

REPORTS

YEAR(S):

IN DIVISION OIL CONSER! ED RE C



Mid-Con. Int Region Production United States

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 11, 1991

David G. Boyer, Hydrogeologist Environmental Bureau Chief State of New Mexico Oil Conservation Division P. O. Box 2088 State Land Office Building Santa Fe, New Mexico 87504

Al Collar Hazardous Materials Coordinator Department of Interior Bureau of Land Management P. O. Box 1397 Roswell, New Mexico 88202

Gentlemen:

This letter is intended as a follow-up to our telephone conversation on the morning of September 9, 1991. In those conversations approval was requested and subsequently granted to drill an additional delineation well in the Indian Basin area at a location of S3200/W000. A archeological survey had already been completed, and indicated that there were no finds in this area. The procedures utilized in drilling the previous bedrock wells will be utilized in drilling this well.

We will keep you informed of the results obtained from drilling this well. Should you have any questions, please contact me.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

cc: J. L. Benson

A. R. Kukla

OFSSIJE Waler Amalyses Marathan Water Analyses
New Mock/ 2

Site Water Amalyses Locations

Location Sent to

#1. Lyman's Well Lyman

2. Upper Indian Hills Spring "

4. Biebelle Well "

5. Arroyo Spring Feeling Sursacuates Biebelle, Gregory

6. Upper Indian Hills Spring East Biebelle

7. Marathon (Moc) # 1 Marathon

8. Marathon (Moc) # 2 "

9. hee Water Tank Lee

10. Howell Windmill Howell

Misc Rocky Arroyo - Runosk 11 n Backwater - Runosk

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT









October 21, 1991

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE. NEW MEXICO 87504 (505) 827-5800

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

RE: OCD WATER WELL ANALYSIS

Dear Ms. Lyman:

On July 29, representatives of the New Mexico Oil Conservation Division (OCD) and Marathon Oil sampled your water well to determine if contamination may have occurred as a result of the leak from a flow line in Marathon's Indian Basin Field. Samples taken by OCD were analyzed for hydrocarbons, solvents, heavy metals and general water chemistry at our contract laboratory, ANA-LAB, in Kilgore, Texas. The sample analyses have been received and are attached.

The results of the sampling show that no hydrocarbons or abnormally high levels of inorganic constituents are present. The water can be characterized as a calcium-sulfate water whereas the water lost in the pipeline break is best described as a sodium-chloride water mixed with hydrocarbons. I enclose a list of water quality standards compiled by the NM Environment Department so that you can compare your results.

If you have any questions about the analyses or wish further information, please contact Bill Olson at 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist

Environmental Bureau Chief

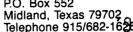
Attachment

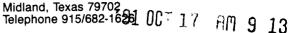
cc: OCD Artesia District Office

OIL CONSERY N DIVISION

REC: ZED









October 14, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water sample obtained from your well on September 30, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8526.

Sincerely,

Robert F. Unger Production Manager

RFU/SAP/elk

Attachments

cc: D. G. Boyer (NMOCD=Santa Fe)

Collar (BLM-Roswell)

J. L. Benson



October 3, 1991

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on September 16, 1991 and September 24, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson



October 2, 1991

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

RECEIVED

OCT 3 1991

OIL CONSERVATION DIV. SANTA FE

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on September 3, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

ay Kanan

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: *D. G. Boyer (NMOCD Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson



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TE NOIVISION

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 19, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on September 9, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

a g Karran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

O'L CONSERVE TON DIVISION RECEIVED



'91 81° 16 AM 9 53

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 10, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 16, 1991, August 17, 1991, August 18, 1991, August 20, 1991, August 21, 1991, August 22, 1991 and Augusrt 26, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman September 10, 1991 Page 2

Please note that at your specific request, the results are no longer being sent to you by registered mail. Plans are to continue sending you analytical results by ordinary mail in the future, unless you indicate otherwise.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a Nama A. j. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)
J. L. Benson



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 28, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 19, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 28, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

ag Konan A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)
J. L. Benson

R. F. Unger

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191 AUG 311 AM PO. 186x 552 Midland, Texa



PO. Bex 552 Midland, Texas 79702 Telephone 915/682-1626

August 26, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Merico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 14, 1991, and August 15, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 26, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

S.A. Poller for A.J.K.

A. J. Kavran Environmental and Safety Supervisor

AJK/elk

Attachments

cc: (D.M.G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger



OIL CONSERVATION DIVISION

RECTATED P.O. Box 552

Midland, Texas 79702

Telephone 915/682-1626

August 20, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 8, 1991, August, 9, 1991, August 10, 1991, August 11, 1991, August 12, 1991, and August 13, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 20, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

ag Karm

A. J. Kayran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger

Mid-Continent Region **Production United States**

Telephone 915/682-1626

P.O. Box 552 Midland, Texas 79702

OIL CONSERNATION DIVISION

REC: ED '91 AU= 23



August 16, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 6, 1991, and August 7, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 16, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 13, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on August 2, 1991, August 3, 1991, August 4, 1991 and August 5, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 13, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a & Kuran

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger

OIL CONSERT IN DIVISION



REF PED

11 AUR 17 AM 9 28

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 8, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on July 31, 1991, and August 1, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 8, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: (D. G. Boyer (NMOCD=Santa Re)

A. Collar (BLM-Roswell)

J. L. Benson A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 5, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on July 26, 1991, July 27, 1991, July 28, 1991, July 29, 1991 and July 30, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman August 5, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

ag Karan

A. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc.: D. G. Boyer (NMOCD-Santa Fe))

A. Collar (BLM-Roswell)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERY IN DIVISION Marathon Oil Company MARATHON

. ED RE:

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 31, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on July 24, 1991, and July 25, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman July 31, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kayran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: Ub. G. Boyer (NMOGD=Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 29, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on July 16, 1991, July 20, 1991, July 21, 1991, July 22, 1991, and July 23, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

In the state of th

Ms. Patricia Schaefer Lyman July 29, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elq

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 15, 1991

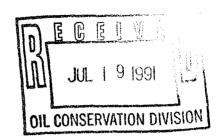
Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on July 8, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.



Ms. Patricia Schaefer Lyman July 15, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Thom 7- Zach

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVATION DIVISION RESERVED



Oil Company, 91 JUL 15 AM 10 02

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 10, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on June 29, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman July 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: (Da Ga Boyer (NMOCD-Santa Fe))

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 2, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 87504

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on June 3, 1991 and June 24, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Ms. Patricia Schaefer Lyman July 2, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: D. G. Boyer (NMOCD=Santa Fe)

Themas F. Jante

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

Mid-Continent Region Production United States → N DIVISION

OIL CONSERV ON !

REC: VED



'91 JUL 1 AM OP.O. 150x 552 Midland, Texas 79702 Telephone 915/682-1626

June 27, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 87504

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on May 20, 1991 and May 27, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present. You may note that the attached reports contain results for numerous other parameters. The Environmental Bureau of the New Mexico Oil Conservation Division requested that this one-time analyses be conducted to appropriately characterize the water. The results indicate that your water is typical, as compared to other waters in this area.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Ms. Patricia Schaefer Lyman June 27, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

AJ Kuran

A. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: D. Boyer (NMOCD Santa Re)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 686

OIL CONSERVATION DIVISION RECEIVED



Oil Company , 91 JUN 28 AM 9 30

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

June 26, 1991

Ms. Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 87504

Re: Water Well Analysis

Dear Ms. Lyman:

Final analytical results from the water samples obtained from your well on June 11, 1991, and June 17, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for these parameters as established by EPA for drinking water.

Ms. Patricia Schaefer Lyman June 26, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a & Xavan

A. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: (D. G. Boyer (NMOCD-Santa re))

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 682



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

May 14, 1991

Patricia Schaefer Lyman Queen Route Carlsbad, New Mexico 88220

Re: Freshwater Analysis

Dear Ms. Lyman:

As discussed by telephone, no hydrocarbons or abnormally high chloride concentrations were found to exist within the freshwater sample obtained from your water well on April 22. The results of this analysis are attached.

For your information, the leak that occurred in the Indian Basin Field resulted in condensate and produced water being released. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analysis of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analysis utilizing a procedure specifically approved for drinking water, as specified by the EPA. The tests were designed to evaluate potential contamination of your water from the released fluids described above. The results of these tests indicate your water to be well within standards established by the EPA for drinking water.

We will test your water weekly over the near term and continue to report results by telephone, as well as by written correspondence including copies of laboratory analysis. In the meantime, should you have any questions, feel free to call me collect at (915) 687-8542.

Very truly yours,

T. N. Tipton

Operations Superintendent

TNT; nrt/09191

cc: J. L. Benson

A. J. Kavran

R. F. Unger

D. L. Mannus (BLM-Carlsbad)

√ D. G. Boyer (NMOCD-Santa Fe)

Lyman water well

"CONFIDENTIAL BUSINESS INFORMATION"



CORR LABORATORIES

LABORATORY T E S T S RESULTS 10/09/91

JOB NUMBER: 911864 COSTONER: HARATHON DIE COMPANY ATTHE W. NIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN

PATE SAMPLED 09/30/91

WORK DESCRIPTION ...: 1

& LYMAN WELL

LABORATORY [.D...: 917864-0001 DATE RECEIVED 10/04/91 TIME RECEIVED 14:12 REMARKS.....

TEST DESCRIPTION	Pihal Result	LIMITS/ DILUTION	UNITS OF MEARING	TEST HETHOD	DATE	TEC
Chloride (unfilt.)	11.3	0.5	mg/L	325.2 (1)	10/07/91	M
8020 - AROMATIC VOLATILE ORGANICS	}	27		8020 (2)	10/07/91	MRC
Benzene Yoluene Ethyl Bonzene Xylanes	HD MD MD HD	1 1	ug/L ug/L ug/L ug/L			
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	:					

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PAGE:1



CORE LABORATORIES

LABORATORY TESTS REBULTS

10/01/91

CUSTUMER! MARATHON OIL COMPANY JOS NUMBER: 911797

HOKIH A CHITA

CLIENT 1.D......: 32-03-166 INDIAN BASIN

DATE SAMPLED 09/24/91 TIME SAMPLED: 08:50

WORK DESCRIPTION ...: 1

LABORATORY I.D...: 911797-0001 DATE RECEIVED ...: 09/26/91

TIME RECEIVED ...: 15:40
REMARKS.....

LYMAN WELL

TEST DESCRIPTION	PINAL RESULT	LIMITS/POILUTION	UPITS OF MEASURE	TEST NETHOS	DARG
Chloride (unfile.)	10.6	0.5	mg/L	325.2 (1)	09/27/91
8020 - ARCHATIC VOLATILE ORGANICS		#1		8020 (2)	09/20/91
Bénzéne Tolugne Éthyl Bénzene Xylanes	HO HD HD	1 1	ug/L ug/L ug/L ug/L		
			*		
•					

PROVED BY Single & Bankus

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LABORATORY

TESTS 09/30/91

RESULTB

IOS NUMBER: 911725 CUSTONER: MARATHON DIL COMPANY

ATTHE W. HIXON

CLIENT (.D...... 32-03-164 INDIAN BASIN

LABORATORY 1.0 ...: 911725-0003

DATE SAMPLED..... 09/16/91

DATE RECEIVED...: 09/17/91 TIME RECEIVED...: 11:45

WORK DESCRIPTION ...: 1

HEMARKS.....

Lyman Well

TRET DESCRIPTION	FINAL DESULT	LIMITS/*DILUTION	Units of Measure	TEST METHOD	DATE	TEC
Chloride (Unfilt.)	11_1	0.9	mg/L	325.2 (1)	09/24/91	-
8020 - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	09/20/91	M
Bertzene Yeluene Ethyl Benzeno Xylenes	HD HD HD	1 1 1	ug/L ug/L ug/L			
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1300 S. Potomsc St., Suite 130 Aurora, CO 60012 (903) 751-1780

PAGE:3

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LABORATORY TESTS RESULTS

09/20/91

JOB NUMBER: 911646

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 09/03/91

TIME SAMPLED: 13:40 WORK DESCRIPTION ...: 1

LABORATORY 1.D...: 911646-0005 DATE RECEIVED: 09/04/91

TIME RECEIVED: 15:30

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	12.1	0.5	mg/L	325.2 (1)	09/05/91	MW
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/05/91	MRC
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

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LABORATORY

TESTS

RESULTS

09/13/91

JOB NUMBER: 911689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

LABORATORY I.D...: 911689-0001 DATE RECEIVED: 09/11/91

DATE SAMPLED.....: 09/09/91 TIME SAMPLED.....: 10:36

TIME RECEIVED: 15:25

WORK DESCRIPTION...: 1

REMARKS....:

LYMP: Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	12.7	0.5	mg/L	325.2 (1)	09/12/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/12/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1 1	ug/L ug/L ug/L ug/L	8020 (2)	09/12/91	M

APPROVED BY: Elle

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LABORATORY

RESULTS

08/30/91

TESTS

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/26/91 TIME SAMPLED.....: 14:55 WORK DESCRIPTION ...: 1

LABORATORY I.D...: 911616-0001

DATE RECEIVED: 08/28/91 TIME RECEIVED: 15:26

REMARKS....:

LYMAN WATER WELL

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	12.4	0.5	mg/L	325.2 (1)	08/29/91
020 - AROMATIC VOLATILE ORGA	INICS	*1		8020 (2)	08/29/91
Benzene	ND	1	ug/L		
Toluene	ND	1	ug/L		
Ethyl Benzene Xylenes	ND ND	1	ug/L ug/L		
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		1		1	

PAGE:1

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LABORATORY

TESTS 08/28/91

RESULTS

JOB NUMBER: 911589

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/22/91 TIME SAMPLED.....: 09:40 WORK DESCRIPTION...: 1

LABORATORY I.D...: 911589-0005 DATE RECEIVED....: 08/23/91

TIME RECEIVED....: 16:35

REMARKS....:

IYMAN WATED WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	12.7	0.5	mg/L	325.2 (1)	08/26/91	C
8020 - AROMATIC VOLATILE ORGAN	11CS	*1		8020 (2)	08/26/91	۲
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

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LABORATORY

TESTS 08/28/91

RESULTS

JOB NUMBER: 911581

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/21/91

DATE RECEIVED....: 08/22/91 TIME RECEIVED....: 15:50

LABORATORY I.D...: 911581-0001

TIME SAMPLED.....: 10:40 WORK DESCRIPTION...: 1

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	17.9	0.5	mg/L	325.2 (1)	08/23/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/26/91	М
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
			1			
			i			

APPROVED BY:

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LABORATORY

TESTS

RESULTS

08/28/91

JOB NUMBER: 911589

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE RECEIVED....: 08/23/91

LABORATORY I.D...: 911589-0004

DATE SAMPLED.....: 08/20/91

TIME SAMPLED.....: 09:03

TIME RECEIVED....: 16:35 REMARKS....:

WORK DESCRIPTION...: 1

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chloride (Unfilt.)	11.5	0.5	mg/L	325.2 (1)	08/26/91
8020 - AROMATIC VOLATILE ORGANICS		*1	-	8020 (2)	08/26/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY: Eller

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LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D..... 32-03-144 INDIAN BASIN

WORK DESCRIPTION ...: 1

DATE SAMPLED.....: 08/19/91 TIME SAMPLED.....: 15:17

DATE RECEIVED....: 08/21/91 TIME RECEIVED....: 16:06

LABORATORY I.D...: 911575-0001

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	13.5	0.5	mg/L ·	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		
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LABORATORY

TESTS RESULTS

08/28/91

JOB NUMBER: 911589

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/18/91 TIME SAMPLED.....: 10:51 WORK DESCRIPTION...: 1

LABORATORY I.D...: 911589-0003

DATE RECEIVED: 08/23/91 TIME RECEIVED....: 16:35

REMARKS....:

LYMAN WATER WELL

	166 00 61				
TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	12.6	0.5	mg/L	325.2 (1)	08/26/91 0
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/27/91 M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
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PAGE:3

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LABORATORY

TESTS

RESULTS

08/28/91

JOB NUMBER: 911589

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911589-0002

DATE SAMPLED.....: 08/17/91 TIME SAMPLED.....: 16:30

DATE RECEIVED....: 08/23/91 TIME RECEIVED: 16:35

WORK DESCRIPTION...: 1

REMARKS..... BUBBLE IN 1 VOA-CL ONLY

LYMAN WATER WI	ELL
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TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	12.0	0.5	mg/L	325.2 (1)	08/26/91 D
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/26/91 M
Benzene	ND	1	ug/L	ļ	
Toluene	ND	1	ug/L		
Ethyl Benzene	ND	1	ug/L		
Xylenes	ND	1	ug/L		

APPROVED BY: Eller

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CUMPTUENTIAL BUSINESS INFORMATION



CORE LABORATORIES

LABORATORY

TESTS

RESULTS

08/28/91

JOB NUMBER: 911589

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE RECEIVED....: 08/23/91

LABORATORY I.D...: 911589-0001

DATE SAMPLED....: 08/16/91 TIME SAMPLED....: 15:30

TIME RECEIVED....: 16:35

WORK DESCRIPTION...: 1

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	12.5	0.5	mg/L	325.2 (1)	08/26/91	D
3020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/26/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY: Elle

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08/20/91 JOB NUMBER: 97,1569 CUSTONIR: MARATHON CIL COMPANY ATTWE U. NIXON

TESTS

RESULTS

LABORATORY

CLIENT 1.D...... 32-05-144 INDIAN BASIN

DATE SAMPLED: 08/15/91
TIME SAMPLED 09:00
WORK DESCRIPTION ...: 1

LABORATORY I.D...: 911569-0001 DATE RECEIVED ...: 08/16/91 TIME RECEIVED ...: 14:00 REMARKS.....

TEST DESCRIPTION	FINAL RESULT	LIMITELADIFOLICH	UKLTS OF HEASURE	TEST METHOD	UATE HERE	TECH
Chioride (Unfilt.)	12.2	0.5	mg/L	325.2 (1)	08/19/91	LTG
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/19/91	HRC
Senzeno Toluche Ethyl Senzene Xylones	ND ND ND	1	ug/L ug/L ug/L ug/L			
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Benkers APPROVED BY

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PAGE:1

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CUSTOMER MARATHON DIL COMPANY

ATTN) Synixon

GLIENT (.D...... 32-03-146 INDIAN BARIN

DATE SAMPLED....: 08/14/91 TIME SAMPLED....: 09:11

JOB NUMBER: 911540

LABORATORY 1.D...: 911540-0001 DATE RECEIVED: 08/15/91 TIME RECEIVED: 14:10

WORK DESCRIPTION ...: 1

REMARKS,....

TEST DESCRIPTION FINAL RESULT LIMITE .. DILUTION UNITS OF MEASURE TEST METHOD DATE TECHN Chloride (Unffit.) 11.8 0.5 mg/L 325.2 (1) 08/19/91 LTQ 8020 - AROMATIC VOLATILE ORGANICS #1 8020 (2) 08/15/91 PCH Benzene ND ug/L Toluene ND ug/L Ethyl Benzamo ND ug/L Xylangs ND ug/I

inde I Berbus IPPROVED BY:

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CORE LABORATORIES

LABORATORY

TESTS RESULTS

08/16/91

JOB NUMBER: 911530

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED....: 08/13/91 TIME SAMPLED....: 09:20 LABORATORY I.D...: 911530-0001 DATE RECEIVED....: 08/14/91

TIME RECEIVED....: 13:25

REMARKS....:

WORK DESCRIPTION...: 1

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	12.1	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L		1	
Ethyl Benzene	ND ND	1	ug/L			
Xylenes	ND ,	1	ug/L			
					,	

APPROVED BY: Jinda J. Burkers

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RESULTS LABORATORY TESTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/12/91 TIME SAMPLED.....: 14:49

WORK DESCRIPTION ...: 1

LABORATORY I.D...: 911529-0001

DATE RECEIVED....: 08/14/91 TIME RECEIVED....: 13:25

REMARKS..... BUBBLE IN 1 VOC- CL ONLY

LYMAN	WATER	WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	12.5	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•	
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CORE LABORATORIES

LABORATORY

TESTS RESULTS

08/15/91

JOB NUMBER: 911519

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911519-0003

DATE SAMPLED....: 08/11/91 TIME SAMPLED....: 07:30

DATE RECEIVED: 08/13/91 TIME RECEIVED: 16:40

WORK DESCRIPTION...: 1

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Chloride (Unfilt.)	13.7	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1	,	8020 (2)	08/14/91	PCM
Benzene Toluëne Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•	
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			1.			

APPROVED BY

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CORE LABORATORIES

LABORATORY

RESULTS TESTS

08/15/91

JOB NUMBER: 911519

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/10/91

LABORATORY I.D...: 911519-0002 DATE RECEIVED....: 08/13/91 TIME RECEIVED....: 16:40

TIME SAMPLED.....: 07:53

REMARKS....:

WORK DESCRIPTION...: 1

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	13.6	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/14/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
·						

APPROVED BY:

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PAGE:2

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CORE LABORATORIES

LABORATORY

TESTS

RESULTS

08/15/91

JOB NUMBER: 911519

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/09/91
TIME SAMPLED.....: 07:42
WORK DESCRIPTION...: 1

LABORATORY I.D...: 911519-0001
DATE RECEIVED....: 08/13/91
TIME RECEIVED....: 16:40

REMARKS....:

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE: TI	ECHA
Chloride (Unfilt.)	13.6	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/14/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•	

APPROVED BY: Junda J. Burbers

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LABORATORY

TESTS 08/15/91

RESULTS

JOB NUMBER: 911506

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/08/91 TIME SAMPLED: 08:42

WORK DESCRIPTION ...: 1

LABORATORY I.D...: 911506-0001 DATE RECEIVED: 08/09/91 TIME RECEIVED: 15:45

REMARKS....:

WELL LYMAN WATER

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Chloride (Unfilt.)	13.2	0.5	mg/L	325.2 (1)	08/12/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1	•	8020 (2)	08/14/91	MRC
Benzene	ND	1	ug/L			
Toluene	ND ND	1	ug/L			
Ethyl Benzene Xylenes	ND ND	1 1	ug/L ug/L			
.,		·				
			:			
			:			
·						
		,				

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY TESTS RESULTS

08/12/91

JOB NUMBER: 911494

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/07/91 TIME SAMPLED.....: 07:20

DATE RECEIVED....: 08/08/91

TIME RECEIVED: 16:15

REMARKS....:

LABORATORY I.D...: 911494-0002

WORK DESCRIPTION...: 1

Lyman Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chloride (Unfilt.)	13.3	0.5	mg/L .	325.2 (1)	08/12/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/09/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•

unda J. Benken APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY

TESTS

RESULTS

08/12/91

JOB NUMBER: 911494

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911494-0001

DATE SAMPLED.....: 08/06/91 TIME SAMPLED.....: 07:35

DATE RECEIVED....: 08/08/91

TIME RECEIVED....: 16:15

WORK DESCRIPTION...: 1

REMARKS....:

Lyman Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	13.2	0.5	mg/L	325.2 (1)	08/12/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/09/91 N
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

Einda J. Benkers APPROVED BY

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PAGE:1

"CONFIDENTIAL BUSINESS INFORMATION"



CELLI DI BENVINA, EVEVINADO

CORE LABORATORIES

T E S T S 08/08/91 LABORATORY RESULTS

JOS NUMBER: 911477

CUSTOMER : MARATHON OIL COMPANY

ATTHE W. NEXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY (.D...: 911477-0004

DATE BAMPLED....: 08/05/91 TIME SAMPLED....: 09:01

DATE RECEIVED.... 08/06/91 TIME RECEIVED...: 13:95

WORK DESCRIPTION 1

REMARKS......

