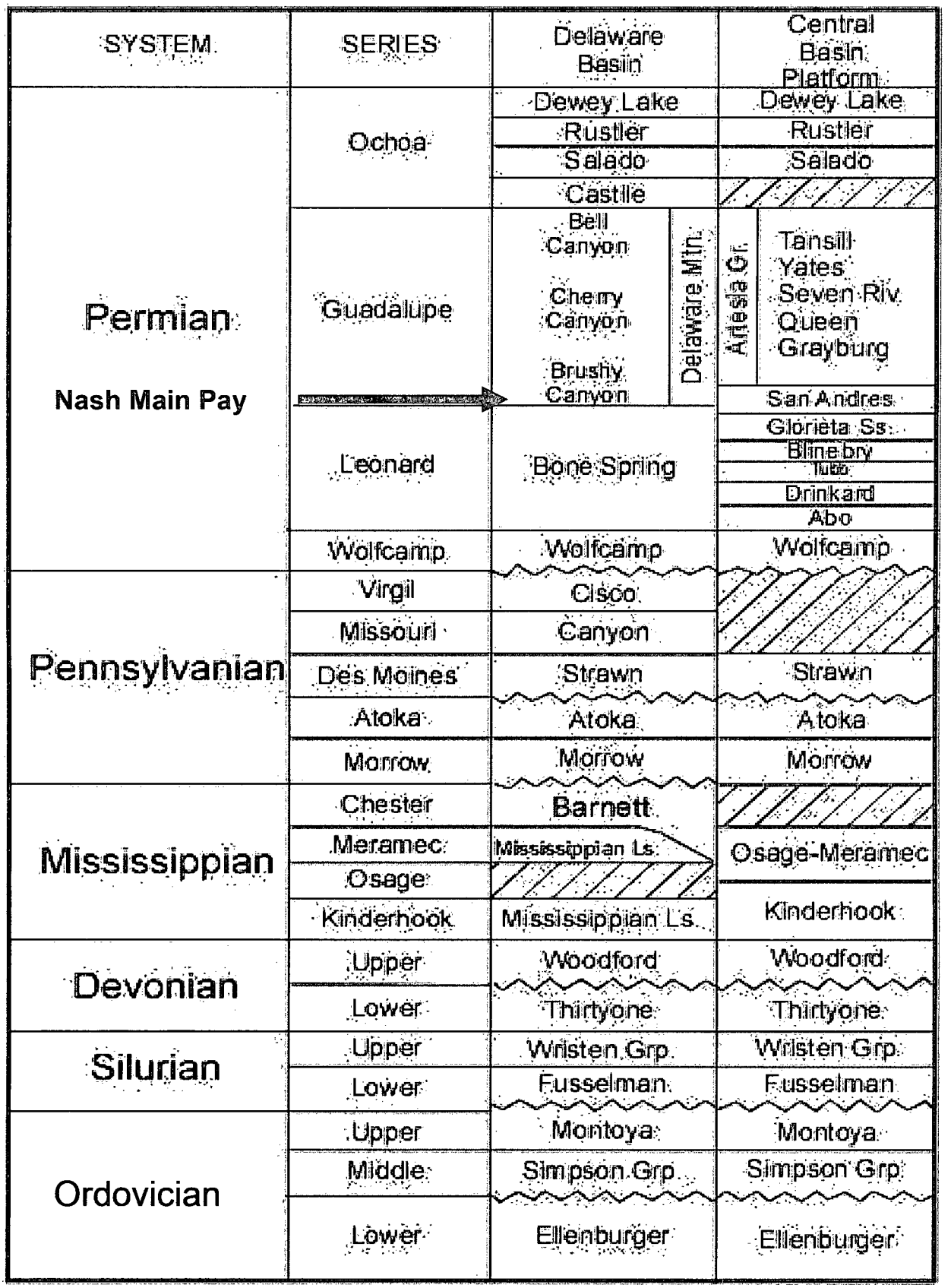

Nash Delaware
Proposed Participating Area Expansion
Nash Unit
Nash Delaware
Participating Area
Federal Lands
State Lands
Fee Lands
41H
40H
39H
49H
42H
50H
56H
57H
58H
51H
23S-29E
23S-30E
Well Path
Open, Producing
24
XTO ENERGY
Nash Delaware Unit - Third Revision
Eddy County, New Mexico
Proposed Participating Area Expansion
By: RLN

