NM2 - 1

GENERAL CORRESPONDENCE YEAR(S):

2004 - 1995

Kieling, Martyne

To: Brad Walls
Cc: Foust, Denny
Subject: RE:

Brad,

Regarding our conversation and your company's concern about mosquitoes in the Peoples evaporation ponds located in San Juan County. The New Mexico Oil Conservation Division has reviewed the MSDS for the Zoecon Altosid Briquets that you propose to use. The product does not appear to be a hazardous waste (Item 15. Regulatory Information), and does degrade over time (Item #12 Environmental Fate). The OCD must be informed if Peoples chooses to discontinue use of Zoecon Altosid Briquets or if Peoples wishes to use a different product to control the mosquito larva/adults. This is so the OCD may evaluate how this could affect the integrity of the pond and its permitted use.

Sincerely

Martyne Kieling

CC: File NM-02-001 and NM-02-008

-----Original Message-----
From: Brad Walls [mailto:bwwalls@resourceproduction.com]
Sent: Wednesday, June 02, 2004 7:44 AM
To: Martyne Kieling
Subject:

Brad Walls, President
Resource Production Co.
P.O. Box 3076
Farmington, NM 87499
(505) 325-7927
bwwalls@resourceproduction.com

Date Issued: May, 2001
Supersedes: March, 2001

MATERIAL SAFETY DATA SHEET
ZOECON ALTOSID® BRIQUETS

Manufacturer: Wellmark International

Address: 1100 East Woodfield Road, Suite 500 Schaumburg, IL 60173

Emergency Phone: 1-800-248-7763

Transportation Emergency Phone: CHEMTREC: 1-800-424-9300

1. CHEMICAL PRODUCT INFORMATION

Product Name: Zoecon Altosid® Briquets

Chemical Name/Synonym: S)-Methoprene: Isopropyl (2E,4E,7S)-11-methoxy-3,7,11-trimethyl-2,4-dodecadienoate

Chemical Family: Terpenoid

Formula: C19 H34 O3

EPA Registration No.: 2724-375-

RF Number: 433A

2. COMPOSITION / INFORMATION ON INGREDIENTS

Component (chemical, common name)	CAS Number	Weight	Tolerance
(S)-Methoprene: Isopropyl (2E,4E,7S)-11-methoxy-3,7,11-trimethyl-2,4-dodecadienoate	65733-16-6	8.62%	Not established
Inert ingredients (non-hazardous and/or trade secret):		91.38%	

3. HAZARD INFORMATION

PRECAUTIONARY STATEMENT

Caution: Keep out of the reach of children..

SIGNS AND SYMPTOMS OF OVEREXPOSURE

No adverse reactions have resulted from normal human exposure during research and testing. Adverse animal reactions to this product have not been shown.

PRIMARY ROUTE OF ENTRY **Dermal/Eye:** Yes **Oral:** Yes **Inhalation:** Yes

ACUTE TOXICITY

Oral: LD50 (rat): > 34,600 mg/kg bw (highest dose level tested) (Based on S-Methoprene)

Dermal: LD50 (rabbit) >5,000 mg/kg bw) (Based on S-Methoprene)

Inhalation: LC50 (rat): >210 mg/L (4 hour) (HDT) (Based on RS-Methoprene)

OTHER TOXICOLOGICAL INFORMATION

Skin Irritation: Non-irritating (rabbit) (Based on S-Methoprene)

Eye Irritation: Practically non-irritating (rabbit) (Based on S-Methoprene)

Sensitizer: Not a sensitizer(guinea pig) (Based on RS-Methoprene)

4. FIRST AID MEASURES

Eye: Immediately flush with plenty of water.. See a physician if irritation persists.

Skin: Wash material off with soap and water. Remove contaminated clothing and footwear. See a physician if symptoms persist.

Ingestion: Drink 1-2 glasses of water and try to induce vomiting. Seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation: Remove victim to fresh air. See a physician if cough or other respiratory symptoms develop

Note to Physician: Treat symptomatically

5. FIRE FIGHTING MEASURES

NFPA Rating: **Health: 0** **Fire: 0** **Reactivity: 0**

Flammability Class: N/A

Flash Point: Does not flash

Explosive Limits (% of Volume): N/A

Extinguishing Media: Water, foam, dry chemical

Special Protective Equipment: Firefighters should wear protective clothing, eye protection, and self contained breathing apparatus.

Fire Fighting Procedures: Normal procedures. Do not allow run-off to enter waterways inhabited by aquatic organisms

Combustion Products: Carbon dioxide, carbon monoxide

Unusual Fire/Explosion Hazards: None

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken: Sweep up material and place in a container for disposal. Do not allow spill to enter waterways inhabited by aquatic organisms

Absorbents: None necessary due to product form

Incompatibles: None

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes or clothing. Avoid breathing dust. Wash thoroughly with soap and water after handling.

Storage: Store in a cool, dry place. Do not contaminate food or feed by storage or disposal. Keep away from children.

8. EXPOSURE CONTROL / PERSONAL MEASURES

Exposure Limits: Not applicable

Ventilation: Use with adequate ventilation.

Personal Protective Equipment: Under ordinary use conditions, no special protection is required. If prolonged exposure is expected, it is recommended to wear a MSHA/NIOSH approved organic vapor/pesticide respirator, impervious gloves, chemical goggles or safety glasses with side shields.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Grey to black solid with slight hydrocarbon odor.

Boiling Point: N/A

Melting Point: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (Air = 1): N/A

Specific Gravity: 1.4 g/cc

Bulk Density: N/A

Solubility: 1 ppm

Evaporation Rate: N/A

pH: N/A

10. STABILITY AND REACTIVITY

Stability: Stable

Reactivity: Non-reactive

Incompatibility w/ Other Materials: None

Decomposition Products: None

Hazardous Polymerization: Will not occur

11. TOXICOLOGICAL INFORMATION

CHRONIC TOXICITY [Based on (RS)-Methoprene Technical]
Methoprene is not considered as a carcinogen. The NOEL for non-carcinogen effects in an 18-month mouse study was 250ppm..

DEVELOPMENTAL/REPRODUCTIVE TOXICITY [Based on (RS)-Methoprene Technical]
Methoprene is not a teratogen. The NOEL for maternal and embryo toxicity in rabbits was 200/mg/kg/day. The NOEL for reproductive effects in rats was 500 ppm..

MUTAGENICITY [Based on (RS)-Methoprene Technical]
Methoprene is not a mutagen.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE [Based on (RS)-Methoprene Technical]

Hydrolysis: T1/2 > 4 weeks

Photolysis: T1/2 < 10 hours

Soil half life: ~ 10 days

< 2 ppm

Water solubility:

ECOTOXICITY [Based on (S)-Methoprene Technical]

Acute Toxicity: fish:LC50 (trout): 760 ppb, (bluegill): > 370 ppb ((S)-Methoprene); **aquatic invertebrates**:LC50 (Daphnia): 360 ppb ((S)-Methoprene.)

13. DISPOSAL CONSIDERATIONS

Wastes resulting from the use of this product may be disposed of on site or at an approved waste management facility. Triple rinse (or equivalent). Do not contaminate water when disposing of rinsate or equipment wash waters. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

DOT49CFR Description: Not regulated as hazardous by D.O.T.

Freight Classification: Insecticides, NOI other than poison in boxes or drums. NMFC 102120

15. REGULATORY INFORMATION

CERCLA (Superfund): Not regulated

RCRA: Not regulated as hazardous

SARA 311/312 HAZARD CATEGORIES

Immediate Health: Yes (irritation)

Delayed Health: No

Fire: No

Sudden Pressure: No

Reactivity: No

The information presented herein, while not guaranteed, was prepared by technically knowledgeable personnel and to the best of our knowledge is true and accurate. It is not intended to be all inclusive and the manner and conditions of use and handling may involve other or additional considerations.

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

RECEIVED
2003 JUL 23 AM 11: 09
070 Farmington, NM

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

5. Lease Designation and Serial No.: NM-013642
6. If Indian, Allottee or Tribe Name: NA
7. If Unit or CA, Agreement Designation: NA

1. Type of Well: [ ] Oil Well [ ] Gas Well [X] Other Evaporation Pond
8. Well Name and No.: Koch Evaportation Pond 2
2. Name of Operator: Koch Exploration Company, LLC.
9. API Well No.: NA
3. Address and Telephone No.: P.O. Box 489 Aztec, New Mexico 87410 (505) 334-9111
10. Field and Pool, or Exploratory Area: NA
4. Location of Well (Footage, Sec., T., R., M., or Survey Description): SE/4, NW/4, Section 26, T32N, R9W
11. County or Parish, State: San Juan County, New Mexico

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
[ ] Notice of Intent	[ ] Abandonment	[ ] Change of Plans
	[ ] Recompletion	[ ] New Construction
[X] Subsequent Report	[ ] Plugging Back	[ ] Non-Routine Fracturing
	[ ] Casing Repair	[ ] Water Shut-Off
[ ] Final Abandonment Notice	[ ] Altering Casing	[ ] Conversion to Injection
	[X] Other Re-seeded Site	[ ] Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Compelted Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

By verbal approval from Ray Sanchez, we ripped the site, placed straw and some gypsum, then disked and re-seeded site with BLM Special Mix on 7/19/03. Seed mix was Rick Arnold, greater than 10" mix. JE

ACCEPTED FOR RECORD

JAN 2 0 2004

FARMINGTON FIELD OFFICE
BY

I hereby certify that the foregoing is true and correct

Signed _____ Title District Superintendent Date 7/21/03
(This space for Federal or State office use)

Approved by _____ Title _____
Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes 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

NMOCD

HEROES AMONG US

Oct. 14, 2002

A Cowgirl's Cause

GOP stalwart Tweeti Blancett battles energy companies over the environment.

EMAIL THIS ARTICLE TO A FRIEND

"They've ruined so much," says Tweeti Blancett, surveying damage caused by contaminants from a gas well.
(Jeffrey Lowe)

Don't call Tweeti Blancett an environmentalist. For most of her adult life the flinty cattle rancher disdained those who wanted to run energy companies out of the rugged, resource-rich corner of northwestern New Mexico she calls home. "I'm a Republican and a capitalist," declares Blancett, 57, who campaigned for former oilmen George W. Bush and Dick Cheney during the 2000 presidential elections. "I'm not against oil and gas companies."

All Blancett wants is for such energy conglomerates as ConocoPhillips, El Paso Natural Gas and Burlington Resources to repair the damage she says they've caused to the high desert plateau her husband's family has ranched for eight generations. The companies -- which operate drilling sites near Blancett's hometown of Aztec, N.Mex. (pop. 7,300), on federal property that's also leased by locals as pasture -- say they are trying to safeguard land they share with ranchers. But Blancett claims their activities have wiped out vegetation, polluted water, killed livestock and caused financial hardship. "Enough is enough," says the grandmother of two, who has worked with environmental groups to force companies to restore drilled rangeland since June 2001. "They can afford to fix what they destroy."

MORE from the magazine:

- Demi Moore: 40 & Wow!
- Photo Gallery: Demi Moore
- Alexis Bledel: Happy Gilmore
- Where Are They Now?: Ronnie Burns, son of George Burns
- Heroes Among Us: The Spriggs

DON'T MISS:

- Heroes Among Us 2002
- CMA Awards 2002
- Where Are They Now? Special
- Emmys 2002
- Best and Worst Dressed 2002
- Fall Fashion Special
- *Sex and the City* Special
- Hollywood's Hottest Bachelors
- Celebrity Weddings
- Review of *The Truth About Charlie*
- Review of *Frida*
- Review of HBO's *Curb Your Enthusiasm*
- Review of The WB's *Birds of Prey*
- Review of Faith Hill's *Cry*

OTHER SITES:

- AOL Entertainment
- CNN.com
- EW.com
- InStyle.com
- Netscape.com
- TeenPeople.com
- Time.com

messageBOARD
Discuss the *magazine* stories on our boards

The companies say t[illegible]ranchers are compensated when property is harmed and their woes stem more from years of drought than drilling. "We're working on addressing problems," says Bob Gallagher, president of the New Mexico Oil & Gas Association. "But I don't think that we can solve them all in 12 months when it took 50 years to get those problems."

However long it takes, Blancett is in the fight for the long haul. The daughter of two civil servants, she was born Treciafaye Walser and grew up in Alamogordo, N.Mex. Tweeti (as she was nicknamed) met Linn Blancett, now 57, while studying to be a teacher at New Mexico State in Las Cruces, where he was an agricultural education major. The couple wed in 1965, and both graduated three years later. In 1968 the family -- including son Cole, now 34 and an engineer -- moved back to Linn's hometown of Aztec to run the 48,000-acre Blancett Ranches, a business dating to the 1800s.

NEXT: Waging a fight>

1 | 2

MORE from the magazine:

- Demi Moore: 40 & Wow!
- Photo Gallery: Demi Moore
- Alexis Bledel: Happy Gilmore
- Where Are They Now?: Ronnie Burns, son of George Burns
- Heroes Among Us: The Spriggs

DON'T MISS:

- Heroes Among Us 2002
- CMA Awards 2002
- Where Are They Now? Special
- Emmys 2002
- Best and Worst Dressed 2002
- Fall Fashion Special
- *Sex and the City* Special
- Hollywood's Hottest Bachelors
- Celebrity Weddings
- Review of *The Truth About Charlie*
- Review of *Frida*
- Review of HBO's *Curb Your Enthusiasm*
- Review of The WB's *Birds of Prey*
- Review of Faith Hill's *Cry*

OTHER SITES:

- AOL Entertainment
- CNN.com
- EW.com
- InStyle.com
- Netscape.com
- TeenPeople.com
- Time.com

message BOARD

Discuss the magazine stories on our boards

HEROES AMONG US

Oct. 14, 2002

A Cowgirl's Cause

EMAIL THIS ARTICLE TO A FRIEND

In '00 Blancett stumped with George Bush (left) and Sen. Pete Domenici (R-N.Mex.).
(Courtesy Tweeti Blancett)

At first Tweeti had no quarrel with energy companies, who have provided jobs in the local community. But over the past decade or so, she says, many became more concerned about turning a profit than respecting the land. Two years ago, she charges, Burlington Resources let salt-ridden water from a well leak onto her property for months and neglected to reseed after drilling, while another company, Koch Exploration, failed to respond to complaints about a saltwater disposal pit. (Burlington says it reseeded but that drought conditions killed the grass; Koch says Blancett's complaints are unjustified.) "They wanted a fight," she says. "They got one."

Infuriated, Blancett organized ranchers to join forces with environmentalists. The coalition began prodding the federal Bureau of Land Management to enforce regulations and punish polluters. In May, Blancett testified before Congress to oppose White House efforts to open more public land to drilling. "Tweeti is very politically connected," says Gwen Lachelt, who heads the Durango, Colo.-based Oil & Gas Accountability Project. "She commands respect in Washington."

Blancett's opponents say they are already working hard to police themselves. "There are companies that take shortcuts," says Gallagher. "But it's unfair to blame the entire industry. " Yet even they admire

her grit. "She can be a thorn in your side, but also a conscience," says John Zent, an executive at Burlington Resources. Fellow ranchers have been inspired by her example. "Squaring off against giant oil companies is nothing compared to trying to get ranchers to sit down with environmentalists," says cattleman Don Schreiber. "By God, she has done that."

Blancett knows the battle is just beginning. "We don't have the lobbying money those big oil companies have," she says. "But we have to keep fighting or there won't be any land for our children."

-- J.D. HEYMAN
-- ZELIE POLLON in Aztec

To read more amazing stories about ordinary people doing extraordinary things, check out our Heroes Among Us **special package.**

PREVIOUS
1 | 2

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

July 26, 2002

John Clark
Koch Exploration Company, LLC
610 S. Main Avenue
P.O. Box 489
Aztec, NM 87410
TEL: (505) 334-9111
FAX: (505) 334-1688

RE: Koch Pond #2 Stock Tank Order No.: 0207015

Dear John Clark,

On Site Technologies, LTD. received 1 sample on 07/09/2002 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

Alkalinity, Total (M2320 B)
Anions by Ion Chromatography (E300)
Hardness, Total (M2340 B)
ICP Metals, Dissolved (SW6010B)
pH (E150.1)
Resistivity (@ 25 deg. C) (M2510 C)
Salinity (M2520 B.)
Specific Gravity (M2710 F)
Total Dissolved Solids (CALC)
Total Dissolved Solids (E160.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Heidi R

Heidi Reese

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

On Site Technologies, LTD. **Date:** *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Project: Koch Pond #2 Stock Tank
Lab Order: 0207015

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition.
Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.
Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

Any quality control and/or data qualifiers associated with this laboratory order will be flagged in the analytical result page(s) or the quality control summary report(s).

Cation-Anion Balance; 0207015-01A: Koch Pond #2 Stock Pond
Total Cation-Anion = 6.26 meq/L
Difference Cation-Anion = 0.97 meq/L
% Difference = 15.4 %

P.O. BOX 2606 • FARMINGTON, NM 87499
EMAIL: ONSITE@ONSITELTD.COM

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: *26-Jul-02*

Client:	Koch Exploration Company, LLC	**Client Sample Info:**	Koch Stock Tank
Work Order:	0207015	**Client Sample ID:**	Pond #2
Lab ID:	0207015-01A **Matrix:** AQUEOUS	**Collection Date:**	07/09/2002 11:00:00 AM
Project:	Koch Pond #2 Stock Tank	**COC Record:**	12186

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **DJC**
Chloride	7.34	0.3		mg/L	5	07/11/2002
Sulfate	6.89	0.4		mg/L	5	07/11/2002
ICP METALS, DISSOLVED		**SW6010B**				Analyst: **DJC**
Calcium	17	0.1		mg/L	10	07/25/2002
Iron	1.6	0.12		mg/L	5	07/25/2002
Magnesium	3.2	0.07		mg/L	10	07/25/2002
Potassium	4.2	0.62		mg/L	10	07/25/2002
Sodium	55	0.18		mg/L	10	07/25/2002
ALKALINITY, TOTAL		**M2320 B**				Analyst: **HNR**
Alkalinity, Bicarbonate (As CaCO3)	140	5		mg/L CaCO3	1	07/15/2002
Alkalinity, Carbonate (As CaCO3)	ND	5		mg/L CaCO3	1	07/15/2002
Alkalinity, Hydroxide	ND	5		mg/L CaCO3	1	07/15/2002
Alkalinity, Total (As CaCO3)	140	5		mg/L CaCO3	1	07/15/2002
HARDNESS, TOTAL		**M2340 B**				Analyst: **HNR**
Hardness (As CaCO3)	56	1		mg/L	1	07/26/2002
PH		**E150.1**				Analyst: **HNR**
pH	7.4	2		pH units	1	07/10/2002
Temperature	26	0.		pH units	1	07/10/2002
RESISTIVITY (@ 25 DEG. C)		**M2510 C**				Analyst: **DJC**
Resistivity	36.1	0.001		ohm-m	1	07/12/2002
SALINITY		**M2520 B.**				Analyst: **HNR**
Salinity	ND	0.1		Sal	1	07/15/2002
SPECIFIC GRAVITY		**M2710 F**				Analyst: **HNR**
Specific Gravity	1.001	0.001			1	07/11/2002
TOTAL DISSOLVED SOLIDS		**E160.1**				Analyst: **HNR**
Total Dissolved Solids (Residue, Filterable)	480	40		mg/L	1	07/11/2002
TOTAL DISSOLVED SOLIDS		**CALC**				Analyst: **HNR**
Total Dissolved Solids (Calculated)	180	5		mg/L	1	07/26/2002

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted precision limits
E - Value above quantitation range
Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499
EMAIL: ONSITE@ONSITELTD.COM

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Method Blank

Sample ID: **MBlank** Batch ID: **API_0207014** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:
Client ID: **0207015** Run ID: **WET CHEM_020711C** SeqNo: **54219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	40									

Sample ID: **MBlank** Batch ID: **API_0207014** Test Code: **M2510 C** Units: **ohm-m** Analysis Date: **07/12/2002** Prep Date:
Client ID: **0207015** Run ID: **WET CHEM_020712A** SeqNo: **54226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Resistivity	ND	0.001									

Sample ID: **MBlank** Batch ID: **API_0207014** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **07/15/2002** Prep Date:
Client ID: **0207015** Run ID: **WET CHEM_020715A** SeqNo: **54233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	2.8	5									J
Alkalinity, Carbonate (As CaCO3)	ND	5									
Alkalinity, Hydroxide	ND	5									
Alkalinity, Total (As CaCO3)	2.8	5									J

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0207014-01AD** Batch ID: **API_0207014** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:
Client ID: **0207015** Run ID: **WET CHEM_020711C** SeqNo: **54222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	20350	40	0	0	0.0%	0	0	20080	1.3%	8	

Sample ID: **0207015-01AD** Batch ID: **API_0207014** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **07/15/2002** Prep Date:
Client ID: **Pond #2** **0207015** Run ID: **WET CHEM_020715A** SeqNo: **54239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	146	5	0	0	0.0%	0	0	145	0.7%	6	
Alkalinity, Carbonate (As CaCO3)	ND	5	0	0	0.0%	0	0	0	0.0%	20	
Alkalinity, Hydroxide	ND	5	0	0	0.0%	0	0	0	0.0%	20	
Alkalinity, Total (As CaCO3)	146	5	0	0	0.0%	0	0	145	0.7%	6	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Laboratory Control Spike - generic

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sample ID: **LCS** Batch ID: **API_0207014** Test Code: **E160.1** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:											
Client ID: **0207015** Run ID: **WET CHEM_020711C** SeqNo: **54220**											
Total Dissolved Solids (Residue, Filtera	1430	40	1540	0	92.9%	75	125				
Sample ID: **LCS 3049** Batch ID: **API_0207014** Test Code: **M2510 C** Units: **ohm-m** Analysis Date: **07/12/2002** Prep Date:											
Client ID: **0207015** Run ID: **WET CHEM_020712A** SeqNo: **54227**											
Resistivity	14.01	0.001	13.55	0	103.4%	90	110				
Sample ID: **LCS 3049** Batch ID: **API_0207014** Test Code: **M2320 B** Units: **mg/L CaCO3** Analysis Date: **07/15/2002** Prep Date:											
Client ID: **0207015** Run ID: **WET CHEM_020715A** SeqNo: **54234**											
Alkalinity, Total (As CaCO3)	185	5	185	2.8	98.5%	90	110				
Sample ID: **LCS 3054** Batch ID: **API_0207014** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/10/2002** Prep Date:											
Client ID: **0207015** Run ID: **WET CHEM_020710B** SeqNo: **54209**											
pH	7.21	2	7.3	0	98.8%	90	110				
Sample ID: **LCS 3054** Batch ID: **API_0207014** Test Code: **E150.1** Units: **pH units** Analysis Date: **07/10/2002** Prep Date:											
Client ID: **0207015** Run ID: **WET CHEM_020710B** SeqNo: **54214**											
pH	7.219	2	7.3	0	98.9%	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK_020711** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:

Client ID: **0207015** Run ID: **IC-761_020711A** SeqNo: **54185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.05									
Sulfate	ND	0.05									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Sample Duplicate

Sample ID: **0207015-01AD** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:

Client ID: **Pond #2** **0207015** Run ID: **IC-761_020711A** SeqNo: **54204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	7.18	0.25	0	0	0.0%	0	0	7.335	2.1%	5	
Sulfate	6.745	0.25	0	0	0.0%	0	0	6.89	2.1%	4	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0207015-01AMS** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:

Client ID: **Pond #2** **0207015** Run ID: **IC-761_020711A** SeqNo: **54205**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.003	0.05	2.581	1.467	98.3%	80	121				
Sulfate	3.905	0.05	2.581	1.378	97.9%	87	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS_020711** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:

Client ID: **0207015** Run ID: **IC-761_020711A** SeqNo: **54187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.373	0.05	2.419	0	98.1%	90	104				
Sulfate	2.476	0.05	2.419	0	102.4%	90	105				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1_020711** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:
Client ID: **0207015** Run ID: **IC-761_020711A** SeqNo: **54186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.833	0.05	4.941	0	97.8%	90	110				
Sulfate	4.885	0.05	4.941	0	98.9%	90	110				

Sample ID: **CCV2_020711** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:
Client ID: **0207015** Run ID: **IC-761_020711A** SeqNo: **54199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.824	0.05	4.941	0	97.6%	90	110				
Sulfate	4.865	0.05	4.941	0	98.5%	90	110				

Sample ID: **CCV3_020711** Batch ID: **IC-761_02071** Test Code: **E300** Units: **mg/L** Analysis Date: **07/11/2002** Prep Date:
Client ID: **0207015** Run ID: **IC-761_020711A** SeqNo: **54206**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.834	0.05	4.941	0	97.8%	90	110				
Sulfate	4.864	0.05	4.941	0	98.4%	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Method Blank

Sample ID: **MBLK_020717** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	0.01									
Magnesium	ND	0.007									
Potassium	ND	0.062									
Sodium	ND	0.018									

Sample ID: **MBLK_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.024									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **0207014-01AD** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	904.8	1	0	0	0.0%	0	0	880.9	2.7%	20	
Magnesium	283.2	0.7	0	0	0.0%	0	0	275.8	2.7%	20	
Potassium	476.8	6.2	0	0	0.0%	0	0	474.9	0.4%	20	
Sodium	3838	1.8	0	0	0.0%	0	0	3774	1.7%	20	

Sample ID: **0207014-01AD** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2672	2.4	0	0	0.0%	0	0				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Sample Matrix Spike

Sample ID: **0207014-02AMS** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9.164	0.01	1.003	8.108	105.3%	75	125				
Magnesium	3.798	0.007	1.039	2.666	108.8%	75	125				
Potassium	5.886	0.062	1.005	4.45	143.0%	75	125				S
Sodium	42.19	0.018	5.042	37.96	83.9%	75	125				

Sample ID: **0207014-02AMSD** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	9.194	0.01	1	8.108	108.7%	75	125	9.164	0.3%	20	
Magnesium	3.824	0.007	1.036	2.666	111.7%	75	125	3.798	0.7%	20	
Potassium	5.934	0.062	1.002	4.45	148.1%	75	125	5.886	0.8%	20	S
Sodium	42.4	0.018	5.028	37.96	88.2%	75	125	42.19	0.5%	20	

Sample ID: **0207014-02AMS** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	31.74	0.024	5.062	27.52	83.3%	75	125				

Sample ID: **0207014-02AMSD** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	31.74	0.024	5.204	27.52	81.0%	75	125	31.74	0.0%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS_020717** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:

Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	1.034	0.01	1.005	0	102.9%	75	125				
Magnesium	1.039	0.007	1.041	0	99.7%	75	125				
Potassium	.8423	0.062	1.007	0	83.6%	75	125				
Sodium	4.578	0.018	5.053	0	90.6%	75	125				

Sample ID: **LCSD_020717** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:

Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	.9989	0.01	1	0	99.9%	75	125	1.034	3.5%	20	
Magnesium	1.036	0.007	1.036	0	100.0%	75	125	1.039	0.2%	20	
Potassium	1.001	0.062	1.002	0	99.8%	75	125	0.8423	17.2%	20	
Sodium	5.032	0.018	5.029	0	100.1%	75	125	4.578	9.4%	20	

Sample ID: **LCS_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:

Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.294	0.024	1.177	0	110.0%	75	125				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT
Continuing Calibration Blank

Sample ID: **ccb1_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	.0049	0.01	0	0	0.0%	0	0				J
Magnesium	ND	0.007	0	0	0.0%	0	0				
Potassium	ND	0.062	0	0	0.0%	0	0				
Sodium	ND	0.018	0	0	0.0%	0	0				

Sample ID: **CCB2_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	.0022	0.01	0	0	0.0%	0	0				J
Magnesium	ND	0.007	0	0	0.0%	0	0				
Potassium	ND	0.062	0	0	0.0%	0	0				
Sodium	.0066	0.018	0	0	0.0%	0	0				J

Sample ID: **ccb1_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.024	0	0	0.0%	0	0				

Sample ID: **CCB2_0207025** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	0.024	0	0	0.0%	0	0				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55132**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5.01	0.01	5.053	0	99.2%	90	110				
Magnesium	4.996	0.007	5.053	0	98.9%	90	110				
Potassium	4.657	0.062	5.052	0	92.2%	90	110				
Sodium	10.52	0.018	10.7	0	98.4%	90	110				

Sample ID: **CCV2_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5.08	0.01	5.053	0	100.5%	90	110				
Magnesium	5.054	0.007	5.053	0	100.0%	90	110				
Potassium	4.598	0.062	5.052	0	91.0%	90	110				
Sodium	10.82	0.018	10.7	0	101.2%	90	110				

Sample ID: **CCV1_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.175	0.024	1.185	0	99.2%	90	110				

Sample ID: **CCV2_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.204	0.024	1.185	0	101.6%	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *26-Jul-02*

CLIENT: Koch Exploration Company, LLC
Work Order: 0207015
Project: Koch Pond #2 Stock Tank

QC SUMMARY REPORT

Initial Calibration Verification Standard

Sample ID: **ICV_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725A** SeqNo: **55133**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	2.415	0.01	2.227	0	108.4%	90	110				
Magnesium	2.48	0.007	2.271	0	109.2%	90	110				
Potassium	4.306	0.062	4.61	0	93.4%	90	110				
Sodium	2.493	0.018	2.305	0	108.2%	90	110				

Sample ID: **ICV_020725** Batch ID: **ICP_1_02072** Test Code: **SW6010B** Units: **mg/L** Analysis Date: **07/25/2002** Prep Date:
Client ID: **0207015** Run ID: **ICP_1_020725B** SeqNo: **55150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	6.155	0.024	5.805	0	106.0%	90	110				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

ON SITE TECHNOLOGIES, LTD.