Lyman Water Well

EST DESCRIPTION	FINAL RESULT	HOLTUSION NOT THESE	UNITS OF MEASURE	TOUR HETHOD	DATE
Chloride (Unfilt.)	13.1	0.5	mg/L	325.2 (1)	08/08/91
3020 - ARCHATIC VOLATILE ORGANICS		*1		4020 (2)	08/07/91
Genzene Toluene Ethyl Genzene Xylenea	MP MD ND NO	1 1	내용/L 내용/L 내용/L		A

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SENT BY ALRORA, COLUMADO

, Or Orall - Graden -TORE EMBORATORISE

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Core Laboratories

1 E S 7 S RESULTS LABGRATORY

08/08/91

JOB NUMBER: 911477 CUSTOMER: MARATHON OIL COMPANY ATTHE W. WINDW

CLIENT I.D...... 32-Q3-144 INDIAN BASIN

LABORATORY (.D...: 911477-0003

DATE SAMPLED: 08/04/91 TIME SAMPLED 11162

DATE RECEIVED...: 08/06/91 TIME RECEIVED...: 13:35

WORK DESCRIPTION

REMARKS..... 1 YOA HAS BUBBLE (CL

LYMAN WATER WELL

EST DESCRIPTION	FINAL RESULT	LINITE/*DILUTION	UNITS OF MEASURE	TEST HETHOD.	DATE
hiorida (Unfilt.)	13.2	0.5	ms/L	325.2 (1)	08/08/
020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/08/
Benzene Tatuane Ethyl Benzene Xylanes	HD HD HD	1 1 1 1	นธ/L นธ/L นธ/L บอ/L		
				,	

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PAGE: 3

SENT BY: ALKURA. COLUMNOU

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTS 08/08/91

JOS NUMBER: 911477 CUSTOMERS MARATHON OIL COMPANY ATTHS W. NIXON

CLIENT 1.D...... 32-03-166 INDIAN GASIN

CATE SAMPLED: 08/03/91

TIME BAMPLED: 07:50 WORK DESCRIPTION ...: 1

LYMAN WATER WELL

LABORATORY 1.D...: 911477-0002 DATE RECEIVED...: 08/06/91 TIME RECEIVED...: 13:55

REMARKS

EST DESCRIPTION	FINAL RESULT	LIMITEA * OTCUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	13.0	0.5	mg/L	325.2 (1)	08/08/
1020 - ARCHATIC VOLATIIE ORGANICS		v1		8020 (2)	08/07/
Benzono Tolucho Ethyl Benzono Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L	1.00	
			:		

APPROVED BY: Ellen J. Matzge!

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

+ 8- 3-91 : 8:59AM : CORE LADONATORILA LING GÖFTASAM MOST

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY 7 8 8 T 5 RESULTS

CUSTOMER'S MARKTHON OIL COMPANY

08/08/91

ATTHS . W. MIKON

......

CLIENT 1.0...... 32-03-144 INDIAN BASIN

DATE SAMPLED....: 08/02/91 TIME SAMPLED....: 19:05

JOB NUMBER: 911477

DATE RECEIVED ...: 08/06/91 YING RECEIVED ...: 13:55

LABORATORY 1.D...: 911477-0001

WORK DESCRIPTION ...: 1

REMARKS.....

TEST DESCRIPTION	PINAL RESULT	LIMITS/-DILUTION	UNITS OF MEASURE	TEST METHOD	CATE	Ţ
Chioride (Unflit.)	13.0	0.5	mg/L	329.2 (1)	08/08/91	(
8020 - AROMATIC VOLATILE ORGANICS		#1		8020 (2)	08/07/91	1
Benzene Toluene Ethyl Benzene Xylenes	NO NO NO		ug/L ug/L ug/L ug/L			

PPHUVED BY:

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Core Laboratories

LABORATORY TESTS RESULTS 08/06/91

CLIENT I.D..... 32-03-144 INDIAN BASIN DATE SAMPLED..... 06/01/91

LOAFTO TABBAUN BOL

LABORATORY [.D...: 911461-0001

TIME SAMPLED 09:04 WORK DESCRIPTION ...: 1

DATE RECEIVED: 08/02/91 TIME RECEIVED 14:00

ATTHY M. HIXOH

REMARKS.....

LYMAN WATER WELL

CUSTOME . MARATHON DIL COMPANY

EST DESCRIPTION	FINAL PERULT	TIMITE DILLY TON	units of Measure	TERT METHOD	PATE
hloride (Unfflt.)	12.2	0,5	mg/L	325.2 (1)	08/05/91
020 - ARCMATIC VOLATILE ORGANICS		•1		8020 (2)	08/02/91
Benzene Toluene Ethyl senzene	ND ND	1	ug/L ug/L		
Xylenes	ND ND	1	ug/L		
					Į
•				1	
		1			
]			
	}				
		Ì			

APPROVED BY:

1300 S. Potomec St., Suite 130 Aurors, CO 80012 (303) 751-1760

: 8- 5-91 ; 2:50PM ; CORE LABORATORIES→

303 794 1720:# 8

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTS

08/05/91

JOB HUMBER: 911450 CUBTONER: MARKENGE OIL COMPANY

ATTHE M. HIKCH great the

CLIENT 1.D...... 32-03-144 INDIAN BASIN

DATE GAMPLED 2 07/31/91

LABORATORY 1.D...: 911450-0001 DATE RECEIVED ...: 08/01/91

TIME SAMPLED : 09:55 WORK DESCRIPTION...: 1

TIME RECEIVED 11:40

REMARKS

LYMAN WATER WELL

EST DESCRIPTION	FINAL RESULT	LIMITS/+DILUTION	UNITS OF MEASURE	THET HET KOD	DATE
hlor ide (U nfilt.)	12.2	0.5	mg/L	325.8 (1)	08/03/9
020 - AROMATIC VOLATILE ORGANICS		41)	8020 (2)	08/02/9
Benzene Toluene Bihyl Benzene Xylenes	ND ND ND	1	ug/L ug/L ug/L ug/L		

APPROVED SY:_

1300 6. Potemas St., Suita 130 Aurora, CO 80012 (303) 751-1780

303 794 1720;#1

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CORE LABORATORIES

LABORATORY TESTS RESULTS

08/02/91

JOB NUMBER: 911436

CUSTONER'S HARATHOS OIL COMPANY

ATTN: W. NIXON

CLIENT 1.D...... 32-03-164 INDIAN BASIN

LABORATORY 1.D...: 911436-0010 DATE RECEIVED: 07/31/91

TIME RECEIVED: 15:15

DATE SAMPLED....: 07/30/91 TIME SAMPLED....: 08:35 WORK DESCRIPTION...: 1

ASMARKS.....

Lyman Water Well

EST DESCRIPTION	FINAL REBULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	12.8	0,5	mg/L	325.2 (1)	08/01/91
3020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/02/91
Benzene Toluene Ethyl Benzene Kylenes	GH D D D D	1 1 1	ug/L ug/L ug/L ug/L		

Zinde & Burlino APPROVED BY:

1300 S. Potomas St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE: 10

Projektik dan rammang granskalt alla sampling genamel et ang begins ini kalimat kamat kamarinda menoro og skir samam kamar saman i bil di har samam sa dikamarinda menoro hadi dipag kamarinda menori i kamaring menoro og skir samam kamarinda menoro og skir samam kamarinda menoro di kamarinda menoro og skir samam kamarinda menoro og skir sama

TO TO TO THE WARRING CONTRACTOR OF THE WARRI



CORE LABORATORIES

LABORATORY 78878 RESULTS

06/02/91

JOB WUNSER: 911436 CUSTOMER: MARATHON OIL COMPANY

ATTHE W. HIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN DATE BAMPLED..... 07/29/91

TIME SAMPLED 06:19 WORK DESCRIPTION ...: 1

LABORATORY 1.D...: 911436-0001 DATE RECEIVED 07/31/91 TIME RECEIVED 15:19

REMARKS....:

Lyman Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITE/#DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	12.5	0.5	mg/L	325.2 (1)	08/01/91
8020 - ARCMATIC VOLATILE ORGANICE		* 7		8020 (2)	08/01/91
Benzene Taluane Ethyl Benzene Xylenes	HO OH OH OH		ug/L ug/L ug/L		

APPROVED BY: Timeder T. Broken

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



09/11/91

RECEIVED

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

SEP 1 3 1991

OIL CONSERVATION DIV SANTA FE

Sample Identification:

Lyman Water Tank

Collected By:

Date & Time Taken: 07/29/91 1017

On Site Data:

Marathon Indian Basin

Lab Sample Number:

192237 Received:

07/31/91

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinīty	230	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	MB
Bromide	8	mg/l	1200	08/16/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	16.2/15.6	meq/meq	1600	09/10/91		sĸ
Carbonate	<.5	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	980	ppm	1500	09/06/91	APHA Method 1030F	BP2
Specific Conductance	1000	Micromhos	0030	08/01/91	EPA Method 120.1	SB
Fluoride	1.3	mg/l	1400	08/06/91	EPA Method 340.1	BC
Bicarbonate	230	mg/l	1600	08/14/91	APHA Method 263	ВС
Sulfate	450	mg/l	1230	08/14/91	EPA Method 375.4	MB
рH	7.0	SU	0100	08/01/91	EPA Method 150.1	SB
Chloride	20	mg/l	1300	08/12/91	EPA Method 325.3	HG
Silver	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Aluminum	<.03	mg/l	1400	08/06/91	EPA Method 6010	GK
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK
Barium	.02	mg/l	1910	08/07/91	EPA Method 6010	GK





192237 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Beryllium	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Calcium	200	mg/l	1400	08/05/91	EPA Method 6010	NT
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Chromium	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Copper	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Iron	<.05	mg/l	1400	08/05/91	EPA Method 6010	NT
Mercury	<.001	mg/l	1730	08/01/91	EPA Method 245.3	MET
pissolved Potassium	<2	mg/l	1400	08/05/91	EPA Method 6010	NT
Dissolved Magnesium	70	mg/l	1400	08/05/91	EPA Method 6010	NT
Dissolved Manganese	<.01	mg/l	1400	08/05/91	EPA Method 6010	NT
Molybdenum	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Sodium	10	mg/l	1400	08/05/91	EPA Method 6010	NT
Nickel	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Lead	.001	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.1	mg/l	1910	08/07/91	EPA Method 6010	GK
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	8.0	mg/l	1350	08/15/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1350	08/15/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1350	08/15/91	EPA Method 6010	GDG
Zinc	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
_						

Continued

192237 Continued

Page 3

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вұ
Acrolein	ND(100)	ug/l	0935	08/13/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	0935	08/13/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Bromoform	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
Chloroethylvinyl ether	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	P₩
Chloroform	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
Ethyl benzene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	P₩

Continued



192237 Continued

Page 4

	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	Methylene Chloride	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Tetrachloroethene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Toluene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	1,1,1-Trichloroethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Trichloroethene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Trichlorofluoromethane	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
1	Vinyl Chloride	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND(5.0)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Xylenes	ND(10)	ug/l	0935	08/13/91	EPA Method 8240	PM
	Benzene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB
	Ethyl benzene	<0.4	ug/l	0800	08/05/91	EPA Method 8020	КВ
	Toluene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ
	Xylenes	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 192237

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/l as	C 2358		103	1900	08/13/91	BW
191618	Duplicate	300	mg/l as	C 300		100	1900	08/13/91	BW
191618	Spike		mg/l as	С		100	1900	08/13/91	BW
				Boro	n.				
	Blank	.000	mg/l				1700	08/09/91	MB





Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	.51	mg/l	.50		102	1700	08/09/91	МВ
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
				Bromid	le				
	Standard	100	mg/kg	100		100	1200	08/16/91	ES
192244	Duplicate	55	mg/kg	50		110	1200	08/16/91	ES
			-	scific Cor	nductanc				
192237	Duplicate	1000	Micromhos			100	0030	08/01/91	SB
192239	Duplicate	800	Micromhos			100	0030	08/01/91	SB
192240	Duplicate	810	Micromhos			106	0030	08/01/91	SB
				Fluori	ide				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	BC
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	BC
				Sulfat	:e				
	Standard	92	mg/l	100		108	1230	08/14/91	MB
192324	Duplicate	1300	mg/l	1300		100	1230	08/14/91	MB
192324	Spike		mg/l		100	133	1230	08/14/91	MB
				Hq					
	Standard	Calibrate		7.0			0100	08/01/91	SB
	Standard	Calibrate		10.0			0100	08/01/91	SB
M 02237	Standard	8.0	SU	8.0		100	0100	08/01/91	SB
192237	Duplicate	7.0	SU	7.0 Chlori	4.	100	0100	08/01/91	SB
	a. t. l	70	41		Lae	404	4700	00 (42 (04	110
100007	Standard	72	mg/l	71		101	1300	08/12/91	HG
192997	Duplicate	16	mg/l	15 Silve		106	1300	08/12/91	HG
		. 04		SIIVE	3 E		4040	00 (07 (04	01/
	Blank	<.01	mg/l			400	1910	08/07/91	GK
	Standard	.20	mg/l	.20		100	1910	08/07/91	GK
400040	Standard	1.0	mg/l	1.0		100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01	4.0	100	1910	08/07/91	GK
192239	Spike		mg/l	Alumin	1.0	99	1910	08/07/91	GK
	5 1 1	. 07	41	Alumii	ıum		4/00	00.40/.404	OK
	Blank	<.03	mg/l	1.0		100	1400	08/06/91	GK
	Standard	1.0	mg/l	1.0		100	1400	08/06/91	GK
400040	Standard	5.1	mg/l	5.0		102	1400	08/06/91	GK
192240	Duplicate	<.03	mg/l	<.03		100	1400	08/06/91	GK
192239	Spike		mg/l	3 *** * * *	2.0	94	1400	08/06/91	GK
	D 1 1	. 005		Arseni	LC		1/00	00/4//04	CK.
	Blank	<.005	mg/l	400		404	1600	08/14/91	GK
404440	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005	400	100	1600	08/14/91	GK
192240	Spike		mg/l	D	.100	91	1600	08/14/91	GK
	51 1	. 04		Bari	AIII		4040	09 (07 (04	6 1
	Blank	<.01	mg/l				1910	08/07/91	GK



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	3.9	mg/l	4.0		103	1910	08/07/91	GK
	Standard	5.2	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	.04	mg/l	.04		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	99	1910	08/07/91	GK
				Beryll	ium				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	.09	mg/l	.10		111	1910	08/07/91	GK
	Standard	2.0	mg/l	2.0		100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	98	1910	08/07/91	GK
				Dissolved	Calcium				
	Blank	.16	mg/l				1400	08/05/91	NT
	Standard	10	mg/l	10		100	1400	08/05/91	TM
	Standard	46	mg/l	50		108	1400	08/05/91	NT
192237	Duplicate	200	mg/l	200		100	1400	08/05/91	NT
192240	Spike		mg/l		18	93	1400	08/05/91	NT
				Cadmi	um				
	Blank	<.001	mg/l				1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
				Cobo	1t				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.97	mg/l	1.0		103	1910	08/07/91	GK
	Standard	4.6	mg/l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	98	1910	08/07/91	GK
				Chrom	ium				
	Blank	<.02	mg/l				1910	08/07/91	GK
	Standard	.20	mg/l	.20		100	1910	08/07/91	GK
	Standard	4.8	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	85	1910	08/07/91	GK
				Copp	er				
	Blank	<.02	mg/l				1910	08/07/91	GK
	Standard	.48	mg/l	.50		104	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
				Dissolve	d Iron				
	Blank	<.05	mg/l				1400	08/05/91	NT
	Standard	2.0	mg/l	2.0		100	1400	08/05/91	NT
	Standard	5.2	mg/l	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.05	mg/l	<.05		100	1400	08/05/91	NT
192240	Spike		ag/l		3.7	106	1400	08/05/91	NT
			-	issolved P					



Sample #	Description	Result	Units	Dup/Std Va	lue Spk Conc.	Percent	Time	Date	Ву
	Blank	<2	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	49	mg∕l	50		102	1400	08/05/91	NT
192237	Duplicate	<2	mg/l	<2		100	1400	08/05/91	NT
192240	Spike		mg/l		18	110	1400	08/05/91	NT
	•			issolved	Magnesium				
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	99	mg/l	100		101	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	NT
192237	Duplicate	69	mg/l	70		101	1400	08/05/91	NT
192240	Spike		mg/l		18	95	1400	08/05/91	NT
			D	issolved	Manganese	1			
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	.30	mg/l	.30		100	1400	08/05/91	NT
	Standard	5.2	mg/l	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.01	mg/l	<.01		100	1400	08/05/91	NT
192240	Spike		mg/l		18	106	1400	08/05/91	NT
				Moly	bdenum				
	Blank	<.05	mg/l				1910	08/07/91	GK
M	Standard	5.4	mg/l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	99	1910	08/07/91	GK
				Dissolv	ed Sodium				
	Blank	3	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	NT
192237	Duplicate	10	mg/l	10		100	1400	08/05/91	NT
192240	Spike		mg/l	_	18	106	1400	08/05/91	NT
				Ni	ckel				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.80	mg/l	.80		100	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	97	1910	08/07/91	GK
				L	ead				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
				Antim	ony				
	Blank	<.1	mg/l				1910	08/07/91	GK
	Standard	1.2	mg/l	1.2		100	1910	08/07/91	GK
	Standard	5.1	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.1	mg/l	<.1		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
				Silic	on				
	Blank	.4	mg/l				1350	08/15/91	GDG
	Standard	4.9	mg/l	5.0		102	1350	08/15/91	GDG
	Standard	9.6	mg/l	10		104	1350	08/15/91	GDG
192240	Duplicate	8.1	mg/l	7.8		104	1350	08/15/91	GDG
192239	Spike		mg/l		2.0	95	1350	08/15/91	GDG
1				Thall	ium				
	Blank	<.2	mg/l				1350	08/15/91	GDG
	Standard	.95	mg/l	1.0		105	1350	08/15/91	GDG
	Standard	5.2	mg/l	5.0		104	1350	08/15/91	GDG
192240	Duplicate	<.2	mg/l	<.2		100	1350	08/15/91	GDG
192239	Spike		mg/l		2.0	102	1350	08/15/91	GDG
				Vanad	ium				
	Blank	<.05	mg/l				1350	08/15/91	GDG
	Standard	1.0	mg/l	1.0		100	1350	08/15/91	GDG
	Standard	5.2	mg/l	5.0		104	1350	08/15/91	GDG
192240	Duplicate	<.05	mg/l	<.05		100	1350	08/15/91	GDG
192239	Spike		mg/l		2.0	102	1350	08/15/91	GDG
				Zin	C				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	.41	mg/l	-40		102	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	101	1910	08/07/91	GK
				Benze	ne				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	115	0800	08/05/91	KB
				Ethyl be	nzene				
	Blank	<5.0	ug/l				0800	08/05/91	KB





Quality Assurance for the SET with Sample 192237

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	100		100		100	0800	08/05/91	КВ
192240	Duplicate	<0.4	ug/l	<0.4		100	0800	08/05/91	KB
192240	Spike				100	72	0800	08/05/91	KB
				Tolue	ne				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	96	0800	08/05/91	KB
				Xylen	es				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	70	0800	08/05/91	KB

BROMOFLUOROBENZENE

M	Ion	Abundance	Crite	ria	
JJ / z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.2	PASS
75	30.0	60.0	95	43.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	5.6	PASS
173		2.0	174	0.0	PASS
174	50.0		95	97.9	PASS
175	5.0	9.0	174	5.1	PASS
176	95.0	101.0	174	100.0	PASS
177	5.0	9.0	176	5.1	PASS

DUPLICATE

Compound Name	Sample	Duplicate	Difference	
Benzene	ND	ND		0%
Chlorobenzene	ND	ND		0%
1,1-Dichloroethene	ND	ND		0%
Toluene	ND	ND		0%
Trichloroethene	ND	ND		0%
	Q D	TKF		

SPIKE

Compound Name Concent. Sample Recovery





Quality Assurance for the SET with Sample 192237

Benzene	100	87.7	88%
1,1-Dichloroethene	100	66.4	66%
Trichloroethene	100	84.0	84%

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President

303 794 1720;# .

"CONFIDENTIAL BUSINESS INFORMATION"



Core Laboratories

LABORATORY 1.D...: 911432-0002

DATE RECEIVED ...: 07/30/91

TIME RECEIVOD 15:09

LABORATORY TESTS RESULTS 08/01/91

CLUTONERY MARATHON DIL COMPANY JOB MUMBER: \$1,1432 ATTHE ME ME SOUT

CLIENT 1.D.,..... 32.03.144 INDIAM BASIN

DATE SAMPLED 07/28/91

TIME BAMPLED...... 17:30

Lyman Water W	AEMARKOt				
TEST DESCRIPTION	FIHAL REGULT	LIMITSZ*OILU	LION CHILL OF NEV	BURB TEST NETHOD	MI
Chlorida (Unfilt.)	12.6	0.5	mg/L	325.2 (1)	08/01/91
8020 - ARCHATIC VOLATILE ORGANICS	1	*1		8020 (2)	07/31/91
Benzens Toluens Ethyl Benzens Xylenss	MD MD MD MD	1	니명/L 니명/L 니명/L 나명/L		

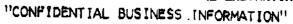
Timber Thefan APPROVED BY

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1300 S. Potomec St., Suite 130 Aurora, CO 80012 (303) 751-1780

303 784 1720:# !

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CORE LABORATORIES

LABORATORY 1 2 3 7 8 REBULTS 08/01/91

JOS MUMBERS 911432 CURTOMERY MARATHON OIL COMPANY

MORIN IN THITS ASSESSED

CLIENT 1.0..... 32.03.144 INDIAN BASIN DATE SAMPLED..... 97/86/91

TIME SAMPLED: 12:30

DATE RECEIVED 07/30/91

WORK DESCRIPTION ... 1

TIME RECEIVED: 15:09

LADORATORY I.D...: 911432-0003

REMARKO.....

Lyman	Water	We 1/

BET DESCRIPTION	PIME REBLY	MOLITURE COVERED IN	UNITS OF HEAVURE	TEST NETHOD	QATE:
hioride (Unfilt.)	12:5	0.5	mg/L	325.2 (1)	08/01/91
020 · ARCHATIC VOLATILE GROANICS		*1		8020 (2)	07/31/91
Benzano Táluono Ethyl Benzano Xylonog	ND ND ND	1 1 1 1	vg/L ug/L ug/L ug/L		
				-	

Timber & Burkon APPROVED BY

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: 8- 1-91 ; 4:35PM : CORE LABORATORIES→ 303 784 1720:# €

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COME LABORATORIES

LABORATORY TESTS RESULTS 08/01/91

ATTN H NI KON JOB MARBER: 911432 CUITOMEN! MARATHON OIL COMPANY

CLIENT I.D...... 32.03.144 INDIAM BASIN DATE SAMPLED.....: 07/27/91 TIME SAMPLED.....: 13:60

HORK DESCRIPTION ... 1

LABORATORY I.D...: 911632-0001 DATE RECEIVED...: 07/30/91 TIME RECEIVED 19:05 REMARKS....:

Lyman Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITE/PDILUTTON	UNITE OF REASURE	TRET HETHOD	90.01
hloride (Unfilt.)	12.2	0.9	mg/L	325.2 (1)	08/01/91
1020 - ARCHATIC VOLATILE ORGANICS		*1		6020 (8)	07/31/91
Benzene Toluane Bithyl Benzene Xylenes	ND NO NO NO	1 1 1	սց/L սց/Լ սց/Լ սց/Լ		

APPROVED BY: Links J. Bushun

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LABORATORY TESTS RESULTS

07/30/91

JOS NUMBER: 911413

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT 1.D....... 32-03-144 INDIAN BASIN DATE SAMPLED..... 07/25/91 TIME SAMPLED..... 09:45

LABORATORY J.D...: 911413-0002 DATE RECBIVED...: 07/26/91

WORK DESCRIPTION #1

TIME RECEIVED....: 13:55

REMARKS......

LYMAN WATER WELL

FINAL RFSULT 12.0 NO NO NO NO	0.5	ng/L	329.2 (1) 8020 (2)	07/29/91	MRC
, NO	1 1	10/L	8020 (2)	07/29/91	HRC
, NO	1	10/L			
1		ug/L ug/L			

PPROVED BY

FROM MOBATHAL SILL

1500 8. Rotomae 8t., Suite 130 Aurora, CO 80012 (303) 751-1780

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CORE LABORATORIES

LABDRATORY TESTS RESULTS

07/30/91

108 NUMBER: 911413 CUSTOMER: MARATHON OIL COMPANY.

ATTH: W. MIXON

ILIENT T.D...... 32-03-146 1951AN BARIN ATE SAMPLED.....: 07/24/91
THE SAMPLED.....: 13:14
KORK DESCRIPTION...; #1

LABORATORY 1.0...: 911413-0001

DATE RECEIVED.... 07/26/97 TIME RECEIVED.... 13:55 REMARKS.......