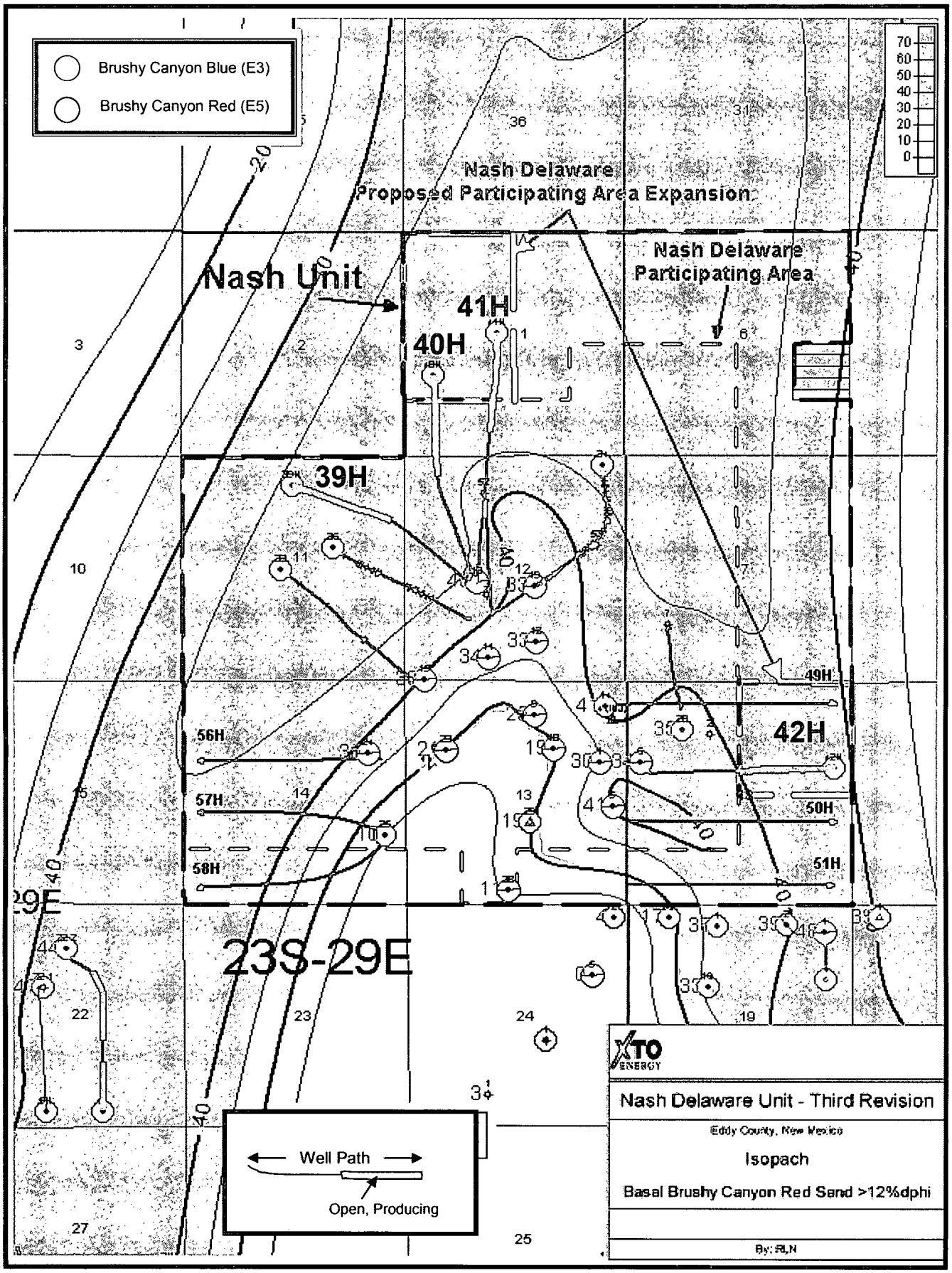


From Ward, Kendall and Harris, 1986.