CHAIN OF CUSTODY RECORD

12186

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: 7/9/02
Page: 1 of 1

Purchase Order No.:	Project No.	
SEND INVOICE TO	Name	
	Company	Dept.
	Address	
	City, State, Zip	

REPORT RESULTS TO	Name	Title
	Company	
	Mailing Address	
	City, State, Zip	
	Telephone No.	Telefax No.

PROJECT LOCATION: #7 KOCH POND STOCK TANK

SAMPLER'S SIGNATURE:

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	SAMPLE MATRIX	SAMPLE PRES.	Number of Containers	API	PH / EC / SALINITY								LAB ID
POND #7 STOCK TANK	7/9/02	1110	AQ	—	2	✓	✓								[illegible]

Relinquished by: [signature]	Date/Time 7-9-02	Received by: [signature]	Date/Time 7/9/02 1555
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time
Method of Shipment:		Rush / 24-48 Hours / 10 Working Days / By Date	

Authorized by: [signature] Date 7-9-02
(Client Signature Must Accompany Request)

Special Instructions / Remarks:

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

To Re-order Call 325-9600 or Fax 325-9764 alphaGraphics FORM # 01

Kieling, Martyne

From: Clark, John [Clark23J@kochind.com]
Sent: Friday, May 03, 2002 8:02 AM
To: 'Kieling, Martyne'
Subject: Koch Evaporation Pond #2

Pond Leak Detection.xls

Martyne, I am attaching the spreadsheet from the Pond #2 leak detection. We sucked the system out on Tuesday the 30th to 0". The system had 0" in it the next day and is at .5" this morning, the 3rd. The stock tank south of the evaporation pond continues to remain dry. If you have any questions, feel free to give me a call.

Thanks

John <<Pond Leak Detection.xls>>

Pond # 2 Leak Detection

	Top Gauge Automation	Bottom Gauge Automation	Top Gauge Hand	Bottom Gauge Hand	Gallons Pumped	
16-Apr	27"	6.7"	21"	11"	25	
17-Apr			19.5"	15"	10	
18-Apr	22.55"		18.5"	11"	20	
19-Apr			17.5"	5"	40	
20-Apr	10.13"	10"	6"			
21-Apr	10.69"		6.5"			
22-Apr	11.307"		7.5"			
23-Apr	11.556"	10"	8"	5"	10	
24-Apr	10"		5"			**Note: No change in level.**
25-Apr	10.138"		5.5"			
26-Apr	10.449"		5.75"			
27-Apr	10.86"		6.5"			
29-Apr	11.349"		7.5"			
30-Apr	11.59"	10"	8.5"	0"	10	Note: 10" on automation is as low as it can read.
1-May	10"		0"			
2-May	10"		.5"			
3-May	10"		.5"			

Note: Our pump was not capable of pumping the small amout of water in the leak detection below 11". There was not enough head pressure. On 4-19 we used a vacuum truck and lowered the leak detection to 5".

Koch Evaporation Pond #2
Permit NM-02-0001

April 10, 2002
Looking south at small stock pond.

April 10, 2002
Looking north at small stock pond. Koch pond #2 in background.

April 22, 2002
Looking north at small stock pond. Koch pond #2 in background.

March 26, 2002
Photo taken by OCD.
Looking north at small stock pond. Koch pond #2 in background.

KOCH EXPLORATION COMPANY, LLC
PO Box 489
Aztec, New Mexico 87410
(505) 334-9111

RECEIVED
MAY 0 1 2002
Environmental Bureau
Oil Conservation Division

April 29, 2002

Ms. Martyne Kieling
New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Koch Exploration Company, Permit NM-02-0001
Evaporation Pond #2
SE/4 NW/4 Section 26, Township 32 North, Range 9 West, NMPM,
San Juan County, New Mexico

Dear Ms. Kieling:

Enclosed, please find the water samples taken from Koch Evaporation Pond #2, and the stock tank south of the Pond #2. These samples were taken April 10, 2002. The water in the stock tank was about 2" deep, at the deepest, when the samples were taken.

I have also enclosed a picture of the stock tank, taken on April 22, 2002, showing about 5 gallons of water on the surface. Today, April 29th, the stock tank is dry, and you can walk across it without getting your feet wet.

I am also enclosing a copy of the leak detection report from Pond #2. We cannot pump the level below 11" with our pump, because there is not enough head pressure. For this reason, we used a vacuum truck to suck the level down. As you can see we have a very slow response time in the level rising. I believe the water is from sweating from between the 2 layers of liners, and from rainwater that has run in between the layers, at surface, over the years. The level is taken in an 8" plastic 90 at the bottom of the leak detection system, 21'10" below the top of the leak detection system pipe, making it nearly impossible to raise the small amount of water that high without losing the vacuum. The leak detection is scheduled to be sucked out on Tuesday the 30th, and at least weekly thereafter, as we have trucks in the area.

If you have any questions please call me at (505) 334-9111.

Respectfully,

John Clark
Production Superintendent

Taken 4-10-02

Kuck Evaporation - Pond #2
Nearby Stock tank.

Taken 4-10-02

Koch Evap: Pond #2

Near by Stock tank

Taken 4-22-02

Koch Evap Pond #2

Near by Stack tank

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

April 19, 2002

John Clark
Koch Exploration Company, LLC
610 S. Main Avenue
P.O. Box 489
Aztec, NM 87410
TEL: (505) 334-9111
FAX: (505) 334-1688

RE: Evaporation Pond #2 Order No.: 0204009

Dear John Clark,

On Site Technologies, LTD. received 2 samples on 04/10/2002 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

Alkalinity, Total (M2320 B)
Anions by Ion Chromatography (E300)
AQ-PREP SEP FUNNEL: 418.1/413.2 (SW3550)
Hardness, Total (M2340 B)
ICP Metals, Dissolved (SW6010B)
pH (E150.1)
Resistivity (@ 25 deg. C) (M2510 C)
Salinity (M2520 B.)
Specific Gravity (M2710 F)
Total Dissolved Solids (CALC)
Total Dissolved Solids (E160.1)
TPH, T/R (E418.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

David Cox

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

On Site Technologies, LTD. **Date:** *01-Apr-02*

CLIENT: Koch Exploration Company, LLC
Project: KOCH Exploration Ponds
Lab Order: 0203044

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

Any quality control and/or data qualifiers associated with this laboratory order will be flagged in the analytical result page(s) or the quality control summary report(s).

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

On Site Technologies, LTD. **Date:** *19-Apr-02*

CLIENT: Koch Exploration Company, LLC
Project: Evaporation Pond #2
Lab Order: 0204009

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition.
Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.
Standard Methods for the Examination of Water and Wastewater, 18th Edition, 1992.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

Any quality control and/or data qualifiers associated with this laboratory order will be flagged in the analytical result page(s) or the quality control summary report(s).

Cation-Anion Balance 0204009-01A; Water Sample Pond #2
Total Cation-Anion = 1461.23 meq/L
Difference Cation-Anion = 104.98 meq/L
% Difference = 7.2 %

Cation-Anion Balance 0204009-02A; Pond #2, Stock
Total Cation-Anion = 68.56 meq/L
Difference Cation-Anion = 4.76 meq/L
% Difference = 6.9 %

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: *19-Apr-02*

Client:	Koch Exploration Company, LLC	**Client Sample Info:**	Evaporation Pond #2
Work Order:	0204009	**Client Sample ID:**	Pond #2 Stock
Lab ID:	0204009-02A **Matrix:** AQUEOUS	**Collection Date:**	04/10/2002 1:00:00 PM
Project:	Evaporation Pond #2	**COC Record:**	11869

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **HNR**
Chloride	348	12.5		mg/L	250	04/19/2002
Sulfate	245	12.5		mg/L	250	04/19/2002
ICP METALS, DISSOLVED		**SW6010B**				Analyst: **DJC**
Calcium 317.933	8.55	0.5		mg/L	50	04/15/2002
Iron 259.939	0.32	0.12		mg/L	5	04/15/2002
Magnesium 285.213	4.05	0.35		mg/L	50	04/15/2002
Potassium 766.490	ND	3.1		mg/L	50	04/15/2002
Sodium 589.592	825	0.95		mg/L	50	04/15/2002
ALKALINITY, TOTAL		**M2320 B**				Analyst: **HNR**
Alkalinity, Bicarbonate (As CaCO3)	652	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Carbonate (As CaCO3)	378	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Hydroxide	ND	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Total (As CaCO3)	1030	5		mg/L CaCO3	1	04/15/2002
HARDNESS, TOTAL		**M2340 B**				Analyst: **HNR**
Hardness (As CaCO3)	38	1		mg/L	1	04/19/2002
PH		**E150.1**				Analyst: **HNR**
pH	9.34	2		pH units	1	04/11/2002
Temperature	23	0.		deg. C.	1	04/11/2002
RESISTIVITY (@ 25 DEG. C)		**M2510 C**				Analyst: **HNR**
Resistivity	2.958	0.001		ohm-m	1	04/15/2002
SALINITY		**M2520 B.**				Analyst: **HNR**
Salinity	1.7	1		Sal	1	04/19/2002
SPECIFIC GRAVITY		**M2710 F**				Analyst: **HNR**
Specific Gravity	1.004	0.001		Units	1	04/15/2002
TOTAL DISSOLVED SOLIDS		**E160.1**				Analyst: **HNR**
Total Dissolved Solids (Residue, Filterable)	2230	40		mg/L	1	04/15/2002
TOTAL DISSOLVED SOLIDS		**CALC**				Analyst: **HNR**
Total Dissolved Solids (Calculated)	2050	5		mg/L	1	04/19/2002
TPH, T/R		**E418.1**				Analyst: **DWC**
Petroleum Hydrocarbons, T/R	ND	1		mg/L	1	04/19/2002

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted precision limits
E - Value above quantitation range
Surr - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499
EMAIL: ONSITE@ONSITELTD.COM

- Technology Blending Industry with the Environment -

OFF: (505) 325-5667
FAX: (505) 327-1496

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556
FAX: (505) 327-1496

ANALYTICAL REPORT

Date: *19-Apr-02*

Client:	Koch Exploration Company, LLC	**Client Sample Info:**	Evaporation Pond #2
Work Order:	0204009	**Client Sample ID:**	Water Sample Pond #2
Lab ID:	0204009-01A **Matrix:** AQUEOUS	**Collection Date:**	04/10/2002 12:05:00 PM
Project:	Evaporation Pond #2	**COC Record:**	11869

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY		**E300**				Analyst: **HNR**
Chloride	3210	25.2		mg/L	505	04/19/2002
Sulfate	ND	1.25		mg/L	25	04/19/2002
ICP METALS, DISSOLVED		**SW6010B**				Analyst: **DJC**
Calcium 317.933	11.8	2		mg/L	200	04/15/2002
Iron 259.939	0.26	0.12		mg/L	5	04/15/2002
Magnesium 285.213	69.2	1.4		mg/L	200	04/15/2002
Potassium 766.490	65.8	12.4		mg/L	200	04/15/2002
Sodium 589.592	17820	3.8		mg/L	200	04/15/2002
ALKALINITY, TOTAL		**M2320 B**				Analyst: **HNR**
Alkalinity, Bicarbonate (As CaCO3)	14500	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Carbonate (As CaCO3)	21000	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Hydroxide	ND	5		mg/L CaCO3	1	04/15/2002
Alkalinity, Total (As CaCO3)	35600	5		mg/L CaCO3	1	04/15/2002
HARDNESS, TOTAL		**M2340 B**				Analyst: **HNR**
Hardness (As CaCO3)	314	1		mg/L	1	04/19/2002
PH		**E150.1**				Analyst: **HNR**
pH	9.55	2		pH units	1	04/11/2002
Temperature	22	0.		deg. C.	1	04/11/2002
RESISTIVITY (@ 25 DEG. C)		**M2510 C**				Analyst: **HNR**
Resistivity	0.219	0.001		ohm-m	1	04/15/2002
SALINITY		**M2520 B.**				Analyst: **HNR**
Salinity	29.7	1		Sal	1	04/19/2002
SPECIFIC GRAVITY		**M2710 F**				Analyst: **HNR**
Specific Gravity	1.044	0.001		Units	1	04/15/2002
TOTAL DISSOLVED SOLIDS		**E160.1**				Analyst: **HNR**
Total Dissolved Solids (Residue, Filterable)	44300	40		mg/L	1	04/15/2002
TOTAL DISSOLVED SOLIDS		**CALC**				Analyst: **HNR**
Total Dissolved Solids (Calculated)	42500	5		mg/L	1	04/19/2002
TPH, T/R		**E418.1**				Analyst: **DWC**
Petroleum Hydrocarbons, T/R	ND	1		mg/L	1	04/19/2002

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted precision limits
E - Value above quantitation range
Surr: - Surrogate

P.O. BOX 2606 • FARMINGTON, NM 87499
EMAIL: ONSITE@ONSITELTD.COM

- Technology Blending Industry with the Environment -

Pond # 2 Leak Detection

	Top Gauge Automation	Bottom Gauge Automation	Top Gauge Hand	Bottom Gauge Hand	Gallons Pumped	
16-Apr.	27"	6.7"	21"	11"	25	
17-Apr			19.5"	15"	10	
18-Apr	22.55"		18.5"	11"	20	
19-Apr			17.5"	5"	40	
20-Apr	10.13"	10"	6"			
21-Apr	10.69"		6.5"			
22-Apr	11.307"		7.5"			
23-Apr	11.556"	10"	8"	5"	10	
24-Apr	10"		5"			**Note: No change in level.**
25-Apr	10.138"		5.5"			
26-Apr	10.449"		5.75"			
27-Apr	10.86"		6.5"			
29-Apr	11.349"		7.5"			
30-Apr						

Note: Our pump was not capable of pumping the small amout of water in the leak detection below 11". There was not enough head pressure. On 4-19 we used a vacuum truck and lowered the leak detection to 5".

TRANSMITTAL COVER SHEET

OIL CONSERVATION DIVISION
1220 S. ST. FRANCIS DRIVE
SANTA FE, NM 87505
(505) 476-3440
(505)476-3462 (Fax)

PLEASE DELIVER THIS FAX:

TO: John Clark 505-334-1688

FROM: Martyne Kieling Ph. 505 476-3488

DATE: 4-10-02

PAGES: 1 of 3

SUBJECT: Koch Pond #2 Permit # NM-02-0001

IF YOU HAVE TROUBLE RECEIVING THIS FAX, PLEASE CALL THE OFFICE NUMBER ABOVE.

120 East Chaco
Aztec, New Mexico 87410

Karen L. Townsend

Attorney at Law
A PROFESSIONAL CORPORATION

Telephone - (505) 334-5750
Facsimile - (505) 334-5752

April 4, 2002

Via Facsimile
983-6043

Michael H. Feldewert
Holland & Hart, LLP and
Campbell and Carr
PO Box 2208
Santa Fe, NM 87501-6525

Re: Koch Exploration, Inc. v. Linn R. Blancett, et al.
No. CV 2001-768-3

Dear Mr. Feldewert:

Please be advised that more problems have arisen regarding the road in Township 32 North, Range 9 West, Section 27, presently leased to Koch Energy and the salt water evaporation facility located in Township 32 North, Range 9 West, Section 27.

It has come to my clients attention that the road is being used by other companies who do not have an access agreement for this piece of property. Please be advised that my clients will be limiting the use of the road to Koch Exploration, Inc. employees. I note that in your answer to my client's Counterclaim, you questioned my client's interest in the property, so I have attached a copy of the lease showing my clients have the right of use of this property.

I have also been informed that the salt water evaporation facility operated by Koch in Section 27 has been causing excessive contamination to the water supply. The salt water has leaked from the pit to a nearby reservoir contaminating drinking water for wildlife and livestock. Over-spray from the disposal has also killed and contaminated all vegetation within a five to ten acre area.

As a result of your clients contamination of the water supply, the Blancett's cattle have had to be moved and an alternate water supply provided. At this point, my clients must demand that water be in place for the cattle within the next ten (10) days at the Devil's Pocket Pasture.

As part of this procedure, my client will require payment of their expenses in moving the cattle to Devil's Pocket and plumbing and delivery for a water supply that is necessary for the cattle and wildlife. Delivery of potable water must continue at this site until the Blancett's remove their cattle in June.

In addition, my clients are demanding that Koch Exploration be responsible for cleaning up the existing salt water over-spray and the contaminants on the adjacent well sites. As part of this process, the surface soil and subsurface soil must be tested. Testing of the adjacent springs and reservoir for migration of the contamination must also be performed. My clients expect Koch Exploration, Inc. to immediately perform the necessary testing and clean up with copies of all findings and remediation provided to the Blancetts.

If we do not hear from you within the next then (10) days, we will proceed with a Motion for Temporary Restraining Order and Injunction to shut down the evaporation facility until these issues are addressed.

Very truly yours,

Karen L. Townsend

KLT/jeh
enclosure

cc: Ray Sanchez, Bureau of Land Management
1235 LaPlata Hwy.
Farmington, NM 87401

Frank Chavez, Oil Conservation Division
1000 Rio Bravo
Aztec, NM 87410

Linn and Tweeti Blancett

9310583

624

LEASE

THIS LEASE entered into this 16th day of August, 1993, by and between **RICHARD BLANCETT**, hereinafter "Lessor", and **LINN BLANCETT and TRECIAFAYE BLANCETT**, Trustees under Trust Agreement dated July 6, 1991, hereinafter "Lessee".

WITNESSETH:

1. Lessor hereby leases to Lessee and Lessee hereby leases from Lessor the property located at:

Township 30 North, Range 12 West

Section 13: SW1/4SE1/4 and the West 1076 feet of the SE1/4SE1/4

Section 24: NE1/4

Township 31 North, Range 9 West

Section 4: Lot 4

Section 5: Lots 1 and 2

Township 32 North, Range 9 West

Section 14: W1/2NE1/4, SE1/4NW1/4, NE1/4SW1/4

Section 22: SW1/4SW1/4

Section 27: N1/2NW1/4, SE1/4NW1/4, NW1/4NE1/4, S1/2NE1/4, NE1/4SW1/4

Section 33: SW1/4,NW1/4SE1/4

Aztec, New Mexico, hereinafter described and referred to as "premises".

2. Term: The term of this Lease shall extend for an indeterminent amount of time ending when the Lessor's life estate in the property terminates.

3. Rent: Lessee agrees to pay as rental during the term of this Lease the sum of $1.00 per year plus one-third (1/3) of any net profits received on the water disposal operation. Rent shall be paid at the end of each year.

624-A

4. Use of Premises: Lessee shall use the premises for agricultural purposes during the pendency of the Lease. Lessor understands and agrees that a pond or ponds will be built on the premises and Koch Energy, Inc. or other contractors will provide wastewater for irrigation. Lessor has the right to continue to use the premises for grazing/farming as long as the agricultural operation doesn't interfer with the water disposal operations.

5. Notices: All notices to be given to Lessor may be given in writing personally or by depositing the same in the United States Mail, postage prepaid and addressed to the Lessor at 278 CR 3000, Aztec, New Mexico, 87410, or such other address as Lessor may from time to time designate in writing. All notices to be given to Lessee may be given in writing personally or by depositing the same in the United States Mail, postage prepaid and addressed to the Lessee at P.O. Box 55, Aztec, New Mexico, 87410, or such other address as Lessee may from time to time designate in writing.

6. Bankruptcy: This Lease shall not be deemed as an asset of Lessee in or after adjudication in bankruptcy, the appointment of a receiver, or any assignment for or to the benefit of creditors.

7. Lessee's Default: In the event that:

A. Lessee shall default in the payment of any installment of rent or other sum herein specified and such default shall continue for 30 days after written notice thereof, or

B. Lessee shall default in the observance or performance of any other of Lessee's covenants, agreements or obligations hereunder and such default shall not be corrected within 30 days after written notice hereof, then Lessor shall have the right thereafter, if such default continues, to re-enter and take complete possession of the leased premises, according to law, to declare the term of this Lease ended and remove Lessee's effects, without prejudice to any remedies which might be otherwise used for arrears of rent or other default.

FILED OR RECORDED
BOOK 1167 PAGE 624
SAN JUAN COUNTY, NEW MEXICO
AUG 16 1993
AT 11:11 O'CLOCK A. M.
[signature]
COUNTY CLERK
DEPUTY [signature]
REC # 501634 FEES 11.00

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals effective as of the day and year first above written.

LESSOR

Richard Blancett
RICHARD BLANCETT

LESSEE

Linn Blancett
LINN BLANCETT, Trustee under Trust Agreement dated July 6, 1991

Treciafaye Blancett
TRECIAFAYE BLANCETT, Trustee under Trust Agreement dated July 6, 1991

STATE OF NEW MEXICO)
) ss.
COUNTY OF SAN JUAN)

The foregoing instrument was acknowledged before me this 16th day of August, 1993 by Richard Blancett.

Notary Public

My Commission Expires:
9-13-94

624-C

STATE OF NEW MEXICO)
) ss.
COUNTY OF SAN JUAN)

The foregoing instrument was acknowledged before me this 16 day of August, 1993 by Linn Blancett and Treciafaye Blancett, Trustees under Trust Agreement dated July 6, 1991.

Notary Public

My Commission Expires:
8-3-94

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

GARY E. JOHNSON
Governor
Jennifer A. Salisbury
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

October 11, 2000

Mr. Stan Bennett
Koch Exploration Company
P.O. Box 1478
Houston, TX 77251-9970

RE: OCD Rule 711 Permit Approval NM-02-0008 and NM-02-0001
Koch Exploration Company
Centralized Evaporation Pond # 1 and #2

Dear Mr. Bennett:

The New Mexico Oil Conservation Division received the permits with the Directors original signature by mistake. I am returning the original signature permits to you with a copy of your signature page. I am keeping your orignial signature page for our records.

If you have any questions please do not hesitate to contact me at (505) 827-7153.

Sincerely,

Martyne Kieling
Environmental Geologist

KOCH

KOCH EXPLORATION COMPANY

September 22, 2000

Ms Martyne J. Kieling
Environmental Geologist
New Mexico Oil Conversation Division
2040 S. Pacheco Street
Santa Fe, NM 87505

RE: OCD Rule 711 Permit Approval NM-02-0001 and NM-02-0008
Koch Exploration Company
Centralized Evaporation Pond #1 and #2
NE/4 NW/4 Sections 31, T32N-R8W (Pond 2)
SE/4 NW/4 Section 26, T32N-R9W (Pond 1)

Dear Ms Kieling:

Enclosed please find executed copies of the referenced permits. While Koch Exploration has executed the permits and agrees with the conditions, we are concerned with the condition to test the O_2 content of the pond water weekly, the initial permit required monthly testing. Since the ponds were placed in service Koch has taken monthly O_2 measurements and tested weekly for H_2S. During this time we have observed that the O_2 is within acceptable levels and have not detected any H_2S. With your permission we would like to ask for a waiver on weekly O^2 testing and to continue the current monthly O_2 testing as required in the initial permit.