LIMAN WATER WELL

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
h(oride (Unfilt.)	11.0	0.5	mg/L	329.2 (1)	07/29/91	HH
20 - AROMATIC VOLATILE ORGANICS	}	*1		(8020 (2)	07/29/91	HRC
Benzano Tolueno Ethyl Benzono Xylonos	NÖ NÖ ND ND	1 1 1	ug/L ug/L ug/L ug/L			
			!			•
,						
,						
			!			



1300 5. Potomac 5t., Buite 130 Aurora, CO 80012 Aurora, CO 81 (303) 751-1760

PAGE:1

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CORE LABORATORIES

LABURATORY TESTS RESULTS

37/26/91

JOB NUMBER: 911398

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

GLIENT 1.D....... 32-03-144 INDIAN BASIN

CATE SAMPLED 07/23/91 TIME SAMPLED 11:57

WORK DESCRIPTION ...: #1

LABORATORY 1.0...: 911398-0010 DATE RECEIVED 07/24/91

TIME RECEIVED 13:15

REMARKS.....

. /

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	11.0	0.5	my/L	325,2 (1)	07/25/91
3020 - AROMATIC VOLATILE ORGANICE	}	* 7		8020 (2)	07/25/91
Benzeno Tolueno Ethyl Genzano Xylenos	90 90 90 90 90	1 1	ug/L ug/L ug/L		

DROVED BY:

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LABORATORY. TESTS RESULTS

07/26/91

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

OATE SAMPLED....: 07/22/91 TIME SAMPLED....: 14:40 WORK DESCRIPTION..: #1

JOS NUMBER: 911398

LABORATORY 1.0...: 911398-0001 DATE RECEIVED: 07/24/91 TIME RECEIVED: 13:15

REMARKS

LYMAN	WATER	WELL

LYMAN WATER	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chlorida (Unfilt.)	11.4	0.5	mg/L	325.2 (1)	07/25/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/25/91
Benzena Foluena Etnyl Banzena Xylenas	MD MG MD	1 1 1	ug/t ug/t ug/t ug/t		
			,		

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LABORAIORY TESTS RESULTS

07/26/91

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXCH

CLIENT (.D...... 32-03-144 INDIAN BASIN

OATC SAMPLED.....: 07/21/91 TIME SAMPLED..... 14:15 WORK DESCRIPTION...: 1

JOB NUMBER: 911381

LARGRATORY 1.0 ...: 911381-0008 DATE RECEIVED: 07/23/91 TIME RECEIVED 13:30

REMARKS.....

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/ TO ILUTION	UNITS OF MEASURE	TEST METHOD	DATE TECH
Chloride (Unfile.)	11.0	0.5	mg/L	325.2 (1)	07/25/91 NH
8020 - AROMATIC VOLATILE CREANICS		w1		8020 (2)	07/24/91 MRC
Rénzone Foluche Ethyl Benzone Xylanes	00 00 00 00	1 1 1	սպ/L սպ/L սգ/Է սգ/է		
	•				

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CORE LABORATORIES

LABORATORY TESTS RESULIE 07/26/91

JCB NUMBER: 911381 CUSTOMER'S MARATHON OLL COMPANY ATTN: W. NIXON

CLIENT 1.0.....: 32-03-144 (NDIAN BABIN DATE SAMPLED.....: 07/20/91 TIME SAMPLED.....: 17:25 WORK DESCRIPTION...: 1

LABORATORY 1.0...: 911361-0007 DATE RECEIVED...: 07/23/91 ILME RECEIVED...: 13:30

REMARKS.....

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITE/*OILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
htoride (Unfitt.)	12.0	0.5	mg/L	325.2 (1)	07/25/91	MH
DEG - ARGMATIC VOLATILE ORGANICS		•1		8020 (2)	07/24/91	MRC
Banzene Toluone Ethyl Bonzene Xylenes	NO NO NO	1 1 1	ug/L ug/L ug/L			
					}	

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PAGE: 7

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LABORATORY TESTS RESULTS

07/19/91

JOB NUMBER: 911323

DATE SAMPLED....: 07/16/91 TIME SAMPLED....: 09:39

WORK DESCRIPTION...: #1

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

LABORATORY I.D...: 911323-0001

DATE RECEIVED: 07/17/91 TIME RECEIVED: 13:15

REMARKS....:

CLIENT I.D...... 32-03-144 INDIAN BASIN

LYMAN WATER WELL

LYMAN WI	ITER WELL		,		····	
TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHI
Chloride (Unfilt.)	12.1	0.5	mg/L	325.2 (1)	07/18/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91	MRC
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			
}						
				i		

APPROVED BY

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LABORATORY

TESTS 07/12/91

RESULTS

JOB NUMBER: 911259

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED....: 07/08/91 TIME SAMPLED.....: 14:55

WORK DESCRIPTION ...: #1

LABORATORY I.D...: 911259-0001 DATE RECEIVED: 07/10/91

TIME RECEIVED: 13:15

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	12.4	0.5	mg/L	325.2 (1)	07/11/91	٥
BO20 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/10/91	M
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L		1	
Ethyl Benzene Xylenes	ND ND	1 1	ug/L ug/L			
					.	
					1	

APPROVED BY

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

Salat sa lagras (Salata Indisa) (Balana) (Balana) (Balana) (Balana)





LABORATORY

RESULTS

TESTS 07/08/91

JOB NUMBERY 911228

CURTONER: MARATHON OIL COMPANY

MOKEN .W. HATTA

CLIENT 1.D..... 32-03-144 INDIAM BASIN

DATE SAMPLED: 06/29/91 TIME SAMPLED 17:00 WORK DESCRIPTION ...: #1

LABORATORY I.D...: 911228-0001

DATE RECEIVED: 07/03/91 TIME RECEIVED: 16:20

REMARKS.....

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	12.3	0.5	mg/L	325.2 (1)	07/08/91
020 - AROMATIC VOLATILE ORGANICS		+1		8020 (2)	07/ 03/91
Benzene Toluene Ethyl Benzeno Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1300 \$. Potomac \$t., Suite 130 Aurora, co 80012 (303) 791-1780



LABORATORY TESTS RESULTS

06/28/91

JOS NOMBER (911153 CLISTOMER: MARATHON OIL COMPANY

MOKIN ... WITTA

LABORATORY I.D...: 911153-0001

CLIENT 1.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED....: 06/24/91 TIME SAMPLED....: 14:15

DATE RECEIVED 06/26/91 TIME RECEIVED 14:52

WORK DESCRIPTION ... 1

REMARKS....:

TERT DESCRIPTION	FINAL RESULT	EIHTES/*DILUTION	UNITS OF MEASURE	TEST METROD	DATE	Ţ.
Chlorido (Unfilt_)	18.5	7	mg/L	325.2 (1)	06/28/91	
ARCHATIC VOLATILE ORGANICS		*1		5020 (2)	06/27/91	
Benzone Foluene Ethyl Genzene Xylenes	ND NO ND HD	1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

1300 8. Potomac St., Suite 130 Aurore, CO 80012 (303) 751-1780

PAGE: 1

The manager debugged on the designation of the resistance and resi





CONFIDENTIAL

CORE LABORATORIES

LASORATORY TESTS RESULTS

06/21/91

JOB NUMBER: 911062

CUSTOMER: MARBEHON OIL COMPANY

ATTNA W. HIXON

CLIENT 1.D.....: 18GP PIPELINE LEAK 32-03-144

DATE SAMPLED....: 06/17/91 TIME SAMPLED....: 13:29

LABORATORY 1.D...: 911062-0001 DATE RECEIVED...: 06/19/91 TIME RECEIVED...: 12:53

WORK DESCRIPTION ...: 1

REMARKS....;

LYMAN WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITEX DILUTION	UNITE OF MEASURE	TEST METHOD	DAYE TECH
Chloride (Unfilt.)	12.8	0.5	mg/L	325.2 (1)	06/21/91 PJ#
ARGMATIC VOLATILE ORGANICS		•1		8020 (2)	06/20/91 MRG
Benzene Toluëne Ethyl Benzene Xylanes	HIC HIC HIC HID	1 1 1	ug/L ug/L ug/L ug/L		
		-			

APPROVED BY: _1

1300 S. Potomac St., Buite 130 Aurora, CO 80012 (303) 751-1780



Core Laboratories

LABORATORY 7 E 8 T \$ RESULTS 06/17/91

CUSTOMERS, HARATHON OIL COMPANY

Atthr M. giron

CLIENT 1.0..... 32.03.164 IBGP PIPELINE LEAK DATE SAMPLED.....: 06/11/91

LABORATORY 1.D...: 911022-0001

TIME SAMPLED..... 13:38

108 MUMBER: 911022

DATE RECEIVED ...: 06/13/91 TIME RECEIVED ...: 16:06

REMARKS.....

LYMAN WATER WELL

TREY DESCRIPTION	FINAL REMAT	LIMITS/POTEUTION	UNITE OF HEARING	TEST NETTICO	DATE
Chtoride (Unfile.)	13.2	0.5	mg/L	325.8 (1)	06/14/91
Selids, Tetal Biospived (TDS)	1090	10	mg/L	160.1 (1)	06/14/91
ARCHATIC VOLATILE ORGANICS		•1		8020 (8)	06/14/91
Benzona Tolucna Bthyl Benzeno Hylenos	ND ND ND	1	n8/r n8/r n8/r		and talk
•					

1300 8. Potamas St., Buite 130 Aurora, CO 80012 (303) 751-1760



CORE LABORATORIES

LABORATORY T E S T S RESULTS

06/28/91

JOB MUMBER: 910018 CLISTCHER: MARATHON OIL COMPANY ATTN: W. HIXON

CLIENT I.D...... 32.03.144 IBGP PIPELINE LEAK

LABORATORY 1.D...: 910948-0001

DATE SAMPLED..... 06/03/91

DATE RECEIVED: 06/05/91 TIME RECEIVED 16:11

WORK DESCRIPTION ...: #1

REMARKS.....

EST. DESCRIPTION	FINAL RESULT	LIMITE/*DILU	TION UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	13.2	0.5	ibg/L	325.2 (1)	06/06/91
ARCMATIC VOLATILE ORGANICS		*1		8020 (2)	06/06/91
Beniene Toluene Ethyl Beniene Xylenes	ND ND ND	1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1300 8. Potomec St., Suite 130

Aurora, CO 80012 (303) 751-1780



CORE LABORATORIES

LABORATORY TESTS RESULTS 06/21/91

JOB MANBERT 910887 CUSTOMERS MARATHON OIL COMPANY MOKIN . W INTA

CLIENT 1.D...... 27-98-810 MINERAL ASSAY

DATE SAMPLED....: 05/27/91 TIME SAMPLED....: 13:50 WORK DESCRIPTION ...: #1

LABORATORY 1.D...: 910887-0001 DATE RECEIVED ...: 05/29/91 TIME RECEIVED 15:22 REMARKS.....

 M	<u>AN</u>	W	A	TE	R	W	EL	
 					_	1.0		4 . 11

TEST DESCRIPTION	FINAL RESULT	LIMITS/POILUTION	UNITE OF MEASURE	TEST METHOD	DATE
Alkalinity, Total (Unfile_)	231	5	me/L CeCO3	310.1 (1)	06/03/91
Bicarbonate (Unfilt.)	282	5	mg/L	403 (3)	06/03/91
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	06/03/91
Chloride (Unfilt.)	13.3	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (Unfile.)	1270	1	umhos/cm 825dF	120.1 (1)	05/30/91
Hardness, Total (Unfilt.)	828	1	mg/L(ag CaCO3)	314A (3)	06/20/91
Nitrogen, Nitrata (Unfilt.)	0.7	0.1	mg/L (as N)	353.2 (1)	06/13/91
pH (Unfilt.)	7.36	0.01	pH Units	150.1 (1)	06/03/91
Solids, Total Dissolved (TDS)	1090	10	mg/L	160.1 (1)	06/06/91
Sulfate (Unfilt.)	549	10	mg/L	379.3 (1)	06/19/91
Calcium, Total (Ca)	216	0.5	ing/L	200.7/6010 (1,2)	06/11/91
Iron, Total (fe)	0.05	0.03	mg/L	200.7/6010 (1,2)	06/11/91
Magnosium, Total (Mg)	70,1	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Manganese, Total (Mr)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91
Potassium, Total (K)	1.58	0.01	mg/L	258.1 (1)	06/20/91
Sodium, Total (Na)	14	1	mg/L	200.7/6010 (1,2)	06/11/91
AROMATIC VOLATILE ORGANICS	1	*1		8020 (2)	05/29/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND		up/L ug/L ug/L ug/L		

APPROVED BY:

1300 8. Potomac St., Suite 130 Aurora, CO 80012 (308) 751-1780



CORE LABORATORIES

ANALYTI	CAL	REPORT
06/	21/9	1

CUSTOMER: Manathon Of Company

File No. 1 910887

CATION/ANION BALANCE

Client Sample J.D....... Remark/Project.....

27-98-810 Mineral Assay 05-27-91/1330

Dote/Time Sampled...... Date/Time Received.....

05-29-91/1522 910887-1

Laboratory Sample 1.D...... LYMAN WATER WELL

PARAMETER

RESULT

UNITS

Conductivity at 25 degrees C Alkalinity (as CaCOS)
Total Diss. Solids (messured)
Total Diss. Solids (calculated)

7.36 pH Unite 1270 umbos/ca 231 mg/L 1090 ma/L 1005 mg/L

11,43

16.43

meg/Liter Calcium (Ca) 216 10.78 mg/L Magnestum (Mg) 70.1 5,77 mg/L Sodium (Na) 14 0.61 mg/L Potassium (K) 1.58 0.04 間/L Yotal Cations meg/Liter 17.20 mag/Liter Bicarbonate (HCO3) 282 4.62 mg/L Carbonate (COS) Hydroxide (CH) ND(1) 0.00 mg/L ND(1) 0.00 mg/L Chioride (Cl) Sulfate (804) 13.3 0.38 mg/L 549

Cation-Anion Balance (RPD)

Total Anions med/Liter

4.57 Percent

MD = NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

1300 South Potomac, St., Suite 130 Aurora, Colorado 80012 Autora, Colorado (Tele. (303) 731-1780

mg/L



Core Laboratories

LABORATORY TESTS RESULTS

06/21/91

JOB NUMBER: 910852 CUSTOMER ... HARATHON OLL COMPANY

ATTN: U. NIXON.

CLIENT I.O...... 27 98 810 MINERAL ASSAY DATE SAMPLED..... 05/20/91 TIME SAMPLED..... 17:45

WORK DESCRIPTION 1

LABORATORY I.D...: 910832-0001 DATE RECEIVED ...: 05/22/91

TIME RECEIVED 16:30

REMARKS SAMPLE TIME DIFFERS PROM COC

TEST DESCRIPTION	FINAL RESULT	LIMITS / TO LLUTION	UNITS OF MEASURE	TEST METHOD	DATE	TEC
Alkalinity, Total (Unfilt.)	238	5	mg/L CaCO3	310.1 (1)	05/28/91	KJ
Bicarbonate (Unfilt.)	290	5	nig/L	403 (3)	05/28/91	KJ
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	05/28/91	KJ
Chloride (Unfilt.)	13.2	0.5	mg/L	325.2 (1)	05/24/91	DA
Conductivity (Unfilt.)	1300	1	umhos/cm 925dF	120.1 (1)	05/24/91	
Merdness, total (Unfilt.)	816	1	mg/L(as CaCOS)	314A (3)	06/20/91	ŤĹ
Nitrogen, Witrate (Unfilt.)	0.\$	0.1	mg/L (as N)	353.2 (1)	06/11/91	D 1
pH (Unfilt.)	7.50	0.01	pH Units	150.1 (1)	05/28/91	ĸ.
Balids, Total Dissolved (70%)	1040	10	mg/L	160.1 (1)	05/28/91	P.
Sulfata (unfile.)	629	10	mg/L	375.2 (1)	06/12/91	ופ
Calcium, Total (C=)	213	0.5	mg/L	200.7/6010 (1,2)	06/11/91	T:
Iron, Total (fa)	<0.03	0.03	mg/L	200.7/6010 (1,2)	06/11/91	7
Magnesium, Total (Mg)	69.1	0.5	mg/L	200.7/6010 (1,2)	06/11/91	т
Hangahesa, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91	7
Potasatum, Total (K)	1.65	0.01	mg/L	258.1 (1)	06/20/91	T
Sodium, Total (Na)	16	1	mg/L	200.7/6010 (1,2)	06/11/91	ī
AROMATIC VOLATILE ORGANICS		*1		8020 (2)	05/23/91	þ
Benzene Tuluone Ethyl Benzene Xylenes	D HD HD HD	1	ug/L ug/L ug/L ug/L			

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 731-1780

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CORE LABORATORIES

ANALYTICAL REPORT 06/21/91

CUSTOMER: Marathon Dil Corpuny

File No. . 1 9108852

CATION/ANION BALANCE

Laboratory Sample 1.D..... 910852-1

LYMAN WATER WELL

PARAMETER	RESULT	,	BTINU	
pH Conductivity at 25 degroes C Alkalinity (am CaCOS) Total Diss. Wollds (measured) Total Diss. Bollds (calculated)	7.50 1300 238 1060 1083	·	pH Units umhos/am mg/L mg/L	
		meg/Liter		
Caleium (Ca)	213	10.63	mg/L	
Magnosium (Mg)	69.1	5.69	mg/L	
Sodium (Na)	16	0.70	mg/L	
Potessium (K)	1.65	0.04	mg/L	
Total Cations med/Liter		17.05		
		mag/Litar		
Bicarbonata (HCO3)	2 83	4.64	mg/L	
Carbonate (CO3)	ND(1)	a. 00	mg/L	
Hydraxide (DN)	ND (1)	0. 00	mg/L	
Chloride (CL)	13. 2 62 9	0. 37 1 3.10	lig/L	
Suifate (804)	047	13.10	#18/L	
Total Anions meg/Liter		18.11		
			erra i a tra canaga a prasen a	
Cation-Anion Balance (RPD)	5.99 Par	cent		

NO & NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

1300 South Potomac, St., Suite 130 Aurora, Colorado 80012 Aurora, Colorado 8 Tele. (303) 751-1780

Approved By:

The analyses, opinions or interpretablend in this report are based upon observed the and inferred applied by the client for who is occupive, and confidential use tris report has been applied by the client for who is not reported to the confidence assumes no responsibility and makes my wanterly or representations. One continuous assumes no responsibility and makes my wanterly or report such as one continuous around in the continuous makes my wanterly with a continuous around the c



LABORATORY

TESTS RESULTS

05/07/91

(Ly man)

JOB NUMBER: 910678

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D.....: 27 98 810 DATE SAMPLED.....: 04/22/91

TIME SAMPLED.....: 16:45

WORK DESCRIPTION...: 1-W.BIEBELLE WATER SUPPLY

LABORATORY I.D...: 910678-0001
DATE RECEIVED....: 04/23/91

TIME RECEIVED: 15:27

REMARKS....:

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	T
ROMATIC VOLATILE ORGANICS		*1		8240 (2)	04/23/91	
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	5 5 5 5	ug/L ug/L ug/L ug/L			
,						

APPROVED BY: Ellen J. Vapaer

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780





LABORATORY TESTS RESULTS

05/07/91

JOB NUMBER: 910678

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D..... 27 98 810 DATE SAMPLED.....: 04/22/91

TIME SAMPLED.....: 16:45

WORK DESCRIPTION...: W.BIEBLLE WATER SUPPLY

LABORATORY I.D...: 910678-0002 DATE RECEIVED: 04/26/91 TIME RECEIVED: 11:00

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TEC
Chloride (Unfilt.)	15	1	mg/L	325.3 (1)	05/03/91	PJ
•						
·						
•						

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:2

The analyses opinions or interpretations contained in this report are based upon observations and material supplied by the mage. The interpretations or opinions expressed represent the best judgement of Core Laboratories. Core Laboratories is a express or implied, as to the product vity proper operations, or profitableness nowever of any oil gas, coal or other mineral in relied upon for any reason whatsoever

for whose exclusive and confident all use this report has been no responsibility and makes no warranty or representations to well or sand in connection with which such report is used or Biebelle Coarespondence

STATE OF NEW MEXICO



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING GOVERNOR October 21, 1991

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87504 (505) 827-5800

Mr. and Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

RE: OCD WATER WELL ANALYSIS

Dear Mr. and Mrs. Biebelle:

On July 29, representatives of the New Mexico Oil Conservation Division (OCD) and Marathon Oil sampled your water well, Upper Indian Hills Spring West, and the Arroyo Spring Water to determine if contamination may have occurred as a result of the leak from a flow line in Marathon's Indian Basin Field. Samples taken by OCD from the water well and Arroyo Spring were analyzed for hydrocarbons, solvents, heavy metals and general water chemistry at our contract laboratory, ANA-LAB, in Kilgore, Texas. Only hydrocarbons were analyzed in the ample taken from Upper Indian Hills Spring. The sample analyses have been received and are attached. Also attached are analyses of earlier samples from your well taken jointly by the OCD and the NM Environment Department.

The results of the sampling show that no hydrocarbons or abnormally high levels of inorganic constituents are present. The water can be characterized as a calcium-sulfate water whereas the water lost in the pipeline break is best described as a sodium-chloride water mixed with hydrocarbons. I enclose a list of water quality standards compiled by the NM Environment Department so that you can compare your results.

If you have any questions about the analyses or wish further information, please contact Bill Olson at 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist

Environmental Bureau Chief

Attachment

cc: OCD Artesia District Office



OIL CONSERT OF UN DIVISION RECEIVED P.O. Bo

P.O. Box 552 Midland, Texas 79702

October 3, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on September 24, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present in any of the samples.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Walter Biebelle September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



'91 SEP 25 AM 8 59

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 19, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on September 9, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present in any of the samples.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 10, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on August 26, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. Also attached are the results from a sample obtained on August 22, 1991 from a surface pond which existed following a rainfall event. The sample from this pond was obtained at your specific request. No hydrocarbons or abnormally high chloride concentrations were found to be present in any of the samples.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle September 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 28, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on August 19, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle August 28, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kayran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 20, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on August 4, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle August 20, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a J Karrom

A. j. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

c: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

·91 AUR 19 AM 9 43

August 13, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on August 4, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle August 13, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 5, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on July 29, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle August 5, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

C19 Kanan

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: (D. C. Boyer (NMOCD-Santa Fe))

A. Collar (BLM-Roswell)

J. L. Benson A. R. Kukla

R. F. Unger

NOIVISION



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 29, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained on July 15, 1991 and July 22, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle July 29, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marations, feel free to contact me collect through Marations. thon's Midland office, (915) 687-8528.

sincerely,

A. J. Kavran Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 15, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained from your well on July 8, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.



Mr. & Mrs. Walter Biebelle July 15, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: 'D. G. Boyer (NMOCD Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 10, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained from your well on July 1, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle July 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: 'D. G. Boyer (NMOGD=Santa Fe))

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVATION DIVISION
RECT VED



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 2, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from the water samples obtained from your well on June 3, 1991 and June 24, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle July 2, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Themes For

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: D. G. Boyer (NMOCD Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVATION DIVISION
RECEIVED

Marathon Oil Company

1 AM 9 51

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

June 27, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from water samples obtained on May 20, 1991 and May 27, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present. You may note that some of the attached reports contain results for numerous other parameters. The Environmental Bureau of the New Mexico Oil Conservation Division requested that this one-time analyses be conducted to appropriately characterize your water. The results indicate that your water is typical, as compared to other waters in this area.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle June 27, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: cD. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



OIL CONSERVATION DIVISION RECTIVED

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

'91 JUN 28 AM 9 30

June 26, 1991

Mr. & Mrs. Walter Biebelle 646 Queen Route Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. & Mrs. Biebelle:

Final analytical results from water samples obtained on June 11, 1991 and June 17, 1991 from your well and from natural springs located in Rocky Arroyo and utilized by you for stock water are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Walter Biebelle June 26, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A & Kuram A. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: D. Boyer (NMOCD-SantarFe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

Spring Analyses -Upper In Dian Hills - west



Core Laboratories

LASGRATORY FESTS RESULTS

10/01/91

JOB MINGER: 911797 CUSTONER: MARAYHOM GIL COMPANY

MOX (N. W. INTA

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911797-0002 DATE RECEIVED...: 09/26/91 TIME RECEIVED....1 15:40

DATE BAMPLED....: 09/24/91 TIME SAMPLED....: 08:59

REMARKS.....