Nash Unit #13



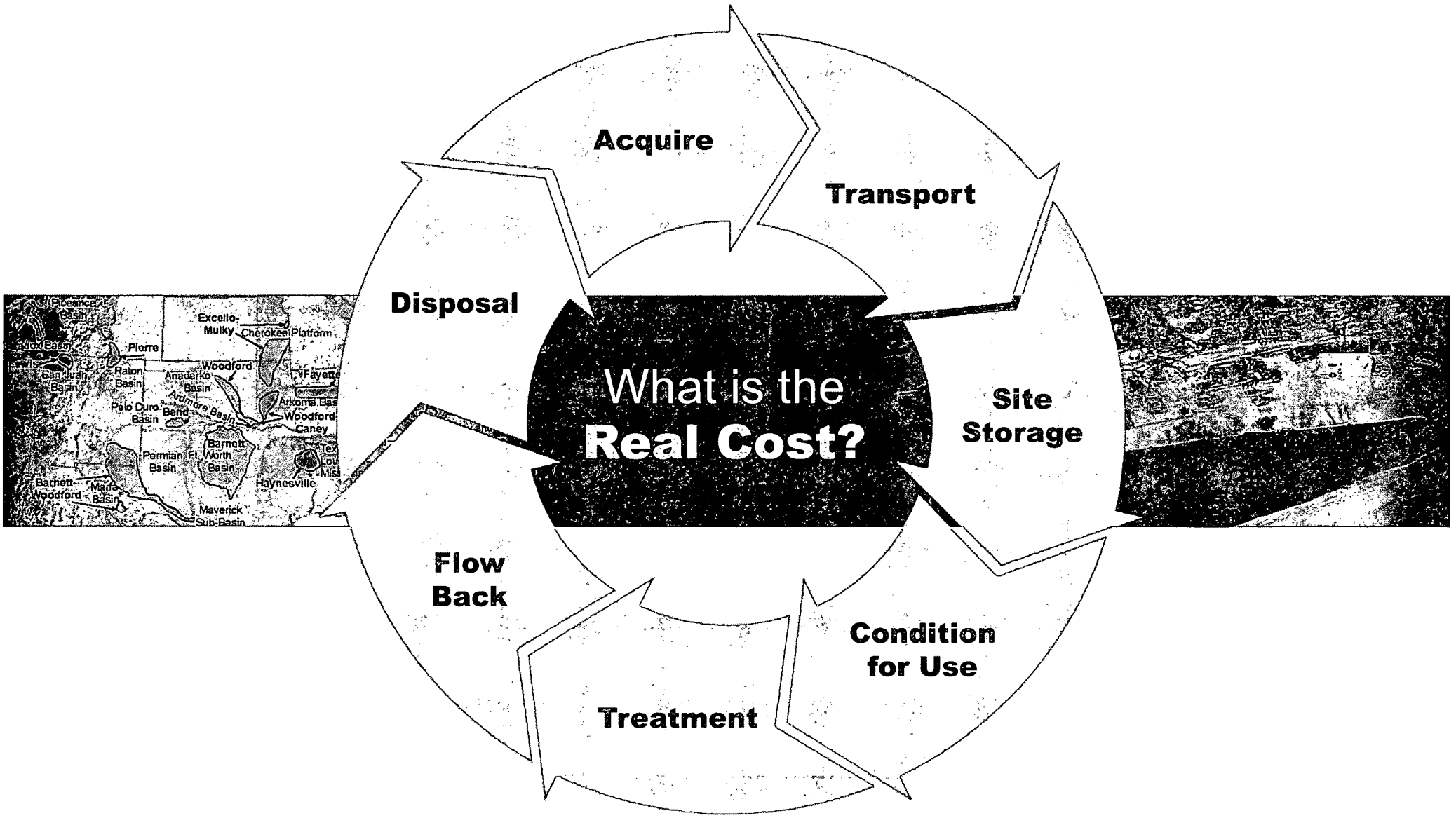

SYSTEM
SERIES
Delaware Basin
Central Basin Platform
Permian
Nash Main Pay
Ochoa
Dewey Lake
Rustler
Salado
Castile
Guadalupe
Bell Canyon
Cherry Canyon
Brushy Canyon
Delaware Mtn.
Artesia Gr.
Tansill
Yates
Seven Riv.
Queen
Grayburg
San Andres
Glorieta Ss.
Bliinebry
Tubb
Drinkard
Abo
Leonard
Bone Spring
Wolfcamp
Wolfcamp
Wolfcamp
Pennsylvanian
Virgil
Cisco
Missouri
Canyon
Des Moines
Strawn
Strawn
Atoka
Atoka
Atoka
Morrow
Morrow
Morrow
Mississippian
Chester
Barnett
Meramec
Mississippian Ls.
Osage-Meramec
Osage
Kinderhook
Mississippian Ls.
Kinderhook
Devonian
Upper
Woodford
Woodford
Lower
Thirtyone
Thirtyone
Silurian