We appreciate your attention to this request and look forward to your reply.

Sincerely,

G. S. Bennett
Chief Engineer

20 East Greenway Plaza ▪ Houston, Texas 77046-2002 ▪ 800/890-0205 ▪ FAX 713/544-6161

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

MEMORANDUM OF MEETING OR CONVERSATION

X Telephone ____ Personal Time 8:50 Date 8-29-00

Originating Party: MARTYNE KIELING

Other Parties: Don Johnson

Subject: Koch Pond #1 & #2

Discussion: Contact Person is Stan Bennett
P.O. Box 1478
Houston, TX 77251-9970

713-544-4562

Conclusions or Agreements

Distribution: Koch #1
Koch #2

Signed: Martyne J Kly

KOCH
INDUSTRIES INC
P.O. Box 489
Aztec, NM 87410

November 22, 1999

Oil Consersvation Division
1000 Rio Brazos RD
Aztec, NM 87410

ATTN: Mr. Denny Foust

RE: 1999 Yearly Pond Inspection & Water Analysis

Dear Mr. Foust:

Enclosed you will find water analysis from Pond #1 and Pond #2 for the year of 1999 that is required from us on a yearly basis. During our weekly inspections through out the year on both ponds we have not encountered any sick or dead birds or wildlife. If you would like to inspect our reports for each week on either or both of the ponds, they will be available upon request at the Koch Exploration Company's Aztec Office locatated at 610 South Main in Aztec.

If you have any questions or comments concerning these water analysis, please feel free to contact me at (505)-334-9111 or in my mobile phone at (505)-320-0819.

Sincerely,

Don Johnson
Operations Manager
Koch Exploration Company

cc: Roger Anderson
Oil Conservation Division
~~PO Box 2088~~ 2040 S. Pacheco
Santa Fe, NM 87505

mjk

iml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Date: 10/25/99

Client: Koch Exploration Co.

Lab ID: 0399W05060 - 61

Project: Pond 1 + Pond 2

Dear Client:

The samples were received for analysis at Inter-Mountain Laboratories (IML), Farmington, New Mexico. Enclosed are the results of these analyses.

Comment:

Analytical results were obtained by approved methods. Sample analyses were obtained within the method specific holding times. Practical Quantitation Limits (PQL's) are based on method requirements, and any dilutions necessary to maintain proper method response without matrix interference.

If you have any questions, please call me at (505) 326-4737.

William Lipps
IML-Farmington, NM

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street Farmington NM 87401

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Pond #2
Lab ID: 0399W05060
Matrix: Water
Condition: Cool/Intact

Date Received: 10/07/99
Date Reported: 10/22/99
Date Sampled: 10/07/99
Time Sampled: 1145

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
GENERAL PARAMETERS									
pH	9.4	s.u.			0.1	EPA 150.1	10/08/99	1410	JP
Electrical Conductivity	30,800	µmhos/cm			10	EPA 120.1	10/08/99	1410	JP
Solids - Total Dissolved	25,056	mg/L			10	EPA 160.1	10/13/99	0923	JP
Alkalinity	20,521	mg/L			1	EPA 310.1	10/12/99	0834	GD
Hardness	200	mg/L			0.2	Calculation	10/21/99	1100	BJ
MAJOR ANIONS									
Bicarbonate (HCO3)	13,200	mg/L	216	meq/L	1	EPA 310.1	10/12/99	0834	GD
Carbonate (CO3)	5,840	mg/L	194.53	meq/L	1	EPA 310.1	10/12/99	0834	GD
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	10/12/99	0834	GD
Chloride	2,240	mg/L	63.1	meq/L	1	EPA 300.0	10/21/99	0800	BJ
Sulfate	<5	mg/L	<0.01	meq/L	5	EPA 300.0	10/22/99	0800	BJ
MAJOR CATIONS									
Calcium	9.4	mg/L	0.47	meq/L	0.2	EPA 200.7	10/18/99	1233	WL
Magnesium	42.8	mg/L	3.52	meq/L	0.2	EPA 200.7	10/18/99	1233	WL
Potassium	37.5	mg/L	0.96	meq/L	0.2	EPA 200.7	10/18/99	1233	WL
Sodium	10,100	mg/L	441	meq/L	0.2	EPA 200.7	10/18/99	1233	WL
CATION / ANION BALANCE QC INFORMATION									
Anion Sum	474	meq/L	474	meq/L	0.1	Calculation	10/22/99	1430	BJ
Cation Sum	446.3	meq/L	446	meq/L	0.1	Calculation	10/22/99	1430	BJ
Cation/Anion Balance	2.96		2.96	%	N/A	N/A	10/22/99	1430	BJ

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.

Reviewed By: William Lipps

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Pond #2
Lab ID: 0399W05060
Matrix: Water
Condition: Cool/Intact

Date Received: 10/07/99
Date Reported: 10/22/99
Date Sampled: 10/07/99
Time Sampled: 1145

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Time	Init.
TPH - EPA Method 418.1								
Total Petroleum Hydrocarbons	<1	mg/L		1	EPA 418.1	10/22/99		SW

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.

Reviewed By: William Lipps

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Pond #1
Lab ID: 0399W05061
Matrix: Water
Condition: Cool/Intact

Date Received: 10/07/99
Date Reported: 10/22/99
Date Sampled: 10/07/99
Time Sampled: 1230

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
GENERAL PARAMETERS									
pH	9.4	s.u.			0.1	EPA 150.1	10/08/99	1410	JP
Electrical Conductivity	31,300	µmhos/cm			10	EPA 120.1	10/08/99	1410	JP
Solids - Total Dissolved	25,702	mg/L			10	EPA 160.1	10/13/99	0923	JP
Alkalinity	20,454	mg/L			1	EPA 310.1	10/12/99	0834	GD
Hardness	191	mg/L			0.2	Calculation	10/21/99	1100	BJ
MAJOR ANIONS									
Bicarbonate (HCO3)	13,100	mg/L	215	meq/L	1	EPA 310.1	10/12/99	0834	GD
Carbonate (CO3)	5,840	mg/L	194.53	meq/L	1	EPA 310.1	10/12/99	0834	GD
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	10/12/99	0834	GD
Chloride	2,590	mg/L	73.1	meq/L	1	EPA 300.0	10/21/99	0800	BJ
Sulfate	7.3	mg/L	0.15	meq/L	5	EPA 300.0	10/22/99	0800	BJ
MAJOR CATIONS									
Calcium	9.9	mg/L	0.49	meq/L	0.2	EPA 200.7	10/18/99	1235	WL
Magnesium	40.5	mg/L	3.33	meq/L	0.2	EPA 200.7	10/18/99	1235	WL
Potassium	38.9	mg/L	1.00	meq/L	0.2	EPA 200.7	10/18/99	1235	WL
Sodium	10,400	mg/L	451	meq/L	0.2	EPA 200.7	10/18/99	1235	WL
CATION / ANION BALANCE QC INFORMATION									
Anion Sum	482	meq/L	482	meq/L	0.1	Calculation	10/22/99	1430	BJ
Cation Sum	455.8	meq/L	456	meq/L	0.1	Calculation	10/22/99	1430	BJ
Cation/Anion Balance	2.82		2.82	%	N/A	N/A	10/22/99	1430	BJ

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.

Reviewed By: William Lipps

imL

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Pond #1
Lab ID: 0399W05061
Matrix: Water
Condition: Cool/Intact

Date Received: 10/07/99
Date Reported: 10/22/99
Date Sampled: 10/07/99
Time Sampled: 1230

Parameter	Analytical Result	Units	Units	PQL	Method	Analysis Date	Analysis Time	Analysis Init.
TPH - EPA Method 418.1								
Total Petroleum Hydrocarbons	<1	mg/L		1	EPA 418.1	10/22/99		SW

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.

Reviewed By: William Lipps

jml

Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Quality Assurance / Quality Control

Total Petroleum Hydrocarbons

Client:	**Koch**	Date Reported:	10/22/99
Project:	Pond 1 & Pond 2	Date Sampled:	10/07/99
Matrix:	Water	Date Received:	10/07/99
Condition:	Intact/Cool	Date Extracted:	10/22/99
		Date Analyzed:	10/22/99

Method Blank Analysis

Lab ID	Result	Units	Detection Limit
Method Blank	ND	mg/L	1.0

Spike Analysis

Lab ID	Found Conc. mg/L	Sample Conc. mg/L	Spike Amount mg/L	Percent Recovery	Acceptance Limits
MB	31	ND	25.0	125%	70-130%

Known Analysis

Lab ID	Found Conc. mg/L	Known Conc. mg/L	Percent Recovery	Acceptance Limits
QC	17.8	19.6	91%	70-130%

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW -846, rev.1, July 1992.

Reported By: _____ Reviewed By: _____

KOCH
INDUSTRIES INC
P.O. Box 489
Aztec, NM 87410

NOV 25

November 12, 1998

Oil Conservation Division
1000 Rio Brazos RD
Aztec, NM 87410

ATTN: Mr. Denny Foust

RE: 1998 Yearly Pond Inspection & Water Analysis

Dear Mr. Foust:

Enclosed you will find water analysis from Pond #1 and Pond #2 for the year of 1998 that is required from us on a yearly basis. During our weekly inspections through out the year on both ponds we have not encountered any sick or dead birds or wildlife. If you would like to inspect our reports for each week on either or both of the ponds, they will be available upon request at the Koch Exploration Company's Aztec Office locatated at 610 South Main in Aztec.

If you have any questions or comments concerning these water analysis, please feel free to contact me at (505)-334-9111 or in my mobile phone at (505)-320-0819.

Sincerely,

Don Johnson
Operations Manager
Koch Exploration Company

cc: Roger Anderson
Oil Conservation Division
PO Box 2088
Santa Fe, NM 87504

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CASE NARRATIVE

Date: Nov. 5, 1998

Client: Koch Exploration Co.

Lab ID: 0398W06013-14 No. of Samples: 2

Project: Pond 1 + Pond 2

Dear Client:

The samples were received for analysis at Inter-Mountain Laboratories (IML), Farmington, New Mexico. Enclosed are the results of these analyses.

Comment:

For the sample identified as Pond 2, the anion/cation balance exceeded the recommended maximum of 5%. Method specified reruns were made in order to check the results. The rerun results did not change significantly from the original analysis. The samples have high carbonate concentrations which make the recommended balance percentage difficult to achieve.

Analytical results were obtained by approved methods. Sample analyses were obtained within the method specified holding time. Practical Quantitation limits (PQL) were determined for each parameter for various matrices, and preparation dilutions. Quantitative results are reported on an "as received " basis for all matrices unless otherwise specified.

If you have any question, please call me at 1 (505) 326-4737.

Wes Harvey
Laboratory Director
IML-Farmington, NM

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER QUALITY REPORT

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Koch Pond #1
Lab ID: 0398W06013
Matrix: Water
Condition: Cool/Intact

Report Date: 11/05/98
Receipt Date: 10/13/98
Sample Date: 10/13/98

Parameter	Concentration	PQL	Method
GENERAL PARAMETERS			
pH	9.3 s.u.	0.1 s.u.	EPA 150.1
Electrical Conductivity	27000 µmhos/cm	10 µmhos/cm	EPA 120.1
Solids - Total Dissolved	22750 mg/L	10 mg/L	EPA 160.1
Alkalinity	16716 mg/L	1 mg/L	EPA 310.1
Hardness	154 mg/L	1 mg/L	EPA 130.2

MAJOR ANIONS				
Bicarbonate (HCO3)	11700 mg/L	191 meq/L	1 mg/L	EPA 310.1
Carbonate (CO3)	4290 mg/L	142.86 meq/L	1 mg/L	EPA 310.1
Hydroxide (OH)	<1 mg/L	0.00 meq/L	1 mg/L	EPA 310.1
Chloride	1600 mg/L	45.1 meq/L	1 mg/L	EPA 300.0
Sulfate	112.0 mg/L	2.33 meq/L	5 mg/L	EPA 300.0

MAJOR CATIONS				
Calcium	11.5 mg/L	0.57 meq/L	0.2 mg/L	EPA 200.7
Magnesium	30.4 mg/L	2.50 meq/L	0.2 mg/L	EPA 200.7
Potassium	27.5 mg/L	0.70 meq/L	0.2 mg/L	EPA 200.7
Sodium	7710 mg/L	335 meq/L	0.2 mg/L	EPA 200.7

CATION / ANION BALANCE QC INFORMATION				
Anion Sum	382 meq/L	382 meq/L	0.1 meq/L	Calculation
Cation Sum	339.1 meq/L	339 meq/L	0.1 meq/L	Calculation
Cation/Anion Balance	5.92 %	5.92 %	0.1 %	Calculation

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.

Reviewed By: _____

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER QUALITY REPORT

Client: Koch Exploration Co.
Project: Pond 1 + Pond 2
Sample ID: Koch Pond #2
Lab ID: 0398W06014
Matrix: Water
Condition: Cool/Intact

Report Date: 11/06/98
Receipt Date: 10/13/98
Sample Date: 10/13/98

Parameter	Concentration	PQL	Method
GENERAL PARAMETERS			
pH	9.3 s.u.	0.1 s.u.	EPA 150.1
Electrical Conductivity	28700 µmhos/cm	10 µmhos/cm	EPA 120.1
Solids - Total Dissolved	24742 mg/L	10 mg/L	EPA 160.1
Alkalinity	19723 mg/L	1 mg/L	EPA 310.1
Hardness	149 mg/L	1 mg/L	EPA 130.2

MAJOR ANIONS				
Bicarbonate (HCO3)	13600 mg/L	224 meq/L	1 mg/L	EPA 310.1
Carbonate (CO3)	5120 mg/L	170.77 meq/L	1 mg/L	EPA 310.1
Hydroxide (OH)	<1 mg/L	0.00 meq/L	1 mg/L	EPA 310.1
Chloride	1750 mg/L	49.3 meq/L	1 mg/L	EPA 300.0
Sulfate	7.0 mg/L	0.15 meq/L	5 mg/L	EPA 300.0

MAJOR CATIONS				
Calcium	5.6 mg/L	0.28 meq/L	0.2 mg/L	EPA 200.7
Magnesium	32.6 mg/L	2.69 meq/L	0.2 mg/L	EPA 200.7
Potassium	29.1 mg/L	0.74 meq/L	0.2 mg/L	EPA 200.7
Sodium	7960 mg/L	346 meq/L	0.2 mg/L	EPA 200.7

CATION / ANION BALANCE QC INFORMATION				
Anion Sum	445 meq/L	445 meq/L	0.1 meq/L	Calculation
Cation Sum	350.0 meq/L	350 meq/L	0.1 meq/L	Calculation
Cation/Anion Balance	11.95	11.95 %	N/A	N/A

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes (MCAWW)" - EPA/600/4-79-020 - March, 1983.
EPA - "Methods for the Determination of Metals in Environmental Samples" - Supplement I - 600/R-94-111 - May, 1994.

Reviewed By: _____

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Client:	**Koch Exploration**	Date Reported:	10/23/98
Project:	Koch Pond #1 & #2	Date Sampled:	10/13/98
Matrix:	Water	Date Received:	10/13/98
Condition:	Intact/Cool	Date Extracted:	10/22/98
		Date Analyzed:	10/23/98

Sample ID	Lab ID	Result mg/L	Detection Limit mg/L
Pond #1	0398G06013	**ND**	1.0
Pond #2	0398G06014	**ND**	1.0

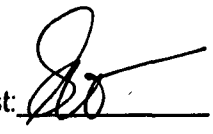
ND - Analyte not detected at stated detection level.

Method 418.1:

Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510:

Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Analyst: 

Reviewed: 

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Assurance / Quality Control
Total Petroleum Hydrocarbons

Client:	**Koch Exploration**	Date Reported:	10/23/98
Project:	Koch Pond #1 & #2	Date Sampled:	10/13/98
Matrix:	Water	Date Received:	10/13/98
Condition:	Intact/Cool	Date Extracted:	10/22/98
		Date Analyzed:	10/23/98

Method Blank Analysis

Lab ID	Result	Units	Detection Limit
Method Blank	ND	mg/L	20.0

Spike Analysis

Lab ID	Found Conc. mg/L	Sample Conc. mg/L	Spike Amount mg/L	Percent Recovery	Acceptance Limits
MB	46	ND	52.5	87%	70-130%

Known Analysis

Lab ID	Found Conc. mg/L	Known Conc. mg/L	Percent Recovery	Acceptance Limits
QC	18.8	26.0	72%	70-130%

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3550: *Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds* from Solids, USEPA SW -846, rev.1, July 1992.

Reported By: _____ Reveiwed By: _____

KOCH INDUSTRIES INC
Koch Exploration Company
P.O. Box 489
Aztec, New Mexico 87410
Phone: (505) 334-9111

July 23, 1998

Martyne J. Kieling
Environmental Geologist
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division
2050 South Pacheco Street
Santa Fe, New Mexico 87505

RE: 711 Centralized Waste Management Facility Inspection Response
Koch Exploration Company, Koch #2 Evaporation Pond
NE/4 NW/4 of Section 26, Township 32 North, Range 9 West, NMPM
San Juan County, New Mexico

Dear Ms. Kieling:

In response to your inspection of the Koch Exploration Company (Koch #2) waste management facility evaporation pond #2 on June 12, 1997. Attachment 1 is in response to the permit deficiencies found at Koch #2 during the inspection and the new Rule 711 requirements that are not on file. Attachment 2 contains photographs taken upon completion of required work

Pursuant to Order R-10411-B the OCD General Rule 711 revision, we have included the new financial assurance forms, and a permit application, Form C-137 are also attached.

All necessary forms and responses to deficiencies found at Koch #2 during the facility inspection are attached, to meet re-permitting requirements under the new Rule 711.

If you have questions or need additional information for re-permitting this facility, please feel free to contact me at (505) 334-9111.

Sincerely,

Don Johnson
Operations Manager
Koch Exploration Company

attachments
cc: Oil Conservation Division
1000 Rio Brazos RD
Aztec, NM 87410

ATTACHMENT 1
INSPECTION REPORT RESPONSE
KOCH EXPLORATION COMPANY, KOCH #2
(NE/4 NW/4 of Section 26, Township 32 North, Range 9 West, NMPM)
SAN JUAN COUNTY, NEW MEXICO

1. Pond Freeboard: Liner markings or some other device shall be installed to accurately measure freeboard. Pond freeboard shall be a minimum one and a half (1 ½) feet below the top of the lowest point on the levee. The pond must be maintained below freeboard level at all times.

   Freeboard markers accurately measure the two foot (2') freeboard height (see picture #5). Freeboard is now marked with 5" lettering.

2. Pond Levee: The top of the levee shall be level, ponding of water should not occur, and the outside grade of the levee should be maintained to minimize erosion and maintain proper levee width.

   The levee top has been smoothed out, and t-posts installed to prevent trucks from driving on liner in the future (see picture #1).

3. Leak Detection System: The top of the leak detection monitor well must be above the top of the levee. The monitor well should be covered. In addition, the leak detection monitor well shall be inspected weekly.

   The evaporation pond leak detection system shall be inspected weekly, and maintained in good working order.

4. Sludge Build-up: Any sludge build-up in the bottom of the pond in excess of twelve inches (12") will be removed and disposed of at an OCD approved disposal facility.

   Sludge thickness was measured in six (6) randomly selected areas. Using a thief off bottom of pond, we experienced no sign of sediment in any of the samples. We will continue to monitor sludge build-up periodically.

5. Security: The facility shall be secured when no attendant is present, to present any unauthorized dumping. Securing the facility may include locks on tank valves, a perimeter fence and locked gate or other similar security measures.

   Facility has a perimeter fence and locking gate, no action necessary at this time.

6. Signs: The facility shall have a sign in a conspicuous place at the facility. The sign shall be maintained in legible condition and shall be legible from at least fifty (50) feet and contain the following information: a) name of facility, b) location by quarter-quarter section, township and range, and c) emergency phone number.

   The facility has clearly labeled sign posted within view. This sign will be monitored and maintained as needed.

7. Drum Storage: All drums containing materials other than fresh water must be stored on an impermeable pad with curbing. All empty drums should be stored on their sides with the bungs in and lined up on a horizontal plane. Chemicals in other containers such as sacks or buckets should also be stored on an impermeable pad and curb type containment.

   There are no drums or containers stored on site.

8. Process Area: All process and maintenance areas which show evidence that leaks and spills are reaching the ground surface must be either paved and curbed or have some type of spill collection device incorporated into the design.

   Overall yard maintenance practices at the facility were good, no action necessary at this time.

9. Above Ground Tanks: All above ground tanks which contain fluids other than fresh water must be bermed to contain a volume of one-third more than the total volume of the largest tank or of all interconnected tanks. All new facilities or modifications to existing facilities must place the tank on an impermeable type pad within the berm so that leaks can be identified.

   The berms around the above ground tanks have been repaired to establish any over flow of tanks directly into pond (see pictures 1, 2, 3, and 4). The emergency containment is directed into the evaporation pond (see pictures 1 and 4).

10. Open Top Tanks and Pits: To protect migratory birds, all tanks exceeding 16 feet in diameter, and exposed pits and ponds shall be screened, netted, covered or otherwise rendered nonhazardous to migratory birds. In addition, OCD Rule 310 prohibits oil from being stored or retained in earthen reservoir, or in open receptacles.

    The evaporation pond did not contain any oil at time of inspection, and has not in the past. Netting is not required on the evaporation pond as long as it is kept oil free. Koch will continue to regularly monitor the evaporation pond for any oil or hazardous materials.

11. Above Ground Saddle Tanks: Above ground saddle tanks must have impermeable pad and curb type containment unless they contain fresh water or fluids that are gases at atmospheric temperature and pressure.

    There are no saddle tanks at this facility.

12. Tank Labeling: All tanks, drums and containers should be clearly labeled to identify their contents and other emergency information necessary if the tank were to rupture, spill or ignite.

    Hazard placards have been placed on all above ground tanks (see picture #3). Labeling, taken from MSDS sheet is as follows:

Produced Water	
Health	**0**
Reactivity	**0**
Flammability	**0**
Personal Protective Equipment	**B**

13. Below Grade Tanks/Sumps: All below grade tanks, sumps, and pits must be approved by the OCD prior to installation or upon modification and must incorporate secondary containment and leak-

detection into the design. All pre-existing sumps and below grade tanks must demonstrate integrity on an annual basis. Integrity tests include pressure testing and/or visual inspection of cleaned out tanks or sumps, or other OCD approved methods.

There are no below grade tanks, pits or sumps at any tank valves. All valve catchment barrels are above ground.

14. Underground Process/Wastewater Lines: All underground process/wastewater pipelines must be tested to demonstrate their mechanical integrity at present and then every 5 years thereafter. Companies may propose various methods for testing such as pressure testing or other OCD approved methods.

    There are no underground/process wastewater lines at this facility. The only underground line is for pump suction, which is above pond freeboard. Should the integrity of this line fail, the pond pump will shut it's self off.

15. Housekeeping: All systems designed for spill collection/prevention should be inspected frequently to ensure proper operation and to prevent overtopping or system failure.

    The facility tanks were clean with no overtopping stains. Overall yard maintenance and spill prevention/cleanup was good. No action necessary at this time.

16. Trash and Potentially Hazardous Materials: All trash and potentially hazardous materials should be properly disposed of.

    There is no trash at the facility. The facility will continue to be maintained in a trash and potentially hazardous materials free area.

17. Spill Reporting: All spills/releases shall be reported pursuant to OCD Rule 116 and WQCC 1203 to the appropriate OCD District Office.

    There were no spills evident at this facility. Should a spill occur it will be reported under the guidelines of OCD Rule 116 and WQCC 1203 to the appropriate OCD District Office.

18. Naturally Occurring Radioactive Material (NORM): All generators submitting waste to a New Mexico Oil Conservation Division Permitted Commercial or Centralized 711 Waste Management Facility must include a Naturally Occurring Radioactive Material status declaration. The generator must declare that the waste was tested for Naturally Occurring Radioactive Material (NORM) and does not contain NORM at regulated levels pursuant to 20 NMAC 3.1 Subpart 1403.C and D.

    NORM declaration is attached to OCD form C-137, Application For Waste Management Facility.

    Pursuant to 20 NMAC 3.1 Subpart 1403.E, "Produced water is exempt from the requirements of these regulations if it is ...stored or disposed in a double, synthetically lined surface impoundment permitted by the Division".

19. Produced Water Well Locations: Produced water from all well production locations that supply water to the evaporation pond shall be listed according to name and legal location.

20. Application Requirements for Permit Under the New Rule 711: An application, Form C-137, for a permit renewal shall be filed in DUPLICATE with the Santa Fe Office of the Division and ONE COPY with the appropriate OCD district office. The application shall comply with Division guidelines and shall include:

(a) The names and addresses of the applicant and all principal officers of the business if different from the applicant;

See enclosed C-137 application.

(b) A plat and topographic map showing the location of the facility in relation to governmental surveys (¼ ¼ section, township, and range), highways or roads giving access to the facility site, watercourses, water sources, and dwellings within one (1) mile of the site;

This is already on file with the OCD.

(c) The names and addresses of the surface owners of the real property on which the management facility is sited and surface owners of the real property of record within one mile of the site;

This is already on file with the OCD.

(d) A description of the facility with a diagram indicating location of fences and cattle guards, and detailed construction/installation diagrams of any pits, liner, dikes, piping, sprayers, and tanks on the facility;

This is already on file with the OCD.

(e) A plan for management of approved wastes;

This is already on file with the OCD.

(f) A contingency plan for reporting a cleanup of spills or releases;

This is attached to form C-137, Application For Waste Management Facility.

(g) A routine inspection and maintenance plan to ensure permit compliance;

This is attached to form C-137, Application For Waste Management Facility.

(h) A Hydrogen Sulfide (H2S) Prevention and Contingency Plan to protect public health;

This is already on file with the OCD.

(i) A closure plan including a cost estimate sufficient to close the facility to protect public health and the environment; said estimate to be based upon the use of equipment normally available to a third party contractor;

This is attached to form C-137, Application For Waste Management Facility.

(j) Geological/hydrologic evidence, including depth to and quality of groundwater beneath the site, demonstrating that disposal of oil field wastes will not adversely impact fresh water.