WORK DESCRIPTION ... 1 2

Home Indian Hills Socias - Was +

TEST DESCRIPTION	PINAL RESULT	LIMITS/PDILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	8.0	0.5	Rģ/L	325.2 (1)	09/27/91
BO20 - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	09/30/91
Benithno Toluano Ethyl Benithno Xylonds	ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		
			-		

ROVED BY Turney L Beachura

1300 9. Potomec 9t., Suite 130 Aurora, CO 80018 (303) 751-1780

PAGE: 2



CORE LABORATORIES

LABORATORY

TESTS

 $R\ E\ S\ U\ L\ T\ S$

09/13/91

JOB NUMBER: 911689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D.....: 32-03-144 IBGP PIPELINE DATE SAMPLED.....: 09/09/91

LABORATORY I.D...: 911689-0002 DATE RECEIVED...: 09/11/91

TIME SAMPLED....: 14:15

TIME RECEIVED: 15:25

WORK DESCRIPTION ...: 2

REMARKS....:

UPPER INDIAN HILLS SPRING - WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	8.6	0.5	mg/L	325.2 (1)	09/12/91	1
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/12/91	Mi
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY: Elle J. Mayger

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:2

TIVE THE DUDINESS INFURMATION"



CORE LABORATORIES



LABORATORY TESTS RESULTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

LABORATORY I.D...: 911616-0002

DATE RECEIVED ...: 08/28/91

TIME RECEIVED...: 15:26 REMARKS.....

CLIENT I.D..... 32-03-144 INDIAN BASIN

DATE SAMPLED....: 08/26/91
TIME SAMPLED....: 13:09
WORK DESCRIPTION...: 2

UPPER INDIAN HILLS SPRING - WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TECHI
Chloride (Unfilt.)	6.6	0.5	mg/L	325.2 (1)	08/29/91 NH
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/29/91 MRC
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
ري ا			į		

PROVED BY: Eller J. Matges

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PAGE:2

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or pointors expressed represent the best judgement of Core Laboratories. Core Laboratories, nowever, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitableness of any oil, gas, coal or other mineral, property, welfor sand in connection with which such reports used or relied upon for any reason whatsoever. This report shall not be reproduced, except in its entirety, without the written approval of Core Laboratories.



CORE LABORATORIES

LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/19/91 TIME SAMPLED....: 11:28 WORK DESCRIPTION...: 2

LABORATORY I.D...: 911575-0002 DATE RECEIVED....: 08/21/91 TIME RECEIVED: 16:06

REMARKS....:

UPPER INDIAN HILLS SPRING - WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	4.3	0.5	mg/L	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91 F
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1 1 1	ug/L ug/L ug/L ug/L		
		•	,		

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PAGE:2



CORE LABORATORIES

LABORATORY

TESTS RESULTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911529-0002

DATE SAMPLED.....: 08/12/91 TIME SAMPLED.....: 13:33

DATE RECEIVED: 08/14/91 TIME RECEIVED: 13:25

WORK DESCRIPTION...: 2

REMARKS....:

UPPER INDIAN HILLS SPRING - WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TECH
Chloride (Unfilt.)	9.7	0.5	mg/L	325.2 (1)	08/15/91 DTJ
8020 - AROMATIC VOLATILE ORGANICS	ļ	*1		8020 (2)	08/15/91 PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•
			1		
				-	

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PAGE:2

SENT BY: AURORA, COLORADO

"CONFIDENTIAL BUSINESS INFORMATION"



Core Laboratories

LABORATORY

TESTS

RESULTS

08/08/91

OS NUMBER: 911476.

CUSTOMER MARATHON OIL COMPANY

MONIN W. WINGH

LIENT 1.0..... 32-03-144 INDIAN GASIN

LABORATORY [.D. ... 911476-0001

ATE SAMPLED: 08/04/91

DATE RECEIVED: 08/06/91 TIME RECEIVED: 13:55

IME BAMPLED 10:15 ORK DESCRIPTION ... 2

REMARKS......

LIDDER INDIAN HILLS SPRING- WEST

ST DESCRIPTION	PIHAL REBULT	LIMITS/POILUTION	UNITS OF HEASURE	TEAT NETHON	DATE REC
iloride (Unfilt.)	8.7	0.5	mg/L	325.2 (1)	98/08/91 p1
020 - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	08/07/91 HB
Benzene Toluene Ethyl Benzene Xylanes	NG NO NO NO	1 1 1	ug/L ug/L ug/L ug/L		4

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PAGE:1

THE STATE OF THE S of some the field entrances in Care (compliance, close) is an electron transformer transformer of the field entrances as the entrances of the



RECEIVED

09/11/91

SEP 1 3 1991

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

OIL CONSERVATION DIV SANTA FE

Sample Identification:

Upper Indian Hills Spring West

Collected By: Client

Location 2 1111

Date & Time Taken: 07/29/91 On Site Data:

Marathon Indian Basin

Lab Sample Number: 192238 Received:

07/31/91

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Acrolein	ND(100)	ug/l	1018	08/13/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1018	08/13/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Gromoform	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM

Continued



192238 Continued

Page 2

	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	trans-1,2-Dichloroethene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Dichlorodiflouromethane	ND(1.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	1,2-Dichloropropane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	cís-1,3-Dichloropropene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Ethyl benzene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Methylene Chloride	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Tetrachloroethene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Toluene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
W	1,1,1-Trichloroethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Trichloroethene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Trichlorofluoromethane	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Vinyl Chloride	ND(10)	ug/l	1018	08/13/91	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND(5.0)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Xylenes	ND (10)	ug/l	1018	08/13/91	EPA Method 8240	PM
	Benzene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB
	Ethyl benzene	<0.4	ug/l	0800	08/05/91	EPA Method 8020	КВ
	Taluene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB
	Xylenes	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 192238

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time Date By



Quality Assurance for the SET with Sample 192238

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	115	0800	08/05/91	KB
				Ethyl be	nzene				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.4	ug/l	<0.4		100	0800	08/05/91	KB
192240	Spike				100	72	0800	08/05/91	KB
				Tolue	ne				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	96	0800	08/05/91	KB
				Xylen	es				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	70	0800	08/05/91	KB

BROMOFLUOROBENZENE

Ion Abundance Criteria

m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.2	PASS
75	30.0	60.0	95	43.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	5.6	PASS
173		2.0	174	0.0	PASS
174	50.0		95	97.9	PASS
175	5.0	9.0	174	5.1	PASS
176	95.0	101.0	174	100.0	PASS
177	5.0	9.0	176	5.1	PASS



Quality Assurance for the SET with Sample 192238

DUPLICATE

Compound Name	Sample	Duplicate	Difference	
Benzene	ND	ND		0%
Chlorobenzene	ND	ND		0%
1,1-Dichloroethene	ND	ND		0%
Toluene	ND	ND		0%
Trichloroethene	ND	ND		0%
	SP	IKE		
Compound Name	Concent.	Sample	Recovery	
Benzene	100	87.7	88%	

100

100

66%

1,1-Dichloroethene

Trichloroethene

C. H. Whiteside, Ph.D., President

66.4

I hereby certify that these results were obtained using the methods specified in this report.

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTS

08/02/91

JOS NUMBER: 911436

CUSTOMER: MARATHON OIL COMPANY

ATTH: W. NIXON

DATE SAMPLED..... 07/29/91

CLIENT 1.9..... 32-03-144 INDIAN BASIN

LABORATORY [.D...: 911436-0002

DATE RECEIVED ...: 07/\$1/91 TIME RECEIVED 15:15

WORK DESCRIPTION ... : 2

REMARKS.....

UPPER Indian HILLS SPRING - WEST

IST DESCRIPTION	FINAL RESULT	LIMITS/TOTLUTION	UNITS OF MEASURE	TEST METHOD	DATE
iloride (Unfilt.)	8.1	0.5	mg/L	325.2 (1)	08/01/91
020 - AROMATIC VOLATILE ORGANICS	. 🖠	•1		8020 (2)	08/01/91
Benzenø Toluenø Ethyl Benzena Xylenaa	ND ND ND	1 1	ug/L ug/L ug/L ug/L		

ander J. Benken APPROVED BY

1300 8. Potombe \$t., Suite 130 Aurora, CD 80012 (303) 751-1780

His groupest, application in the representation in a contraction of the properties o

TOTAL TOTAL STREET STRE



LABORATORY

IESTS

RESULTS

07/26/91

JOB NUMBER: 911398

CUSTONER: MARATHON DIL COMPANY

ATTN: W. NIXON

LABORATORY 1.D...: 911398-0002

DATE RECEIVED: 07/24/91 TIME RECEIVED 13:15

REMARKS......

TIME SAMPLED 15:10 WORK DESCRIPTION ... 1 #2

CLIENT 1.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED.....: 07/22/91

UPPER HILLS SPRING WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/#DILUTION	UNITS OF MEASURE	TEST NETHOD	DATE	TEC
Chloride (Unfilt.)	3.0	0.5	mg/L	325.2 (1)	07/25/91	N
8020 - ARCHATIC VOLATILE ORGANICS		*1		4050 (5)	07/25/91	MF
Bonzene Tolueno Ethyl Benzene Xylenos	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			
r.						

Doved By Timber & Benedical

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY TESTS RESULTS

07/19/91

JOB NUMBER: 911323

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

LABORATORY I.D...: 911323-0002

DATE RECEIVED...: 07/17/91 TIME RECEIVED...: 13:15

REMARKS....:

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/15/91 TIME SAMPLED....: 11:55
WORK DESCRIPTION...: #2

UPPER INDIAN HILLS SPRING - WEST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	12.9	0.5	mg/L	325.2 (1)	07/18/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91	MRC
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
		1				

APPROVED BY: Linda J. Binkins

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY RESULTS TESTS

07/12/91

JOB NUMBER: 911259

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D.....: 32-03-144 INDIAN BASIN

DATE SAMPLED....: 07/08/91 TIME SAMPLED....: 11:08

WORK DESCRIPTION...: #2

LABORATORY I.D...: 911259-0002 DATE RECEIVED...: 07/10/91 TIME RECEIVED...: 13:15

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	11.0	0.5	mg/L	325.2 (1)	07/11/91	0
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/10/91	N
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene Xylenes	ND ND	1	ug/L ug/L			
Ayteries	NO	'	ug/ t			
		•				
				ļ		

Tinda & Berken APPROVED BY;

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY RESULTS TEST\$

07/08/91

JOS NUMBERT 951228 CUSTOMER MARATHON OIL COMPANY

ATTRY W. NIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN DATE SAMPLED: 07/01/91 TIME SAMPLED 12:50 WORK DESCRIPTION ... #2

LABORATORY 1.0...: 911228-0002 DATE RECEIVED....: 07/03/91 TIME RECEIVED....: 16:20

REMARK\$......

ST DESCRIPTION	PINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
lori de (Unfilt.)	10.3	0.5	mg/L	325.2 (1)	07/00/91
J20 - ARCMATIC VOLATILE ORGANICS		*1		8020 (2)	07/03/91
Benzene Toluene Ethyl Benzene Xyl enes	ND ND ND	1 1	ug/L ug/L ug/L ug/L		
					Ì

APPROVED BY:

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"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABURATORY TESTS RESULTS

06/28/91

JOB MUMBER: 911153

CUSTOMERY MARATHON OIL COMPANY

ATTH: W. NIXON

CLIENT 1.D...... 32-03-144 IMDIAN BABIN

LABORATORY I.D...: 911153-0002 DATE RECEIVED: 06/26/91

TIME RECEIVED 14:52

DATE SAMPLED....: 06/24/91 TIME SAMPLED...: 10:50 WORK DESCRIPTION..: 2

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTIO	NUNITS OF MEASURE	789T METHOD	DATE
Chloride (Unfilt.)	11.3	1	mg/L	325.2 (1)	06/28/91
AROMATIC VOLATILE ORGANICS		41		8020 (2)	06/27/91
Senzene Toluena Ethyl Benzene Xylenea	MD MD MD MD	1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1300 S. Potomac St., Guite 130 Aurora, CO 80012 (303) 791-1780



CONFIDENTIAL

CORE LABORATORIES

T E S T 8 06/21/91 LABORATORY RESULTS

CUSTOMER - MARATHON OIL COMPANY

ATTHE W. HEXCH

CLIENT 1.D...... 186P PIPELINE LENK 32-03-164

DATE SAMPLED: 06/17/91 TIME BAMPLED: 09:45

WORK DESCRIPTION ...: 2

JOB NUMBER: 911062

LABORATORY 1.0...: 911062-0002 DATE RECEIVED....: 06/19/91 TIME RECEIVED....: 12:55

REMARKS......

11.11.

TEST DESCRIPTION	EINAL RESULT	LINCIS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TEC
Chloride (Unfilt.)	10.9	0.5	mg/L	325.2 (1)	06/21/91	hA
AROMATIC VOLATILE ORGANICS		*4		8020 (2)	06/20/91	枫
Benzene Toluene Ethyl Benzene Xylones	NO ND ND ND	1 1 1	나면/L 나면/L 나면/L			
	,					

APPROVED BYE

1300 S. Potomac St., Suite 130 Aurore, CD 80012 (303) 751-1780

- 0-10-91 : 3:58AM :

CORE LABORATORIES-

303 794 1720:#

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABBRATORY TESTS 06/17/91

CONTR. W. THITA. SEGILE STREET HARATION DIL COMPANY STREET SEGILES SEGILES SONE

CLIENT I.D..... \$2.03.164 IBEP PIPELINE LEAK

LABORATORY 1.D...1 911022-0002 DATE RECEIVED....: 06/13/91 TIME RECEIVED....: 16:06

DATE SAMPLED....: 06/11/91 TIME SAMPLED....: 09:05

WORK DESCRIPTION ...: 02

REMARKS.....

UPPER INDIAN HILLS SPRING - WEST

EST DESCRIPTION	FIRAL REGULT	CIMITE/90 LUTION	CHITE OF MEASURE	TEST HE THOS	DATE
thioride (Unfilt.)	11.8	0.5	mg/L	325.2 (1)	06/14/91
iolida, Total Dissolved (TDA)	1010	10	mg/L	160.1 (1)	06/14/91
ARCHATIC VOLATILE ORGANICS		*1	·	8020 (2)	06/14/91
Benzenø Toluene Ethyl Bonžene Xylongo	MD ESS ON OM OM	1	ug/L ug/L ug/L		
			·		
					1

APPROVED BY: 200

1300 8. Potemas 8t., Suite 130 Aurore, CO 60018 (303) 731-1780

PAGE 12

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY T E S T & RESULTS

06/25/91

JOS HUMBER: 910948 CLISTOMER: MARATHON DIL COMPANY

ATTHE W. HIXON

CLIENT 1.D...... 32.03.144 IBGP PIPELINE LEAK

DATE SAMPLED: 06/04/91 TIME SAMPLED 08:55

WORK DESCRIPTION.... #2

LABORATORY 1.D...: 910948-0003

DATE RECEIVED : 06/05/91

TIME RECEIVED: 16:11 REMARKS....:

TRET SPECKIFFICH	FINAL REGULT	LIMITS/"DILUTION	UNITE OF HEASURE	FEST METHOD	DATE	. 1
Chlorida (Unfilt.)	11.6	0.5	mg/L	325.2 (1)	06/06/91	
ARGMATIC VOLATILE ORGANICS	}	*1		8020 (2)	06/06/91	
Bensone Toluane Ethyl Benzene Xylones	NED NED NED NED	1 1	ug/L ug/L ug/L ug/L			
				·		

APPROVED BY:

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PAGE:3

"CONFIDENTIAL BUSINESS INFURMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTS

06/28/91

JOB MINISERI. 910948 CUSTOMERS MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32.03.144 IBOP PIPELINE LEAK DATE SAMPLED 06/03/91

LABORATORY 1.0 ...: 910948-0002 DATE RECEIVED: 06/05/91

TIME BAMPLED 13:42

TIME RECEIVED: 16:11

WORK DESCRIPTION ...: #2

REMARKS.....

TEST DESCRIPTION	FINAL RESULT	LIMITS/HOILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	11.3	0.5	mg/L	325.2 (1)	06/06/91
ARONATIC VOLATILE ORGANICS		21		8020 (2)	06/06/91
Benzene Taluano Ethyl Benzene Xylanes	ND NO ND NO	1 1 1 1	ug/L ug/L ug/L ug/L		
		·			

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PACE : 2

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORISE

LABORATORY TESTS 96/21/91

RESULTS

JOB MUMBERY P18887 CUSTONER MARATHON DIL DONDANY

ATTHE W. HIXON

CLIENT I.D..... 27-98-810 MINERAL ASSAY

LABORATORY 1.0 ...: 910887-0002

DATE SAMPLED....: 05/27/91 TIME SAMPLED....: 15:10

DATE RECEIVED 05/29/91 TIME RECEIVED 15:22

WORK DEBCRIPTION...: #2

REMARKS.....

TENT DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNLTS OF MEADURE	TEST METHOD	BTAG
Alkalinity, Total (Unfilt.)	249	5	mg/L CaCO3	310.1 (1)	06/03/91
Bicarbonate (Unfilt.)	304	5 .	mg/L	403 (3)	06/03/9
Carbonate (Unfilt.)	41	1	mg/L	403 (3)	06/03/91
Chloride (Unfilt.)	11.7	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (Unfilt.)	1190	1	umhos/cm 625dF	120.1 (1)	05/30/91
Hardness, Total (Unfilt.)	747	1	mg/L(as CaCOI)	314A (8)	06/20/91
Mitrogen, Mitrata (Unfilt.)	0.2	0.1	mg/L (as N)	353.2 (1)	06/13/91
pH (Unfilt.)	7.39	0.01	pH Units	150.1 (1)	06/03/91
Solids, Total Dissolved (708)	993	10	! mg/L	160.1 (1)	06/06/91
Sulfate (Unfilt.)	480	10	mg/L	375.3 (1)	06/19/91
Calcium, Potal (Ca)	190	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Iron, Total (Fe)	0.04	0.03	mg/L	200.7/4010 (1,2)	06/11/91
Magnesium, Total (Mg)	66.2	0.5	me/L	200.7/6010 (1,2)	06/11/91
Manganase, Total (Mn)	<0.01	0.01	ing/L	200.7/6010 (1,2)	06/11/91
Potassium, Total (K)	1.74	0.01	mg/L	258.1 (1)	06/20/91
Sodium, Total (Na)	13	1	mg/L	200.7/6010 (1,2)	06/11/91
ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	05/29/91
Benzene Toluene Ethyl Benzene Xylones	190 110 110	1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

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PAGE 12

: 6-21-91 : 5:29PM : CORE LABORATORIES-

303 794 1720:# t

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

- "Wo.

HMITE

ANALYTICAL REPORT 06/21/91

CUSTOMER: Marathon Dil Company

File No ..: 910887

CATION/ANION BALANCE

RESULT

Client Sample I.D.......

Remark/Project.....

PARAMETER

Date/Time Sampled...... 09-27-91/1510

Laboratory Sample 1.0..... 910887-2

27-98-810 Mineral Assay

William P. H.	REJULI		TIBU
pH Conductivity at 25 dogroes C Alkalinity (as CaCO3) Total Diss. Solida (measured) Total Dise. Solids (calculated)	7.55 1190 249 993 919		pH Units umhos/ca Bg/L Mg/L ng/L
		meg/Liter	
Calcium (Ca)	190	9.48	m#/L
Hagnesium (Mg)	66.2	5.45	mg/L
Sodium (Na)	13	0.57	mg/L
Potasaium (K)	1,74	0.04	mg/L
Total Cations meq/Liter		15.54	
		meg/Liter	
Bicarbonote (HCDE)	304	4.98	mg/L
Carbonete (CO3)	ND(1)	0.00	mg/L
Hydroxide (OH)	HD(1)	0.00	mg/L
Chioride (Ci) Sulfate (804)	11.7	0.33	mg/L
antiata fama's	480	9.99	mg/L
Total Anions med/Liter		15.31	

Cation-Anion Balance (RPD)

1.51 Percent

NO . NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

1300 South Potomac, \$t., Suite 130 Aurora, Culorado 80012 Aurora, Culorado E Tela. (303) 751-1780

; 6-21-91 : 4:35PM : CORE LABORATORIES→

303 784 1720:# 5

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

T E B T S RESULTE LABGRATORY

CUSTONER: MAGATHER OIL COMPANY ATTHS Q. HIXON JOB NUMBER :- 919852

CLIENT 1.D...... 27 98 810

DATE GAMPLED..... 05/20/91

LABORATORY I.D...: 910852-0002 DATE RECEIVED...: 05/22/91 TIME RECEIVED...: 16:30

EST DESCRIPTION	FINAL REBULT	LIMITS/*DILUTIO	UNITE OF MEASURE	TEST WINGS	DATE FECH
hloride (Unfilt.)	11.3	0.5	mg/L	325.8 (1)	09/24/91 DAI
ROMATIC VOLATILE ORGANICS		•1		8030 (3)	05/23/91
Benzene Toludne Sthyl Benzene Xylenes	HD HD HD	1 1	ug/L ug/L ug/L ug/L		
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APPROVED BY:

1300 8. Petomas St., Suite 130 Aurors, co 80012 (303) 751-1780

SIBDAS

Lower Indian Hills Spring

Lagar W



CORE LABORATORIES

LABORATORY TESTS RESULTS

10/01/91

JOB HUMBER: 911797 CUSTOMEN; MARATHON DIL COMPANY ATTHE WE REXON

CLIENT 1.D...... 32-03-144 INDIAN BARIN DATE SAMPLED...... 09/24/91

LABORATORY [.G...: 911797-0003 DATE RECEIVED 09/26/91

TIME SAMPLED 09:58

TIME RECEIVED: 15:40

WORK DESCRIPTION ... 3

REMARKS.....

Lower Tadies Hills Socia-

WOITGINDESC. TES	FIRAL 具E放此了	FINITS/*DIEUTION	UNITE OF MEASURE	TEST HETHOS	DATE
hlaride (Unfilt.)	8.8	0.5	mg/L	325.2 (1)	09/87/91
020 - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	09/30/91
Benzeno Toluene Ethyl Sonzene Xylenes	ND ND ND ND	1	ug/L ug/L ug/L ug/L		
			-		

PROVED BY: Timber & Sunkers

1300 S. Potense St., Suite 130 Aurora, CO 80012 (303) 751-1780

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CORE LABORATORIES

LABORATORY

TESTS 09/13/91

RESULTS

JOB NUMBER: 91.1689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

DATE RECEIVED: 09/11/91

LABORATORY I.D...: 911689-0003

DATE SAMPLED.....: 09/09/91 TIME SAMPLED.....: 14:57

TIME RECEIVED: 15:25

WORK DESCRIPTION...: 3

REMARKS....:

LOWER TNDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE.	TE
Chloride (Unfilt.)	8.6	0.5	mg/L	325.2 (1)	09/12/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

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LABORATORY

TESTS RESULTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/26/91 TIME SAMPLED.....: 14:13

WORK DESCRIPTION ...: 3

LABORATORY I.D...: 911616-0003 DATE RECEIVED: 08/28/91

TIME RECEIVED: 15:26

LOWER TRAILOR HILLS SPRING

REMARKS..... BROWN PARTICLES IN SAMPLE

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	6.7	0.5	mg/L	325.2 (1)	08/29/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/29/91
8020 - AROMATIC VOLATILE ORGANICS Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

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LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/19/91

TIME SAMPLED.....: 12:59 WORK DESCRIPTION...: 3

LABORATORY I.D...: 911575-0003 DATE RECEIVED: 08/21/91 TIME RECEIVED....: 16:06

REMARKS.....