Upper
Wristen Grp.
Wristen Grp.
Lower
Fusselman
Fusselman
Ordovician
Upper
Montoya
Montoya
Middle
Simpson Grp.
Simpson Grp.
Lower
Ellenburger
Ellenburger


Brushy Canyon Blue (E3)
Brushy Canyon Red (E5)
70
60
50
40
30
20
10
0
Nash Delaware
Proposed Participating Area Expansion
Nash Delaware
Participating Area
Nash Unit
41H
40H
39H
49H
42H
56H
57H
58H
50H
51H
23S-29E
Well Path
Open, Producing
XTO ENERGY
Nash Delaware Unit - Third Revision
Eddy County, New Mexico
Isopach
Basal Brushy Canyon Red Sand >12%dphi
By: RLN

HALLIBURTON

CleanWave^{SM} Water Treatment Service

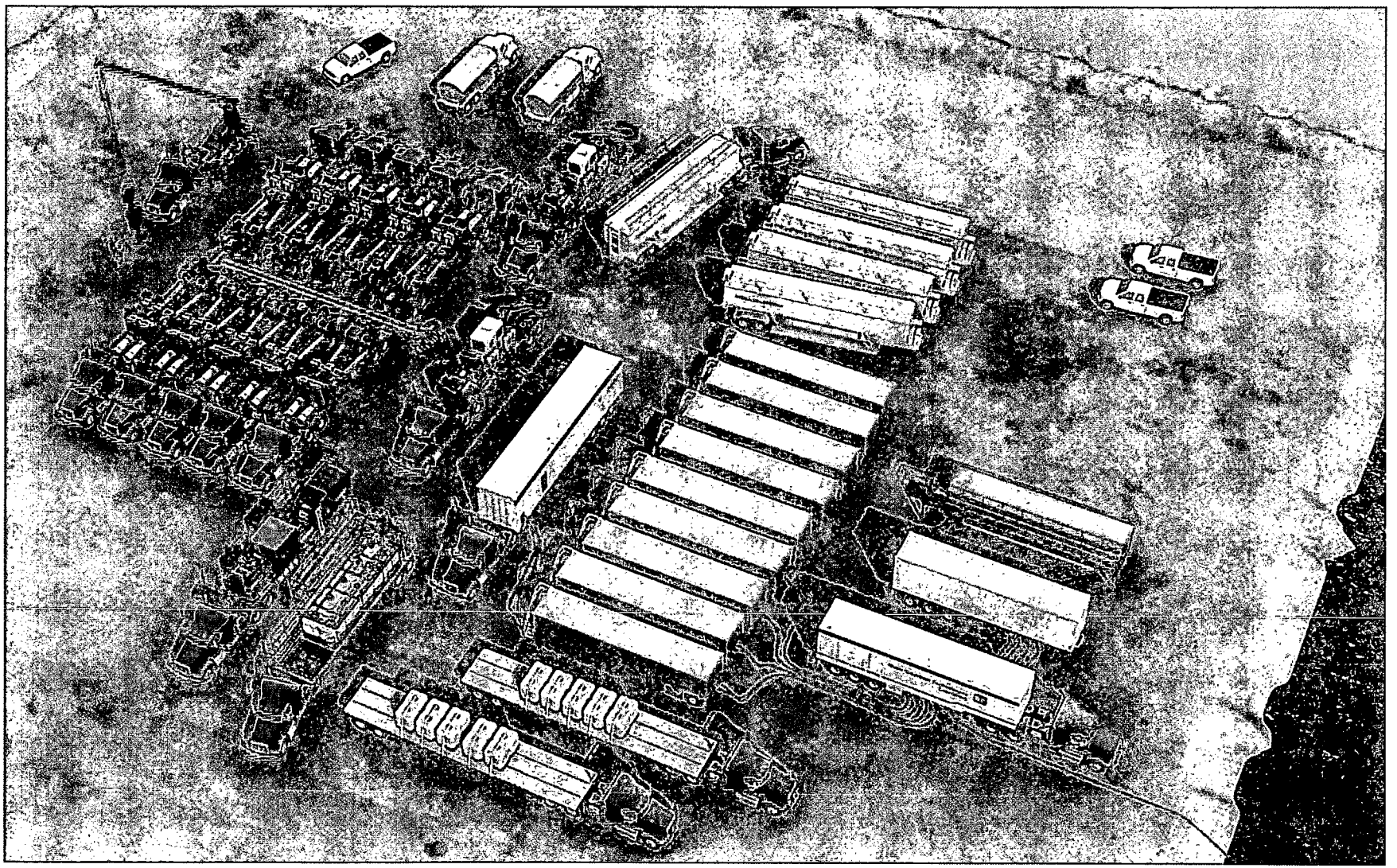
CHALLENGE: **Reduce Water Costs / Improve Water Quality**