This is already on file with the OCD.

(k) Certification by an authorized representative of the applicant that information submitted in the application is true, accurate and complete to the best of the applicant's knowledge.

See form C-137, Application For Waste Management Facility.

District I - (505) 393-6161
P. O. Box 1980
Hobbs, NM 88241-1980
District II - (505) 748-1283
811 S. First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Aztec, NM 87410
District IV - (505) 827-7131

New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

RECEIVED
JUL 23 1998
Environmental Bureau
Oil Conservation Division

Form C-137
Originated 8/8/95

Submit Original
Plus 1 Copy
to Santa Fe
1 Copy to appropriate
District Office

APPLICATION FOR WASTE MANAGEMENT FACILITY

(Refer to the OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

1. Type: ☒ Evaporation ☐ Injection ☐ Other
   ☐ Solids/Landfarm ☐ Treating Plant
2. Operator: Koch Exploration Company
   Address: 610 S. Main ST / P.O. Box 489 Aztec, NM 87410
   Contact Person: Don Johnson Phone: (505) 334-9111
3. Location: NE /4 NW /4 Section 31 Township 32 North Range 8 West
   Submit large scale topographic map showing exact location
4. Is this a modification of an existing facility? ☐ Yes ☒ No
5. Attach the name and address of the landowner of the facility site and landowners of record within one mile of the site.
   already on file
6. Attach description of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.
   already on file
7. Attach designs prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations systems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.
   already on file
8. Attach a contingency plan for reporting and clean-up for spills or releases.
9. Attach a routine inspection and maintenance plan to ensure permit compliance.
10. Attach a closure plan.
11. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact groundwater. Depth to and quality of ground water must be included.
    already on file
12. Attach proof that the notice requirements of OCD Rule 711 have been met.
    already on file
13. Attach a contingency plan in the event of a release of H_2S.
    already on file
14. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and orders.
15. CERTIFICATION

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

Name: Don Johnson Title: Operations Manager

Signature: Don Johnson Date: 7/27/98

KOCH INDUSTRIES INC
Koch Exploration Company
P.O. Box 489
Aztec, New Mexico 87410
Phone: (505) 334-9111

FACILITIES THAT DISPOSE OF WATER INTO POND #2

Blancett Com C-1	Unit A Sec. 27, T-32-N, R-9-W
Gardner C-1	Unit M Sec. 35, T-32-N, R-9-W
Gardner C-5	Unit L Sec. 26, T-32-N, R-9-W
Gardner C-7	Unit G Sec. 26, T-32-N, R-9-W

Water Spill Contingency Plan

for

KOCH INDUSTRIES INC

Koch Exploration Company
P.O. Box 489
Aztec, New Mexico 87410
Phone: (505) 334-9111

There are 2 Evaporation Ponds in San Juan County, New Mexico that are operated by Koch Exploration Company. The following Names and Numbers should be used in case of a Spill, which Names and Numbers will depend on the circumstances. Koch Exploration does not operate or own any equipment of our own that could be utilized in the event of a spill.

Governmental Agencies:

1. New Mexico Oil Conservation Commission: (505)-334-6178
2. Bureau of Land Management (BLM): (505)-599-8900

Clean up Equipment and Personnel:

1. Vacuum Trucks:
   a. Triple S Trucking: (505)-331-6193
   b. Sunco Trucking: (505)-327-0416
   c. Dawn Trucking: (505)-327-6314
2. Roustabout Services:
   a. Sunland Construction (505) 334-4350
   b. Foutz & Bursum: (505) 325-3712
   c. Flint Engineering: (505)-325-5081
   d. Cimmarron Oilfield Service: (505) -327-5049
3. Dirt Moving Equipment:
   a. Bill Moss Excavation: (505)-334-9093
   b. Sunland Construction (505) 334-4350
   c. Rosenbaum Construction: (505)-325-6367
   d. Adobe Construction: (505)-632-1486
   e. Aztec Excavation (505) 334-4020

Koch Exploration Company Employees: Aztec Office: (505)-334-9111

Employee Name	Home Phone	Mobile Phone	Pager
1. Don Johnson (Operations Manager)	(505)-334-3252	(505)-320-0819	(505)-324-2788
2. John Clark (Pumper)	(505)-334-6235	(505)-320-7799	
3. Ken Cagle (Pumper)	(505)-632-1505	(505)-320-1018	
4. Glen Hise (Contract Pumper)	(505)-334-9856	(505)-599-8074	
5. Stan Bennett (Main Office Wichita,KS)	(316)-828-5242 or (Houston Office) (713) 544-4562		

Routine Inspection and Maintenance Plan

for

KOCH INDUSTRIES INC

Koch Exploration Company

Evaporation Pond #2

P.O. Box 489

Aztec, New Mexico 87410

Phone: (505) 334-9111

Koch will:

1. Weekly monitor leak detection. Records for such inspections will be made and kept on file for two (2) years from the date of record. If fluids are found in the sump the following steps will be immediately undertaken.
    a. Koch will notify the OCD Aztec Office within twenty-four (24) hours of discovery.
    b. The fluids will be sampled and analyzed to determine the source.
    c. The fluids will be immediately and continuously removed from the sump. Such fluids may be returned to the pond.

    If a leak is determined to exist in the primary liner, Koch will immediately undertake the following:
    a. Introduction of fluids in the pond will cease.
    b. Enhanced evaporation will commence, provided atmosphere conditions are such that the spray systems can be operated in accordance with the provisions of this permit.
    c. Fluids will be removed from the pond utilizing evaporation and transportation to another authorized facility, until the fluid level is below the location of the leak in the liner.
    d. The liner will be repaired and tested and the leak detection system will be completely drained before resuming introduction of fluids into the pond.

2. Conduct weekly tests for ambient H2S levels. Tests will be made at varying locations around the pond levee. The wind speed and direction will be recorded in conjunction with each test.

    If an H2S reading of 0.1 ppm or greater is obtained:
    a. A second reading will be taken on the down wind berm within one hour.
    b. The dissolved oxygen and dissolved sulfide levels of the pond will be tested immediately and the need for immediate treatment determined
    c. Tests for H2S levels will be made at the fence line, downwind from the pond.

    If 2 consecutive H2S readings of 0.1 ppm or greater are obtained:
    a. Koch will notify the OCD Aztec Office immediately.
    b. Koch will commence hourly monitoring on a 24-hour basis.

c. Koch will obtain daily analysis of dissolved sulfides in the pond.
d. Koch will implement the approved treatment plan so as to reduce dissolved sulfides in the pond and eliminate H2S emissions.

If an H2S reading of 10.0 ppm or greater at the facility fence line is obtained:

a. Koch will immediately notify the OCD Aztec and Santa Fe Offices and the following public safety agencies:

New Mexico State Police	(505) 325-7547
San Juan County Sheriff Dept.	(505) 334-6622
Fire Marshall	(505) 334-4500

b. Koch will initiate notification of all persons residing within one-half (1/2) mile of the fence line and assist public safety officials with evacuation as requested,

3. Conduct monthly tests to determine the dissolved oxygen levels. The sample for each test will be taken one foot from the bottom of the pond and the location of each test will vary around the pond. The OCD Aztec Office will be notified immediately if any test shows a dissolved residual oxygen level of less than 0.5 ppm. Test records will be available in the Koch Exploration Aztec Office for review.

4. Monitor pond levee after precipitation events, to maintain level, prevent ponding of water, to minimize erosion, and maintain proper width.

5. Periodically measure any sludge build-up in the bottom of the pond. Any build-up in excess of twelve (12) inches will be removed and disposed of at an OCD approved disposal facility.

6. Routinely inspect, and maintain berms around the above ground tanks.

7. Regularly inspect the tank separation system to ensure it is working properly, and no contaminants are entering the pond.

KOCH INDUSTRIES INC
Koch Exploration Company
P.O. Box 489
Aztec, New Mexico 87410
Phone: (505) 334-9111

Naturally Occurring Radioactive Material (NORM) Status Declaration For Evaporation Pond #2

Koch Exploration had the following sites tested for NORM in October, 1997. Each of these sites discharge produced water into the Koch Evaporation Pond #2, and do not contain NORM at regulated levels pursuant to 20 NMAC 3.1 Subpart 1403.C and D. The Evaporation Pond was not tested, as produced water stored or disposed in a double, synthetically lined surface impoundment permitted by the OCD, is exempt from NORM regulations.

Well Name	Background NORM	Highest NORM	Above Background
Blancett Com C-1	14 μR/Hr	20 μR/Hr	6 μR/Hr
Gardner C-1	13 μR/Hr	13 μR/Hr	0 μR/Hr
Gardner C-5	14 μR/Hr	16 μR/Hr	2 μR/Hr
Gardner C-7	15 μR/Hr	18 μR/Hr	3 μR/Hr

X _____

Don Johnson, Operations Manager
Koch Exploration Company
Aztec, New Mexico

Closure Plan

for

KOCH INDUSTRIES INC

Koch Exploration Company
Evaporation Pond #2
P.O. Box 489
Aztec, New Mexico 87410
Phone: (505) 334-9111

Upon Koch's decision to close it's Evaporation Pond # 2, notice will be given to OCD. Closure and waste disposal will then be completed in accordance with the statues rules and regulations in effect at the time of closure.

Koch will:

1. Cease discharge of waters into the site, and begin removal of all fluids and/or wastes.

   Assuming the Pond is at maximum level (freeboard), based on the Koch Evaporation Pond #2's last 12 months experience and anticipated rainfall, it will take approximately 3 years to evaporate the pond's capacity. This **does not** include trucking any water from the Pond.

2. Remove, the plastic liner, all operating equipment, and structures from the site.

3. Clean up any contaminated soils and/or waters pursuant to OCD approval, fill the pond, and level the site.

4. Re-seeded the area with natural grasses and allow it to return to it's natural state.

The approximate cost for dirt remediation of this facility is $18,000.00.

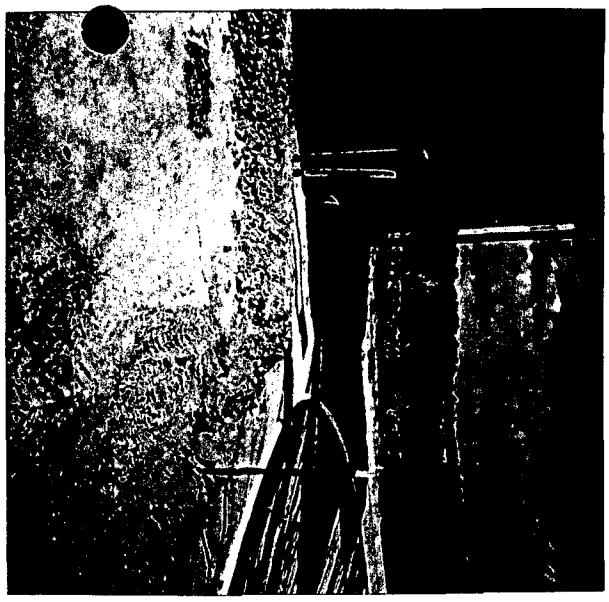
ATTACHMENT 2

KOCH #2 711 APPLICATION

(PHOTOS BY KOCH)

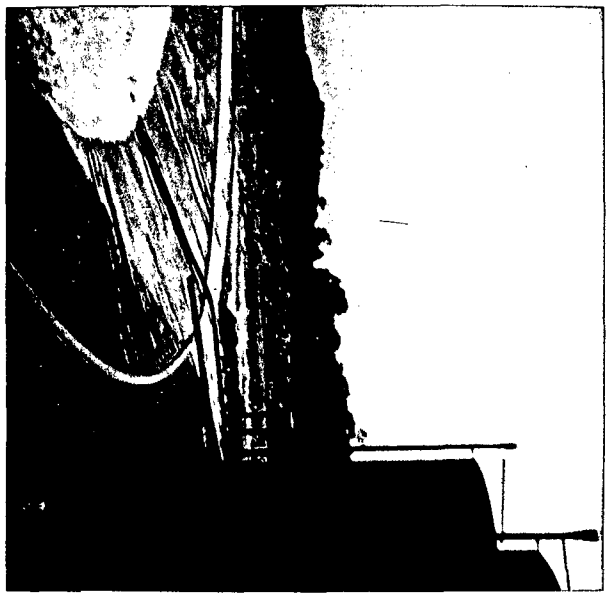
Pond #2

(2)



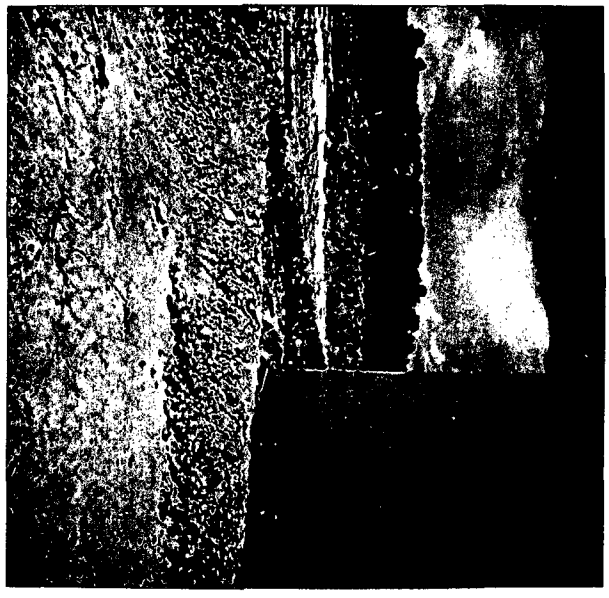
Pond #2

(4)



Pond #2

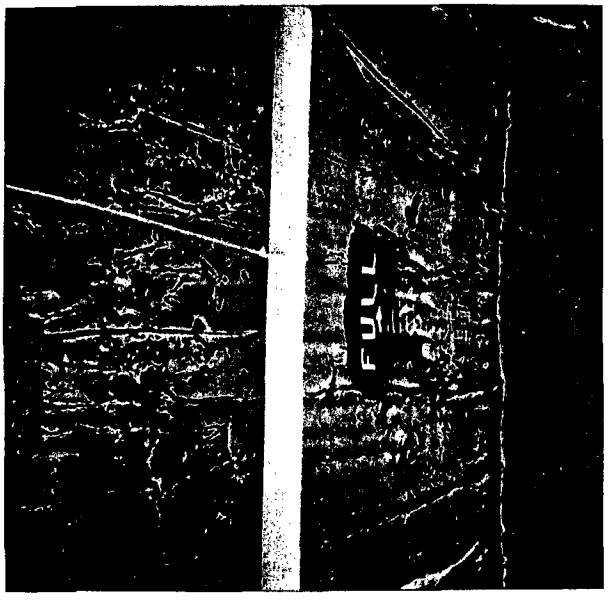
(1)



Pond #2

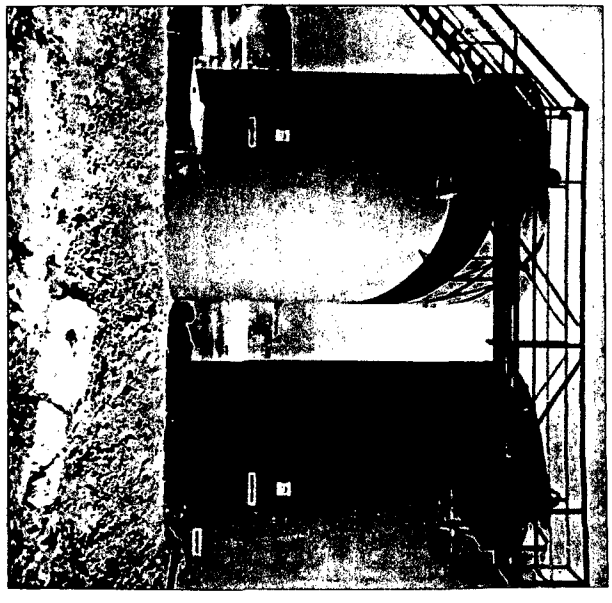
5" letters

(5)



Pond #2

(3)



KOCH
INDUSTRIES INC
P.O. Box 489
Aztec, NM 87410

January 15, 1998

Oil Consersvation Division
1000 Rio Brazos RD
Aztec, NM 87410

ATTN: Mr. Denny Foust

RE: 1997 Yearly Pond Inspection & Water Analysis

Dear Mr. Foust:

Enclosed you will find water analysis from Pond #1 and Pond #2 for the year of 1997 that is required from us on a yearly basis. During our weekly inspections through out the year on both ponds we have not encountered any sick or dead birds or wildlife. If you would like to inspect our reports for each week on either or both of the ponds, they will be available upon request at the Koch Exploration Company's Aztec Office locatated at 610 South Main in Aztec.

If you have any questions or comments concerning these water analysis, please feel free to contact me at (505)-334-9111 or in my mobile phone at (505)-320-0819.

Sincerely,

Don Johnson
Operations Manager
Koch Exploration Company

cc: Roger Anderson
Oil Conservation Division
~~PO Box 2088~~
Santa Fe, NM 87505

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Sheridan, WY -- Gillette, WY -- Farmington, NM -- College Station, TX -- Bozeman, MT

***** PACKING SLIP ***** 1644 PAGE: 1

INTER-MOUNTAIN LABORATORIES, INC.
P.O. BOX 4006
SHERIDAN, WY

(307) 674-7506

Koch Exploration Co.
P.O. Box 489

Aztec NM 87410

INVOICE NUMBER: 1644
INVOICE DATE: 11/07/97
LAB LOCATION: 0003
2506 West Main Street
Farmington, NM 87401

CUSTOMER NO: 030000669 IN
Customer P.O. :

TERMS: NET 30
Attn: Don Johnson:

SALES CD	DESCRIPTION	QUANTITY	PRICE	AMOUNT
	COC#01-50580, Pond #1&2 Rcd:10/21/97 Lab#0397 W02463-2464 COC#01-50585 Rcd: 10/22/97 Lab#0397 G02482-2483 PS# 1644			
200530	Cation Anion Balance	2.00	75.00	150.00
301300	TPH-Method 418.1	2.00	55.00	110.00
900060	Sales Tax 6%	1.00	15.44	15.44

Balances past due are subject to a late payment charge of 1.5% or $2.00 minimum per month.

NET INVOICE: 275.44

RInvoice.frx 950130

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Koch Exploration Company

Case Narrative

On October 22, 1997, two water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received cool and intact. Analysis for Total Petroleum Hydrocarbons (TPH) was performed on the samples as per the accompanying Chain of Custody document # 50585.

The samples were extracted by Method 3510, "Separatory Funnel Liquid - Liquid Extraction", with 1,1,2-trichloro 1,2,2-trifluoroethane (Freon) as the extraction solvent. Analysis was by Method 418.1, "Total Recoverable Petroleum Hydrocarbons", using a Beckman Acculab 10 Infrared Spectro-photometer.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analysis of the samples reported herein are found in Test Methods for Evaluation of Solid Waste, SW-846, USEPA, 1986 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1983.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Inter·Mountain Laboratories, Inc.

2506 \ Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
EPA METHOD 418.1

Client: **Koch Exploration Company**
Project: Pond #1 & 2
Matrix: Water
Condition: Intact/Cool

Date Reported: 11/06/97
Date Sampled: 10/21/97
Date Received: 10/22/97
Date Extracted: 11/04/97
Date Analyzed: 11/04/97

Sample ID	Lab ID	Result mg/L	Detection Limit mg/L
Pond #1 P1	0397G02482	ND	1.0
Pond #2 P2	0397G02483	ND	1.0

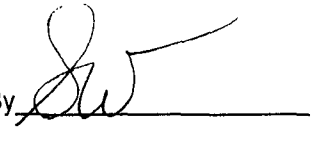
ND - Analyte not detected at stated detection level.

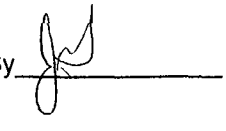
Method 418.1:

Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of Water and Waste, 1978.

Method 3510:

Separatory Funnel Liquid - Liquid Extraction, USEPA SW-846, Test Methods for Evaluating Solid Waste, Rev. 1, July 1992.

Reported By 

Reveiwed By 

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Assurance / Quality Control

Total Petroleum Hydrocarbons

Client:	**Koch Exploration Company**	Date Reported:	11/06/97
Project:	Pond #1 & 2	Date Sampled:	10/21/97
Matrix:	Water	Date Received:	10/22/97
Condition:	Intact/Cool	Date Extracted:	11/04/97
		Date Analyzed:	11/04/97

Method Blank Analysis

Lab ID	Result	Units	Detection Limit
Method Blank	ND	mg/L	1

Spike Analysis

Lab ID	Found Conc. mg/L	Sample Conc. mg/L	Spike Amount mg/L	Percent Recovery	Acceptance Limits
MB	434	ND	500	87%	70-130%

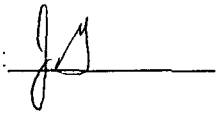
Known Analysis

Lab ID	Found Conc. mg/L	Known Conc. mg/L	Percent Recovery	Acceptance Limits
QC	28.9	25.2	115%	70-130%

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of *water and waste*, 1978.

Method 3550: Ultrasonic extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW -846, rev.1, July 1992.

Reported By: 

Reveiwed By: 

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client: Koch Exploration Co.
Project: Cation/anion
Sample ID: Pond #2
Lab ID: 0397W02463
Matrix: *Water*
Condition: Cool/Intact

Date Received: 10/21/97
Date Reported: 11/03/97
Date Sampled: 10/20/97
Time Sampled: 1540

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
GENERAL PARAMETERS									
pH	9.3	s.u.			0.1	EPA 150.1	10/21/97	1630	AP
Electrical Conductivity	27,300	µmhos/cm			10	EPA 120.1	10/21/97	1630	AP
Solids - Total Dissolved	20,680	mg/L			10	EPA 160.1	10/22/97	0940	KA
Alkalinity	17,144	mg/L			1	EPA 310.1	10/27/97	1218	BJ
Hardness	147	mg/L			0.2	Calculation	11/03/97	1315	JG
MAJOR ANIONS									
Bicarbonate (HCO3)	13,000	mg/L	213	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Carbonate (CO3)	3,890	mg/L	129.73	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Chloride	1,300	mg/L	36.7	meq/L	1	EPA 300.0	10/28/97	0915	AP
Sulfate	<5	mg/L	<0.01	meq/L	5	EPA 300.0	11/01/97	1400	AP
MAJOR CATIONS									
Calcium	6.1	mg/L	0.30	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Magnesium	32.1	mg/L	2.64	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Potassium	28.1	mg/L	0.72	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Sodium	9,030	mg/L	393	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
CATION / ANION BALANCE QC INFORMATION									
Anion Sum			380	meq/L	N/A	Calculation	11/03/97	1315	JG
Cation Sum			397	meq/L	N/A	Calculation	11/03/97	1315	JG
Cation/Anion Balance			2.19	%	N/A	Calculation	11/03/97	1315	JG

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: John Green

John Green, Water Lab Supervisor

Inter·Mountain Laboratories, Inc.

2506 W Main Street
Farmington, New Mexico 87401

Client: Koch Exploration Co.
Project: Cation/anion
Sample ID: Pond #1
Lab ID: 0397W02472
Matrix: Water
Condition: Cool/Intact

Date Received: 10/21/97
Date Reported: 11/03/97
Date Sampled: 10/20/97
Time Sampled: 1610

Parameter	Analytical Result	Units		Units	PQL	Method	Analysis Date	Time	Init.
GENERAL PARAMETERS									
pH	9.2	s.u.			0.1	EPA 150.1	10/21/97	1630	AP
Electrical Conductivity	25,000	*µmhos/cm*			10	EPA 120.1	10/21/97	1630	AP
Solids - Total Dissolved	14,884	mg/L			10	EPA 160.1	10/22/97	0940	KA
Alkalinity	15,005	mg/L			1	EPA 310.1	10/27/97	1218	BJ
Hardness	97	mg/L			1	Calculation	11/03/97	1315	JG
MAJOR ANIONS									
Bicarbonate (HCO3)	13,000	mg/L	213	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Carbonate (CO3)	2,610	mg/L	87.15	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Hydroxide (OH)	<1	mg/L	<0.01	meq/L	1	EPA 310.1	10/27/97	1218	BJ
Chloride	1,300	mg/L	36.8	meq/L	1	EPA 300.0	10/28/97	0915	AP
Sulfate	<5	mg/L	<0.01	meq/L	5	EPA 300.0	11/01/97	1400	AP
MAJOR CATIONS									
Calcium	<0.2	mg/L	<0.01	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Magnesium	23.4	mg/L	1.93	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Potassium	22.3	mg/L	0.57	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
Sodium	7,900	mg/L	343	meq/L	0.2	EPA 200.7	10/28/97	2358	ST
CATION / ANION BALANCE QC INFORMATION									
Anion Sum			337	meq/L	N/A	Calculation	11/03/97	1315	JG
Cation Sum			346	meq/L	N/A	Calculation	11/03/97	1315	JG
Cation/Anion Balance			1.33	%	N/A	Calculation	11/03/97	1315	JG

Reference: EPA - "Methods for Chemical Analysis of Water and Wastes", United States Environmental Protection Agency, EPA 600/4-79-020, Revised March, 1983.

Reviewed By: John Green

John Green, Water Lab Supervisor

NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. Pacheco
Santa Fe, New Mexico 87505

August 23, 1995

CERTIFIED MAIL
RETURN RECEIPT NO.P-176-012-176

Mr. Don Johnson
Koch Exploration Company
PO Box 489
Farmington, New Mexico 87410

RE: Koch Exploration Co. Evaporation Ponds #1 and #2
San Juan County, New Mexico

Dear Mr. Johnson:

The New Mexico Oil Conservation Division (OCD) has received Koch Exploration Company's (Koch) request, dated August 7, 1995, to modify the referenced facilities by installing drip lines six inches below the top of the lined berms for enhanced evaporation at the facilities.

The request is hereby approved with the following conditions:

1. The original permitted free-board (2') will remain the same.

2. The design of the enhanced evaporation system will not allow liquids to leave the confines of the ponds.

Please be advised this approval does not relieve Koch of liability should their operation result in pollution of ground water, surface water or the environment. In addition, OCD approval does not relieve Koch of responsibility for compliance with other federal, state and/or local regulations.