LOWER INDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	5.0	0.5	mg/L	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		

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LABORATORY TESTS RESULTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D.....: 32-03-144 INDIAN BASIN

DATE SAMPLED....: 08/12/91
TIME SAMPLED....: 12:18
WORK DESCRIPTION...: 3

LABORATORY I.D...: 911529-0003 DATE RECEIVED....: 08/14/91

TIME RECEIVED...: 13:25
REMARKS....:

LOWER INDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Chloride (Unfilt.)	9.6	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/l ug/l ug/l ug/l		•	
÷						

APPROVED BY: Jinda J. Birikens

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

SENT BY: AURORA, COLORADO

; 8- 9-91 ; B:U4AM ;

CORE LABORATORILA "CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

RESULTS LABORATORY TESTS 08/08/91

CUSTOMER: MARATHON OIL COMPANY

ATTNE LL NINGE

CLIENT 1.0 32-03-164 1401AN GABIN

LABORATORY 1.D...: 911476-0002 DATE RECEIVED...: 08/06/91 TIME RECEIVED...: 13:58

DATE SAMPLED: 08/04/91 TIME SAMPLED....: 11:00

JOB NUMBER: 911476

REMARKS...... 1 VOA HAS BUBBLE (CL OHLY)

LOWED

INDIAN HILLS SPRING

TEST DESCRIPTION	FINAL REQUET	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	8.7	0.5	mg/L	325.2 (1)	08/08/91
8020 - ARCMATIC VOLATILE ORGANICS		•1		8020 (8)	08/08/91
Benzene Toluena Ethyl Benzene Xylenas	ND ND ND ND	1	ug/L ug/L ug/L ug/L		A grade
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	·				

APPROVED BY

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303 794 1720:# 5

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

TESTS LASPRATORY RESULTS

08/02/91

JOD NUMBER: 911436 CLISTOMER: MARATHON CIL COMPANY

MOKIN .W HIXOM

CLIENT 1.D...... 32-03-146 [HD]AM BABIN

DATE \$AMPLED..... 07/29/91

LABORATORY 1.0...: 911436-0003

TIME SAMPLED..... 13:42

DATE RECEIVED...: 07/31/91 TIME RECEIVED...: 15:15

REMARKS..... AIR BUBBLE IN 1 VOA. CL ON

LOWER INDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LINITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chiaride (Unfilt.)	7.9	0.5	mg/L	325.2 (1)	08/01/91
8020 - AROMATIC VOLATILE ORGANICS		٠٩		8020 (2)	08/02/91
Benzene Toluene Ethyl Benzene Xylanee	ND ND ND	1 1	ug/L ug/L ug/L		
			1		

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1300 1. Potomor St., Suite 130 Aurora, CO 80012 (303) 751-1780

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RESULTS LABORATORY 1 8 8 1 8

07/26/91

JOB NUMBER: 911398

CUSTOMER: MARATHON QIL COMPANY

ATTN: . W. NIXON

CLIENT I.D....... 32-03-144 INDIAN WASIN DATE SAMPLED...... 07/22/91

DATE RECEIVED 07/24/91

LABORATORY 1.D...: 911398-0003

TIME SAMPLED 16:15

TIME RECEIVED 13:15 REMARKS.....

WORK DESCRIPTION ...: #3

INDIAN HILLS SPRING

LOWER INDIAN	HILLS SPRING						
TEST DESCRIPTION	FINAL RESULT	CEMETS/*DECUTION	UNITS OF MEASURE	TEST METHOD	DATE	THE	
Chicaide (Unfilt.)	5.2	0.5	ag/L	325.2 (1)	07/25/91	M	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (.2)	07/25/91	MR(
Schreche foluene Ethyl Benzena Xylenus	ND ND NO NO	1 1 1 7 7	Ug/L Ug/L Ug/L				

inde & Birken

1300 S. Poromac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY TESTS RESULTS

07/19/91

JOB NUMBER: 911323

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/15/91 TIME SAMPLED: 14:30 WORK DESCRIPTION ...: #3

LABORATORY I.D...: 911323-0003 DATE RECEIVED...: 07/17/91 TIME RECEIVED...: 13:15

REMARKS.....

LOWER TNDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHI
Chloride (Unfilt.)	11.6	0.5	mg/L	325.2 (1)	07/18/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91	MRC
Benzene	ND	1	ug/L			
Toluene Ethyl Benzene	ND ND	1 1	ug/L ug/L		1	
Xylenes	ND	i	ug/L			
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-	<i>,</i>					-

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY TESTE RESULIS

07/08/91

JOS HUHBER: 911228 CUSTOMER: MARATHON OLL COMPANY

ATTN: W. MEXON

CLIENT 1.0.....: 32-03-144 INDIAN BASIN

LABORATORY 1.0...: 911228-0003

DATE SAMPLED....: 0//01/91 TIME SAMPLED....: 14:05 WORK DEBCRIFTION... #3

DATE RECEIVED...: 07/03/91 TIME RECEIVED...: 16:20

REMARKS.....

ST DESCRIPTION	FINAL RESULT	LIMITS/*DIEUTION	UNITS OF MEASURE	TEST METHOD	DATE
nloride (Unfilt.)	10.5	0.5	mg/L	325.2 (1)	07/08/91
20 - ARCHATIC VOLATILE ORGANICS		41		8020 (2)	07/04/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1	ug/L ug/L ug/L ug/L		
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APPROVED BY:

1300 S. Potomec St., Suite 130 Aurara, CO 80012 (303) 751-1780



LABORATORY

TESTS RESULTS

07/12/91

JOB NUMBER: 911259

CUSTOMER: MARATHON GIL COMPANY

ATTN: W. NIXON

CLIENT I.D..... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/08/91 TIME SAMPLED 12:25 WORK DESCRIPTION ...: #3

LABORATORY I.D...: 911259-0003 DATE RECEIVED....: 07/10/91 TIME RECEIVED: 13:15

REMARKS.....

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	10.8	0.5	mg/L	325.2 (1)	07/11/91	D
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/10/91	м
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

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PAGE:3

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6-28-91 :10:10AM : CORE LABORATORIES-

303 **794** 1720;# 5/

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTS

06/28/91

ATTNY W. NIXON JOS HUMBER: P11153 CUSTOMERY MARATHON DIE COMPANY

CLIENT 1.0...... 32-03-144 INDIAN BASIN

DATE SAMPLED: 06/24/91 TIME SAMPLED 12:55

WORK DESCRIPTION ...: 3

LABORATORY I.O ...: 911153-0003 DATE RECEIVED: 06/26/91

TIME RECEIVED: 14:52

REMARKS.....

TEST DESCRIPTION	FIHAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chioride (Unfilt.)	11.3	1	mg/L	325.2 (1)	06/28/91
AROMATIC VOLATILE ORGANICS		•1		8020 (2)	06/27/91
Banzeno Tolueno Ethyl Banzeno Xylenos	HD HD HD	1 1	ug/L ug/L ug/L		
•					

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CONFIDENTIAL

CORE LABORATORIES

LABORATORY TESTS RESULTS

06/21/91

JOS HUMBERL 911062 CUETONES TO MARATHON UIL COMPANY ATTN: W. HINGH

CLIENT I.D.....: 180P PIPELINE LEAK 32-03-144
DATE SAMPLED.....: 06/17/91
TIME SAMPLED.....: 12:17
WORK DESCRIPTION...: 3

LABORATORY 1.D...: 911062-0003 DATE RECEIVED...: 06/19/91 TIMS RECEIVED...: 12:55

REMARKS.....

11

LOWER INDIAN HILL	LS SPRINE				
TEST DESCRIPTION	FINAL RESULT	Linits/adicut	ION UNLIS OF HEAS	URE TEST METHOD	DATE TECHL
Chloride (Unfilt.)	11.1	0.5	mg/L	325.2 (1)	06/21/91 PJM
ARCHATIC VOLATILE ORGANICS		"1		8020 (2)	06/20/91 HRC
Benzene Toluene Ethyl Benzene Xylanee	ИД ОН ОН	1 1 1	48/L 49/L 48/L 48/L		
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CORE LABORATORIES

LABORATORY 7 8 8 7 8 RESULTS 06/17/91

JOS HEMER: 011022 H. MIXON CUSTOMER .: HARATHON GIL COMPANY ATTN:

CLIENT I.D..... \$2.03.144 INOP PIPELINE LEAK

DATE SAMPLED.....: 06/11/91 TIME SAMPLED.....: 09:57 HORK DEBCRIPTION...: #3

LABORATORY 1.D...: 911022-0003 DATE RECEIVED....: 06/13/91 TIME RECEIVED....: 16:04 REMARKO.....

Lower INDIAN HILLS	PINAL REPULT	LIMITE/ODILUTION	UNITS OF MEASURE	TEST MITHOD	DATE
hloride (Unfilt.)	11.2	0.5	Pg/L	325.2 (1)	06/14/91
delide, total Dissolved (TDB)	1010	10	RS/L	160.1 (1)	06/14/91
ROMATIC VOLATILE ORGANICS		99		8020 (2)	06/16/91
Bersene Toluene Ethyl Bensene Xylenee	ND ND ND	1 1	118/f 178/f 178/f 178/f		
			-		
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PAGE 13

: 6-28-91 : 9:59AM : CORE LABORATORIES-

303 794 1720:# 7

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY 7 2 3 7 3 RESULTS 06/28/91

JOB NUMBER: 910948 DUSTOMER: MARATHON DIL COMPANY.

ATTN: W. NIXON

CLIENT I.D..... 32.03.144 IBOP PIPELINE LEAK

DATE SAMPLED: 06/04/91 TIME SAMPLED.....: 09:08 WORK DESCRIPTION...: #3

LASORATORY 1.D...: 910948-0005 DATE RECEIVED ...: 06/05/91 TIME RECEIVED: 16:11

REMARKS.....

TEST DESCRIPTION LINITERADILLITION UNITS OF HEASURE FINAL RESULT TEST METHOD DATE Chloride (Unfilt.) 11.6 0.5 ing/L 325.2 (1) 06/06/91 AROMATIC VOLATILE ORGANICS 8020 (2) 06/06/91 Benzone ND ug/L Toluene ND ug/L Ethyl Bensene ND Ug/L Xylenes ug/L

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· 0-28-81 : 8:58AM ; CORE LABORATORIES-

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CORE LABORATORIES

LABORATORY TESTS RESULTS 06/28/91

JOS HUHBERT 910948 CUSTOMERS MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT 1.D...... 32.03.144 IBGP PIPELINE LEAK

LABORATORY I.D...: 910948-0004

DATE SAMPLED....: 06/03/91 TIME SAMPLED...: 11:33

DATE RECEIVED 06/05/91

TIME RECEIVED: 16:11

HORK DESCRIPTION ...: #3

REMARKS.....:

1881 DESCRIPTION	FINAL RESULT	LINETS/PDILUTION	UNITS OF NEASURE	TEST METHOD	DATE
chlarida (Unfilt.)	11.3	0.5	mg/L	325.2 (1)	06/06/91
AROMATIC VOLATILE ORGANICS		#1		8020 (3)	06/06/91
Benzene Toluena Ethyl Genzene Xylenea	NO NO NO	1 1	∪\$ /L ∪\$/L ∪\$/L ∪\$/L		

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PAGE:4

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: 6-21-91 : 5:30PM : CORE LABORATORIES-

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LABORATORY TESTS RESULTS 06/21/91

CUSTONER : MARATHON- OLL COMPANY

SHOP MAY THE MAN NIXON

CLIENT 1.0..... 27-98-810 MINERAL ASSAY DATE SAMPLED..... 05/27/91 TIME SAMPLED..... 14:30

JOS NUMBER: 910887

LABORATORY [.D...: 910887-0003 DATE RECEIVED...: 05/29/91 TIME RECEIVED 15:22

WORK DESCRIPTION ...: #3

REMARKS.....

TEST DESCRIPTION	FIRAL RESULT	LIMITS/*DILUTION	UNITE OF MEASURE	TBDT, MET HOD	DATE T
Alkalinity, Total (Unfilt.)	260	5	mg/L CaCO3	B10.1 (1)	06/03/91
Bicar bonsto (U nfilt.)	318	5	mg/L	403 (3)	06/03/91
Carbonata (Unfilt.)	<1	1	mg/L	403 (3)	06/03/91
Chlorida (Unfilt.)	11.2	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (Unfilt.)	1190	1	Umhos/cm 825df	120.1 (1)	05/30/91
Hardness, Total (Unfilt.)	771	1	mg/L(as CaCO3)	314A (3)	06/20/91
Nitrogen, Mitrete (Unfilt.)	0.2	0.1	배명/L (88 N)	353.2 (1)	06/13/91
pH (Unfilt.)	7.57	0.01	PH Units	150.1 (1)	06/03/91
Solids, Total Disselved (TDS)	1010	10	mg/L	160.1 (1)	06/06/91
Sulfate (Unfilt.)	467	10	mg/L	373.3 (1)	06/19/91
Calcium, Total (Ca)	196	0.5	mg/L	200.7/6010 (1,2)	06/11/91
iron, Total (fe)	<0.03	0.03	Mg/L	200_7/6010 (1,2)	06/11/91
Magnesium, Total (Mg)	68.4	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Henganese, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91
Potassium, Total (K)	1.44	0.01	mg/L	258.1 (1)	06/20/91
Sodium, Total (Ha)	13	1	mg/L	200.7/6010 (1,2)	06/11/91
AROMATIC VOLATILE ORGANICS		*1		8020 (2)	05/29/91
Bonzene Toluene Ethyl Benzene Xylenæs	ND ND ND	1 1	ug/L ug/L ug/L		

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: 6-21-91 : 5:31PM : CORE LABORATORIES-

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"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

871HU

ANALYT	ICAL	REPORT
06	/21/9	71

CUSTOMER: Merethon GIL Company

File No .. : 910887

CATION/ANION BALANCE

RESULT

Client Sample 1.0....

Dato/Tima Received.......... 05-29-91/1522

PARAMETER

Laboratory Sample 1.0..... 910887-3

3			
pH Conductivity et 25 degrees C	7.57 1190		pH Units Umhee/co
Alkelinity (as CaCO3) Total Diss. Solids (messured)	260 1010		mg/L
Total Diss. Solids (calculated)	916		ng/L ng/L
		mag/l.iter	
Calcium (60)	196	9.78	mg/L
Hagnegtum (Hg) Sedtum (Ha)	68.4	5.63	mg/L
Potassius (K)	13 1.44	0.57 0.04	mg/L
	1.40	4.04	Ma∕L
Total Cations msq/Liter		16.01	
		mag/Liter	
Bicarbonete (HCO3)	318	5,21	mg/L
Carbonate (CO3)	ND(1)	0.00	mg/L
Nydroxide (ON) Chlorida (Cl)	ND(1)	0.00	mg/L
Sulfate (804)	11.2 467	0.32 9.72	mg/L mg/L
Total Anions mos/Liter		15.25	HOV C

ND = NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

Cation-Anion Balance (RPD)

1300 South Potomac, St., Suite 130 Aurora, Colorado 80012 Aurora, Coloredo (Tele. (303) 751-1780

4.87 Percent

; 6-21-91 : 4:35PM : CORE LABORATORIES-

303 794 1720:# 6

"CONFIDENTIAL BUSINESS INFORMATION"





CORE LABORATORIES

LABORATORY TESTS RESULTS 06/21/91

CUSTONER: MARETHON DIE COMPANY ATTHE W. NIXON JOB NUMBER 910852

CLIENT 1.D..... 27 98 810 DATE SAMPLED: 05/20/91

LABORATORY 1.0...: 910658-0003 DATE RECEIVED: 05/22/91

TIME SAMPLED..... 15:40

TIME RECEIVED....: 16:30
REMARKS...... SAMPLE TIME DIFFERS FROM COC

LOWER INDIAN HILLS	PIGAL RESALT	CINITS/*DILUTION	UNITS OF MEASURE	TEST HETHOD	DATE	TEC
Chieride (Unfilt.)	11.6	0.5	mg/L	325.2 (1)	05/24/91	DAI
AROMATIC VOLATILE ORGANICS		•1		8020 (2)	05/23/91	MR
Genzene Toluone Ethyl Genzeno Xylenes	ND ND ND	1 1	ug/L ug/L ug/L ug/L			
			*			
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APPROVED BY:

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LABORATORY PESTS RESULTS

10/01/91

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JOS HUMBER: 911797

CUSTOMER'S HARATHON DIL COMPANY

ATTUT W. MIXON

CLIENT 1.D..... 32-03-144 INDIAN BASIN DATE SAMPLED: 09/24/91

TIME SAMPLED 10:12 WORK DESCRIPTION ... 6

LABORATORY (.D...: 911797-0004 DATE RECEIVED: 09/26/91 TIME RECEIVED: 19:40

REMARKS.....

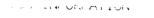
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1421 40.11

BAL DEBCUILLION	PIHAL RESULT	LIMITS/ DILUTION	UNITS OF MEASURE	TEST MOTHOD	DATE
hloride (Unfilt.)	8.5	0.5	mg/L	325.2 (1)	09/27/91
020 - ARGMATIC VOLATILE ORGANICE		*1		8020 (2)	09/30/91
Benzono Tolueno Ethyl Benzono Xylanno	80 80 80	1 1 1	ug/L ug/L ug/L ug/L		
			_		
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inde Z Brikes PPROVED BY:

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LABORATORY

TESTS 09/13/91

RESULTS

JOB NUMBER: 911689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

LABORATORY I.D...: 911689-0004

DATE SAMPLED.....: 09/09/91

DATE RECEIVED....: 09/11/91

TIME SAMPLED.....: 15:44

TIME RECEIVED....: 15:25 REMARKS....:

WORK DESCRIPTION...: 4

BIEBELLE WATER WEIL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	8.9	0.5	mg/L	325.2 (1)	09/12/91	
BO20 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
	i					

APPROVED BY: Elle

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LABORATORY

TESTS

RESULTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/26/91

LABORATORY I.D...: 911616-0004 DATE RECEIVED: 08/28/91

TIME SAMPLED.....: 14:35

TIME RECEIVED: 15:26

WORK DESCRIPTION ...: 4

BIERFILE

REMARKS..... BROWN PARTICLES IN SAMPLE

WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TI
Chloride (Unfilt.)	8.2	0.5	mg/L	325.2 (1)	08/29/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/29/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

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PAGE:4

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LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/19/91

TIME SAMPLED....: 13:20 WORK DESCRIPTION...: 4

DATE RECEIVED: 08/21/91 TIME RECEIVED: 16:06

LABORATORY I.D...: 911575-0004

REMARKS..... ORANGE PARTICLES IN VOA

BIEBELLE WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE		DATE	TE
Chloride (Unfilt.)	10.4	0.5	mg/L	325.2 (1)	08/21/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91	۲
Benzene	ND	1	ug/L			
Toluene	ND	1	ug/L			
Ethyl Benzene	ND	1	ug/L			
Xylenes	ND	1	ug/L			
			,			
	-					
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PAGE:4



LABORATORY TESTS RESULTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911529-0004

REMARKS....:

DATE RECEIVED: 08/14/91

DATE SAMPLED.....: 08/12/91 TIME SAMPLED....: 14:28
WORK DESCRIPTION...: 4

TIME RECEIVED....: 13:25

RIEBELLE WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHI
Chloride (Unfilt.)	10.9	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

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PAGE:4

SENT BY: AURORA, COLORADO

: 8- 9-91 : 9:05AM :

"CONFIDENTIAL BUSINESS INFORMATION"

CURE LABORENIUMILES"



CORE LABORATORIES

RESULTS LABORATORY TESTS

08/08/91

ATTHE W. HIKOM

CLIENT 1.0..... 32-03-144 INDIAN BASIN DATE SAMPLED 08/04/91

LABORATORY 1.D...: 911476-0003 DATE RECEIVED 08/06/91

...

TIME SAMPLED..... 11:20 WORK DESCRIPTION...: 4

JOB NUMBER: 911476

TIME RECEIVED: 13:55

REMARKS.....

CUSTOMER: MARATHON OIL COMPANY"

EST DESCRIPTION	PINAL RESULT	LIMITS/*DILUTION	UNITS OF HEASURE	TEST HETHOD	DATE TE
hioride (Unfilt.)	10.1	n.5	mg/L	325.2 (1)	08/08/91 0
020 - ARCHATIC VOLATILE ORGANICS		*1		8080 (5)	08/07/91
Bonzeno Toluone Ethyl denzeno Xylenes	NO NO NO NO	1 1 1	ug/L ug/L ug/L ug/L		A state
			,		

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PAGE:3

303 794 1720;# 6

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CORE LABORATORIES

LABORATORY T E S T \$ RESULTS 08/02/91

JOB NUMBER: 911436

CUSTOMER: MARATHON OIL COMPANY

ATTHE W. NIXON

CLIENT 1.0..... \$2-03-164 INDIAN BASIN DATE SAMPLED 97/29/91

LABORATORY 1.D...: 911436-0004 DATE RECEIVED 07/31/91

TIME SAMPLED 12:10 WORK DESCRIPTION ... 4

TIME RECEIVED 15:15

REMARKS......