HALLIBURTON

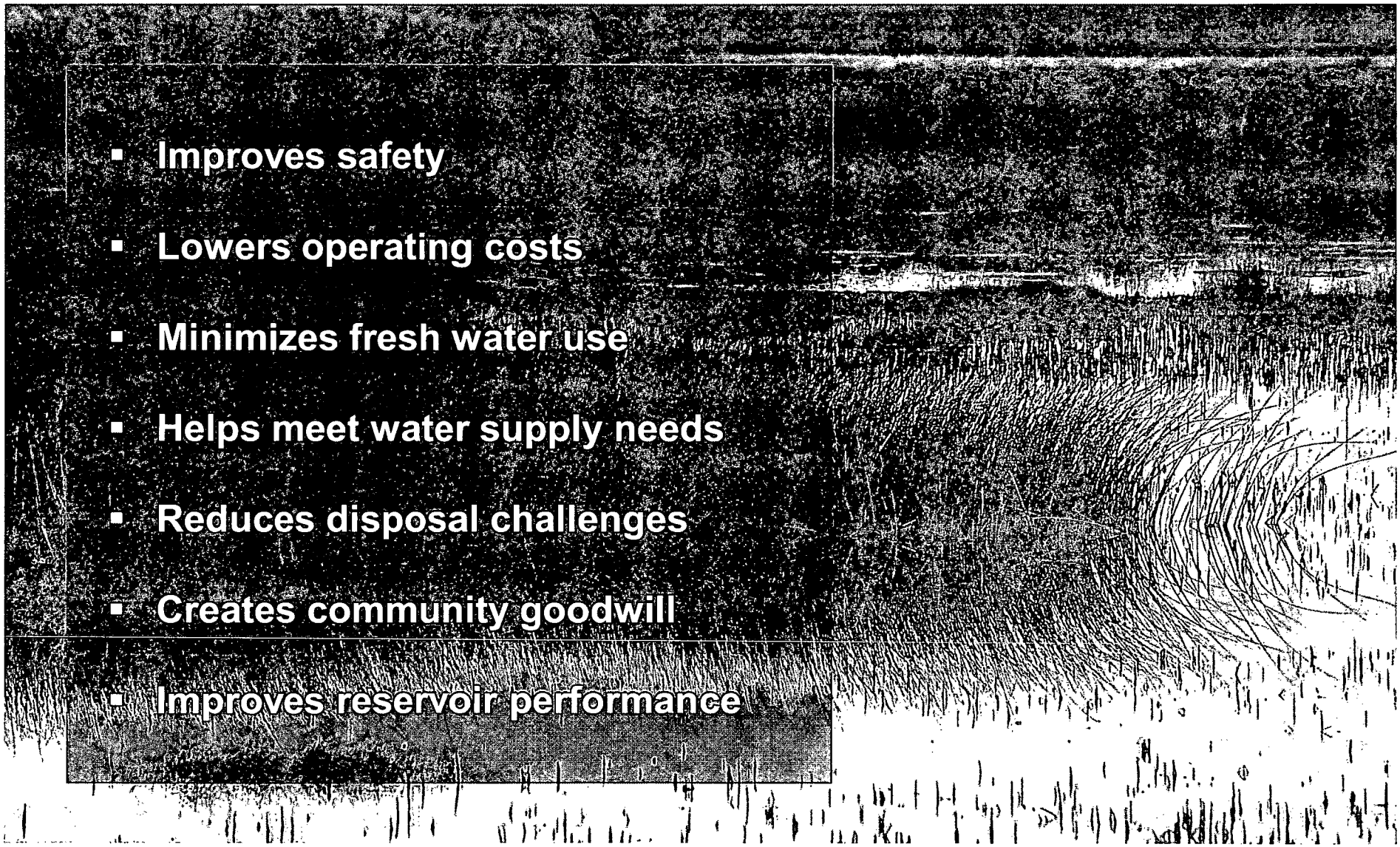
SOLUTION: Treatment and Recycling

A service custom-tailored to your needs



HALLIBURTON

Service Benefits



HALLIBURTON

CHALLENGE: Clean-up and Re-use of Fracture Flow Back and Produced Water

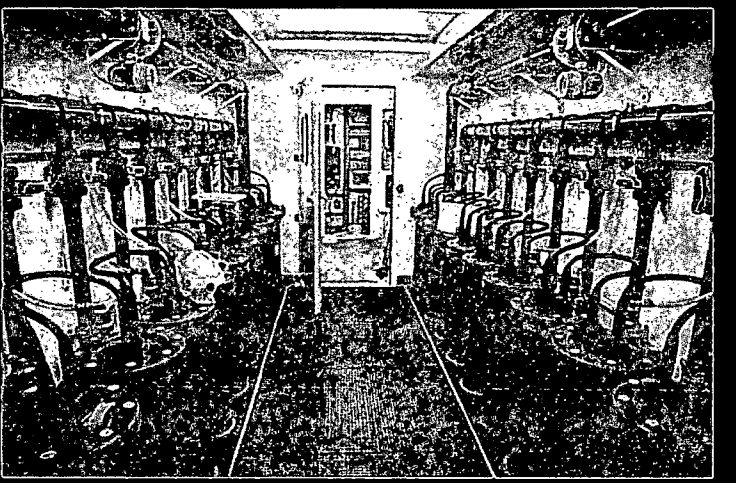
- **Non-potable water source treatment**
- **Preparing water for:**
  - *Fracturing fluids*
  - *Drilling muds*
- **Water intensive operations, i.e., shale gas**

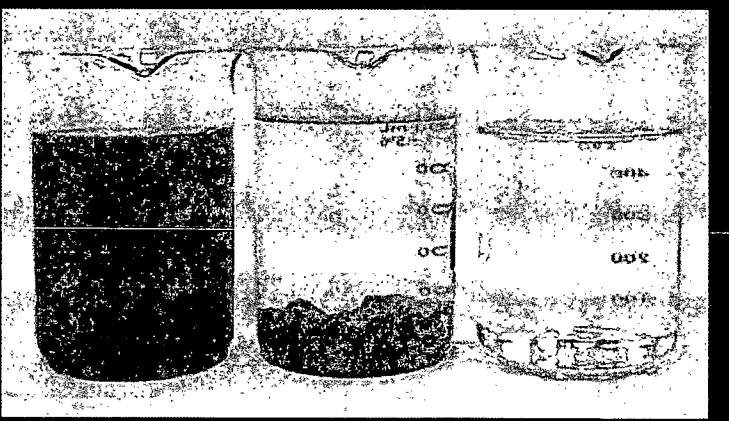
- **Limited water supply**
- **Limited disposal options**

HALLIBURTON

SOLUTION: CleanWave[SM] Water Treatment Service

- **Workhorse of the flow back treatment process**
- **Electrical charge coagulates suspended matter**
- **Containerized unit with 100 kVA generator**
- **Scalable - can handle total flow in real time**
- **Handles wide variety of source waters** *(Total Dissolved Solids range = 100 to 300,000 mg/l)*
- **Established technology; New application**