If you have any questions don't hesitate to call me at (505) 827-7153.

Sincerely,

Chris Eustice
Geologist

cc: OCD Aztec Office, Denny Foust

Koch Exploration Company
P.O. Box 489
Aztec, NM 87410
505-334-9111

July 2, 1995

Mr. Chris Eustice
NMOCD
2040 S. Pacheco
Sante Fe, NM 87505

Re: Proposed Expansion of
Centralized Koch Evaporation Ponds #1 and #2
San Juan County, New Mexico

Dear Mr. Eustice,

As Foreman for Koch Exploration Company, I respectfully request the approval of an enhanced evaporation system at both the Centralized Koch Ponds #1 and #2, so as to utilize the heat generated from the black XR5 liner material for evaporation purposes. (SEE ATTACHED DRAWING)

There are two (2) reasons for installing this drip enhanced evaporation system. 1.) To utilize the heat from the black liner material for evaporation purposes. 2.) To circulate water at the dead end of the ponds to help stimulate the oxygen level and keeping water from becoming stagnant.

The PVC line will be pre-drilled at 6" centers with the 4" PVC (schedule 40)on the end with pump having 1/8" holes and the 3" PVC (schedule 40) lines on both sides having 1/4" holes. Both ends of the 3" PVC will be open ended so as to keep and pressure from building in pipe and to help circulate the far end of pond. We plan on installing the pipe 6" from top of dike to utilize the greatest potential of liner possible.

The drip system will only be utilized when the first three (3) automated valves are open due to wind speed, which open most frequently, with the remaining 6 bypass valves discharging back into ponds. We don't want to hook up any more bypass valves due to volumes when all 9 valves are open at one time.

Your prompt reply to my request will be greatly appreciated. Construction will begin when approval is received. Please direct any correspondence to Koch Exploration Company , P.O. Box 489, Aztec, NM 87410, ATTN: Don Johnson, or feel free to call me with any questions at 505-334-9111.

Thank You.

Sincerely,

Don Johnson
Foreman
Koch Exploration Company

cc: Mike Scates, Koch Exploration Company
Denny Fousts, NMOCD Aztec
Don Elsworth, BLM Farmington

Chris Eustice

From: Chris Eustice
To: Frank Chavez
Cc: Denny Foust
Subject: Koch Exploration Centralized Evaporation Pond #2
Date: Thursday, March 23, 1995 6:28PM
Priority: High

Pleas review the proposed letter of approval for the above referenced facility. I feel the operator has provided an application that is administratively approvable.

Provide any technical concerns you may have to me in writing by 4PM Friday, March 24, 1995.

Thank you gentleman. < <File Attachment: PERMIT-2.APP> >

Chris Eustice

From: Denny Foust
Date sent: Friday, March 24, 1995 7:06AM
To: Chris Eustice
Subject: Registered: Denny Foust

Your message
To: Denny Foust
Subject: Koch Exploration Centralized Evaporation Pond #2
Date: Thursday, March 23, 1995 6:28PM
was accessed on
Date: Friday, March 24, 1995 7:06AM

Chris Eustice

From: Frank Chavez
Date sent: Friday, March 24, 1995 7:07AM
To: Chris Eustice
Subject: Registered: Frank Chavez

Your message
To: Frank Chavez
Subject: Koch Exploration Centralized Evaporation Pond #2
Date: Thursday, March 23, 1995 6:28PM
was accessed on
Date: Friday, March 24, 1995 7:07AM

AFFIDAVIT OF PUBLICATION

No. 34449

STATE OF NEW MEXICO
County of San Juan:

ROBERT LOVETT being duly sworn says: That he is the Classified Manager of THE DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice was published in a regular and entire issue of the said DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for publication on the following day(s):

Wednesday, March 1, 1995

and the cost of publication was: $59.49

Robert Lovett

On 3/2/95 ROBERT LOVETT appeared before me, whom I know personally to be the person who signed the above document.

Mary G. Snead

My Commission Expires March 21, 1998.

COPY OF PUBLICATION

Legals

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

Notice is hereby given that pursuant to the New Mexico Oil Conservation Division Regulations, the following application has been submitted to the Director of the Oil Conservation Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(NM-711-2-0001) Koch Exploration Company, Michael Scates, Administrative Manager, P.O. Box 2256, Wichita, Kansas, 67220, has submitted for approval an application to construct and operate a Rule 711 centralized evaporation pond located in the SE/4 NW/4 of Section 26, Township 32 North, Range 9 West, NMPM, San Juan County, New Mexico. Produced water associated with oil and gas production will be disposed of in a lined pond for evaporation. The applicant proposes to construct the pond with two layers of impermeable synthetic liner to prevent leaching to the subsurface. A leak detection system will be installed between the two layers to monitor the integrity of the primary synthetic liner. The permit application addresses the construction, operations, spill/leak prevention and monitoring procedures to be incorporated at the proposed site. The ground water most likely to be affected by an accidental release is at a depth of 110 feet with a total dissolved solids concentration of approximately 325 parts per million.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday through Friday. Prior to ruling on any proposed application, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the director determines that there is significant public interest.

continued on next column

Legals

If no hearing is held, the Director will approve or disapprove the application based on the information available. If a public hearing is held, the Director will approve the applications based on the information in the application and information presented at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 21st day of February, 1995.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

/s/ William J. LeMay
WILLIAM J. LEMAY, Director

SEAL

Legal No. 34449 published in The Daily Times, Farmington, New Mexico, Wednesday, March 1, 1995.

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

Notice is hereby given that pursuant to the New Mexico Oil Conservation Division Regulations, the following application has been submitted to the Director of the Oil Conservation Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505, Telephone (505) 827-7131:

(NM-711-2-0001) Koch Exploration Company, Michael Scates, Administrative Manager, P.O. Box 2256, Wichita, Kansas, 67220, has submitted for approval an application to construct and operate a Rule 711 centralized evaporation pond located in the SE/4 NW/4 of Section 26, Township 32 North, Range 9 West, NMPM, San Juan County, New Mexico. Produced water associated with oil and gas production will be disposed of in a lined pond for evaporation. The applicant proposes to construct the pond with two layers of impermeable synthetic liner to prevent leaching to the subsurface. A leak detection system will be installed between the two layers to monitor the integrity of the primary synthetic liner. The permit application addresses the construction, operations, spill/leak prevention and monitoring procedures to be incorporated at the proposed site. The ground water most likely to be affected by an accidental release is at a depth of 110 feet with a total dissolved solids concentration of approximately 325 parts per million.

Any interested person may obtain further information from the Oil Conservation Division and may submit written comments to the Director of the Oil Conservation Division at the address given above. The application may be viewed at the above address between 8:00 a.m. and 4:00 p.m., Monday thru Friday. Prior to ruling on any proposed application, the Director of the Oil Conservation Division shall allow at least thirty (30) days after the date of publication of this notice during which comments may be submitted to him and public hearing may be requested by any interested person. Request for public hearing shall set forth the reasons why a hearing shall be held. A hearing will be held if the director determines that there is significant public interest.

If no hearing is held, the Director will approve or disapprove the application based on the information available. If a public hearing is held, the Director will approve the applications based on the information in the application and information presented at the hearing.

GIVEN under the Seal of New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 21st day of February, 1995.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

SEAL

WILLIAM J. LEMAY, Director

FLF

FRANK LINER FABRICATIONS, INC.

P.O. Box 308 • Farmington, NM 87499 • (505) 327-7660

Pond Lining
& Roofing

February 22,1995

Mr. Roger Anderson
N. M. Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Subject: Centralized Koch Pond No 2
Sec 26-T32N-R9W
San Juan County, NM

Dear Roger,

On behalf of Koch Exploration Co. (Koch), as their consultant, I respectfully request permission to utilize produced water for constructing the dikes on the subject pond. Koch would like to change the designed freeboard of 1.5' to 2'. This will be consistent with the permit of pond No. 1.

The water to be utilized will be from Koch's own coal wells in the immediate area. The water will be from those wells that this pond will service. Water analyses from these four wells were submitted with the original application dated January 11, 1995.

If necessary to supplement the water supply, produced water from Koch's other coal wells and Evaporation Pond Nol. will be utilized. Those other wells are the Garner 2-C, Gardner 3-C, Gardner 4-C and Gardner 6-C. The evaporation pond accepts only water from the four above refernced wells. As the water in this pond has not gone through a yearly cycle of evaporation the salinity of the water in the pond will be a composite of the four wells. Attached please find water analyses for these four wells. The water analyses for these supplemental wells is very similar to the the primary wells.

I request permission to utilize produced water for several reasons:

1) Sufficient quantities of local fresh water are not readily available to this site. Fresh water would have to be trucked in at considerable expense.

2) The pH of the produced water is mildly alkaline, as is the soil from which the pond will be constructed.

FLF
Pond Lining
& Roofing

3) The water used to compact the soil will only be utilized in sufficient quantities, so as to obtain optimum moisture content. Once the in-situ clay material is wetted with the produced water, that water will be bound in place by chemical and capillary actions. There will be no migration of produced water.

4) The water utilized for compaction will be applied in such a manner as to prevent ponding and run-off.

5) Positive drainage will provided around the outside perimeter of the pond. With positive drainage around the pond, the pond dikes will not be subjected to any leaching, other than that rain or snow which falls directly on the dikes. In this semi-arid climate there will be little or no leaching.

It is my opinion that there will be no threat to fresh water supplies, human health or the environment by allowing Koch to utilize this produced water in construction of the pond.

Your prompt reply to my request will be greatly appreciated. Please direct any correspondence to Koch Exploration Co., or myself.

Thank you.

Very truly yours,

Robert C. Frank

Robert C. Frank
Geologist

cc: M. Scates, Koch Exploration Co.
D. Johnson, Koch Exploration Co.
NMOCD Aztec
D. Ellsworth, BLM, Farmington

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401

(505) 325-1085

Lab Sample No.: W93-35

Standard A.P.I. Water Analysis Report

Collected By: Don Jonneon

Company: Koch Exploration Co.

Collection Date: 2-Feb-93

Location: NE 1/4; Sec.31-T32-R8

Collection Time: Unknown

Formation: Fruitland Coal

County: San Juan State: NM

Well Name: Gardner 2-C

Analyst: K. Lambdin

Remarks: none

PARAMETER	as ION		Comment
Sodium , Na	4,400	mg/l	
Potassium, K	0	mg/l	NR
Calcium , Ca	80	mg/l	TH as Ca
Magnesium , Mg	0	mg/l	NR
Iron , Fe(Diss.)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	7.85	Units	
TDS	11,680	mg/l	

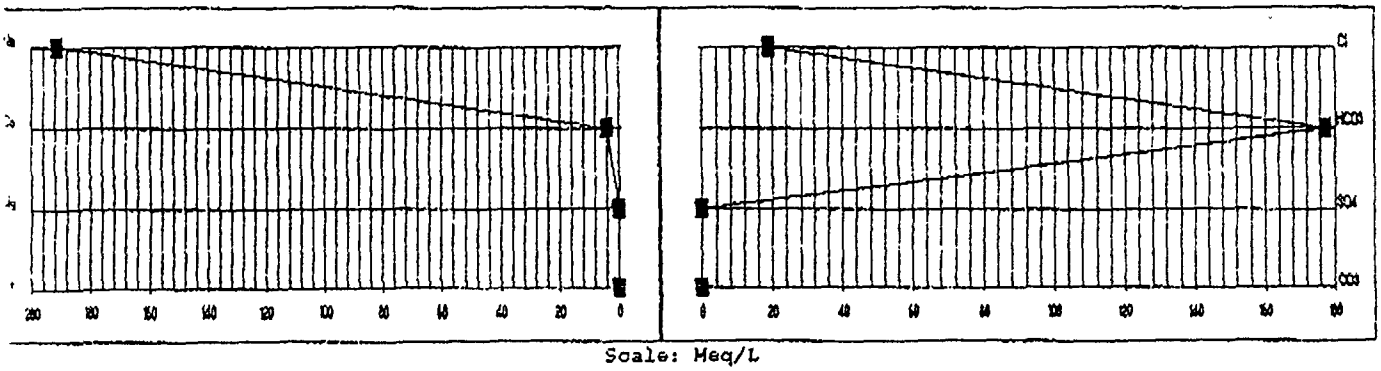
PARAMETER	as ION		Comment
Chloride , Cl	675	mg/l	
Sulfate, SO4	0	mg/l	<10
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate,HCO3	10,821	mg/l	
Resistivity (@25 Degrees C)	0.678	ohm-m	
Conductivity	14,760	uS	
Specific Gravity (@ 60 Degrees F)	1.018	Units	

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run Fe and H2S .

NR = Test Not Run

Anion/Cation: 100.6%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-36

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co. Collection Date: 2-Feb-93

Location: SW 1/4 Sec.31-T32-R8 Collection Time: Unknown

Formation: Fruitland Coal County: San Juan State: NM

Well Name: Gardner 3-C Analyst: K. Lambdin Karen C Lambdin

Remarks: none

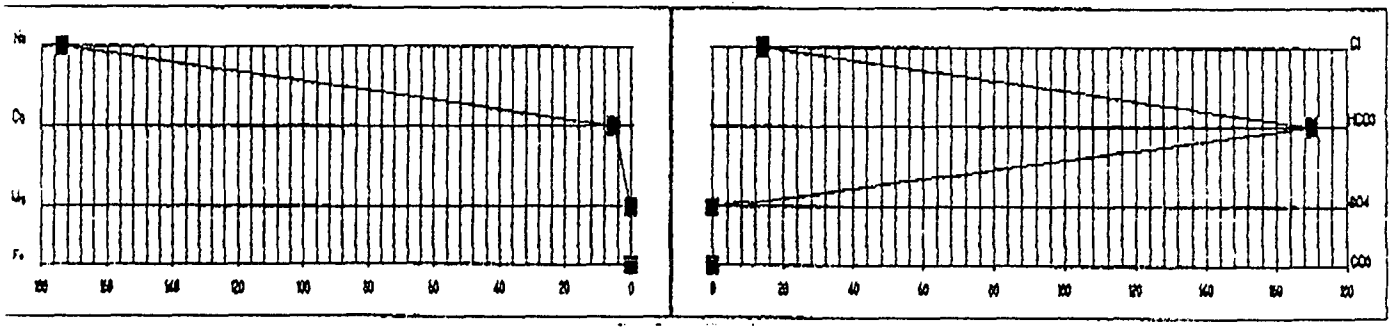
PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
Sodium , Na	4,000	mg/l		Chloride , Cl	497	mg/l	
Potassium, K	0	mg/l	NR				
Calcium , Ca	105	mg/l	TH as Ca	Sulfate, SO4	0	mg/l	<10
				Hydroxide, OH	0	mg/l	
Magnesium , Mg	0	mg/l	NR	Carbonate, CO3	0	mg/l	
Iron , Fe(Diss.)	0.0	mg/l	NR	Bicarbonate,HCO3	10,370	mg/l	
Hydrogen Sulfide	0	mg/l	NR	Resistivity (@25 Degrees C)	0.716	ohm-m	
pH	7.95	Units		Conductivity	13,960	uS	
				Specific Gravity (@ 60 Degrees F)	1.019	Units	
TDS	10,880	mg/l					

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run Fe and H2S .

NR = Test Not Run

Anion/Cation: 102.7%

Stiff Diagram



WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-37

Standard A.P.I. Water Analysis Report

Company: Koch Exploration Co. Collection Date: 2-Feb-93

Location: SW 1/4 Sec.25-T32-R9 Collection Time: Unknown

Formation: Fruitland Coal County: San Juan State: NM

Well Name: Gardner 4-C Analyst: K. Lambdin Karen C Lambdin

Remarks: none

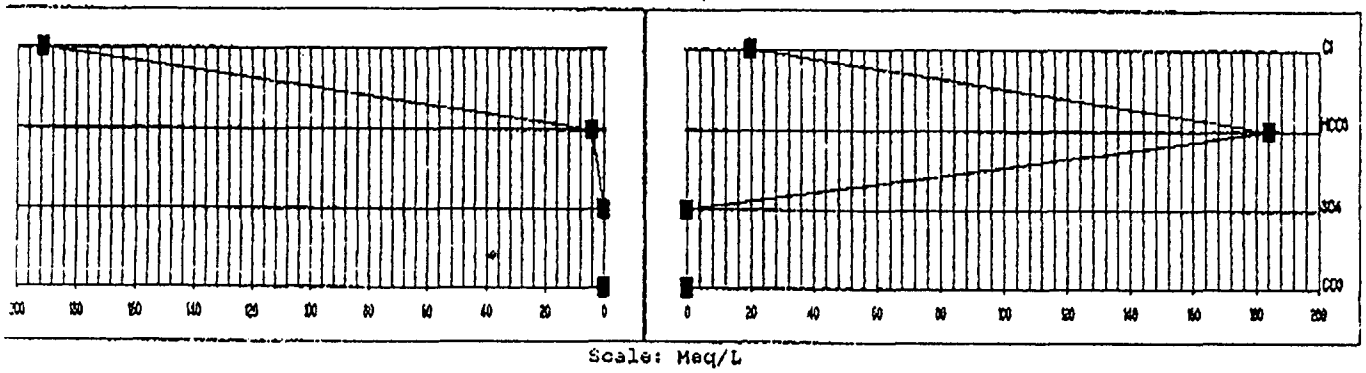
PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
dium , Na	4,400	mg/l		Chloride , Cl	709	mg/l	
tassium, K	0	mg/l	NR				
lcium , Ca	79	mg/l	TH as Ca	Sulfate, SO4	0	mg/l	<10
				Hydroxide, OH	0	mg/l	
gnesium , Mg	0	mg/l	NR	Carbonate, CO3	0	mg/l	
on , Fe(Diss.)	0.0	mg/l	NR	Bicarbonate,HCO3	11,224	mg/l	
drogen Sulfide	0	mg/l	NR	Resistivity	0.654	ohm-m	
				(@25 Degrees C)			
	7.70	Units		Conductivity	15,300	uS	
				Specific Gravity	1.022	Units	
S	11,720	mg/l		(@ 60 Degrees F)			

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run Fe and H2S.

= Test Not Run

Anion/Cation: 104.5%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-39

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co. Collection Date: 2-Feb-93

Location: NE1/4 Sec.25-T32-R9 Collection Time: Unknown

Formation: Fruitland Coal County: San Juan State: NM

Well Name: Gardner 6-C Analyst: K. Lambdin Karen C Lambdin

Remarks: none

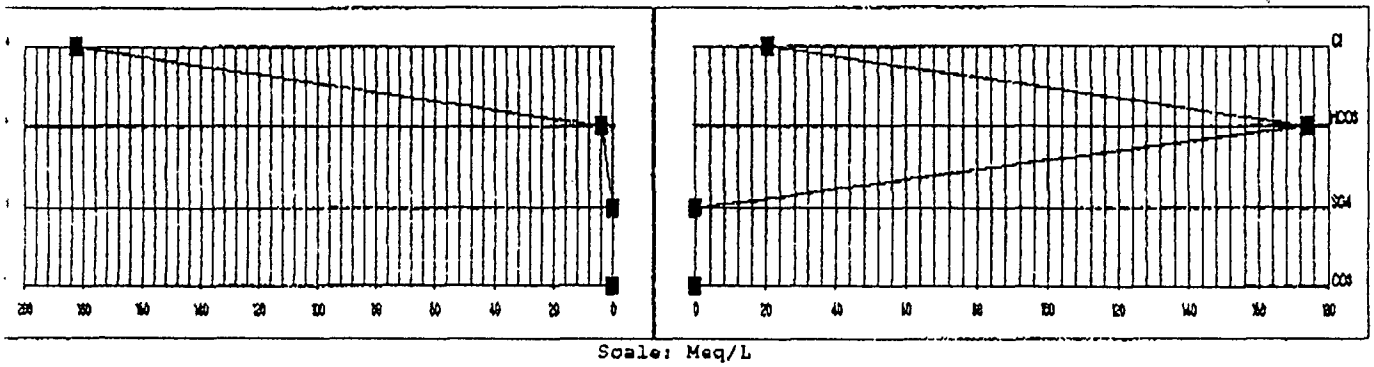
PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
dium , Na	4,200	mg/l		Chloride , Cl	728	mg/l	
tassium, K	0	mg/l	NR				
lcium , Ca	76	mg/l	TH as Ca	Sulfate, SO4	0	mg/l	<10
				Hydroxide, OH	0	mg/l	
gnesium , Mg	0	mg/l	NR	Carbonate, CO3	0	mg/l	
on , Fe(Diss.)	0.0	mg/l	<1	Bicarbonate,HCO3	10,590	mg/l	
drogen Sulfide	0	mg/l	NR	Resistivity (@25 Degrees C)	0.679	ohm-m	
	7.52	Units		Conductivity	14,730	uS	
				Specific Gravity (@ 60 Degrees F)	1.012	Units	
S	11,520	mg/l					

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run H2S .

= Test Not Run

Anion/Cation: 104.1%

Stiff Diagram



Scale: Meq/L

KOCH

KOCH EXPLORATION COMPANY

January 11, 1995

RECEIVED

JAN 2 5 1995

OIL CONSERVATION DIV.
SANTA FE

Mr. Roger Anderson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Subject: Administrative Approval to Construct
Surface Waste Disposal Facility
SE/4, NW/4 Section 26-T32N-R9W
San Juan County, NM

Dear Mr. Anderson:

Koch Exploration Company requests administrative approval to construct and operate a centralized spray evaporation pond at the above referenced location.

Enclosed is our "Application for Surface Waste Disposal Facility" and supporting data. If I may be of any further assistance, please contact me (316-832-5595) or our consultant, Robert C. Frank (305-327-7660) at your convenience.

Sincerely,

Michael Scates
Administrative Manager

Enclosures

P.O. Box 2256 ▪ Wichita, Kansas 67201-2256 ▪ 4111 East 37th Street North ▪ Wichita, Kansas 67220
316/832-5237 ▪ FAX 316/832-5390

Revised 5/93

State of New Mexico
Energy, Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87501

APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY

(Refer to OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

I. Type: ☒ Produced Water ☐ Drilling Muds ☐ Other _____
☐ Solids/Landfarm ☐ Treating Fluids

II. OPERATOR: Koch Exploration Co.

ADDRESS: P. O. Box 2256, Wichita, KS 67220

CONTACT PERSON: Michael Scates PHONE: (318)- 832-5595

III. LOCATION: SE /4 NW /4 Section 26 Township 32N Range 9W
Submit large scale topographic map showing exact location.

IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY? ☐ Yes ☒ No

V. Attach the name and address of the landowner of the disposal facility site and landowners of record within one-half mile o the site.

VI. Attach discription of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.

VII. Attach detailed engineering designs with diagrams prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations sytems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach a routine inspection and maintenance plan to ensure permit compliance.

X. Attach a closure plan.

XI. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water. Depth to and quality of ground water must be included.

XII. Attach proof that the notice requirements of OCD Rule 711 have been met (Commercial facilities only).

XIII. Attach a contingency plan in the event of a release of H_2S.

XIV. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XV. CERTIFICATION

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

Name: Michael Scates Title: Administrative Manager

Signature: Michael Scates Date: 1/11/95

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

Supporting Data
Addendum to Application for
Surface Waste Disposal Facility

Koch Exploration Company
Evaporation Pond No. 2
SE/4, NW/4 Section 26-T32N-R9W
San Juan County, NM

V. Land Owner of Disposal Facility Site:

United States of America
Bureau of Land Management
1235 LaPlata Hwy
Farmington, NM 87401

Landowners of record within one-half mile.

1) Richard Blancett
278 Road 3000
Aztec, NM 87410

2) United States of America
Bureau of Land Management
1235 LaPlata Hwy
Farmington, NM 87401

VI. Attached is a site plan.

The pond will service the following wells:

Well Name	
Blancett Com 1 C	NE/4 Sec 27-T32N-R9W
Gardner 1C	SW/4 Sec 35-T32N-R9W
Gardner 5C	SW/4 Sec 26-T32N-R9W
Gardner 7C	NE/4 Sec 26-T32N-R9W

Water analyses for the wells referenced above are attached. Water from each of these wells will be piped to the evaporation pond with the possible exception of the Gardner 1-C. An upcoming workover and resultant water production will determine the economics of a water pipeline to this well. If the economics indicate that a pipeline is not warranted, water from this well will be trucked into location. In any event all water, trucked or piped, will enter a skimmer tank prior to entering the pond.

VII. Attached are engineering design specifications and diagrams for the evaporation pond, including the leak detection system. In addition please find diagrams of the aeration and spray system. There will be no waste treating or land farm facilities. There will be no security system other than a 6" chain link fence with three strand barb wire.

The subsurface consists of a sandy loam, clay and weathered sandstone material. The subgrade will be prepared, placed in 6" to 9" lifts and compacted to 95% of proctor and +4% of optimum moisture. The actual values will be determined by an independent laboratory testing firm.

The liner company to be used is Frank Liner Fabrication, Inc. The secondary liner will be made of 30 mil PVC. The primary liner will be made of 30 mil XR-5. The primary liner is resistant to sunlight, hydrocarbons, fungus, algae, bacteria and salt water. The secondary liner is resistant to hydrocarbons, fungus, algae, bacteria and salt water. Please see attached liner specifications and chemical compatibility data sheets. Each liner will be laid in the pond by rolls and then seamed together. The seams will be air lance and vacuum box tested. The leak detection system will consist of 1" perforated / slotted lateral draining to a central 2" line, which will drain to a sump outside of the berm.

The freeboard will be 1.5', leaving the pond a maximum height of 12.5' of water. There will be no runoff or runon as the pond will be self-contained and the drainage diverted away from the pond. The pond is on a gentle slope with no major drainage problems.

An aeration system will be placed in the pond bottom as well. This system will consist of a network of perforated 1" and 2" PVC or HDPE pipe. The system will be able to circulate either a liquid or gaseous medium.

The system will consist of 2" PVC trunk line on top of the dike and 1" laterals in the pond. The laterals will be perforated with 2/32 " holes or 3/32" holes on 10' centers (please see plans). The pipe will be anchored to the bottom with sand tubes. This system will be capable of pumping gaseous and/or liquid mediums. The liquid will be pumped by splitting the sprayer pump and introducing the liquid through a Venturi type hopper or a positive displacement chemical pump .