TEST DESCRIPTION	FINAL RESULT	LIMITS/+BILUTION	UNITE OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	11.2	0.5	mg/L	325.2 (1)	08/01/91
8020 - AROMATIC VOLATILE ORGANICE		*1	l 	8020 (2)	08/01/91
Senzene Toluene Ethyl Senzene Xylenes	ND ND ND	1	ug/t ug/t ug/t		

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09/11/91

RECEIVED

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

SEP 1 3 1991

OIL CONSERVATION DIV. SANTA FE

Sample Identification:

BieBelle Water Well

Collected By:

Client

Date & Time Taken: 07/29/91 1210

On Site Data:

Marathon Indian Basin

Lab Sample Number: 192239 Received: 07/31/91

Client: SNM1

_				•		
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	insuf. sample	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	мв
Bromide	10	mg/l	1200	08/16/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	Insuf. sample	meq/meq	1600	09/10/91		SK
Carbonate	insuf. sample	mg/l	1600	08/14/91	APHA Method 263	вс
Specific Conductance	800	Micromhos	0030	08/01/91	EPA Method 120.1	SB
Fluoride	1.4	mg/l	1400	08/06/91	EPA Method 340.1	вс
Bicarbonate	insuf. sample	mg/l	1600	08/14/91	APHA Method 263	вс
Sulfate	250	mg/l	1230	08/14/91	EPA Method 375.4	MB
Total Dissolved Solids	1000	mg/l	1130	08/07/91	EPA Method 160.1	в₩
рН	7.1	SU	0100	08/01/91	EPA Method 150.1	SB
Chloride	14	mg/l	1300	08/12/91	EPA Method 325.3	HG
Silver	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Aluminum	.16	mg/l	1400	08/06/91	EPA Method 6010	GK
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK
Barium	.03	mg/l	1910	08/07/91	EPA Method 6010	GK

Continued



192239 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВЧ
Beryllium	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Calcium	200	mg/l	1400	08/05/91	EPA Method 6010	NT
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Chromium	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Copper	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Iron	<.05	mg/l	1400	08/05/91	EPA Method 6010	NT
Mercury	<.001	mg/l	1730	08/01/91	EPA Method 245.3	MET
issolved Potassium	<2	mg/l	1400	08/05/91	EPA Method 6010	NT
Dissolved Magnesium	76	mg/t	1400	08/05/91	EPA Method 6010	NT
Dissolved Manganese	<.01	mg/l	1400	08/05/91	EPA Method 6010	NT
Molybdenum	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Sodium	14	mg/l	1400	08/05/91	EPA Method 6010	NT
Nickel	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Lead	.003	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.1	mg/l	1910	08/07/91	EPA Method 6010	GK
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	8.2	mg/l	1350	08/15/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1350	08/15/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1350	08/15/91	EPA Method 6010	GDG
Zinc	.05	mg/l	1910	08/07/91	EPA Method 6010	GK

Continued



192239 Continued

Page 3

1	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	Acrolein	ND(100)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Acrylonitrile	ND(100)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Benzene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Bromoform	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Bromomethane	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Carbon Tetrachloride	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Chlorobenzene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Chloroethane	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	2-Chloroethylvinyl ether	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
AG B)	Chloroform	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Chloromethane	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Dibromochloromethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Bromodichloromethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,1-Dichloroethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,2-Dichloroethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,1-Dichloroethene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	trans-1,2-Dichloroethene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Dichlorodiflouromethane	ND(1.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,2-Dichloropropane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Ethyl benzene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM

Continued



192239 Continued

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]	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	Methylene Chloride	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Tetrachloroethene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Toluene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,1,1-Trichloroethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Trichloroethene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Trichlorofluoromethane	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Vinyl Chloride	ND (10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND(5.0)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Xylenes	ND(10)	ug/l	1150	08/13/91	EPA Method 8240	PM
	Benzene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB
	Ethyl benzene	<0.4	ug/l	0800	08/05/91	EPA Method 8020	КВ
	Toluene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ
	Xylenes	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 192239

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/las (2358		103	1900	08/13/91	BW
191618	Duplicate	300	mg/l as (300		100	1900	08/13/91	BW
191618	Spike		mg/l as 0	;		100	1900	08/13/91	BW
				Boro	n				
	Blank	.000	mg/l				1700	08/09/91	MB





Sample #	Description	Result	Units	Dup/Std Va	lue Spk (Conc.	Percent	Time	Date	Ву
	Standard	.51	mg/l	.50			102	1700	08/09/91	мв
191621	Duplicate	<.5	mg/l	<.5			100	1700	08/09/91	MB
				Bro	mide					
	Standard	100	mg/kg	100			100	1200	08/16/91	ES
192244	Duplicate	55	mg/kg	50			110	1200	08/16/91	ES
			_	ecific	Conduc	tance				
192237	Duplicate	1000	Micromho	s 1000			100	0030	08/01/91	SB
192239	Duplicate	800	Micromho				100	0030	08/01/91	SB
192240	Duplicate	810	Micromho				106	0030	08/01/91	SB
					oride					
	Standard	5.0	mg/l	5.0			100	1400	08/06/91	ВС
191618	Duplicate	<1	mg/l	<1			100	1400	08/06/91	BC
					fate					
	Standard	92	mg/l	100			108	1230	08/14/91	MB
192324	Duplicate	1300	mg/l	1300			100	1230	08/14/91	MB
192324	Spike		mg/l		100		133	1230	08/14/91	MB
				al Diss	otved	Solida	3			
	Blank	.0003	mg/l					1130	08/07/91	BW
- 100010	Standard	102	mg/l	100			102	1130	08/07/91	BW
192240	Duplicate	790	mg/l	750	рH		105	1130	08/07/91	BW
	Standard	Calibrate	SU	7.0	F			0100	08/01/91	SB
	Standard	Calibrate		10.0				0100	08/01/91	SB
	Standard	8.0	SU	8.0			100	0100	08/01/91	SB
192237	Duplicate	7.0	SU	7.0			100	0100	08/01/91	SB
	,				oride			• • • • • • • • • • • • • • • • • • • •		
	Standard	72	mg/l	71			101	1300	08/12/91	HG
192997	Duplicate	16	mg/l	15			106	1300	08/12/91	HG
	,		•	Si	lver					
	Blank	<.01	mg/l					1910	08/07/91	GK
	Standard	.20	mg/l	.20			100	1910	08/07/91	GK
	Standard	1.0	mg/l	1.0			100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01			100	1910	08/07/91	GK
192239	Spike		mg/l		1.0		99	1910	08/07/91	GK
	•			Alu	minum					
	Blank	<.03	mg/l					1400	08/06/91	GK
	Standard	1.0	mg/l	1.0			100	1400	08/06/91	GK
	Standard	5.1	mg/l	5.0			102	1400	08/06/91	GK
192240	Duplicate	<.03	mg/l	<.03			100	1400	08/06/91	GK
192239	Spike		mg/l		2.0		94	1400	08/06/91	GK
	·		<u>-</u> -	Ars	enic				- •	
	Blank	<.005	mg/l					1600	08/14/91	GK
	Standard	.099	mg/l	.100			101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005			100	1600	08/14/91	GK





Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike		mg/l		.100	91	1600	08/14/91	GK
				Bari	um				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	3.9	mg/l	4.0		103	1910	08/07/91	GK
	Standard	5.2	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	.04	mg/l	.04		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	99	1910	08/07/91	GK
				Beryll	ium				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	.09	mg/l	.10		111	1910	08/07/91	GK
	Standard	2.0	mg/l	2.0		100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	98	1910	08/07/91	GK
				Dissolved o	Calcium				
	Blank	.16	mg/l				1400	08/05/91	NT
	Standard	10	mg/l	10		100	1400	08/05/91	NT
	Standard	46	mg/l	50		108	1400	08/05/91	NT
192237	Duplicate	200	mg/l	200		100	1400	08/05/91	NT
192240	Spike		mg/l		18	93	1400	08/05/91	NT
				Cadmi	um				
	Blank	<.001	mg/l				1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
				Cobo	lt				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.97	mg/l	1.0		103	1910	08/07/91	GK
	Standard	4.6	mg/l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	98	1910	08/07/91	GK
				Chrom	ium				
	Blank	<.02	mg/l				1910	08/07/91	GK
	Standard	.20	mg/l	.20		100	1910	08/07/91	GK
	Standard	4.8	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	85	1910	08/07/91	GK
				Copp	er				
	Blank	<.02	mg/l				1910	08/07/91	GK
	Standard	.48	mg/l	.50		104	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
				Dissolve	d Iron				
	Blank	<.05	mg/l				1400	08/05/91	NT



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	2.0	mg/l	2.0		100	1400	08/05/91	NT
	Standard	5.2	mg/t	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.05	mg/l	<.05		100	1400	08/05/91	NT
192240	Spike		ag/l		3.7	106	1400	08/05/91	NT
	·		D:	issolved P					
	Blank	<2	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	49	mg/l	50		102	1400	08/05/91	NT
192237	Duplicate	<2	mg/l	<2		100	1400	08/05/91	NT
192240	Spike		mg/l		18	110	1400	08/05/91	NT
			D:	issolved M	agnesium				
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	99	mg/l	100		101	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	NT
192237	Duplicate	69	mg/l	70		101	1400	08/05/91	NT
192240	Spike		mg/l		18	95	1400	08/05/91	NT
			D:	issolved M	anganese				
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	.30	mg/l	.30		100	1400	08/05/91	NT
an a	Standard	5.2	mg/l	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.01	mg/l	<.01		100	1400	08/05/91	NT
192240	Spike		mg/l		18	106	1400	08/05/91	NT
				Molybd	enum				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	5.4	mg/l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	99	1910	08/07/91	GK
				Dissolved	Sodium				
	Blank	3	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	NT
192237	Duplicate	10	mg/l	10		100	1400	08/05/91	NT
192240	Spike		mg/l		18	106	1400	08/05/91	NT
				Nick	el				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.80	mg/l	.80		100	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	97	1910	08/07/91	GK
				Lea	đ				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK



Standard .048	Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191621		Standard	.048	mg/l	.050		104	1915	08/15/91	GK
193075		Standard	.051	mg/l	.050		102	1915	08/15/91	GK
19162 Spike	191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075 Spike	193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
193075 Spike	191621	Spike		mg/l		.020	100	1915	08/15/91	GK
Standard 1.2 mg/l 1.2 100 1910 08/07/91 0K	193075	Spike		mg/l		.020	76	1915	08/15/91	GK
Standard 1.2 mg/l 1.2 100 1910 08/07/91 08/ Standard 5.1 mg/l 5.0 102 1910 08/07/91 08/ O7/91					Antim	ony				
Standard S.1 mg/L S.0 102 1910 08/07/91 08/		Blank	<.1	mg/l		_		1910	08/07/91	GK
192240		Standard	1.2	mg/l	1.2		100	1910	08/07/91	GK
192239		Standard	5.1	mg/l	5.0		102	1910	08/07/91	GK
Blank	192240	Duplicate	<.1	mg/l	<.1		100	1910	08/07/91	GK
Blank	192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
Standard 1.097					Selen	ium				
191618		Blank	<.005	mg/l				2030	08/14/91	GK
191622		Standard	.097	mg/l	.100		103	2030	08/14/91	GK
192237 Spike Mg/L 1.00 108 2030 08/14/91 GK	191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
Silicon Standard 4.9 mg/l 5.0 102 1350 08/15/91 GDG	191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
Blank	192237	Spike				.100	108	2030		GK
Standard 4.9 mg/l 5.0 102 1350 08/15/91 GDG		·			Silic	on				
Standard 9.6 mg/l 10 104 1350 08/15/91 606 192240		Blank	.4	mg/l				1350	08/15/91	GDG
192240		Standard	4.9	mg/l	5.0		102	1350	08/15/91	GDG
192239 Spike mg/l 2.0 95 1350 08/15/91 GDG		Standard	9.6	mg/l	10		104	1350	08/15/91	GDG
Blank	192240	Duplicate	8.1	mg/l	7.8		104	1350	08/15/91	GDG
Blank	192239	Spike		mg/l		2.0	95	1350	08/15/91	GDG
Standard Standard					Thall	ium				
Standard Standard		Blank	<.2	mg/l				1350	08/15/91	GDG
192240		Standard	.95	mg/l	1.0		105	1350	08/15/91	GDG
192240		Standard	5.2	mg/l	5.0		104	1350	08/15/91	GDG
192239 Spike mg/l 2.0 102 1350 08/15/91 GDG	192240	Duplicate	<.2		<.2		100	1350		GDG
Blank <.05 mg/l	192239	Spike				2.0	102	1350		GDG
Standard 1.0 mg/l 1.0 100 1350 08/15/91 GDG Standard 5.2 mg/l 5.0 104 1350 08/15/91 GDG 192240 Duplicate <.05 mg/l <.05 100 1350 08/15/91 GDG 192239 Spike mg/l 2.0 102 1350 08/15/91 GDG 2:0 2:0 102 1350 08/15/91 GDG 2:0 102 1350 08/15/91 GDG 2:0 102 1350 08/15/91 GDG 2:0 102 1350 08/07/91 GK Standard 4.1 mg/l 4.40 102 1910 08/07/91 GK Standard 4.9 mg/l 5.0 102 1910 08/07/91 GK 192240 Duplicate <.01 mg/l <.01 100 1910 08/07/91 GK 192239 Spike mg/l <.01 100 1910 08/07/91 GK Benzene		·			Vanad	ium				
Standard 1.0 mg/l 1.0 100 1350 08/15/91 GDG		Blank	<.05	mg/l				1350	08/15/91	GDG
Standard		Standard	1.0		1.0		100	1350		GDG
192240 Duplicate <.05		Standard	5.2		5.0		104			GDG
192239 Spike mg/l 2.0 102 1350 08/15/91 GDG Zinc Blank <.01 mg/l .40 102 1910 08/07/91 GK Standard .41 mg/l .40 102 1910 08/07/91 GK Standard 4.9 mg/l 5.0 102 1910 08/07/91 GK 192240 Duplicate <.01 mg/l <.01 100 1910 08/07/91 GK 192239 Spike mg/l 2.0 101 1910 08/07/91 GK Benzene	192240	Duplicate	<.05				100	1350		GDG
Blank <.01 mg/l 1910 08/07/91 GK	192239	Spike				2.0	102		08/15/91	GDG
Blank <.01 mg/l .40 102 1910 08/07/91 GK Standard .41 mg/l .40 102 1910 08/07/91 GK Standard 4.9 mg/l 5.0 102 1910 08/07/91 GK 192240 Duplicate <.01 mg/l <.01 100 1910 08/07/91 GK 192239 Spike mg/l 2.0 101 1910 08/07/91 GK Benzene		·			Zin					
Standard .41 mg/l .40 102 1910 08/07/91 GK Standard 4.9 mg/l 5.0 102 1910 08/07/91 GK 192240 Duplicate <.01		Blank	<.01	mg/l				1910	08/07/91	GK
Standard 4.9 mg/l 5.0 102 1910 08/07/91 GK 192240 Duplicate <.01		Standard	-41		.40	•	102	1910	08/07/91	
192240 Duplicate <.01 mg/l <.01 100 1910 08/07/91 GK 192239 Spike mg/l 2.0 101 1910 08/07/91 GK Benzene		Standard								
192239 Spike mg/l 2.0 101 1910 08/07/91 GK Benzene	192240									
Benzene		•				2.0				
		,		- , -	Benze					
		Blank	<5.0	ug/l		-		0800	08/05/91	КВ





Quality Assurance for the SET with Sample 192239

Sample #	Description	Result	Units	Dup/Std Valu	e Spk Conc.	Percent	Time	Date	Ву
	Standard	100		100		100	0800	08/05/91	КВ
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	115	0800	08/05/91	KB
				Ethyl b	enzene				
	Blank	<5.0	ug/l	_			0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.4	ug/l	<0.4		100	0800	08/05/91	KB
192240	Spike				100	72	0800	08/05/91	KB
				Tolu	ene				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	КВ
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike		<u>.</u>		100	96	0800	08/05/91	КВ
	·			Xyle	nes				
	Blank	<5.0	ug/l	_			0800	08/05/91	КВ
	Standard	100	•	100		100	0800	08/05/91	КВ
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike			-	100	70	0800	08/05/91	KB
	•							,, , ,	



BROMOFLUOROBENZENE

	I on	Abundance	: Crite	ria	
m/z	Min %	Max %	Mass	Actual	Status
50	15.0	40.0	95	15.2	PASS
75	30.0	60.0	95	43.0	PASS
95	100.0			100.0	PASS
96	5.0	9.0	95	5.6	PASS
173		2.0	174	0.0	PASS
174	50.0		95	97.9	PASS
175	5.0	9.0	174	5.1	PASS
176	95.0	101.0	174	100.0	PASS
177	5.0	9.0	176	5.1	PASS

DUPLICATE

Compound Name	Sample	Duplicate	Difference	
Benzene	ND	ND		0%
Chlorobenzene	ND	ND		0%
1,1-Dichloroethene	ND	ND		0%
Toluene	ND	ND		0%





Quality Assurance for the SET with Sample 192239

Trichloroethene	ND SPI	ND KE	
Compound Name	Concent.	Sample	Recovery
Benzene	100	87.7	88%
1,1-Dichloroethene	100	66.4	66%
Trichloroethene	100	84.0	84%

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President





Core Laboratories

LADORATORY TESTS RESULTS 07/26/91

COR NUMBER: 911398 CUSTOMER: MARATHON OIL COMPANY

ATTNE W. NEXON

CLIENT 1.0 32-03-144 INDIAN BASIN DATE SAMPLED 07/22/91

LABORATORY 1.D...: 911398-0004 DATE RECEIVED 07/24/91

TIME SAMPLED: 16:40 WORK DESCRIPTION ... #4

TIME RECEIVED 13:15

BIEBELLE	WATER WELL 13:15								
TEST DESCRIPTION Chloride (Unfi(t.)) 8020 - AROMATIC VOLATILE URGANICS Berzeng Toluene Ethyl Senzene Xylenex	FINAL RESULT 9.7 ND ND ND ND ND	1 1 1 1			167,HOO (1)	DATE 07/25/91 07/25/91			
	- -								
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PAGE 14



LABORATORY TESTS RESULTS

07/19/91

JOB NUMBER: 911323

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/15/91 TIME SAMPLED....: 14:52 WORK DESCRIPTION...: #4

LABORATORY I.D...: 911323-0004 DATE RECEIVED: 07/17/91 TIME RECEIVED: 13:15

REMARKS....:

BIEBELLE WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHI
Chloride (Unfilt.)	11.3	0.5	mg/L	325.2 (1)	07/18/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91	MRC
Benzene Toluene Ethyl Benzene Xylenes	NO ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			
·						

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PAGE:4



LABORATORY

TESTS RESULTS

07/12/91

JOB NUMBER: 911259

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911259-0004

DATE SAMPLED....: 07/08/91 TIME SAMPLED....: 13:05

DATE RECEIVED....: 07/10/91 TIME RECEIVED....: 13:15

WORK DESCRIPTION...: #4

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	10.9	0.5	mg/L	325.2 (1)	07/11/91	D
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/10/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

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PAGE:4



Core Laboratories

TESTS LABORATORY RESULTS

07/08/91

JOB NUMBER: 911228

CHRICHER! MARATHON CIL COMPANY

ATTN: W. NIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN

FINAL RESULT

DATE SAMPLED 07/01/91

LABORATORY 1.D...: 911228-0004

DATE RECEIVED: 07/03/91 TIME RECEIVED: 16:20

TIME SAMPLED: 14:35 WORK DESCRIPTION ...: #4

TEST DESCRIPTION

REMARKS.....

LIMITS/WOILUTION UNITS OF MEASURE TEST METHOD BTAC

Chioride (Unfilt.)	10.5	0.5	mg/L	325.2 (1)	07/08/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/04/91
Benzone Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1	ug/L ug/L ug/L		
			:		
			•		

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PAGE:4

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CORE LABORATORIES

LABCRATORY TESTS RESULTS

06/28/91

CUSTOMER: MARATHON OIL COMPANY JOS - MAIBER 2 911153 MOXEN, W. ENTTA

CLIENT 1.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED....: 06/24/91 TIME SAMPLED....: 13:20

LABORATORY 1.D...: 911153-0004

DATE RECEIVED: 06/26/91

WORK DESCRIPTION ...: 4

TIME RECEIVED: 14:52

REMARKS....

THOY DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chlor ide (Unfilt.)	11.4	1	mg/L	325.2 (1)	06/28/91 0
ARCHATIC VOLATILE DEGANICS		#1		8020 (2)	06/27/91 p
Benzene Talueno Ethyl Benzene Xylenos	ND ND ND ND	1 1	ug/L ug/L ug/L ug/L		

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CORE LABORATORIES

12818 RESULTS LABORATORY

06/21/91

CHISTOMER - MARATHON DIE COMPANY JOB NUMBER: 911062

ATTHE W. HIROM

CLIENT 1.D.....: IBQP PIPELINE LEAK 32-03-144
DATE SAMPLED.....: 06/17/91
TIME SAMPLED.....: 12:55
WORK DESCRIPTION...: 4

DATE RECEIVED.... 06/19/91 TIME RECEIVED.... 12:55

LABORATORY 1.D...: 911062-0004

REMARKS......

TEST DESCRIPTION	FLNAL RESULT	LIMITS/*OTLUTION	UNITE OF MEASURE	TEST HETHOD	DATE TEC
Chloride (Unfilt.)	11.1	0.5	mg/L	325.2 (1)	06/21/91 F.
AROMATIC VOLATILE ORGANICS		*1		8020 (2)	06/20/91 MR
Bénzene Toluena Ethyl Benzene Xylenes	NO MED MED MED	1	ug/L ug/L ug/L ug/L		
		-			

APPROVED BY:

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T E S T 0 06/17/91 LABGRATORY RESULTS

ATTHE WE WIND JOS NIZIGORI P11028 CLIETCHES - MARLATHON GIL COMPANY

CLIENT 1.9..... 32.03.164 IBOP PIPELINE LEAK

DATE SAMPLED..... 06/11/91 TIME SAMPLED..... 11:14

WORK DESCRIPTION ... : MA

LABORATORY I.D...: 911022-0004

DATE RECEIVED.... 06/13/91 TIME RECEIVED.... 16:06

REMARKS.....

EST DESCRIPTION	FINAL REBULT	LIMITAVADILUTION	Unite de Measure	TEST HETHOR	DATE
hlaride (Unfile.)	11.3	0.5	mg/L	329.2 (1)	06/14/9
olida, Total Disselved (TDB)	1020	10	mg/L	160.1 (1)	06/16/9
ROMATIC VOLATILE ORGANICS		*1		8020 (2)	06/14/9
Senzeno Tolusno Ethyl Benzeno Xylensu	ND ND ND	1	ug/L ug/L ug/L ug/L		
					ł

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PAGE: 4

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; 6-28-91 :10:00AM : CORE LABORATORIES→

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Core Laboratories

LABORATORY TESTS RESULTS 06/28/91

JOS HUNGERS 910948 CLIETCHERS MARATHON OIL COMPANY am an the events manager elementics are promised from the company of the company

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CLIENT 1.D...... 32.03.164 IBOP PIPELINE LEAK

LABORATORY 1.0 ...: 910948-0006 DATE RECEIVED: 06/05/91

DATE SAMPLED.....: 06/03/97 TIME SAMPLED.....: 11:07 WORK DESCRIPTION...: 84

TIME RECEIVED 16:11

REMARKS.....

FINAL RESULT	LINEARADICUTION	UNITS OF MEASURE	TEST METHOS	DATE
11.2	0.5	mg/L	325.2 (1)	06/06/91
·	*1		8020 (2)	06/06/91
HED HED HED MED	1 1 1	ug/L ug/L ug/L ug/L		
ł		1		į
	11.2 HD HD HD	11.2 0.5 *1 #5 1 #5 1	11.2 0.5 mg/L 11.2 0.5 mg/L	11.2 0.5 mg/L 325.2 (1) 11

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PAGE: 6

; 6-21-91 ; 5:31PM ; CORE LABORATORIES-

303 794 1720:# !

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Core Laboratories

LASGRATORY TESTS RESULTS 06/21/91

JOB NUMBER: \$10887 MORIN IN THITA CUSTONER! MARATRON OIL COMPANY is to the control of the control of

CLIENT I.D.,,,....: 27-98-810 HIMERAL ASSAY

DATE SAMPLED 05/27/91 TIME SAMPLED..... 11:50 WORK DESCRIPTION...: #4

LABORATORY [.D...: 910887-0004 DATE RECEIVED ...: 05/29/91 TIME RECEIVED ...: 15:22 REMARKS.....

TEST DESCRIPTION	FINAL REBULT	LIMITS/*OILUTION	UNITE OF HEASURE	TEST METHOD	DATE LIN
Alkalinity, Total (Unfilt.)	260	5	mg/L CaCO3	310.1 (1)	06/03/91
gicarbonste (Unfilt.)	318	3	mg/L	403 (3)	06/03/91
carbonate (Unfilt.)	<1	1	mg/L	403 (3)	06/03/91
Chloride (Unfilt.)	11.1	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (unfilt.)	1210	1	unhos/cm a25dF	120-1 (1)	05/30/91
Hardnoss, Total (Unfilt.)	764	1	mg/L(as CaCO3)	314A (3)	06/20/91
Hitrogon, Nitrate (Unfilt.)	0.1	0.1	mg/L (as N)	353.2 (1)	06/13/91
pH (Unfilt.)	7_98	0.01	pH Units	150.1 (1)	06/03/91
solida, Total Dissolved (TDS)	1050	10	mg/L	160.1 (1)	06/13/91
Sulfate (Unfflt.)	488	10	mg/L	375.3 (1)	06/19/91
Calcium, Total (Ca)	194	e.0	mg/L	200.7/6010 (1,2)	06/11/91
Iron, Total (Pe)	0.10	0.03	me/L	200.7/6010 (1,2)	06/11/91
Magnosium, Total (Mg)	67.9	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Me ngenes e, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91
otussium, Total (K)	1.50	0.01	mg/L	258.1 (1)	06/20/91
Sodium, Total (Na)	13	•	nig/L	200.7/6010 (1,2)	06/11/91
ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	05/29/91
Benzene Teluano Ethyl Renzene Xylaneg	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L		

APPROVED BY:

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PAGE: 4

303 794 1720:#10

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

ANALYTICAL REPORT 06/21/91

CUSTOMER: Marethon Oll Company

File No. , F 910887

CATION/ANION BALANCE

Client Sample I.D......

27-98-910 Mineral Assoy Remark/Project.....

Date/Time Sumpled...... 05-27-91/1150 Date/Tima Received........