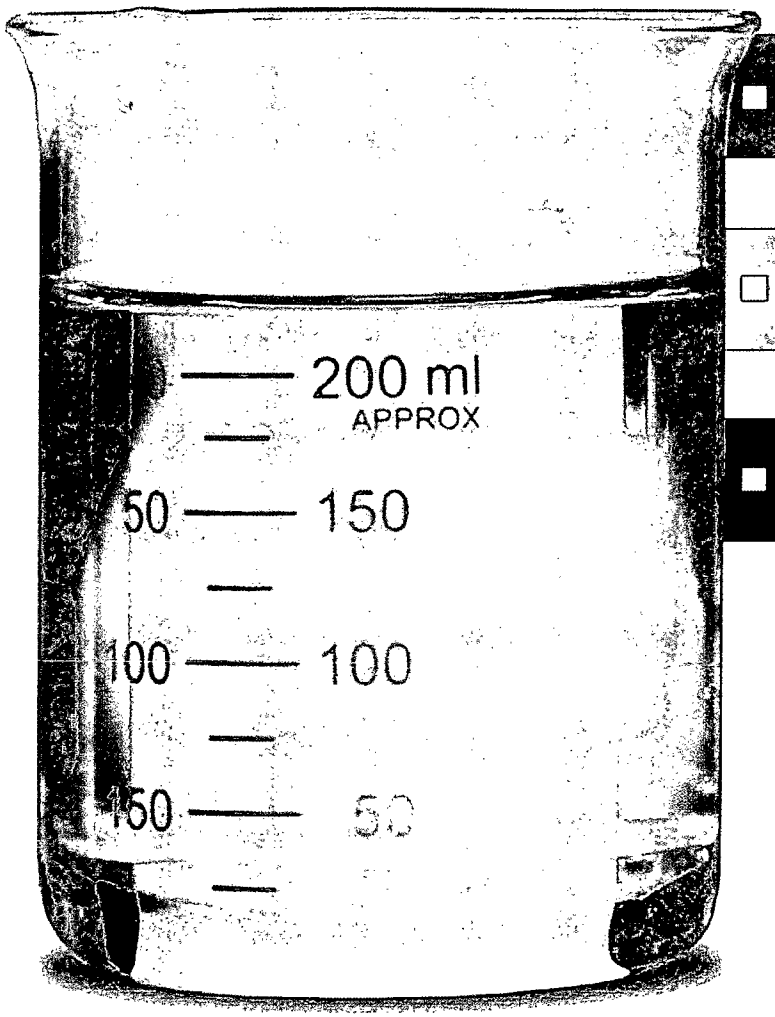




HALLIBURTON

Outcome

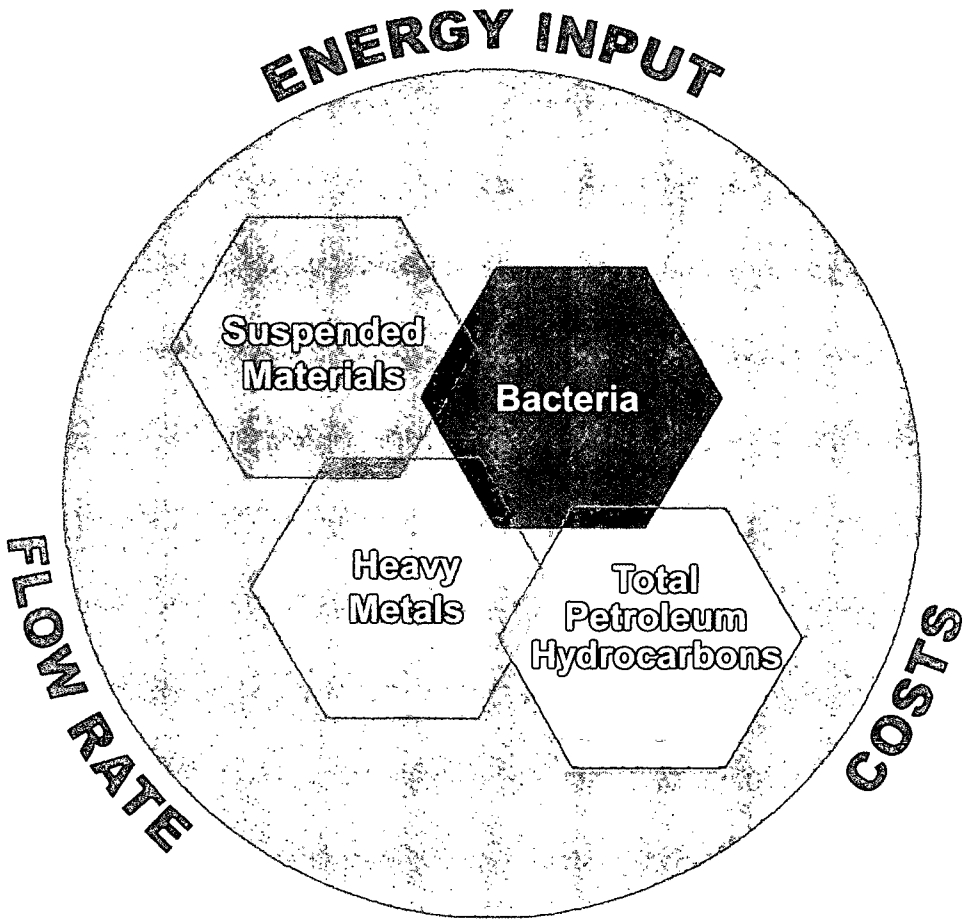
Clear brine for your next:



- **Fracturing program**
- Drilling program
- **Reinjection or disposal**

HALLIBURTON

CleanWave^{SM} Service Benefits



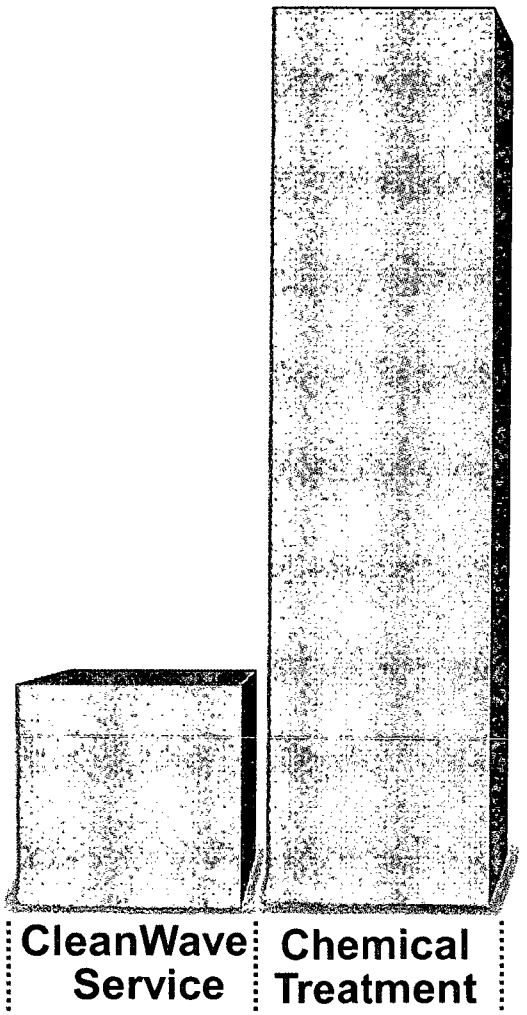
TREATS
UP TO
20
BPM

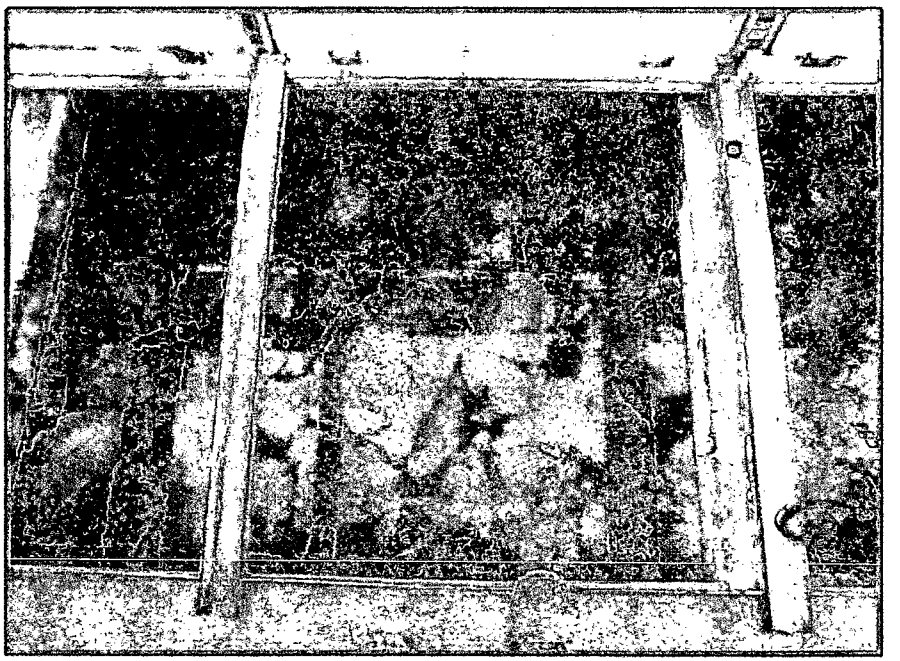
REMOVES
UP TO
99%
of
TOTAL
SUSPENDED
SOLIDS

HALLIBURTON

CleanWave^{SM} Service Advantages

Reduces volume of sludge





HALLIBURTON

Additional CleanWave^{SM} Service Benefits

- Coagulates particles down to < 1 micron
- Conserves water via onsite treatment of:
  - *Frac flow back*
  - *Produced water*
  - *Surface runoff*
  - *Other sources*
- Automated

- Reduces
  - *Bacteria*
  - *Turbidity*
  - *H_2S*
  - *Scaling, corrosion*
  - *Chemicals used*
  - *Disposal, handling, transportation costs*
  - *Sludge*

HALLIBURTON

Case Study: CleanWave^{SM} Service

CHALLENGE

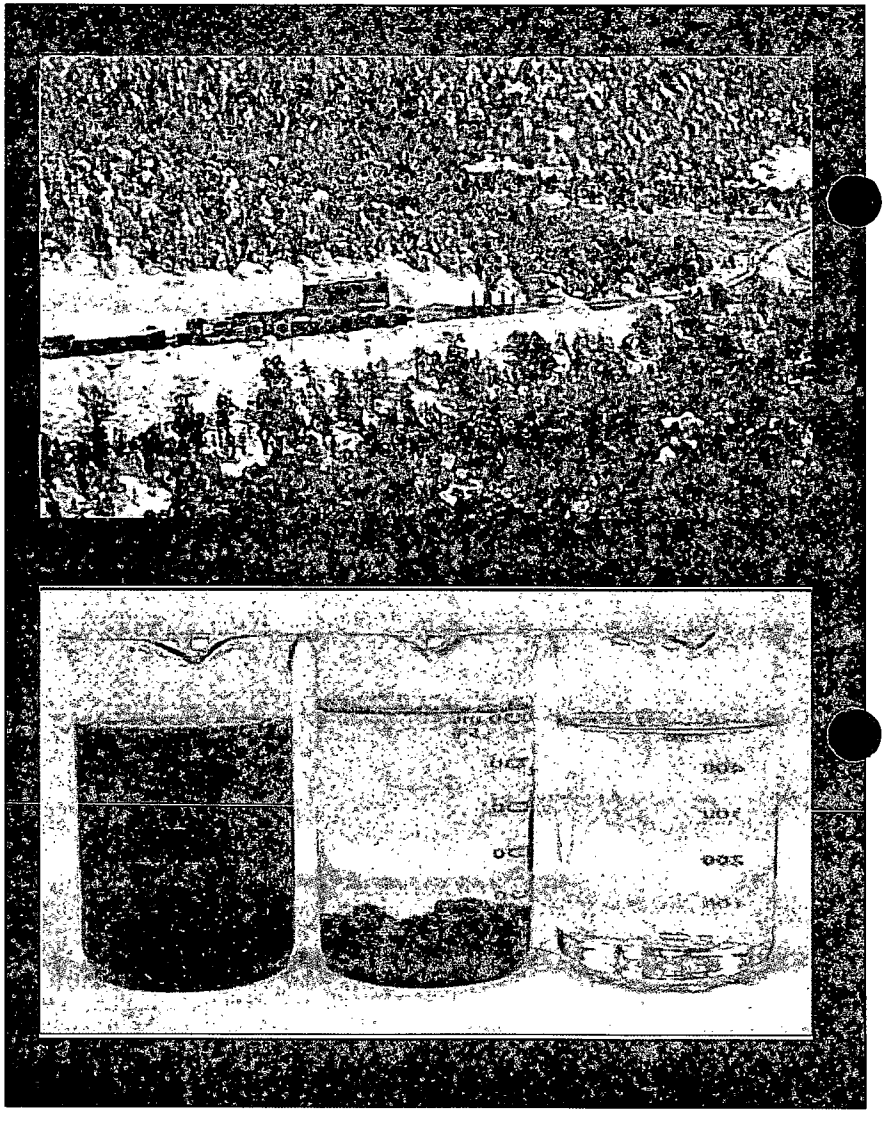
- Remote location in Utah
- Significant delays in production schedule
- Single truck road – 40 miles each way
- Massive snow buildup in the winter
- High total dissolved solids (TDS) water > 50,000 ppm