The aeration system is being installed as a matter of prudence. The facility will be accepting only Fruitland Coal, produced water. The water being disposed of does not contain any sulfides or sulfates. With the absence of sulfur, there cannot be an H_2S generation problem.

The piping will be placed during the initial construction. If needed, power and air for the system will be supplied by a portable diesel powered air compressor.

We do not anticipate using this pond for conventional produced water. If, at some time, the decision is made to use the pond for disposal of conventional produced water, Koch Exploration Company will request permission to do so from the OCD and submit plans to ensure that H_2S will not be generated by the change of water.

The pond will be equipped with sprayers. The sprayers will be located on floating islands. Please see attached plans. The islands will be tethered to the sides of the pond. The islands will consist of hollow cone nozzle. The sprayers will be supplied by a centrifugal pump with a capacity of at least 720 gpm at 80 psi. The power supply for the pump will be natural gas. The pond is sized to evaporate 400 bwpd with the sprayer system operational for 8 - 9 months per year. The pond is deep enough to handle the volume of water produced, plus rainfall / snow melt during the winter months.

The spray system will be controlled by an anemometer. The anemometer will open 3 (three), 2" bypasses at three different wind speeds. The speeds will be seasonally adjusted to ensure that the spray stays within the confines of the dike.

VIII. Contingency Plan for Reporting and Clean Up of Spills or Releases.

In as much as the pond will be double lined, and with the pond sloped to a sump, there will be no other containment or cleanup apparatus necessary. If a leak is detected, the leak detection system will be pumped into the pond and incoming water will be diverted and trucked to Koch's other evaporation pond and/or to a commercial disposal facility. The evaporation system and trucking will be used to lower the pond until the water is below the leak. The liner will re repaired and the pond placed back into operation.

The facilities to be used will be one or any combination of the following:

Name	Location
Koch Exploration Pond 1	S31-T32N-R8W
Amoco Pritchard SWD #1	S34-T31N-R8W
Basin Disposal	S03-T29N-R11W

The OCD will be notified within one working day of any leaks.

The leak detection system will be the only means in which leaks are to be detected. The sumps will be inspected at least weekly after fill up and daily during fill up. If leaks are detected, the procedure outlined above will be followed. A leak will be qualified by laboratory testing and comparison of sump and pond water analyses. In addition a leak will be further qualified by the sump water height approaching the pond water height when measured from a common datum.

IX. Inspection/Maintenance Plan.

The leak detection sump will be monitored daily during fill up and weekly thereafter. The results of the monitoring will be maintained in a log at Koch's Aztec office. Inspection of the dike for erosion will be noted monthly. Records of the dike inspection will be maintained in the Aztec, office.

Dissolved oxygen readings will be taken at one foot from the bottom of the pond monthly. Test sites around the pond will be varied. The OCD Aztec Office will be notified immediately if dissolved residual oxygen levels drop below 0.5 ppm. Sulfides and sulfates are not present in this water so there will be no provisions to take these measurements monthly.

X. Closure Plan.

Salt generation calculations, based upon Stanley Zygmunts work with the New Mexico Energy Research Development Institute, indicate that at the designed evaporative rate of 400 BWPD , 474 cubic yards of salt will be generated annually. The pond has a holding capacity of 28,750 cubic yards. At the designed evaporative rate it will take 60.7 years to fill the pond with salt. The project life is estimated at 20 years. At the time of abandonment the salt generated will represent 33 % of the pond capacity. Pursuant to previous permit approval any sludge / salt build up in excess of 12",as measured from the shallow end of the pond, will be vacuumed from the pond and disposed of at an OCD approved landfarm

Upon abandonment it is our intention to bury the residual precipitated salts on site in the plastic liner. The liners will be cut along the top of the dike and folded back into the pond and any areas void of liner coverage will be covered with a PVC liner and mounded over with soil and or clay to prevent any vertical leaching of salts by rain water. We do not anticipate, under the current regulations, that there will be any sludges/salts or chemical compounds evolve that will prohibit the disposal of these wastes at the on site facility.

Koch Exploration Co. will submit forms C-117 A, C-118 and C-120 A as necessary for this operation.

XI. The nearest known water source is Rawhide Spring. The spring is located West of the pond. A water analysis is attached. The Pipeline Spring is located up gradient and almost a mile and one half West. A water analysis is attached. Mr. Charles Wohlenberg, with the New Mexico State Engineers Office researched their files and found there are no recorded water wells within 3 miles of the facility.

The flow of ground water most likely to be affected by any leaks is southerly, based upon topography. The nearest spring is approximately 1/2 mile west of the facility and is upgradient.
The pit site rests on a paleoerosional surface as evidenced by recent drilling. The geology indicates layered strata of alternating clay, sandy clay, gravel and sandstone. The pit will be located in a sandy clay lense immediately above sandstone bedrock.

The ponds will be double lined with leak detection. The native material, when compacted to 95% of proctor, will also have an unknown permeability, however, it will be less than uncompacted native soil. The likelihood of ground water contamination is remote at best.

Flood Protection.

The flooding potential at the pit site, with respect to major precipitation and/or runoff, is minimal at best as the pond will be maintained with a 1-1/2 ' freeboard. The facility is located on the east facing gentle slope. Drainage off of the slope will be routed to the north and west of the pond (please see plans). In any event, drainage away from the pond will be accomplished by diversion ditches cut on the uphill side of the facility and lined with 3"+/- river gravel.

The pond is well out of the 100 year flood plain.

The outside of the site will be checked after each major rainfall. The OCD will be notified of any significant erosion.

XII. As this is a centralized facility none of the offset landowners have been notified of the proposed pond.

XIII. As mentioned earlier the chance of H_2S being generated at this facility is remote. There are no sulfides or sulfates in the source water. In addition a spray system will be installed to enhance evaporation. The spraying action will add oxygen to the water. The pump is designed to move 720 gpm or 24,685 bwpd. The maximum holding capacity of the pond is 138,402 bbls. The pump will circulate the volume of the pond every 5.6 days.

Test of ambient H_2S levels will be made at the pond at least weekly and records will be kept. The location of the test will be downwind of the pond. If the pond begins to emit H_2S, air concentrations of H_2S will be measured in tenths of a part per million and the ph will be measured twice daily around the perimeter of the pond. The prevailing winds are southwesterly; therefore, the sampling points will be located on the northeast sides of the pond. The H_2S concentrations and ph will be measured in the morning and afternoon. Dissolved oxygen and dissolved sulfide levels of the pond will be tested and the need for immediate treatment determined.

If air concentrations of H_2S reaches 0.1 ppm at the fence line for two consecutive monitor readings, or if dissolved sulfides in the pit water reaches 15 ppm, the OCD will be notified immediately; hourly H_2S monitoring (24 hours per day, 7 days per week) will commence at the designated locations; pond water will be analysed for dissolved sulfides daily; and the below referenced treatment plan will be implemented so as to reduce dissolved sulfides in the pond and eliminate H_2S emissions.

Treatment Plan

1. Determine chlorine/oxygen demand for sulfides, H_2S and organics.

2. Initiate treatment with 65% active granular bleach. Introduce liquid bleach or potassium permanganate.

3. Deliver and treat pond with sufficient bleach or potassium permanganate to reduce dissolved sulfides and prohibit the emission of H_2S. The rate of treatment will be a maximum of 5000 gallons of 12-16% active bleach, or 5, 110# drums of potassium permanganate daily.

If air concentrations of H_2S reach 10 ppm at the fence line, Koch Exploration Co. will notify the County Fire Marshal, County Sheriff's Department, New Mexico State Police, and the OCD. The site is remote so no other action will be required. There are no residences or county roads for over two miles. With the remote site, no evacuation plans are necessary.

XIV. Wave calculations for a pond with this small of a fetch is difficult. Interpolation of a graph supplied by the US Army Corp. of Engineers indicates that an unidirectional 40 mph sustained wind along the maximum fetch of 403' will generate a 6" wave. Sustained winds of this magnitude in this area are not common. The likelihood of a sustained unidirectional wind along the maximum fetch is remote at best as the surrounding topography will most likely break up these types of winds. The wave run-up is estimated at 3". The total wave action on the dike is 9". The waves would be a non-breaking type. The average yearly rainfall for this area is 12". With the rainfall occurring over the entire year, we feel that an 18" freeboard is adequate.

Both the inside and outside slopes of the pond will be 3:1.

The traveling surface of the levee top will be twelve feet minimum.

The OCD office in Aztec will be notified at least 48 hours in advance of the primary liner and leak detection installation.

A drainage and sump leak detection system will be used. The leak detection system will consist of 1" slotted or perforated PVC laterals draining at a 2% grade to a 2" PVC mainline. The 2" PVC mainline will drain at 1% to a corrosion proof sump which will be located outside of the berm. No point in the pond bottom will be greater than 20' from a detection line.

The bed of the pit and the inside grade of the levee will be smooth, compacted to 95% of proctor, free of holes, rocks, stumps, clods, or other debris which could rupture the liner. The subgrade will be covered with 4 oz geotextile prior to installing liners.

An anchor trench will be excavated 6" wide, 12" deep, and set back from the slope break by 9". Sand tubes will be used to anchor the liner down.

The liner will be installed and the joints sealed pursuant to the manufacturer's specifications.

The liner will rest smoothly on the pit bed and inner face of the levee and shall be of sufficient size to extend to the bottom of the anchor trench, across the bottom and back up the outside edge of the ditch 4 inches. Folds in the liner will be located in the pit corners to compensate for temperature fluctuations and subsequent liner expansion / contraction.

Three gas vents will be installed on each side of the pond. The liner will be resting on geotextile which will be adequate for venting any migrating gases from beneath the liners. The vents will be located approximately 9" down from the berm break.

All siphons and discharge lines will be directed away from the liner.

Steel skimmer tanks will be used. Water will be drained from the bottom of the tanks into the pond. The wells feeding this pond do not currently produce any hydrocarbons. The tanks will be automatically controlled by a siphon situated at the desired height. If any hydrocarbons should accumulate they will be collected and transported by truck to one of the local refineries (Bloomfield Refinery, or Giant Refinery) for treatment and sale.

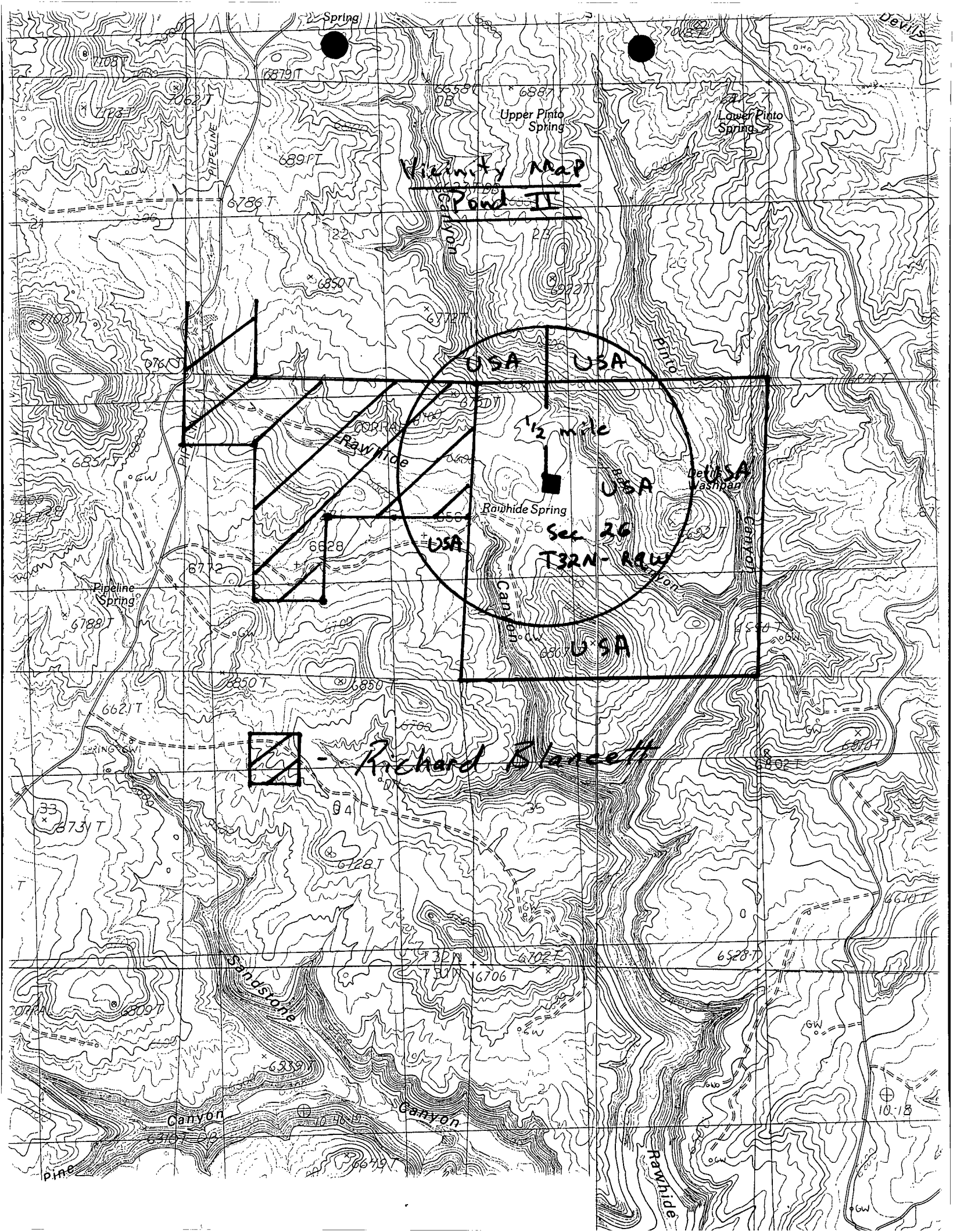
A fence will be constructed around the entire facility. The fence will be of sufficient strength to keep livestock out of the facility. The fence will be closed and locked at all times when the pond is not manned.

A sign at least 12" by 24" with 2" lettering will be placed at the facility entrance and will identify the owner/operator, location and emergency phone numbers.

A written application will be made of the district supervisor for exception to screening or netting this pit.

If there are any further questions please contact Koch Exploration Co. (318-832-5595) or Robert C. Frank (505-327-7660)

File:IIAKOCHPD\EIGHT\DOODII


Vicinity Map
Pond II
USA
USA
USA
USA
USA
1/2 mile
Rawhide Spring
Sec 26
T32N - R8W
Upper Pinto Spring
Lower Pinto Spring
Pipeline Spring
Rawhide
Pinto
Canyon
Sandstone
Richard Blancett

1115 Farmington Avenue - Farmington, NM 87401
(505) 325-1085

Lab Sample No.: W93-237

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 21-Jul-93

Well Name: NA

Collection Time: 10:45 AM

Formation: Ground water spring

County: San Juan State: NM

Location: P/L spring on Arkansas loop F

Analyst: K. Lambdin

Remarks: None.

Analysis Date: 7/25/93

PARAMETER	as ION		Comment
Sodium , Na	82	mg/l	
Potassium, K	3	mg/l	
Calcium , Ca	110	mg/l	
Magnesium , Mg	29	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	7.62	Units	
TDS	671	mg/l	

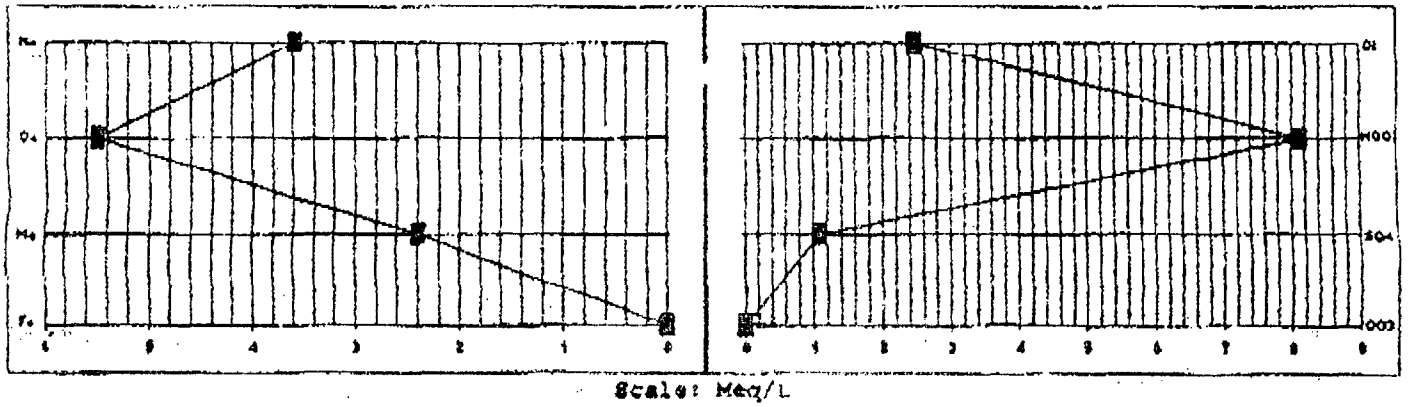
PARAMETER	as ION		Comment
Chloride , Cl	88	mg/l	
Sulfate, SO4	52	mg/l	
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate, HCO3	496	mg/l	
Resistivity (@25 Degrees C)	9,360	ohm-m	
Conductivity	1,004	uS	
Specific Gravity (@ 60 Degrees F)	1.000	Units	

Remarks: None.

NR = Test Not Run

Anion/Cation: 101.58

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington, NM 87401
(505) 325-1085

Lab Sample No.: W93-233

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 19-Jul-93

Well Name: NA

Collection Time: 2:00 PM

Formation: Spring

County: San Juan State: NM

Location: Rawhide Spring

Analyst: K. Lambdin Karen C Lambdin

Remarks: None.

Analysis Date: 7/20/93

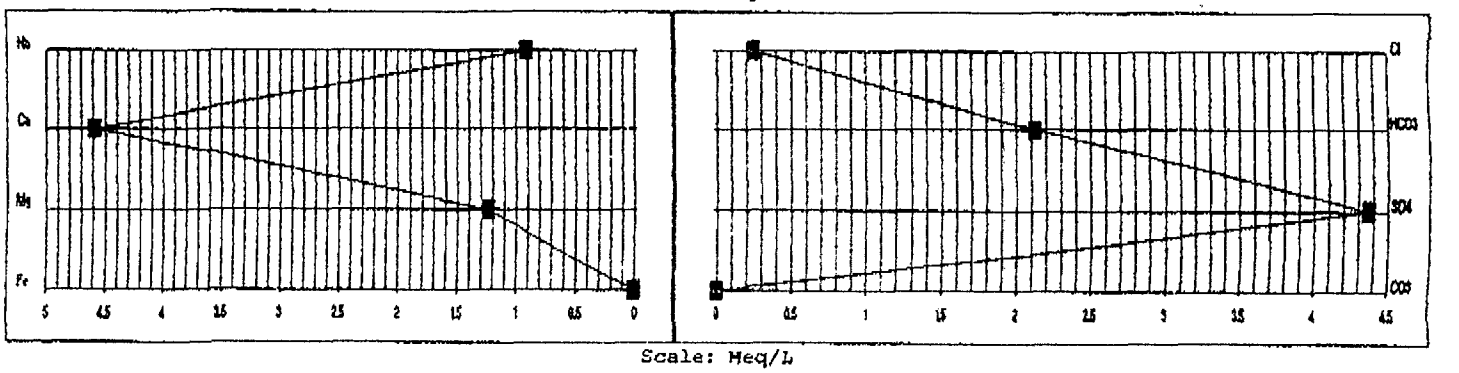
PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
Sodium , Na	21	mg/l		Chloride , Cl	9	mg/l	
Potassium, K	0	mg/l	<5				
Calcium , Ca	92	mg/l		Sulfate, SO4	210	mg/l	
				Hydroxide, OH	0	mg/l	
Magnesium , Mg	15	mg/l		Carbonate, CO3	0	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR	Bicarbonate,HCO3	130	mg/l	
Hydrogen Sulfide	0	mg/l	NR	Resistivity (@25 Degrees C)	14.925	ohm-m	
pH	8.00	Units		Conductivity	670	uS	
TDS	435	mg/l		Specific Gravity (@ 60 Degrees F)	1.000	Units	

Remarks: None.

NR = Test Not Run

Anion/Cation: 100.2%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 326-1085

Lab Sample No.: W93-275

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co.
Collection Date: 7-Aug-93

Well Name: Gardner 7C
Collection Time: 4:00 PM

Formation: Basin Fruitland Coal
County: San Juan State: NM

Location: Sec. 26-T32N-R9W
Analyst: K. Lambdin & S. Spencer

Remarks: None.
Analysis Date: 8/9/93

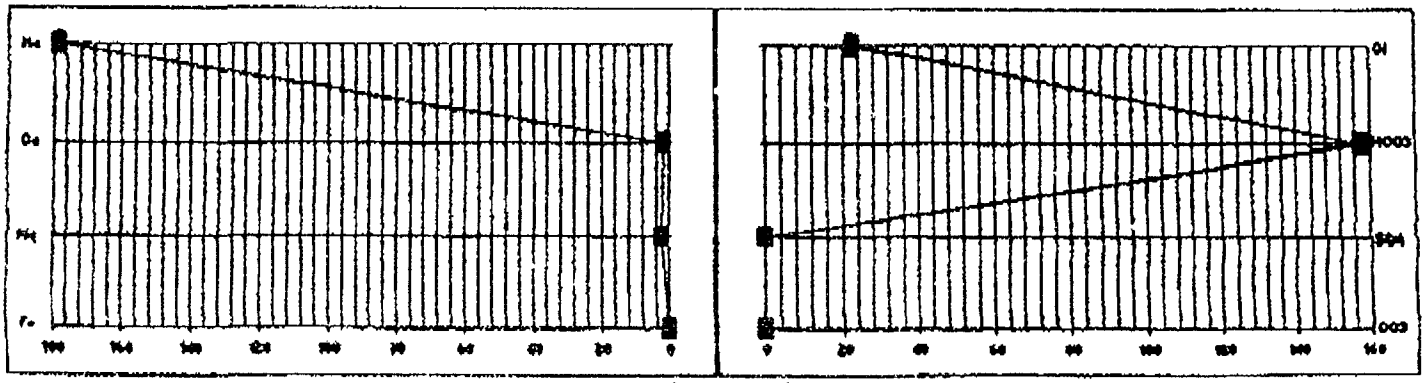
PARAMETER	As ION		Comment	PARAMETER	As ION		Comment
Sodium , Na	4,100	mg/l		Chloride , Cl	800	mg/l	
Potassium, K	18	mg/l					
Calcium , Ca	35	mg/l		Sulfate, SO4	0	mg/l	<5
				Hydroxide, OH	0	mg/l	
Magnesium , Mg	30	mg/l		Carbonate, CO3	0	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR	Bicarbonate, HCO3	9,600	mg/l	
				Specific Gravity (@ 60 Degrees F)	1.010	Units	
TDS	11,860	mg/l					

Remarks: None.

NR = Test Not Run

Anion/Cation: 98.3%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington, NM 87401
(505) 325-1085

Lab Sample No.: W93-236

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 21-Jul-93

Well Name: Blancett Com 1C

Collection Time: 11:00 AM

Formation: Basin Fruitland Coal

County: San Juan State: NM

Location: Sec.27 T32N R9W NE 1/4.

Analyst: K. Lambdin Karen C Lambdin

Remarks: None.

Analysis Date: 7/25/93

PARAMETER	as ION		Comment
Sodium, Na	4,300	mg/l	
Potassium, K	15	mg/l	
Calcium, Ca	26	mg/l	
Magnesium, Mg	22	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	7.89	Units	
TDS	11,490	mg/l	

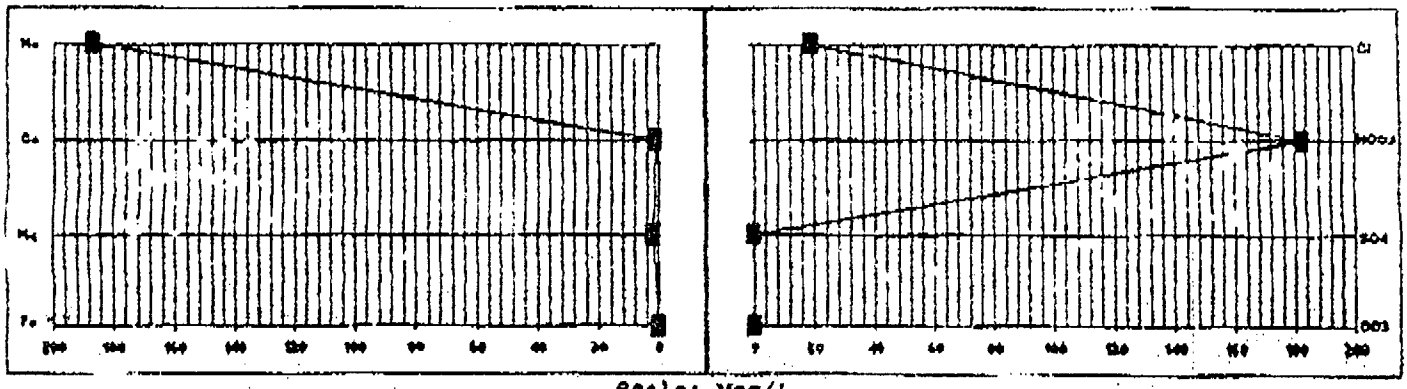
PARAMETER	as ION		Comment
Chloride, Cl	686	mg/l	
Sulfate, SO4	0	mg/l	<5
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate, HCO3	11,124	mg/l	
Resistivity (@25 Degrees C)	0.679	ohm-m	
Conductivity	14,730	uS	
Specific Gravity (@ 60 Degrees F)	1.016	Units	

Remarks: None.
Not enough sample to run H2S.