05-29-91/1522 Laboratory Sample I.B. 910867-4

PARAMETER	RESULT	UNITS
pH Condustivity at 29 degrees C Alkalinity (as CaCOE) Total Diss. Bolids (measured) Total Diss. Bolids (calculated).	7.98 1210 260 1050 935	pH Unite Umhee/cm mg/L mg/L mg/L
	meg/L	itar

Catefum (Ca)	194	9.68	mg/L
Hognesium (Mg)	67.9	5.59	mg/L
Sodfum (Na)	13	0.57	Mg/L
Potensium (K)	1.50	0.04	mg/L
Total Cetions mod/Liter		15.87	
		mag/Liter	
Sicarbonate (HCQ3)	318	5.21	ma/L
Carbongte (CO3)	ND(1)	0.00	JRQL/L
Hydraxida (OH)	ND(1)	0.00	Mg/L
Chioride (Ci)	11.1	0.31	mg/L
Bullere (\$04)	488	10.16	mg/L
Total Aniena mag/Liter		15.69	

Cation-Anion Balance (RPD)

1.18 Percent

NO - NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

1300 Bouth Potenac, St., Suite 130 Aurora, Colorado 80012 Aurora, Coloredo (Tele. (303) 751-1760

15 TO THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.

; 6-21-91 : 4:36PM :

CORE LABORATORIES-

303 794 1720;# 7

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CORE LABORATORIES

LABORATORY TEST8 RESULTS 06/21/91

CUSTOMIR! MARATHON OIL COMPANY JOB NUMBER: 910852

ATTN: W. NIXON

CLIENT 1.D...... 27 98 810 MINERAL ASSAY

OATE SAMPLED.....: 05/20/91 TIME SAMPLED....: 14:42 WORK OGSCRIPTION...: 4

1

LABORATORY I.D...: 910852-0004 DATE RECEIVED ...: 05/22/91 TIME RECEIVED ...: 16:30

REMARKE.....

TEST DESCRIPTION	FINAL RESULT	LINITS /* DILUTION	UNITE OF MEASURE	TEST METHOD	DATE	TECH
Alkalinity, fotal (Unfilt.)	259	5	ing/L CaCOS	310.1 (1)	05/28/91	KJZ
Bicarbonate (Unfilt.)	316	5	mg/L	403 (3)	05/28/91	KJZ
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	05/28/91	KJZ
Chloride (Unfilt.)	11.4	0.5	mg/L	325.2 (1)	05/24/91	DAM
Conductivity (Unfilt.)	1220	1	umhos/cm @25dF	120.1 (1)	05/24/91	ML
Hardness, Total (Unfilt.)	770	1	mg/L(as CaCO3)	314A (3)	06/20/91	71.3
Hitrogen, Nitrato (Unfilt.)	0.2	0.1	mg/L (As N)	353.2 (1)	06/11/91	DT.
pk (Unfilt.)	7.47	0.01	pH Units	150.1 (1)	05/28/91	KJ:
Solida, Total Dissolved (TDS)	951	10	mg/L	160.1 (1)	05/28/91	PJI
Sulfate (Unfilt.)	539	10	mg/L	375.2 (1)	06/12/91	ST
Calcium, Total (Ca)	195	0.5	ng/L	200.7/6010 (1,2)	06/11/91	TL
Iron, fotal (Fa)	0.05	0.03	mg/L	200.7/6010 (1,2)	06/11/91	TL
Magnesium, Total (Mg)	68.7	0.5	mg/L .	200.7/6010 (1,2)	06/11/91	TŁ.
Monganeas, Total (Mn)	₹0.01	0.01	ng/L	200.7/6010 (1,2)	06/11/91	T L
Potasaium, Total (K)	1.59	0.01	mg/L	258.1 (1)	06/20/91	70
Sodium, Total (Na)	14	1	mg/L	200.7/6010 (1,2)	06/11/91	T
ARCHATIC VOLATILE ORGANICS		~ 1		8020 (2)	05/23/91	н
Benzene Tolucce Ethyl Benzene Xylence	ND ND NO ND	1 1 1	ug/L ug/L ug/L	•		

APPROVED BY:

1300 S. Potomac St., Suits 130 Aurora, CO 80012 (303) 751-1780

"CONFIDENTIAL BUSINESS INFORMATION"

ANALYTICAL REPORT



CORE LABORATORIES

	(06/21/91		
CUSTOMER: Marathon Oil Company				File No. : 910885
488 1	CATIO	Y/ANION BALANCE		
Client Sample I.D	05-20-91/1442 05-22-91/1630	Assay		
BIEBELLE WATER WELL				
PARAMETER	_	RESUL I		UNITS
pH Conductivity at 25 degraed Alkaiinity (as CmCO3) Total Diss, Bolids (measo Total Diss, Bolids (cold	ur ed)	7.47 1220 25 9 951 984		on Unita umhos/cm mg/L mg/L mg/L
			meg/Liter	
Calcium (Ca) Magnesium (Mg)		195 68.7	9.73 5.65	mg/L mg/L

16.03 Total Cations meq/Liter mog/Liter 316 5,18 mg/L Bicarbonate (MCC3) Carbonate (CO3) Hydroxide (CH) Chloride (CL) Sulfate (\$04) 0.00 mg/L mg/L ND(1) 0.00 ND(1) 11.4 0.32 mg/L 535 ma/L 11.14 16.64 Total Anions meg/Liter

Cation-Anion Balance (RPD)

Sodium (Na)

Potassium (K)

3.71 Percent

0.61

0.04

ND = NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

1300 South Potomac, \$t., \$uite 130 Aurora, Colorado 80012 Aurora, Colonado (Tele. (303) 751-1780

mg/L

1	MAICH UNEMISINT ANALTHUAL HEQUES!	PUHM	1
	SCIENTIFIC LABORATORY DIVISION		SLO No.
	700 CAMINO DE SALUD. ALBUQUERQUE, NM 87	106	Data L.
	Water Chemistry Section - Telephone: (505) 841-21		Date Received:
•	The second secon	Kequest [] [] [] [the second contract of the second
1	2 User 3 Requirements 1 7 10 12 12 10 1 ID No	ID No. 011310-	B Priority (N'127)
	Code V.		Code #: Coordinator
	5 Facility P	6 County:	7 City: 8 State
1	Name: Brebelle Ranch	Eddy	CARLSBAD NM
┢	^		
}-	9 Sample W. E. L. L. #, C, - 1 3 3 2	6,4,6, Q, U, e	EEN 27, 137,
Ī	Location: William 1919	19/19/10/0	
. t	10 Collected	2	
1	By: BARRY BILLRICH	On: 9//	05/15 At: 1005 hrs.
l	First L a a t	Oato: (YY	/MM/DD) Time: 24 hr. clock 3:00 pm = 1500 hrs.
-	11 Codes:	12	
H	0.63		
1	· · · · · · · · · · · · · · · · · · ·		Langitude (DODMMSS)
L	Submitter WSS #	Organization	Longitude (DODMMSS)
L		none #: (505) 827-5812	
ŀ	Address.	18	Sampling Information:
	New Mexico Oil Conservation Divi	0100	emple Purpose: Tomogrite Composite
ſ	P. O. 2088	l 1	Compliance - Flow Proportioned
ŀ	Cau Sima Zia		Ti- Check Ti- Equal Aliquot
ľ	Santa Fe, New Mexico 87504-2088	} <u>{</u>	- Sample Split w/Permittee
ŀ	16 Field		Chlorine Chain or Custody
}	Data; pH:, Conductivity:umhos @	°C, Temperature:°	C. Residual:mg/l, Flow:
ŀ	17 Sample Source:	18 Field Notes/	
ŀ	Stream Well; Depth:	Sample #:	
- 1	□-Lake □-Spring	54) 56 54) Sec 23, Tays, R24E
ı	☐-Drain ☐-Distribution	<u> </u>	
	□-Pool □-Point-of-Entry		
1	Other:		
ı	[]=AAAA1L []=Otties:		
		20 Preservation:	
	19 Sample Type: X-Water,	20 Preservation:	erved; Filtered
	19 Sample Type: M-Water,	20 Preservation:	erved; Not Filtered
	19 Sample Type: X-Water,	WATER Water Not Preserve	erved; Not Filtered d with Sulfurle Acid (H2SO4); Filtered
	19 Sample Type: A-Water, -Soil, -Food, -Food, -Wastewater, -Other -This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart)	WATER Water Not Preserve WHY Water Not Preserve WPF Water Preserve WPN Water Preserve	orved; Not Filtered d with Sulfurle Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered
	19 Sample Type: X-Water,	WATER Water Not Preserve WHY Water Not Preserve WPF Water Preserve WPN Water Preserve	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab
A CONTRACTOR OF THE PARTY OF TH	19 Sample Type: A-Water, -Soil, -Food, -Food, -Wastewater, -Other -This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart)	WALE Water Not Preserve WHN Water Not Preserve WPF Water Preserve WPN Water Preserve WAL Water Not Prese	orved; Not Filtered d with Sulfurle Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered
	19 Sample Type: M-Water, -Soil, -Food, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart) -4 liter cubitainers (1 galion)	WATER NOT Preserve WHN Water Not Preserve WPN Water Preserve WNL Water Not Preserve WNL Water Not Preserve Water Not Preserve	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab
	19 Sample Type: M-Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 galion) 21 Analyses Requested: Please check the approprise	WATER NOT Preserve WHN Water Not Preserve WPN Water Preserve WNL Water Not Preserve Water Not Preserve Water Not Preserve Water Not Preserve Water load Char Ite box(es) below to indicate	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab the type of analyses required.
	19 Sample Type: M-Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 gallon) - 21 Analyses Requested: Please check the approprise Group Analyses:	WALE Not Preserve WHN Water Not Preserve WPF Water Preserve WNL Water Not Preserve Water Not Preserve Water Not Preserve Water Not Preserve Water load Cher Water Soad	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab the type of analyses required. on - Cation Group +
	19 Sample Type: M-Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 gallon) 21 Analyses Requested: Please check the approprise Group Analyses: - (854) SDWA Group II (Nitrate as N)	WALE Not Preserve Whith Water Not Preserve WPF Water Preserve WRIL Water Not Preserve Water Preserve Water Preserve Water Not Preserve	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS
	19 Sample Type: M-Water,	WHE Water Not Preserve WHN Water Not Preserve WPN Water Preserve WNL Water Not Preserve Water Preserve Water Not Preserve Water Preserve Water Preserve Water Preserve Water Preserve Water Not Preserve	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SC4 at Lab the type of analyses required. on - Cation Group + hion, Cation, Physical + TSS at Analysis Group +
	19 Sample Type: M-Water,	WALE Not Preserve Whith Water Not Preserve WPF Water Preserve WALE Water Preserve Water Not Preserve Water Preserve Water Preserve Water Preserve Water Preserve Water Not Preserve Water Preserve Water Not Preserve Water No	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + & Cations
	Sample Type:	WHE Water Not Preserve WHN Water Not Preserve WPN Water Preserve WNL Water Not Preserve Water Preserve Water Not Preserve Water Preserve Water Preserve Water Preserve Water Preserve Water Not Preserve	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SO4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + & Cations Surface and Wasta Water:
	19 Sample Type: A-Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: - 1 liter cubitainers (1 quart) - 4 liter cubitainers (1 quart) - 4 liter cubitainers (1 quart) - (21) Analyses Requested: Please check the approprise Group Analyses: - (854) SDWA Group II (Nitrate as N) - (851) SDWA Group III (Fluoride) - (860) SDWA Complete Secondary Cations: Physical P	WALE Not Preserve Whith Water Not Preserve Water Preserve Water Preserve Water Preserve Water Not Preserve Water Preserve Water Preserve Water Preserve Water Preserve Water Not Preserve Water Preserve Water Not Preserve Wa	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piesse Add H2SC4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + & Cations Surface and Weste Water: - Biological Oxygen Demand
	19 Sample Type: M-Water,	WASE Not Preserve WASE Not Preserve WASE Not Preserve WASE Preserve WASE Preserve WASE Preserve Wase Preserve Wase Not Preserve Water Preserve Water Not Preserve Wat	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piease Add H2SC4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + & Cations Surface and Waste Water: - Biological Oxygen Demand - Total Suspended Solids
	Sample Type: -Water, -Soil, -Food, -Wastewater, -Other - This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart) -4 liter cubitainers (1 quart) -6 lit	WASE Not Preserve WASE Not Preserve WASE Not Preserve WASE Preserve WASE Preserve WASE Preserve Wase Preserve Wase Not Preserve Water Preserve Water Not Preserve Wat	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piease Add H2SC4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + & Cations Surface and Waste Water: - Biological Oxygen Demand - Total Suspended Solids
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	Sample Type: -Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart) -4 liter cubitainers (254)	WALE Not Preserve WATER Not Preserve WATER NOT Preserve WATER PRES	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piease Add H2SC4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS et Analysis Group + & Cations Surface and Waste Water: - Biological Oxygen Demand - Total Suspended Solids - Chemical Oxygen Demand - Total Organic Carbon - Cyanide Nutrients: - Nitrate + Nitrite (as N) - Ammonia (as N) - Total Kieldahi (as N)
	Sample Type: -Water, -Soil, -Food, -Wastewater, -Other This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart) -4 liter cubitainers (254)	WALE Not Preserve WATER Not Preserve WATER NOT Preserve WATER PRES	erved; Not Filtered d with Sulfuric Acid (H2SC4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Piease Add H2SC4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS et Analysis Group + & Cations Surface and Waste Water: - Biological Oxygen Demand - Total Suspended Solids - Chemical Oxygen Demand - Total Organic Carbon - Cyanide Nutrients: - Nitrate + Nitrite (as N) - Ammonia (as N) - Total Kieldahi (as N)
	Sample Type: Water, Soil, Food, Wastewater, Other This form accompanies a single sample consisting of: -1 liter cubitainers (1 quart) -4 liter cubitainers (1 galion) -4 liter cubitainers (1 galion) -6 liter cubitainers (1 galion) -6 liter cubitainers (1 galion) -7 liter cubitainers (1 galion) -8 liter cubitainers (2 liter cu	WALE Not Preserve WATER Not Preserve WATER NOT Preserve WATER PRES	erved; Not Filtered d with Sulfuric Acid (H2SO4); Filtered d with Sulfuric Acid; Not Filtered erved in Field; Please Add H2SO4 at Lab the type of analyses required. on - Cation Group + nion, Cation, Physical + TSS at Analysis Group + k Cations Surface and Waste Water: - Biological Oxygen Demand - Total Suspended Solids - Chemical Oxygen Demand - Total Organic Carbon - Cyanide Nutrients: - Nitrate + Nitrite (as N) - Ammonia (as N) - Total Kjeldahl (as N) - Nitrite (as N) - Orthophosphate (as P)
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SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 Albuquerque, NM 87196-4700 700 Camino de Salud, NE [505]-841-2500

WATER CHEMISTRY SECTION [505]-841-2555

July 19, 1991

Request ID No. 011310

ANALYTICAL REPORT SLD Accession No. WC-91-1283 Distribution

() User 70320

(Submitter 63

(₩) SLD Files

David G. Boyer To: New mexico Oil Conservation Division P.O. 2088 Santa Fe, New Mexico 87504-2088

From:

Water Chemistry Section Scientific Laboratory Div. 700 Camino de Salud, NE Albuquerque, NM 87106

Re: A water, Nonpres/No sample submitted to this laboratory on May 16, 1991

DEMOGRAPHIC DATA

COLLECTION

LOCATION

On: 15-May-91 At: 10:05 hrs.

Bν: Bir . . . In/Near: Carlsbad Well #C-1332 646 Queen Rt 137

ANALYTICAL RESULTS

<u>Analysis</u>	<u>Value</u>	D. Lmt.	<u>Units</u>
calcium	209.10		${ t mG/L}$
magnesium	73.40		${ t mG/L}$
potassium	8.00		${ t mG/L}$
sodium	16.00		mG/L
hardness	824.00		${ t mG/L}$
alkalinity	255.00		mG/L
bicarbonate	312.00		mG/L
carbonate	0.00		mG/L
chloride	13.40		mG/L
fluoride	0.46		mG/L
sulfate	560.00		mG/L
Ion Balance	101.00		8
conductance	1223.00		uS/cm
рН	7.50		pH units
TDS	942		mg/c

Reviewed By:

John A. Finney

07/16/91

Supervisor, Water Chemistry Section

0S 8 UH & SHE 76.

REE 'ED

OIL CONSERV IN DIVISION

OHGANIC CHEMISTRY ANALYTICAL REQU	JEST FORM			1		
SCIENTIFIC LABORATORY DIVISION				SLD No.		
700 CAMINO DE SALUD N.E., ALBUQUERQUE, N	IM 87106			Date		
Organic Chemistry Section - Telephone: (505) 84		equest		Received:		D4 949 200
	No:: No::	D No. 0	11309-С	4 Priority Code #:	<u> </u>	(If "1" or "2", call EID-SLD Coordinator)
Facility 0 - 5 2 2	Le	6 County:		7 City:		8 State
Name: BIEBEZLE ZANC	1.4	EDD4		CARLSB	AD	NW
Sample Location: WELLL#C-133	2,646	1 Q U	EEN	RT	1 3	7
10 Collected Berry B1RC.	/ -/ c	on: <i>91</i>	105714	At: (4 1	Ø hrs
First (Date	(YY/MM/DD)	Time:	24 hr. clos 3:00 pm = 150	ak XO hrs.
11 Codes:			12 Latitu	Ide (DDMM,SS	5) . ".	
Submitter WSS #	Organiza	ation	Longitude	(DDDMMSS)		2 Digit ID
13 Report Name 14	Phone #:			(DDDWW33)	"	
To: DAVID G BOYER	(505)827-5	812	15	Sampling	Information	n:
NMOCD			Sample Purp		osite	(Composite
PO BOX 2058 City, State Zip		 	☐- Compliar	□-Fa	w Proportion	ned "Fellox
SANTHEE NM87504	- 2088		☐- Monitorin	g ⊟-Sampi	e Split w/Pe of Custody	rmittee
16 Field Data: pH:, Conductivity:umhos@	°C, Tempe		. Chlorine C. Residua	e ul: mg		
17 Sample Source:	18 Field Notes Sample #:	Siuses	4) Sec 2	3 T Z/5	R 24	<i>(</i> -
☐-Stream			137 fra		1 .	<u> </u>
☐-Drain ☐-Distribution	at well-		13 / 1/20	N 6031 10	and al	CLIPN
☐-Pool☐-Point-of-Entry☐-WWTP☐-Other:	as week	neaa			**	
☐-Wastewater, ☐-Other	of: - NP - P-los - P-TS - Y-P-HCI - Other	Sample store Sample Pres	ion; Sample stored in an ice bath served with Sodiu arved with Hydro	(Not Frozen) m Thiosulfate to	remove chic	rine residua
21 Analyses Requested: Please check the approprequired. Whenever pos					reen(s)	
Volatile Screens:	2	amiroletil	e Screens:			
- (753) Aliphatic Headspace (1-5 Carbons) - (754) Aromatic & Halogenated Purgeables (EPA 624 - (765) Mass Spectrometer Purgeables (EPA 624 - (766) SDWA Total Trihalomethanes (EPA 501.1	A 601 & 602) I))	(763). (751). (755) (756)	Acid Extractal Aliphatic Hydi Base/Neutral Base/Neutral Herbicides, C	rocarbons Extractables /Acid Extracti	ables (EPA	
☐ Other Specific Compounds or C)	☐ - (759) ☐ - (760)	Herbicides, Ti Organochlori Organophosp	riazines ne Pesticides		
		<u> </u>	Polychlorinate Polynuclear A SDWA Pestic	romatic Hydr	ocarbons	, ugaujati
Remarks: Call Collector @ (505) &	385-9023	with re	solts			
Copy to: Borry Birch NMED	406 N. Guado	dupe Si	. Corlsba	1 nmés	1220	
walter Biebelle 646	· .	· •	Is bad, Y	m 882	20	
OCD ARAWER DE) Artesia		98210.			
,	/					
SLD 8912-OR Form New 12/89 This Form Wil	II NOT Be Return	ned With Yo	our Results. P	lease RETAII	N A COPY	' I

SCIENTIFIC LABORATORY DIVISION

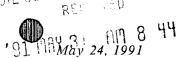
IN DIVISION

P.O. Box 4700

Albuquerque, NM 87196-4700

700 Camino de Salud, NE

[505]-841-2500 ORGANIC CHEMISTRY SECTION [505]-841-2570



ONSER

Request ID No. 011309

ANALYTICAL REPORT SLD Accession No. OR-91-1767

Distribution

() User 70320

(B) Submitter 63

(X) SLD Files

To: David G. Boyer

NMOCD

P.O. Box 2088

Santa Fe. NM 87504-2088

From: Organic Chemistry Section

Scientific Laboratory Div. 700 Camino de Salud, NE

Albuquerque, NM

Re: A water, Extractab sample submitted to this laboratory on May 15, 1991

DEMOGRAPHIC DATA

LOCATION COLLECTION Well #c-1332 646 Queen rt 137 On: 14-May-91 By: Bir . . . At: 14:10 hrs. In/Near: Carlsbad

ANALYTICAL RESULTS: SDWA VOC's II [EPA-504] Screen {775}

Parameter	Value	Note	MDL	<u>Units</u>
1,2-Dibromoethane (EDB)	0.00	N	0.04	ppb
1,2-Dibromo-3-chloropropane	0.00	N	0.04	ppb
Coo Tabaratary Damarka f	or Additional	Tnfor	mation	

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;

T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed; Intact: No , Yes & Broken By:

Laboratory Remarks:

SAFE DRINKING WATER ACT VOLATILES-II

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract:/A Lab Code: N/A Case No.: N/A SAS No.: N/A SDG No.: N/A Matrix: (soil/water) <u>Water</u> Lab Sample ID: OR-91-1767 Sample wt/vol: 35 ml (g/mL) Lab File ID: N/A Date Received: 5/15/91 Level: (low/med) Low Date Extracted: 5/17/91 % Moisture: not dec._N/A_ dec. N/A

(Continued on page 2.)