SOLUTION

- CleanWave^{SM} water treatment service
- Halliburton slick water frac

RESULTS

- Successful seven month operation
- 55,000 barrels treated in under four days
- 1,000 truck loads, 5,000 hours of drive time eliminated
- Significant reduction in water management cost
- On location treatment eliminated frac schedule delays
- Successful frac



HALLIBURTON

Why Halliburton Water Treatment Services?

Halliburton has **unique expertise** and technologies to help you recycle water for any designated task with minimal use of chemicals.

- ***Thorough understanding of oilfield and fluids/chemistry***
- ***On location QA/QC***
- ***HSE performance second to none***

>> **Reduce** water costs while **improving** water quality

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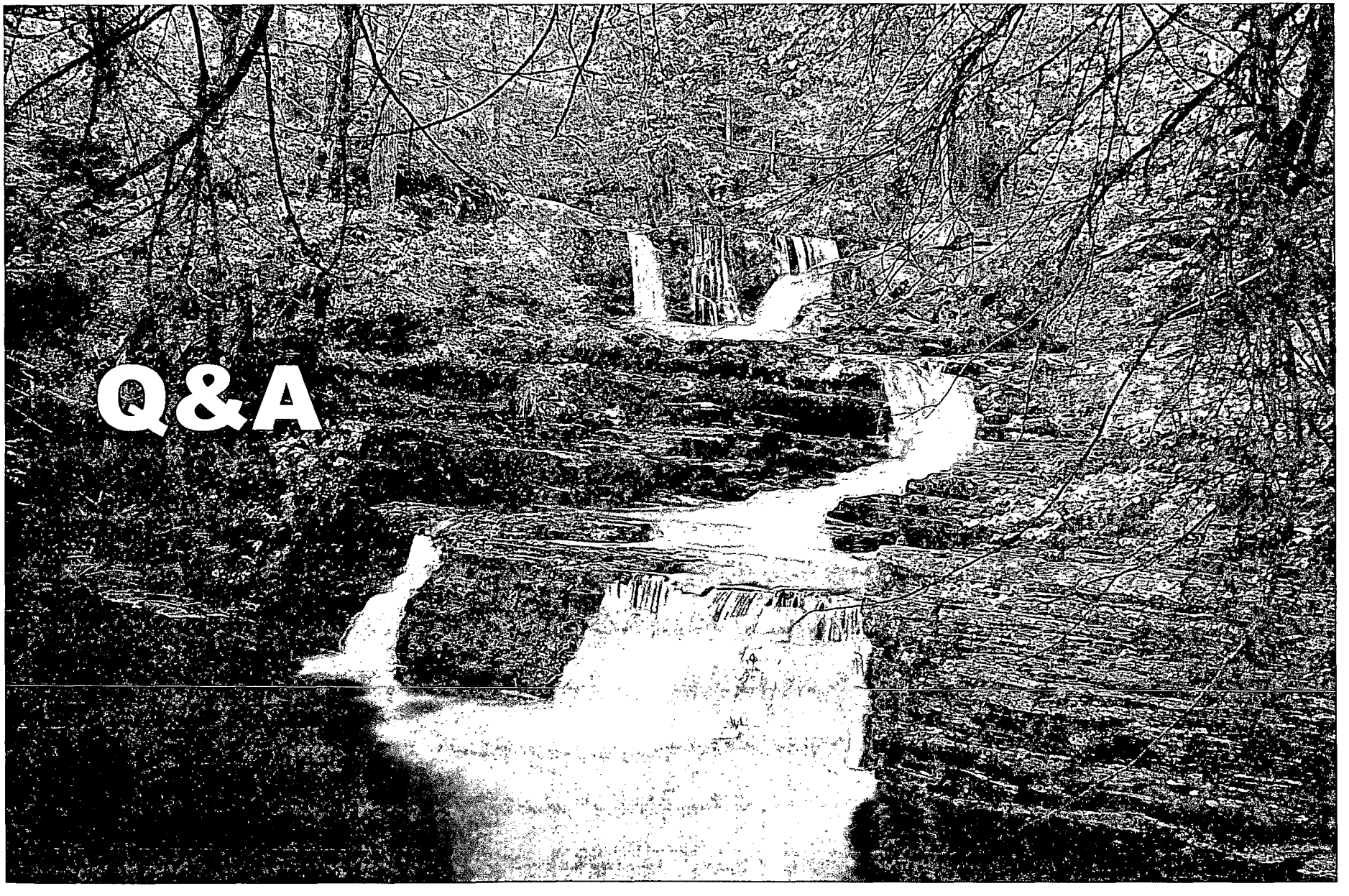

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