NR = Test Not Run

Anion/Cation: 105.98

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-38

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co. Collection Date: 2-Feb-93

Location: SW 1/4 Sec.26-T32-R9 Collection Time: Unknown

Formation: Fruitland Coal County: San Juan State: NM

Well Name: Gardner 6-C Analyst: K. Lambdin

Remarks: none

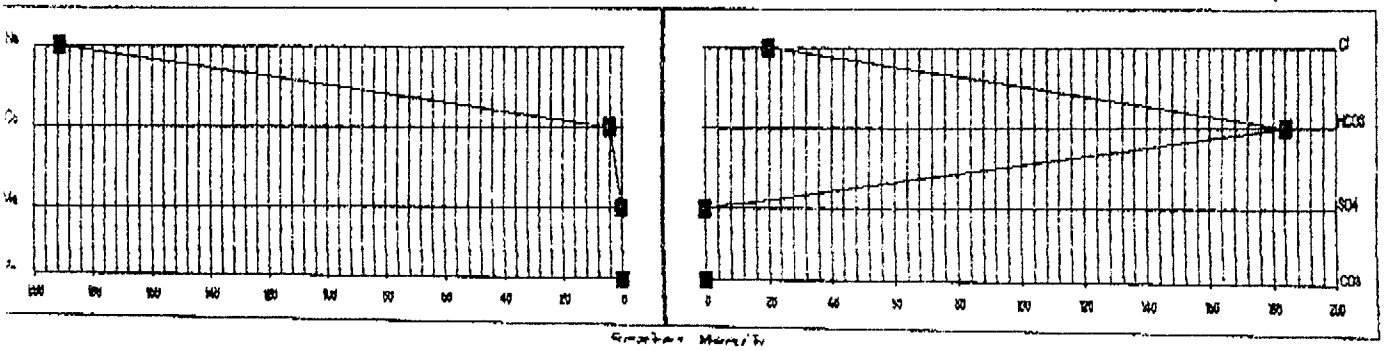
PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
Sodium , Na	4,400	mg/l		Chloride , Cl	709	mg/l	
Potassium, K	0	mg/l	NR				
Calcium , Ca	79	mg/l	TH as Ca	Sulfate, SO4	0	mg/l	<10
				Hydroxide, OH	0	mg/l	
Magnesium , Mg	0	mg/l	NR	Carbonate, CO3	0	mg/l	
Iron , Fe(Diss.)	0.0	mg/l	NR	Bicarbonate,HCO3	11,224	mg/l	
Hydrogen Sulfide	0	mg/l	NR	Resistivity (@25 Degrees C)	0.654	ohm-m	
pH	7.70	Units		Conductivity	15,300	uS	
				Specific Gravity (@ 60 Degrees F)	1.022	Units	
TDS	11,720	mg/l					

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run Fe and H2S.

NR = Test Not Run

Anion/Cation: 104.5%

Stiff Diagram



API WATER ANALYSIS REPORT FORM

Laboratory No. 25-910311-28

Company	Sample No.	Date Sampled
Koch Exploration Co.		

Field	Legal Description	County or Parish	State
	SW¼ S35 T32 R9		

Lease or Unit	Well	Depth	Formation	Water, B/D
Gardner	C-1		Fruitland Coal	

Type of Water (Produced, Supply, etc.)	Sampling Point	Sampled By

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	2773.8	120.6
Calcium, Ca	49.7	2.5
Magnesium, Mg	23.3	1.9
Barium, Ba		

ANIONS	mg/l	me/l
Chloride, Cl	1772.5	50
Sulfate, So_4	n/p	n/p
Carbonate, CO_3	216	7.2
Bicarbonate, HCO_3	4135.8	67.8

Total Dissolved Solids (calc.) 8971.1

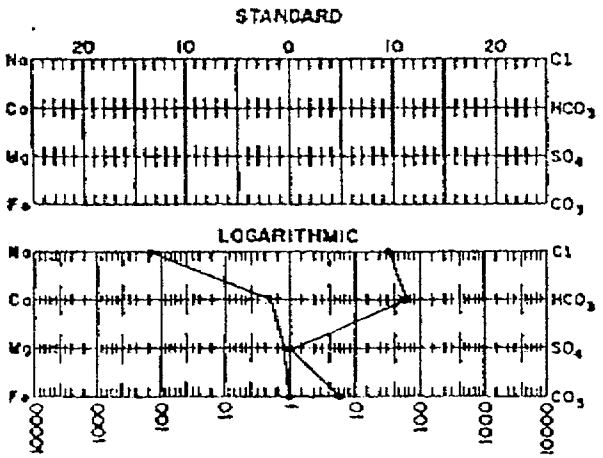
Iron, Fe (total)

Sulfide, as H_2S

OTHER PROPERTIES

pH	8.2
Specific Gravity, 60/60 F.	1.0051
Resistivity (ohm-meters) 72° F.	0.74

WATER PATTERNS — *me/l*



REMARKS & RECOMMENDATIONS:

Date Received	Preserved	Date Analyzed	Analyzed By
3-11-91		3-11-91	H.A.

SECTION B — CHEMICAL/ENVIRONMENTAL RESISTANCE

PART B-1: XR-5® FLUID RESISTANCE GUIDELINES

The data below is the result of laboratory tests and is intended to serve only as a guide. No performance warranty is intended or implied. The degree of chemical attack on any material is governed by the conditions under which it is exposed. Exposure time, temperature, and size of the area of exposure usually varies considerably in application, therefore, this table is given and accepted at the user's risk. Confirmation of the validity and suitability in specific cases should be obtained.

When considering XR-5 for specific applications, it is suggested that a sample be tested in actual service before specification. Where impractical, tests should be devised which simulate actual service conditions as closely as possible.

EXPOSURE	RATING
Acetic Acid (5%)	B
Acetic Acid (50%)	C
Ammonium Phosphate	T
Ammonium Sulfate	T
Antifreeze (ethylene glycol)	A
Animal Oil	A
Aqua Regia	X
ASTM Fuel A (100% Iso-octane)	A
ASTM Oil #2 (Flash pt. 240°C)	A
ASTM Oil #3	A
Benzene	X
Calcium Chloride Solutions	T
Calcium Hydroxide	T
20% Chlorine Solution	A
Clorox	A
Conc. Ammonium Hydroxide	A
Corn Oil	A
Crude Oil	A
Diesel Fuel	A
Ethanol	A
Ethyl Acetate	C
Ethyl Alcohol	A
Fertilizer Solution	A
#2 Fuel Oil	A
#6 Fuel Oil	A
Furfural	X
Gasoline	B
Glycerin	A
Hydraulic Fluid	A
Hydrocarbon Type II (40% Aromatic)	C
Hydrochloric Acid (50%)	A
Hydrofluoric Acid (5%)	A
Hydrofluoric Acid (50%)	A
Hydrofluosilicic Acid (30%)	A
Isopropyl Alcohol	T
Ivory Soap	A
Jet A	A
JP-4 Jet Fuel	A

EXPOSURE	RATING
JP-5 Jet Fuel	A
JP-8 Jet Fuel	A
Kerosene	A
Magnesium Chloride	T
Magnesium Hydroxide	T
Methanol	A
Methyl Alcohol	A
Methyl Ethyl Ketone	X
Mineral Spirits	A
Naptha	A
Nitric Acid (5%)	B
Nitric Acid (50%)	C
Perchloroethylene	C
Phenol	X
Phenol Formaldehyde	B
Phosphoric Acid (50%)	A
Phosphoric Acid (100%)	C
Phthalate Plasticizer	C
Potassium Chloride	T
Potassium Sulphate	T
Raw Linseed Oil	A
SAE-30 Oil	A
Salt Water (25%)	B
Sea Water	A
Sodium Acetate Solutions	T
Sodium Bisulfite Solution	T
Sodium Hydroxide (60%)	A
Sodium Phosphate	T
Sulphuric Acid (50%)	A
50% Tanic Acid	A
Toluene	C
Transformer Oil	A
Turpentine	A
Urea Formaldehyde	A
UAN	A
Vegetable Oil	A
Water (200°F.)	A
Xylene	X
Zinc Chloride	T

Ratings are based on visual and physical examination of samples after removal from the test chemical after the samples of Black XR-5 were immersed for 28 days at room temperature. Results represent ability of material to retain its performance properties when in contact with the indicated chemical.

RATING KEY:

A—Fluid has little or no effect
B—Fluid has minor to moderate effect
C—Fuild has severe effect
T—No data-likely to be acceptable
X—No data-not likely to be acceptable

SECTION A - PHYSICAL PROPERTIES

PART A-1: MATERIAL SPECIFICATIONS

8130 XR-5 : Property	Test Method	Requirement
1. Thickness	ASTM 751	30±2 mill (8130) 0.030 to 0.034 in. 40± 2 mill (8138)
2. Weight	ASTM D-751	30.0± 2 oz./sq. yd. (8130) 38.0± 2 oz./sq. yd. (8138)
3. Tear Strength	ASTM D-751	125 lbs./125 lbs.
4. Breaking Yield Strength	ASTM-D-751 Grab Tensile	475 lbs./425 lbs.
5. Low Temperature	ASTM-D-2136 4 hrs. — 1/8" mandrel	−30°F. No cracking
6. Dimensional Stability (each direction)	ASTM-D-1204 212°F.−1 hr.	2% max.
7. Hydrostatic Resistance	ASTM-D-751 Method A	500 psi (min.)
8. Blocking Resistance 180°F.	Method 5872 Fed. Std. 191a	#2 Rating Max.
9. Adhesion—Ply. lbs./in. of width	ASTM-D-413 2" per min.	9 lbs./in. (min.) or film tearing bond
10. Adhesion—heat sealed seam lbs./in. of width	ASTM-D-751	10 lbs./in. (min.)
11. Dead Load Seam shear strength	(Mil-T-52983E Para. 4.5.2.19 2" overlap seam	Must withstand 210 lbs./in. @ 70°F. 105 lbs./in. @ 160°F.
12. Abrasion Resistance (Taber Method)	Method 5306 Fed. Std. 191a H-18 Wheel 1000 gm. load	2000 cycles before fabric exposure 50 mg./100 cycles max. wt. loss
13. Weathering Resistance	Carbon-Arc Atlas Weather-o-meter	2,000 hrs. No appreciable changes or stiffening or cracking of coating
14. Water Absorption	ASTM-D-471 7 days	5% max. @ 70°F. 12% max. @ 212°F.
15. Wicking	Shelter-Rite procedure	1/8" max.
16. Puncture Resistance	FTMS 101B Method 2031	350 lbs.

Revised 5/93
OCDSFxC

State of New Mexico
Energy, Minerals and Natural Resources Department
OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, NM 87501

RECEIVED
JAN 25 1995
OIL CONSERVATION DIV.
SANTA FE

APPLICATION FOR SURFACE WASTE DISPOSAL FACILITY

(Refer to OCD Guidelines for assistance in completing the application)

☐ Commercial ☒ Centralized

I. Type: ☒ Produced Water ☐ Drilling Muds ☐ Other _____
☐ Solids/Landfarm ☐ Treating Fluids

II. OPERATOR: Koch Exploration Co.

ADDRESS: P. O. Box 2256, Wichita, KS 67220

CONTACT PERSON: Michael Scates PHONE: (318)- 832-5595

III. LOCATION: SE /4 NW /4 Section 26 Township 32N Range 9W
Submit large scale topographic map showing exact location.

IV. IS THIS AN EXPANSION OF AN EXISTING FACILITY? ☐ Yes ☒ No

V. Attach the name and address of the landowner of the disposal facility site and landowners of record within one-half mile o the site.

VI. Attach discription of the facility with a diagram indicating location of fences, pits, dikes, and tanks on the facility.

VII. Attach detailed engineering designs with diagrams prepared in accordance with Division guidelines for the construction/installation of the following: pits or ponds, leak-detection systems, aerations sytems, enhanced evaporation (spray) systems, waste treating systems, security systems, and landfarm facilities.

VIII. Attach a contingency plan for reporting and clean-up of spills or releases.

IX. Attach a routine inspection and maintenance plan to ensure permit compliance.

X. Attach a closure plan.

XI. Attach geological/hydrological evidence demonstrating that disposal of oil field wastes will not adversely impact fresh water. Depth to and quality of ground water must be included.

XII. Attach proof that the notice requirements of OCD Rule 711 have been met (Commercial facilities only).

XIII. Attach a contingency plan in the event of a release of H_2S.

XIV. Attach such other information as necessary to demonstrate compliance with any other OCD rules, regulations and/or orders.

XV. CERTIFICATION

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

Name: Michael Scates Title: Administrative Manager

Signature: Michael Scates Date: 1/11/95

DISTRIBUTION: Original and one copy to Santa Fe with one copy to appropriate Division District Office.

Supporting Data
Addendum to Application for
Surface Waste Disposal Facility

Koch Exploration Company
Evaporation Pond No. 2
SE/4, NW/4 Section 26-T32N-R9W
San Juan County, NM

V. Land Owner of Disposal Facility Site:

United States of America
Bureau of Land Management
1235 LaPlata Hwy
Farmington, NM 87401

Landowners of record within one-half mile.

1) Richard Blancett
278 Road 3000
Aztec, NM 87410

2) United States of America
Bureau of Land Management
1235 LaPlata Hwy
Farmington, NM 87401

VI. Attached is a site plan.

The pond will service the following wells:

Well Name		
Blancett Com 1 C	NE/4	Sec 27-T32N-R9W
Gardner 1C	SW/4	Sec 35-T32N-R9W
Gardner 5C	SW/4	Sec 26-T32N-R9W
Gardner 7C	NE/4	Sec 26-T32N-R9W

Water analyses for the wells referenced above are attached. Water from each of these wells will be piped to the evaporation pond with the possible exception of the Gardner 1-C. An upcoming workover and resultant water production will determine the economics of a water pipeline to this well. If the economics indicate that a pipeline is not warranted, water from this well will be trucked into location. In any event all water, trucked or piped, will enter a skimmer tank prior to entering the pond.

VII. Attached are engineering design specifications and diagrams for the evaporation pond, including the leak detection system. In addition please find diagrams of the aeration and spray system. There will be no waste treating or land farm facilities. There will be no security system other than a 6" chain link fence with three strand barb wire.

The subsurface consists of a sandy loam, clay and weathered sandstone material. The subgrade will be prepared, placed in 6" to 9" lifts and compacted to 95% of proctor and +4% of optimum moisture. The actual values will be determined by an independent laboratory testing firm.

The liner company to be used is Frank Liner Fabrication, Inc. The secondary liner will be made of 30 mil PVC. The primary liner will be made of 30 mil XR-5. The primary liner is resistant to sunlight, hydrocarbons, fungus, algae, bacteria and salt water. The secondary liner is resistant to hydrocarbons, fungus, algae, bacteria and salt water. Please see attached liner specifications and chemical compatibility data sheets. Each liner will be laid in the pond by rolls and then seamed together. The seams will be air lance and vacuum box tested. The leak detection system will consist of 1" perforated / slotted lateral draining to a central 2" line, which will drain to a sump outside of the berm.

The freeboard will be 1.5', leaving the pond a maximum height of 12.5' of water. There will be no runoff or runon as the pond will be self-contained and the drainage diverted away from the pond. The pond is on a gentle slope with no major drainage problems.

An aeration system will be placed in the pond bottom as well. This system will consist of a network of perforated 1" and 2" PVC or HDPE pipe. The system will be able to circulate either a liquid or gaseous medium.

The system will consist of 2" PVC trunk line on top of the dike and 1" laterals in the pond. The laterals will be perforated with 2/32 " holes or 3/32" holes on 10' centers (please see plans). The pipe will be anchored to the bottom with sand tubes. This system will be capable of pumping gaseous and/or liquid mediums. The liquid will be pumped by splitting the sprayer pump and introducing the liquid through a Venturi type hopper or a positive displacement chemical pump .

The aeration system is being installed as a matter of prudence. The facility will be accepting only Fruitland Coal, produced water. The water being disposed of does not contain any sulfides or sulfates. With the absence of sulfur, there cannot be an H_2S generation problem.

The piping will be placed during the initial construction. If needed, power and air for the system will be supplied by a portable diesel powered air compressor.

We do not anticipate using this pond for conventional produced water. If, at some time, the decision is made to use the pond for disposal of conventional produced water, Koch Exploration Company will request permission to do so from the OCD and submit plans to ensure that H_2S will not be generated by the change of water.

The pond will be equipped with sprayers. The sprayers will be located on floating islands. Please see attached plans. The islands will be tethered to the sides of the pond. The islands will consist of hollow cone nozzle. The sprayers will be supplied by a centrifugal pump with a capacity of at least 720 gpm at 80 psi. The power supply for the pump will be natural gas. The pond is sized to evaporate 400 bwpd with the sprayer system operational for 8 - 9 months per year. The pond is deep enough to handle the volume of water produced, plus rainfall / snow melt during the winter months.

The spray system will be controlled by an anemometer. The anemometer will open 3 (three), 2" bypasses at three different wind speeds. The speeds will be seasonally adjusted to ensure that the spray stays within the confines of the dike.

VIII. Contingency Plan for Reporting and Clean Up of Spills or Releases.

In as much as the pond will be double lined, and with the pond sloped to a sump, there will be no other containment or cleanup apparatus necessary. If a leak is detected, the leak detection system will be pumped into the pond and incoming water will be diverted and trucked to Koch's other evaporation pond and/or to a commercial disposal facility. The evaporation system and trucking will be used to lower the pond until the water is below the leak. The liner will re repaired and the pond placed back into operation.

The facilities to be used will be one or any combination of the following:

Name	Location
Koch Exploration Pond 1	S31-T32N-R8W
Amoco Pritchard SWD #1	S34-T31N-R8W
Basin Disposal	S03-T29N-R11W

The OCD will be notified within one working day of any leaks.

The leak detection system will be the only means in which leaks are to be detected. The sumps will be inspected at least weekly after fill up and daily during fill up. If leaks are detected, the procedure outlined above will be followed. A leak will be qualified by laboratory testing and comparison of sump and pond water analyses. In addition a leak will be further qualified by the sump water height approaching the pond water height when measured from a common datum.

IX. Inspection/Maintenance Plan.

The leak detection sump will be monitored daily during fill up and weekly thereafter. The results of the monitoring will be maintained in a log at Koch's Aztec office. Inspection of the dike for erosion will be noted monthly. Records of the dike inspection will be maintained in the Aztec, office.

Dissolved oxygen readings will be taken at one foot from the bottom of the pond monthly. Test sites around the pond will be varied. The OCD Aztec Office will be notified immediately if dissolved residual oxygen levels drop below 0.5 ppm. Sulfides and sulfates are not present in this water so there will be no provisions to take these measurements monthly.

X. Closure Plan.

Salt generation calculations, based upon Stanley Zygmunts work with the New Mexico Energy Research Development Institute, indicate that at the designed evaporative rate of 400 BWPD , 474 cubic yards of salt will be generated annually. The pond has a holding capacity of 28,750 cubic yards. At the designed evaporative rate it will take 60.7 years to fill the pond with salt. The project life is estimated at 20 years. At the time of abandonment the salt generated will represent 33 % of the pond capacity. Pursuant to previous permit approval any sludge / salt build up in excess of 12",as measured from the shallow end of the pond, will be vacuumed from the pond and disposed of at an OCD approved landfarm

Upon abandonment it is our intention to bury the residual precipitated salts on site in the plastic liner. The liners will be cut along the top of the dike and folded back into the pond and any areas void of liner coverage will be covered with a PVC liner and mounded over with soil and or clay to prevent any vertical leaching of salts by rain water. We do not anticipate, under the current regulations, that there will be any sludges/salts or chemical compounds evolve that will prohibit the disposal of these wastes at the on site facility.

Koch Exploration Co. will submit forms C-117 A, C-118 and C-120 A as necessary for this operation.

XI. The nearest known water source is Rawhide Spring. The spring is located West of the pond. A water analysis is attached. The Pipeline Spring is located up gradient and almost a mile and one half West. A water analysis is attached. Mr. Charles Wohlenberg, with the New Mexico State Engineers Office researched their files and found there are no recorded water wells within 3 miles of the facility.

The flow of ground water most likely to be affected by any leaks is southerly, based upon topography. The nearest spring is approximately 1/2 mile west of the facility and is upgradient.
The pit site rests on a paleoerosional surface as evidenced by recent drilling. The geology indicates layered strata of alternating clay, sandy clay, gravel and sandstone. The pit will be located in a sandy clay lense immediately above sandstone bedrock.

The ponds will be double lined with leak detection. The native material, when compacted to 95% of proctor, will also have an unknown permeability, however, it will be less than uncompacted native soil. The likelihood of ground water contamination is remote at best.

Flood Protection.

The flooding potential at the pit site, with respect to major precipitation and/or runoff, is minimal at best as the pond will be maintained with a 1-1/2 ' freeboard. The facility is located on the east facing gentle slope. Drainage off of the slope will be routed to the north and west of the pond (please see plans). In any event, drainage away from the pond will be accomplished by diversion ditches cut on the uphill side of the facility and lined with 3"+/- river gravel.

The pond is well out of the 100 year flood plain.

The outside of the site will be checked after each major rainfall. The OCD will be notified of any significant erosion.

XII. As this is a centralized facility none of the offset landowners have been notified of the proposed pond.

XIII. As mentioned earlier the chance of H_2S being generated at this facility is remote. There are no sulfides or sulfates in the source water. In addition a spray system will be installed to enhance evaporation. The spraying action will add oxygen to the water. The pump is designed to move 720 gpm or 24,685 bwpd. The maximum holding capacity of the pond is 138,402 bbls. The pump will circulate the volume of the pond every 5.6 days.

Test of ambient H_2S levels will be made at the pond at least weekly and records will be kept. The location of the test will be downwind of the pond. If the pond begins to emit H_2S, air concentrations of H_2S will be measured in tenths of a part per million and the ph will be measured twice daily around the perimeter of the pond. The prevailing winds are southwesterly; therefore, the sampling points will be located on the northeast sides of the pond. The H_2S concentrations and ph will be measured in the morning and afternoon. Dissolved oxygen and dissolved sulfide levels of the pond will be tested and the need for immediate treatment determined.

If air concentrations of H_2S reaches 0.1 ppm at the fence line for two consecutive monitor readings, or if dissolved sulfides in the pit water reaches 15 ppm, the OCD will be notified immediately; hourly H_2S monitoring (24 hours per day, 7 days per week) will commence at the designated locations; pond water will be analysed for dissolved sulfides daily; and the below referenced treatment plan will be implemented so as to reduce dissolved sulfides in the pond and eliminate H_2S emissions.

Treatment Plan

1. Determine chlorine/oxygen demand for sulfides, H_2S and organics.

2. Initiate treatment with 65% active granular bleach. Introduce liquid bleach or potassium permanganate.

3. Deliver and treat pond with sufficient bleach or potassium permanganate to reduce dissolved sulfides and prohibit the emission of H_2S. The rate of treatment will be a maximum of 5000 gallons of 12-16% active bleach, or 5, 110# drums of potassium permanganate daily.

If air concentrations of H_2S reach 10 ppm at the fence line, Koch Exploration Co. will notify the County Fire Marshal, County Sheriff's Department, New Mexico State Police, and the OCD. The site is remote so no other action will be required. There are no residences or county roads for over two miles. With the remote site, no evacuation plans are necessary.

XIV. Wave calculations for a pond with this small of a fetch is difficult. Interpolation of a graph supplied by the US Army Corp. of Engineers indicates that an unidirectional 40 mph sustained wind along the maximum fetch of 403' will generate a 6" wave. Sustained winds of this magnitude in this area are not common. The likelihood of a sustained unidirectional wind along the maximum fetch is remote at best as the surrounding topography will most likely break up these types of winds. The wave run-up is estimated at 3". The total wave action on the dike is 9". The waves would be a non-breaking type. The average yearly rainfall for this area is 12". With the rainfall occurring over the entire year, we feel that an 18" freeboard is adequate.

Both the inside and outside slopes of the pond will be 3:1.

The traveling surface of the levee top will be twelve feet minimum.

The OCD office in Aztec will be notified at least 48 hours in advance of the primary liner and leak detection installation.

A drainage and sump leak detection system will be used. The leak detection system will consist of 1" slotted or perforated PVC laterals draining at a 2% grade to a 2" PVC mainline. The 2" PVC mainline will drain at 1% to a corrosion proof sump which will be located outside of the berm. No point in the pond bottom will be greater than 20' from a detection line.

The bed of the pit and the inside grade of the levee will be smooth, compacted to 95% of proctor, free of holes, rocks, stumps, clods, or other debris which could rupture the liner. The subgrade will be covered with 4 oz geotextile prior to installing liners.

An anchor trench will be excavated 6" wide, 12" deep, and set back from the slope break by 9". Sand tubes will be used to anchor the liner down.

The liner will be installed and the joints sealed pursuant to the manufacturer's specifications.

The liner will rest smoothly on the pit bed and inner face of the levee and shall be of sufficient size to extend to the bottom of the anchor trench, across the bottom and back up the outside edge of the ditch 4 inches. Folds in the liner will be located in the pit corners to compensate for temperature fluctuations and subsequent liner expansion / contraction.

Three gas vents will be installed on each side of the pond. The liner will be resting on geotextile which will be adequate for venting any migrating gases from beneath the liners. The vents will be located approximately 9" down from the berm break.

All siphons and discharge lines will be directed away from the liner.

Steel skimmer tanks will be used. Water will be drained from the bottom of the tanks into the pond. The wells feeding this pond do not currently produce any hydrocarbons. The tanks will be automatically controlled by a siphon situated at the desired height. If any hydrocarbons should accumulate they will be collected and transported by truck to one of the local refineries (Bloomfield Refinery, or Giant Refinery) for treatment and sale.

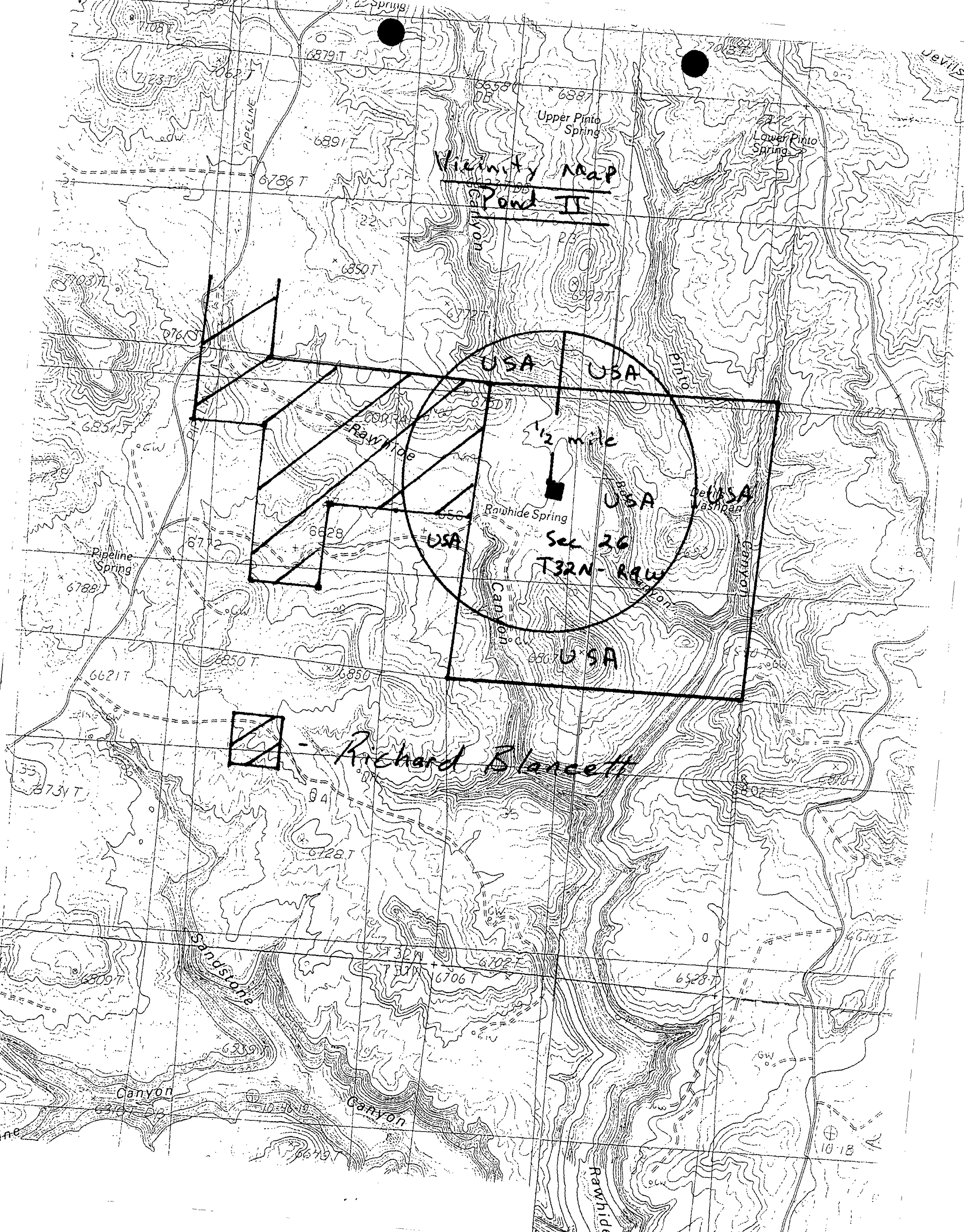
A fence will be constructed around the entire facility. The fence will be of sufficient strength to keep livestock out of the facility. The fence will be closed and locked at all times when the pond is not manned.

A sign at least 12" by 24" with 2" lettering will be placed at the facility entrance and will identify the owner/operator, location and emergency phone numbers.

A written application will be made of the district supervisor for exception to screening or netting this pit.

If there are any further questions please contact Koch Exploration Co. (318-832-5595) or Robert C. Frank (505-327-7660)

File:11AKOCHPD\EIGHT\DOODII



Vicinity Map
Pond II
USA
USA
USA
USA
USA
USA
1/2 mile
Sec 26
T32N-R9W
Richard Blancett
Upper Pinto Spring
Lower Pinto Spring
Rawhide Spring
Pipeline Spring
Rawhide
Canyon
Sandstone
Pinto
PIPELINE
Devils Washpan

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington, NM 87401

(505) 325-1085

Lab Sample No.: W93-237

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 21-Jul-93

Well Name: NA

Collection Time: 10:45 AM

Formation: Ground water spring

County: San Juan State: NM

Location: P/L spring on Arkansas Loop F

Analyst: K. Lambdin Karen C Lambdin

Remarks: None.

Analysis Date: 7/25/93

PARAMETER	As IOM		Comment
Sodium, Na	82	mg/l	
Potassium, K	3	mg/l	
Calcium, Ca	110	mg/l	
Magnesium, Mg	29	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	7.62	Units	
TDS	671	mg/l	

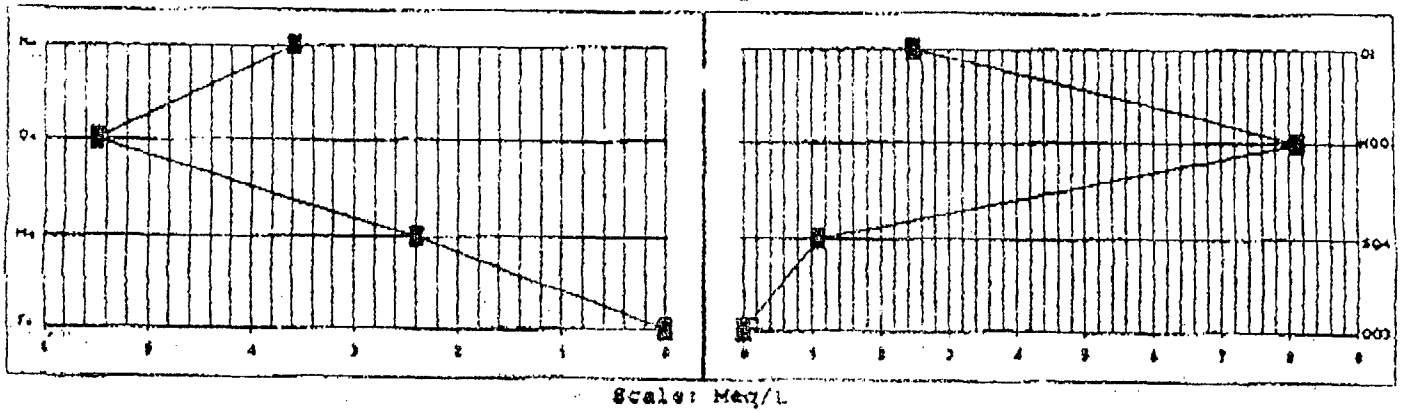
PARAMETER	As IOM		Comment
Chloride, Cl	88	mg/l	
Sulfate, SO4	52	mg/l	
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate, HCO3	496	mg/l	
Resistivity (@25 Degrees C)	9,960	ohm-m	
Conductivity	1,004	uS	
Specific Gravity (@ 60 Degrees F)	1.000	Units	

Remarks: None.

NR = Test Not Run

Anion/Cation: 101.5%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-233

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 19-Jul-93

Well Name: NA

Collection Time: 2:00 PM

Formation: Spring

County: San Juan State: NM

Location: Rawhide Spring

Analyst: K. Lambdin Karen C Lambdin

Remarks: None.

Analysis Date: 7/20/93

PARAMETER	as ION		Comment
Sodium , Na	21	mg/l	
Potassium, K	0	mg/l	<5
Calcium , Ca	92	mg/l	
Magnesium , Mg	15	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	8.00	Units	
TDS	435	mg/l	

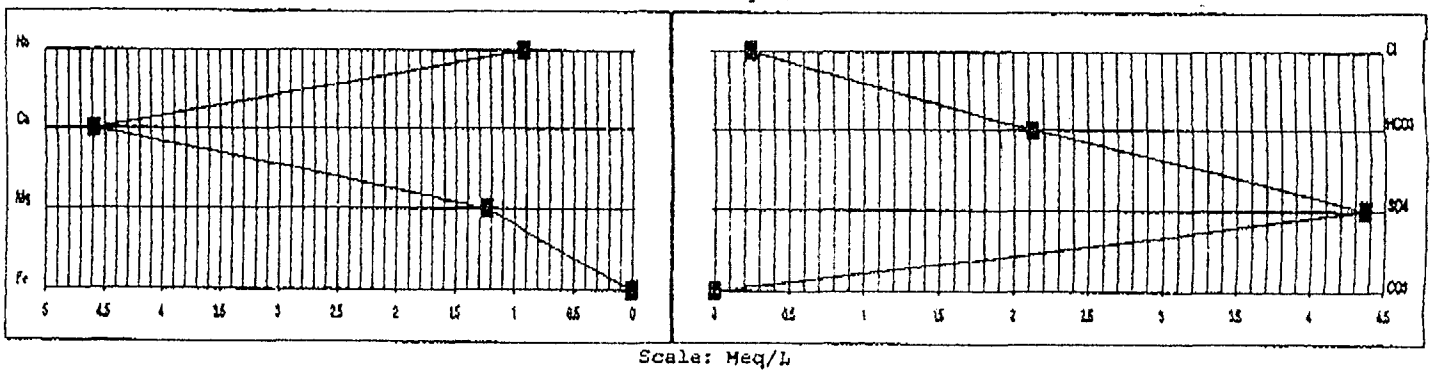
PARAMETER	as ION		Comment
Chloride , Cl	9	mg/l	
Sulfate, SO4	210	mg/l	
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate,HCO3	130	mg/l	
Resistivity (@25 Degrees C)	14.925	ohm-m	
Conductivity	670	uS	
Specific Gravity (@ 60 Degrees F)	1.000	Units	

Remarks: None.

NR = Test Not Run

Anion/Cation: 100.2%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 326-1085

Lab Sample No.: W93-275

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co.
Collection Date: 7-Aug-93

Well Name: Gardner 7C
Collection Time: 4:00 PM

Formation: Basin Fruitland Coal
County: San Juan State: NM

Location: Sec. 26-T32N-R9W
Analyst: K. Lambdin & S. Spencer

Remarks: None.
Analysis Date: 8/9/93

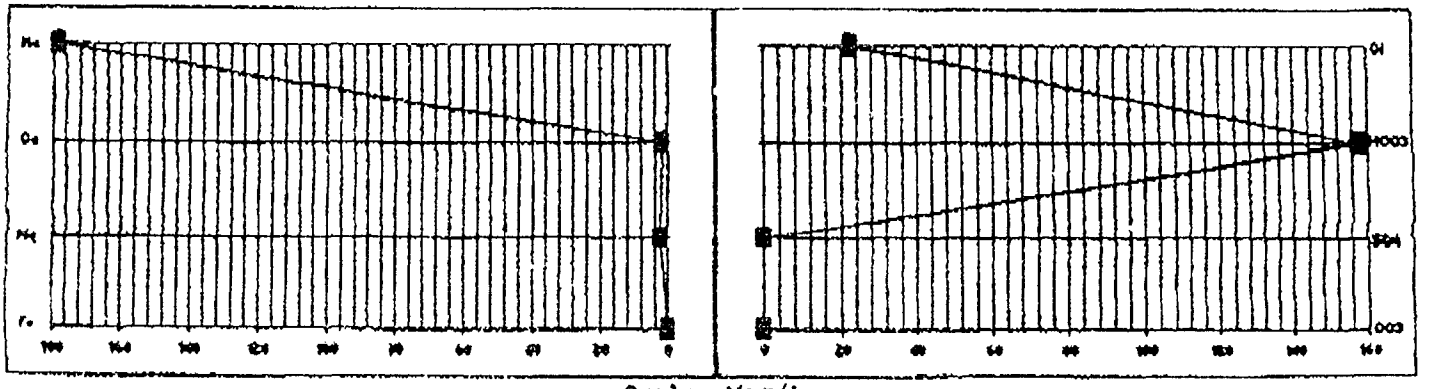
PARAMETER	AS ION		Comment	PARAMETER	AS ION		Comment
Sodium , Na	4,100	mg/l		Chloride , Cl	800	mg/l	
Potassium, K	18	mg/l					
Calcium , Ca	35	mg/l		Sulfate, SO4	0	mg/l	<5
				Hydroxide, OH	0	mg/l	
Magnesium , Mg	30	mg/l		Carbonate, CO3	0	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR	Bicarbonate, HCO3	9,600	mg/l	
				Specific Gravity (@ 60 Degrees F)	1.010	Units	
TDS	11,860	mg/l					

Remarks: None.

NR = Test Not Run

Anion/Cation: 98.3%

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington, NM 87401
(505) 325-1085

Lab Sample No.: W93-236

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Company

Collection Date: 21-Jul-93

Well Name: Blancett Com 1C

Collection Time: 11:00 AM

Formation: Basin Fruitland Coal

County: San Juan State: NM

Location: Sec.27 T32N R9W NE 1/4.

Analyst: K. Lambdin Karen C Lambdin

Remarks: None.

Analysis Date: 7/25/93

PARAMETER	as IOn		Comment
Sodium , Na	4,300	mg/l	
Potassium, K	15	mg/l	
Calcium , Ca	26	mg/l	
Magnesium , Mg	22	mg/l	
Iron, Fe (Total)	0.0	mg/l	NR
Hydrogen Sulfide	0	mg/l	NR
pH	7.89	Units	
TDS	11,490	mg/l	

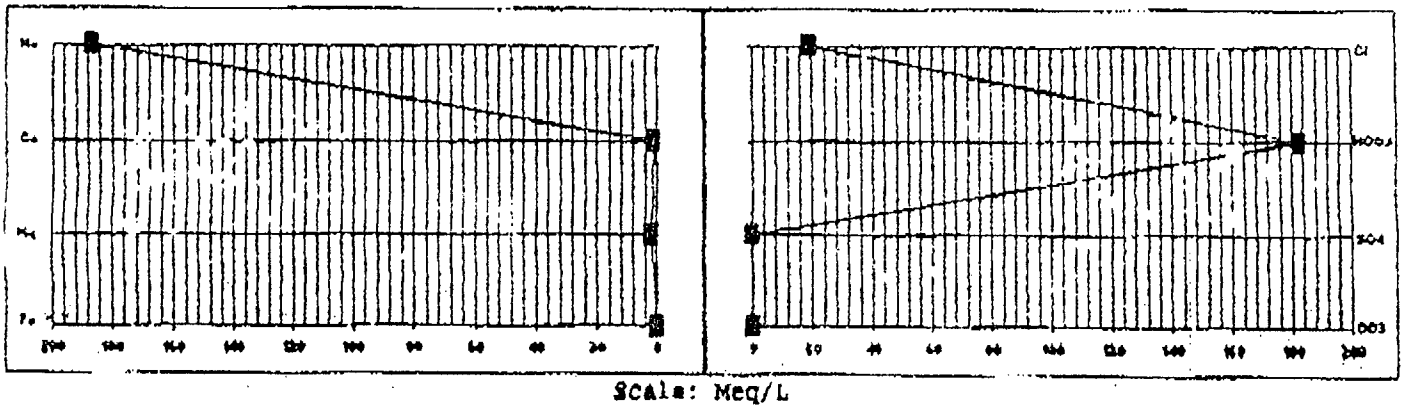
PARAMETER	as IOn		Comment
Chloride , Cl	686	mg/l	
Sulfate, SO4	0	mg/l	<5
Hydroxide, OH	0	mg/l	
Carbonate, CO3	0	mg/l	
Bicarbonate, HCO3	11,124	mg/l	
Resistivity (@25 Degrees C)	0.679	ohm-m	
Conductivity	14,730	uS	
Specific Gravity (@ 60 Degrees F)	1.016	Units	

Remarks: None.
Not enough sample to run H2S.

NR = Test Not Run

Anion/Cation: 105.96

Stiff Diagram



Scale: Meq/L

WATER ANALYSIS TESTING ENVIRONMENTAL REPORTS

1115 Farmington Avenue - Farmington , NM 87401
(505) 325-1085

Lab Sample No.: W93-38

Standard A.P.I. Water Analysis Report

Collected By: Don Johnson

Company: Koch Exploration Co. Collection Date: 2-Feb-93

Location: SW 1/4 Sec.26-T32-R9 Collection Time: Unknown

Formation: Fruitland Coal County: San Juan State: NM

Well Name: Gardner 5-C Analyst: K. Lambdin

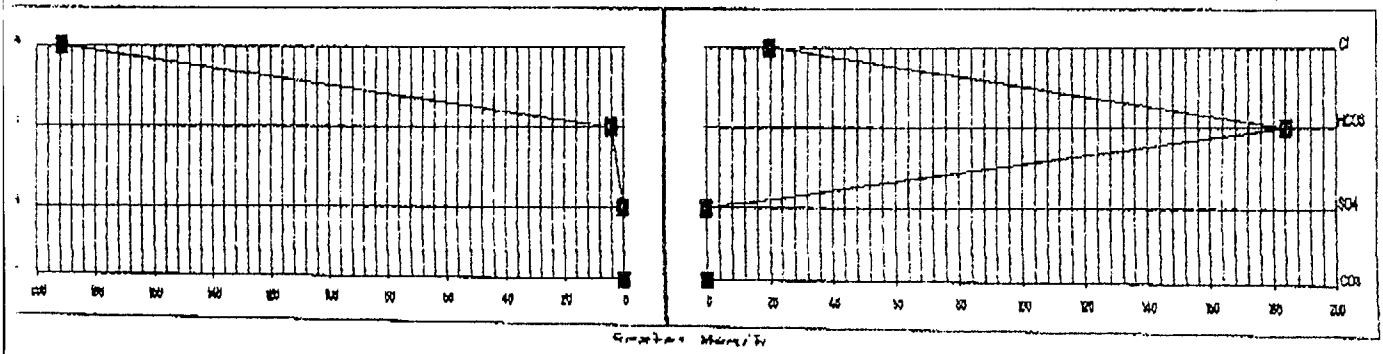
Remarks: none

PARAMETER	as ION		Comment	PARAMETER	as ION		Comment
odium , Na	4,400	mg/l		Chloride , Cl	709	mg/l	
otassium, K	0	mg/l	NR				
alcium , Ca	79	mg/l	TH as Ca	Sulfate, SO4	0	mg/l	<10
				Hydroxide, OH	0	mg/l	
agnesium , Mg	0	mg/l	NR	Carbonate, CO3	0	mg/l	
on , Fe(Diss.)	0.0	mg/l	NR	Bicarbonate,HCO3	11,224	mg/l	
ydrogen Sulfide	0	mg/l	NR	Resistivity (@25 Degrees C)	0.654	ohm-m	
H	7.70	Units		Conductivity	15,300	uS	
				Specific Gravity (@ 60 Degrees F)	1.022	Units	
DS	11,720	mg/l					

Remarks: Ca and Mg reported as Total Hardness as Ca.
This determination required a 30 minute acid digestion.
Not enough sample to run Fe and H2S.

R = Test Not Run Anion/Cation: 104.5%

Stiff Diagram



API WATER ANALYSIS REPORT FORM

Laboratory No. 25-910311-2B

Company	Sample No.	Date Sampled
Koch Exploration Co.		

Field	Legal Description	County or Parish	State
	SW¼ S35 T32 R9		

Lease or Unit	Well	Depth	Formation	Water, B/D
Gardner	C-1		Fruitland Coal	

Type of Water (Produced, Supply, etc.)	Sampling Point	Sampled By

TECH, Inc.
333 East Main
Farmington
New Mexico
87401
505/327-3311

DISSOLVED SOLIDS

CATIONS	mg/l	me/l
Sodium, Na (calc.)	2773.8	120.6
Calcium, Ca	49.7	2.5
Magnesium, Mg	23.3	1.9
Barium, Ba		

ANIONS	mg/l	me/l
Chloride, Cl	1772.5	50
Sulfate, So_4	n/a	n/a
Carbonate, CO_3	216	7.2
Bicarbonate, HCO_3	4135.8	67.8

Total Dissolved Solids (calc.) 8971.1

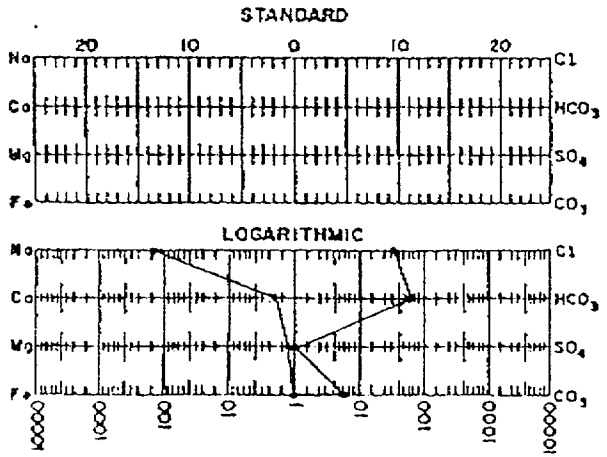
Iron, Fe (total)

Sulfide, as H_2S

OTHER PROPERTIES

pH	8.2
Specific Gravity, 60/60 F.	1.0051
Resistivity (ohm-meters) 72° F.	0.74

WATER PATTERNS — me/l



REMARKS & RECOMMENDATIONS:

Date Received	Preserved	Date Analyzed	Analyzed By
3-11-91		3-11-91	H.A.

SECTION B — CHEMICAL/ENVIRONMENTAL RESISTANCE

PART B-1: XR-5® FLUID RESISTANCE GUIDELINES

The data below is the result of laboratory tests and is intended to serve only as a guide. No performance warranty is intended or implied. The degree of chemical attack on any material is governed by the conditions under which it is exposed. Exposure time, temperature, and size of the area of exposure usually varies considerably in application, therefore, this table is given and accepted at the user's risk. Confirmation of the validity and suitability in specific cases should be obtained.

When considering XR-5 for specific applications, it is suggested that a sample be tested in actual service before specification. Where impractical, tests should be devised which simulate actual service conditions as closely as possible.

EXPOSURE	RATING
Acetic Acid (5%)	B
Acetic Acid (50%)	C
Ammonium Phosphate	T
Ammonium Sulfate	T
Antifreeze (ethylene glycol)	A
Animal Oil	A
Aqua Regia	X
ASTM Fuel A (100% Iso-octane)	A
ASTM Oil #2 (Flash pt. 240°C)	A
ASTM Oil #3	A
Benzene	X
Calcium Chloride Solutions	T
Calcium Hydroxide	T
20% Chlorine Solution	A
Clorox	A
Conc. Ammonium Hydroxide	A
Corn Oil	A
Crude Oil	A
Diesel Fuel	A
Ethanol	A
Ethyl Acetate	C
Ethyl Alcohol	A
Fertilizer Solution	A
#2 Fuel Oil	A
#6 Fuel Oil	A
Furfural	X
Gasoline	B
Glycerin	A
Hydraulic Fluid	A
Hydrocarbon Type II (40% Aromatic)	C
Hydrochloric Acid (50%)	A
Hydrofluoric Acid (5%)	A
Hydrofluoric Acid (50%)	A
Hydrofluosilicic Acid (30%)	A
Isopropyl Alcohol	T
Ivory Soap	A
Jet A	A
JP-4 Jet Fuel	A

EXPOSURE	RATING
JP-5 Jet Fuel	A
JP-8 Jet Fuel	A
Kerosene	A
Magnesium Chloride	T
Magnesium Hydroxide	T
Methanol	A
Methyl Alcohol	A
Methyl Ethyl Ketone	X
Mineral Spirits	A
Naptha	A
Nitric Acid (5%)	B
Nitric Acid (50%)	C
Perchloroethylene	C
Phenol	X
Phenol Formaldehyde	B
Phosphoric Acid (50%)	A
Phosphoric Acid (100%)	C
Phthalate Plasticizer	C
Potassium Chloride	T
Potassium Sulphate	T
Raw Linseed Oil	A
SAE-30 Oil	A
Salt Water (25%)	B
Sea Water	A
Sodium Acetate Solutions	T
Sodium Bisulfite Solution	T
Sodium Hydroxide (60%)	A
Sodium Phosphate	T
Sulphuric Acid (50%)	A
50% Tanic Acid	A
Toluene	C
Transformer Oil	A
Turpentine	A
Urea Formaldehyde	A
UAN	A
Vegetable Oil	A
Water (200°F.)	A
Xylene	X
Zinc Chloride	T

Ratings are based on visual and physical examination of samples after removal from the test chemical after the samples of Black XR-5 were immersed for 28 days at room temperature. Results represent ability of material to retain its performance properties when in contact with the indicated chemical.

RATING KEY:
A—Fluid has little or no effect
B—Fluid has minor to moderate effect
C—Fuild has severe effect
T—No data-likely to be acceptable
X—No data-not likely to be acceptable

SECTION A - PHYSICAL PROPERTIES

PART A-1: MATERIAL SPECIFICATIONS

8130 XR-5 : Property	Test Method	Requirement
1. Thickness	ASTM 751	30±2 mill (8130) 0.030 to 0.034 in. 40± 2 mill (8138)
2. Weight	ASTM D-751	30.0± 2 oz./sq. yd. (8130) 38.0± 2 oz./sq. yd. (8138)
3. Tear Strength	ASTM D-751	125 lbs./125 lbs.
4. Breaking Yield Strength	ASTM-D-751 Grab Tensile	475 lbs./425 lbs.
5. Low Temperature	ASTM-D-2136 4 hrs. — 1/8" mandrel	−30°F. No cracking
6. Dimensional Stability (each direction)	ASTM-D-1204 212°F.−1 hr.	2% max.
7. Hydrostatic Resistance	ASTM-D-751 Method A	500 psi (min.)
8. Blocking Resistance 180°F.	Method 5872 Fed. Std. 191a	#2 Rating Max.
9. Adhesion—Ply. lbs./in. of width	ASTM-D-413 2" per min.	9 lbs./in. (min.) or film tearing bond
10. Adhesion—heat sealed seam lbs./in. of width	ASTM-D-751	10 lbs./in. (min.)
11. Dead Load Seam shear strength	(Mil-T-52983E Para. 4.5.2.19 2" overlap seam	Must withstand 210 lbs./in. @ 70°F. 105 lbs./in. @ 160°F.
12. Abrasion Resistance (Taber Method)	Method 5306 Fed. Std. 191a H-18 Wheel 1000 gm. load	2000 cycles before fabric exposure 50 mg./100 cycles max. wt. loss
13. Weathering Resistance	Carbon-Arc Atlas Weather-o-meter	2,000 hrs. No appreciable changes or stiffening or cracking of coating
14. Water Absorption	ASTM-D-471 7 days	5% max. @ 70°F. 12% max. @ 212°F.
15. Wicking	Shelter-Rite procedure	1/8" max.
16. Puncture Resistance	FTMS 101B Method 2031	350 lbs.