RECEIVED

MAY 3 1 1991

ANALYTICAL REPORT SLD Accession No. OR-91-1767 Continuation, Page 2 of 2

Excracción: (Sepr/Conc/Sonc)_Micro_		Date Analyzed. <u>J/17/91</u>			
GPC Cleanup: (Y/N) No pH:	Dilution Factor: 1			
- '		CONCENTRATION UNITS:			
		(ug/L or ug/Kg): ug/L			
		(49/2 01 49/109/ 0			
EPA Method 50	04 was used to analyze fo	r the following compounds			
CAS NO.	COMPOUND	CONC. QUALIFIER			
106-93-4	1,2-Dibromoethane (EDB)	0.04 U			
96-12-8	1,2-Dibromo-3-chloropro				
* Qua	lifier Definitions:				
	compound was detected in	the Lab Blank as well			
as in the s	sample.				
	-	ary (diluted) sample analysis.			
	compound concentration ex				
	standard curve.				
J - Indicates a	J - Indicates an estimated value for tentatively identified compounds,				
or for compounds detected and identified but present at a					
concentration less than the quantitation limit.					
		as used for quantitation.			
	compound was analyzed for				
	ion greater than the conc				
concentrat.	ion greater than the conc	encracton riscent			

Analyst:

Jim Chasey
Analyst, Organic Chemistry

_ Reviewed By:

Richard F. Meyerhein 05/23/91 Supervisor Organic Chemistry Section

RECEIVED

MAY 3 1 1991

ONGANIC CHEMISTRY ANALYTICAL REQU	UNGANIC CHEMISTRY ANALYTICAL REQUEST FORM					
SCIENTIFIC LABORATORY DIVISION	SLD No.					
700 CAMINO DE SALUD N.E., ALBUQUERQUE, NM	87106	Date				
Organic Chemistry Section - Telephone: (505) 841	-2570	Date Received:				
2 User 7.0.3.7.0 3 Requ	11) NA A		[If "1" or "Z".			
Code #: 1/0/0/4/0/ ID N	0. .	Code #:	[If "1" or "Z", call EID-SLD Coordinator]			
S Facility Name: R11=RE11E 24a10	6 County	<u> </u>	8 State			
L SCELL EAVE	1-1 ED!	DY CARISBAD	NM			
Sample Location: Luj & Luj & C - 1 3 3 2	646,00	JEEN RT. 1.3	7			
10 Collected R D P R M						
First / L a s t	On: //	B: (YY/MM/DD) Time: 24 hr, c	기 <mark>월</mark> hrs.			
11 Codes:		12 Latitude (DDMMSS)	1500 hrs.			
<u> </u>			ı			
Submitter WSS #	Organization	Longitude (DDDMMSS)	2 Digit ID (if needed)			
13 Report Name To: DAVID G - BOYER (S	hone #:					
	05)827-5812	15 Sampling Informa	tion:			
NMOCD		Sample Purpose: - Grab - Composite	(Composite			
PO BOX 2088		☐- Compliance ☐- Flow Proport				
SANTA FE NM 87504-20	18R	☐ - Cneck ☐ - Equal Aliquot ☐ - Monitoring ☐ - Sample Split w/F ☐ - Special ☐ - Chain of Custods	Permittee			
16 Field Data: pH: , Conductivity: umhos@	°C, Temperature:	Chlorine C, Residual: mg/l, Flow:				
17 Sample Source:	Land Blade Marcal					
Stream Well; Depth:		SW Sec 23, T215, R 246				
☐-Lake ☐-Spring ☐-Distribution	7millest on	137 from 285. Tank du	rain			
□-Pool □-Point-of-Entry	at unll-head					
☐-WWTP ☐-Other:						
9 Sample Type: X-Water, -Soil, -Food,	20 Preservation:		a Awalian, artist			
☐-Wastewater, ☐-Other ☐-NP No Preservation; Sample stored at room temperature This form accompanies a single sample consisting of Septice Sample stored in an ice bath (Not Frozen)						
P-TS Sample Preserved with Sodium Thiosulfate to remove chloring residual						
2 - septum viai(s) (volume = 40ml) - glass jugs (volume =)		erved with Hydrochloric Acid (2 drops/40 m)			
(volume =)						
	\		***			
required. Whenever possit	ite box(es) below to indicate. Ilst specific compound	ate the type of analytical screen(s)				
	, specille compount	is suspected of requiled.				
Volatile Screens:	<u>Semivolatil</u>	e Screens:				
- (753) Aliphatic Headspace (1-5 Carbons)	□ - (763).	Acid Extractables				
- (754) Aromatic & Halogenated Purgeables (EPA 601 & 602)						
- (765) Mass Spectrometer Purgeables (EPA 624) - (755) Base (Neutral Extractables (EPA 625)						
- (756) SDWA Total Trihalomethanes (EPA 501.1) - (756) Base/Neutral/Acid Extractables (EPA 8270)						
- (774) SDVVA VOC's I [8 Regulated +] (EPA 502.2)						
- (775) SDWA VOC's II [EDB & DBCP] (EPA 504) - (759) Herbicides, Triazines						
Other Specific Compounds or Classes: - (760) Organochlorine Pesticides - (761) Organophosphate Pesticides						
- (767) Organiophosphate Pesticides - (767) Polychlorinated Biphenyls (PCB's)						
- (764) Polynuclear Aromatic Hydrocarbons						
- (762) SDWA Pesticides & Herbicides						
Remarks: Call Collector @ (505) 885-9023 with results						
Copy to: Barry Biril NMED 406 N. Guadalupo St. Carlobad AM 88220						
WalferBiebelk 646 Queen Rt Corls bod nm88220						
OCD. Drawer D.D. A	rtesia nm 887	7/0				
, , , , , , , , , , , , , , , , , , , ,						
CI D code OD						

SCIENTIFIC LABORATORY DIVISION

P.O. Box 4700 Albuquerque, NM 87196-4700 700 Camino de Salud, NE [505]-841-2500

ORGANIC CHEMISTRY SECTION [505]-841-2570

June 11, 1991

Request ID No. 011308

ANALYTICAL REPORT SLD Accession No. OR-91-1766

Distribution

(__) User 70320

(Submitter 63

(X) SLD Files

David G. Boyer To:

NMOCD P.O. Box 2088

Santa Fe, NM 87504-2088

From:

Organic Chemistry Section

Scientific Laboratory Div. 700 Camino de Salud, NE Albuquerque, NM 87106

A water, purgeable sample submitted to this laboratory on May 15, 1991 Re:

DEMOGRAPHIC DATA

COLLECTION LOCATION

By: Bir . . . On: 14-May-91 At: 14:00 hrs. In/Near: Carlsbad well #c-1332 646 Queen rt 137

ANALYTICAL RESULTS: SDWA VOC's I [EPA-502.2] Screen {774}

Parameter Value Note MDL Units SDWA VOC's-I (63) 0.00 ppb

See Laboratory Remarks for Additional Information

Notations & Comments:

MDL = Minimal Detectable Level.

A = Approximate Value; N = None Detected above Detection Limit; P = Compound Present, but not quantified;

T = Trace (<Detection Limit); U = Compound Identity Not Confirmed.

Evidentiary Seals: Not Sealed X; Intact: No , Yes & Broken By: _ Date:

Laboratory Remarks:

SAFE DRINKING WATER ACT VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: NM SCIENTIFIC LABORATORY DIVISION Contract: N/A

Lab Code: N/A Case No.: N/A Matrix: (soil/water) <u>Water</u>

Sample wt/vol: 5.0 (g/mL) mL

Level: (low/med) Low

% Moisture: not dec. N/A dec. N/A Extraction: (SepF/Cont/Sonc) N/A

GPC Cleanup: (Y/N) No pH: SAS No.: N/A

SDG No.: N/A

Lab Sample ID: OR-91-1766

Lab File ID: N/A Date Received: 5/15/91

Date Extracted: N/A

Date Analyzed: 5/17/91

Dilution Factor:__

CONCENTRATION UNITS:

(ug/L or ug/Kg): ug/L

This sample was analyzed for the following compounds

RECEIVED

(Continued on page 2.)

JUN 1 3 1991

using EPA Method 502.2

	using EPA Method 502.2		
CAS NO.	COMPOUND	CONC.	QUALIFIER
67-64-1	Acetone	5.0	U
71-43-2	Benzene	1.0	U
108-86-1	Bromobenzene	1.0	U
74-97-5	Bromochloromethane	1.0	U
75-27-4	Bromodichloromethane	1.0	<u> </u>
75-25-2	Bromoform	1.0	U
24-83-9	Bromomethane	1.0	<u> </u>
78-93-3	2-Butanone (MEK) *	5.0	U
104-51-8	n-Butylbenzene	1.0	U
135-98-8	sec-Butylbenzene	1.0	U
98-06-6	tert-Butylbenzene	1.0	U
1634-04-4	tert-Butyl methyl ether (MTBE)*	5.0	U
56-23-5	Carbon tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
95-49-8	2-Chlorotoluene	1.0	U
106-43-4	4-Chlorotoluene	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1.0	U
124-48-1	Dibromochloromethane	1.0	U
106-93-4	1,2-Dibromoethane	1.0	Ŭ
74-95-3	Dibromomethane	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	Ŭ
106-46-7	1,4-Dichlorobenzene	1.0	U
75-71-8	Dichlorodifluoromethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
156-59-4	cis-1,2-Dichloroethene	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
142-28-9	1,3-Dichloropropane	1.0	U
590-20-7	2,2-Dichloropropane	1.0	U
563-58-6	1,1-Dichloropropene	1.0	U
1006-01-5	cis-1,3-Dichloropropene	1.0	U
1006-02-6	trans-1,3-Dichloropropene	1.0	U
100-41-4	Ethylbenzene	1.0	U
87-68-3	Hexachlorobutadiene	1.0	Ŭ

(Continued on page 3.)

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JUN 1 3 1991

98-82-8	Isopropylbenzene	1.0	l u
99-87-6	4-Isopropyltoluene	1.0	U
75-09-2	Methylene chloride	5.0	U
91-20-3	Naphthalene	1.0	Ü
103-65-1	Propylbenzene	1.0	U
100-42-5	Styrene	1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
109-99-9	Tetrahydrofuran (THF)*	5.0	Ū
108-88-3	Toluene	1.0	Ū
87-61-5	1,2,3-Trichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
79-01-6	Trichloroethene	1.0	Ū
75-69-4	Trichlorofluoromethane	1.0	U
96-18-4	1,2,3-Trichloropropane	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
75-01-4	Vinyl chloride	1.0	U
95-47-6	o-Xylene	1.0	U
N/A	p- & m-Xylene	1.0	U

* Non-Regulated Compounds

Oualifier Definitions:

- B Indicates compound was detected in the Lab Blank as well as in the sample.
- D Indicates value taken from a secondary (diluted) sample analysis.
- E Indicates compound concentration exceeded the range of the standard curve.
- J Indicates an estimated value for tentatively identified compounds, or for compounds detected and identified but present at a concentration less than the quantitation limit.
- N Indicates that more than one peak was used for quantitation.
- U Indicates compound was analyzed for, but not detected.

QUALITY CONTROL SUMMARY FOR VOLATILES SCREEN

METHOD BLANK: A laboratory method blank was analyzed along with this sample to assure the absence of interfering contaminants

(Continued on page 4.)

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JUN 13 1991

from lab reagents, instruments, or the general laboratory environment. Unless listed below, no contaminants were detected in this blank above the reported detection limit.

COMPOUND DETECTED

CONCENTRATION (PPB)

No Compounds Detected

SURROGATE RECOVERIES:

SURROGATE CONCENTRATION % RECOVERY Fluorobenzene 25.0 ppb 99.76 2-Bromo-1-chloropropane 15.0 ppb 96.

SPIKE RECOVERY: The % recoveries for compounds in the batch spike were from 80% to 120% with the exception of the compounds

listed below:

Analyst: L

COMPOUND CONCENTRATION % RECOVERY Vinyl chloride 25. 122.4 ppb 1,2-Dichloroethane 25. 66.0 ppb

Reviewed By:

Gary C. Eden Analyst, Organic Chemistry Richard

06/06/91

. Meyerhein Supervisor Organic Chemistry Section

RECEIVED

JUN 13 1991

OIL CONSERVATION DIV. SANTA FE

Biebelle Temp. Pond



CORE LABORATORIES

LABORATORY

TESTS 08/29/91

RESULTS

JOB NUMBER: 911607

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/22/91

DATE RECEIVED: 08/27/91

LABORATORY I.D...: 911607-0001

TIME SAMPLED.....: 11:10

TIME RECEIVED: 14:36 REMARKS....:

WORK DESCRIPTION...: BEIBELLES POND

STOCK POND WHICH EXISTED FOLLOWING RAINFALL TEST DESCRIPTION LIMITS/*DILUTION UNITS OF MEASURE TEST METHOD DATE TE FINAL RESULT Chloride (Unfilt.) 0.9 0.5 mg/L 325.2 (1) 08/29/91 08/29/91 8020 - AROMATIC VOLATILE ORGANICS *1 8020 (2) Benzene ug/L Toluene ND ug/L Ethyl Benzene ND ug/L **Xylenes** ug/L

inda J. Birbers APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:1

The analyses, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgement of Core Laboratones. Core Laboratones, however, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity, proper operations, or profitableness or any oil, gas, coal or other mineral, property, well or sand in connection with which such report is used or relied upon for any reason whatsoever. This report shall not be reproduced, except in its entirety, without the written approval of Core Laboratones.

Gregory Correspon Leuce

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT





BRUCE KING GOVERNOR

October 21, 1991

POST OFFICE BOX 2088 STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO 87504 (505) 827-5800

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

RE: OCD WATER WELL ANALYSIS

Dear Mr. Gregory:

On July 29, representatives of the New Mexico Oil Conservation Division (OCD) and Marathon Oil sampled a natural spring in Rocky Arroyo (Arroyo Spring Water) that you use for cattle watering to determine if contamination may have occurred as a result of the leak from a flow line in Marathon's Indian Basin Field. Samples taken by OCD were analyzed for hydrocarbons, solvents, heavy metals and general water chemistry at our contract laboratory, ANA-LAB, in Kilgore, Texas. The sample analyses have been received and are attached.

The results of the sampling show that no hydrocarbons or abnormally high levels of inorganic constituents are present. The water can be characterized as a calcium-sulfate water whereas the water lost in the pipeline break is best described as a sodium-chloride water mixed with hydrocarbons. I enclose a list of water quality standards compiled by the NM Environment Department so that you can compare your results.

If you have any questions about the analyses or wish further information, please contact Bill Olson at 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist/

Environmental Bureau Chief

Attachment

cc: OCD Artesia District Office



October 3, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on September 24, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory October 3, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

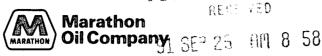
Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger

OIL CONSERVE ON DIVISION



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 19, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on September 9, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger



September 10, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on August 26, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory September 10, 1991 Page 2

Please note that at your specific request, the results are no longer being sent to you by registered mail. Plans are to continue sending you analytical results by ordinary mail in the future, unless you indicate otherwise.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. Ĵ. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 28, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on August 19, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory August 28, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a J Karron

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 20, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on August 12, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. Wayne Gregory August 20, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 13, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on August 4, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory August 13, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 5, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on July 29, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory August 5, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: (D. G. Boyer (NMOCDESanta Fe)

A. Collar (BLM-Roswell)

J. L. Benson

A. R. Kukla

R. F. Unger



July 29, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained on July 15, 1991 and July 22, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory July 29, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

ag Yaman

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



July 15, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained from your well on July 8, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory July 15, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Them It Ent

Thomas F. Zapatka Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: (D. C. Boyer (NMOCD Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



July 10, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained from your well on July 1, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory July 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: (D. G. Boyer (NMOCD-Santa Fe))

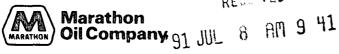
D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVE ON DIVISION RECEIVED



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 2, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from the water samples obtained from your well on June 3, 1991 and June 24, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory July 2, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVE OUN DIVISION

REC: VED

P.O. Box 552

'91 JUL 1 AM 9 15

Midland, Texas 79702 9 Tslaphone 915/682-1626

June 27, 1991

Marathon

Oil Company

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Re: Water Well Analysis

Dear Mr. Wayne Gregory:

Final analytical results from water samples obtained on May 20, 1991 and May 27, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Walter Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. hydrocarbons or abnormally high chloride concentrations were found to be present. You may note that one of the attached reports contains results for numerous other parameters. The Environmental Bureau of the New Mexico Oil Conservation Division requested that this one-time analyses be conducted to appropriately characterize the The results indicate that the sampled water is typical, as compared to other waters in this area.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. Wayne Gregory June 27, 1991 Page 2

Plans are to continue to conduct routine sampling of the water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elq

Attachments

cc: CD. G. Boyer (NMOCDESantanFe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



OIL CONSERVATION DIVISION

REC- JED P.O. Box 552 Midland, Texas 79702 9 Talephone 915/682-1626

'91 JEN 28

June 26, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Water Well Analysis Re:

Dear Mr. Wayne Gregory:

Final analytical results from water samples obtained on June 11, 1991 and June 17, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Walter Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of the water was conducted at Core Laboratories This lab, which is certified by in Aurora, Colorado. the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. analyses utilized to evaluate potential were contamination of the water from the released fluids The results of these analyses indicate described above. the water to be within standards for these parameters as established by EPA for drinking water.

Mr. Wayne Gregory June 26, 1991 Page 2

Plans are to continue to conduct routine sampling of the water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a. J. Kavran

Environmental and Safety Supervisor

AJK/elq

Attachments

cc: D. G. Boyer (NMOCD Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



Mid-Continent Region Product United States

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

May 28, 1991

Mr. Wayne Gregory 617 Queens Highway Carlsbad, New Mexico 88220

Certified Mail Return Receipt Requested

Re: Water Analysis

Dear Mr. Gregory:

Final analytical results from a water sample obtained on May 12, 1991 from a natural spring located in Rocky Arroyo are attached. In discussing this water source with Mr. Walter Biebelle, he indicated that the water it supplies is utilized by the Biebelle's for stock water, and also by you for stock water. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me through the Indian Basin Gas Plant, 457-2621, or collect through Marathon's Midland Office, (915) 687-8528.

Sincerely,

ag Kanan

A. J. Kavran Environmental & Safety Supervisor

Attachments AJK/lgh

cc: D. G. Boyer (NMOCD - Santa Fe)

D. L. Manus (BLM - Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

ARROYO Spring water



CORE LABORATORINA

LABORATORY TESTS RESULTS

10/01/91

JOS NUMBER: 911797 CUETCHER: MARATHON DIL COMPANY

ATTHE W. HIXON

CLIENT 1.0...... 32-03-144 INDIAN BASIN

DATE SAMPLED ... 09/24/91 TIME SAMPLED ... 09:34

Λ

WORK DESCRIPTION ...: 5

LABORATORY [.D.,.: 911797-0005 DATE RECEIVED....: 09/26/91 TIME RECEIVED....: 15:40

REMARKS.....

Sacian

EST DESCRIPTION	FINAL REGULT	LIMITE/ OF LUTION	SELUTION TO STINU	TEST HETHOD	DATE
hiorida (unfilt.)	8.2	0.5	mg/L	325.2 (1)	09/27/91
020 - AROMATIC VOLATILE DROANICE		*1		8020 (2)	09/30/91
Benzone Toluene Ethyl Benzene Xylenes	ND ND NO NO	1	ug/L ug/L ug/L ug/L		
			Ì		
			•		
					1

IPPROVED BY: Junda J Benkeso

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1760



CORE LABORATORIES

LABORATORY

TESTS

RESULTS

09/13/91

JOB NUMBER: 911689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

DATE RECEIVED...: 09/11/91 TIME RECEIVED...: 15:25

LABORATORY I.D...: 911689-0005

DATE SAMPLED....: 09/09/91 TIME SAMPLED....: 15:22

WORK DESCRIPTION ...: 5

REMARKS....:

WORK DESCRIPTION: 5		REMARKS:						
ARROYO SPRIN	G WATER	(UNITS OF MEASURE	TEST METHOD:	DATE	TE		
Chloride (Unfilt.)	8.2	0.5		325.2 (1)	09/12/91			
	0.2		mg/L		Ì			
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/12/91	M		
Benzene	ND	1	ug/L					
Toluene Ethyl Benzene	ND ND	1 1	ug/L					
Xylenes	ND ND	1	ug/L ug/L					
					}			
				·				

APPROVED BY: £10

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:5

"CONFIDER THE BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY

RESULTS TESTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D..... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911616-0005 DATE RECEIVED....: 08/28/91

DATE SAMPLED.....: 08/26/91

TIME SAMPLED.....: 13:47

WORK DESCRIPTION ...: 5

TIME RECEIVED....: 15:26

REMARKS..... BROWN PARTICLES IN SAMPLE

ARROYO SPRING WATER

FEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	7.6	0.5	mg/L	325.2 (1)	08/29/91
020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/29/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

SOLA TECHNIME POSTIACOS TIALOKIAMITON



CORE LABORATORIES

LABORATORY

TESTS

RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED....: 08/19/91

LABORATORY I.D...: 911575-0005 DATE RECEIVED: 08/21/91

TIME SAMPLED: 12:22

TIME RECEIVED: 16:06

WORK DESCRIPTION ...: 5

REMARKS..... LT. BROWN PARTICLES IN VOA

Doggua

Spaine MATIG

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chloride (Unfilt.)	5.4	0.5	mg/L	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



LABORATORY

TESTS RESULTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE RECEIVED: 08/14/91

LABORATORY I.D...: 911529-0005

DATE SAMPLED.....: 08/12/91 TIME SAMPLED.....: 11:55 WORK DESCRIPTION ...: 5

TIME RECEIVED: 13:25 REMARKS....:

ARROYA

SPRINK WATER

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	9.7	0.5	mg/L	325.2 (1)	08/15/91
8020 - AROMATIC VOLATILE ORGANICS		*1	-	8020 (2)	08/15/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		•
			į į		

APPROVED BY;

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



7 E S 1 S RESULTS LABORATORY

08/08/91

CUSTOMER: MARATHON OF COMPANY JOB NUMBER: 911476

ATTHE W. NIKOR

CLIENT 1.0.....: 32-03-144 INDIAH SASIN DATE SAMPLED.....: 08/04/91 TIME SAMPLED.....: 10:42

LABORATORY I.D...: 911476-0004 DATE RECEIVED: 08/06/91

TIME RECEIVED 13:55

WORK DESCRIPTION ...: 5

REMARKS..... 1 VOA HAS BUBBLE (CL ONLY)

SARING MATER APPAUA

FINAL RESULT 9.4 NO NO NO NO	0.5	MB/L UB/L UB/L	123.2 (1) 8020 (2)	08/08/91
ND ND ND	1 1	ug/L ug/L	8020 (2)	08/07/91
ND ND ND		UB/L		
•	,	ug/L ug/L		1.00
·				

APPROVED BY:

1300 8. Potomec 8t., Suite 130 Aurore, CO 80018 (303) 751-1780

This investigation of the state of the contraction от применя в потраненти применя и потраненти применя и потраненти потраненти

: 8- 2-91 ;12:07PM : CORE LABORATORIES-

303 794 1720;# *

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

LABORATORY TESTS RESULTE 08/02/91

JOS NUMBER: 919436 CUSTOMER! HARATHON GIL COMPANY

ATTH: W. NIXON

CLIENT 1.0..... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911434-0005 DATE RECEIVED 07/31/91

DATE SAMPLED..... 07/29/91 TIME SAMPLED..... 11:45 WORK DESCRIPTION... 5

TIME RECEIVED 15:15

REMARKS.....

IST DESCRIPTION	FINAL RESULT	CIMITS/*DILUTION	UNITS OF MASURE	TEST METHOS	BTAD
nioride (unfilt.)	9.2	0.5	mg/L	325.2 (1)	08/01/91
DEO - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	08/01/91
Donzene Toluene Ethyl Bensene Xylenee	ND ND HD ND	1 1	ug/L ug/L ug/L ug/L		

100ROVED BY: Zinder Binker

1300 S. Potomae St., Suite 130 Aurore, CD 80012 (303) 751-1780



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

191 SEP 17 EM 8 45

09/11/91

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504 RECEIVED

SEP 1 7 1991

OIL CONSERVATION DIV.

Sample Identification:

Spring Feeding Surface Water

Collected By:

JR/DB

Date & Time Taken: 07/29/91 1145

On Site Data:

Marathon Indian Basin

Other:

Rocky Arroyo, Gas plant, east of plant and upstream of 1st road crossing. pH 6.5(strip), Water Temp 20.5, Sample type: Grab, Conductivity 170.

Lab Sample Number:

192240

Received:

07/31/91

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	220	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
Bromide	4	mg/l	1200	08/16/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	12.5/12.0	meq/meq	1600	09/10/91		SK
Carbonate	.7	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	780	ppm	1500	09/06/91	APHA Method 1030F	ВР
Specific Conductance	785	Micromhos	0030	08/01/91	EPA Method 120.1	SB
Fluoride	1.3	mg/l	1400	08/06/91	EPA Method 340.1	ВС
Bicarbonate	250	mg/l	1600	08/14/91	APHA Method 263	ВС
Sulfate	300	mg/l	1230	08/14/91	EPA Method 375.4	мв
рН	7.2	SU	0100	08/01/91	EPA Method 150.1	SB
Chloride	11	mg/l	1300	08/12/91	EPA Method 325.3	HG
Silver	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Aluminum	<.03	mg/l	1400	08/06/91	EPA Method 6010	GK
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK
11039						

Continued

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

192240 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Barium	.04	mg/l	1910	08/07/91	EPA Method 6010	GK
Beryllium	<.01	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Calcium	160	mg/l	1400	08/05/91	EPA Method 6010	NT
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Chromium	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Copper	<.02	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Iron	<.05	mg/l	1400	08/05/91	EPA Method 6010	NT
Mercury	<.001	mg/l	1730	08/01/91	EPA Method 245.3	MET
Dissolved Potassium	<2	mg/l	1400	08/05/91	EPA Method 6010	NT
Dissolved Magnesium	50	mg/l	1400	08/05/91	EPA Method 6010	NT
Dissolved Manganese	<.01	mg/l	1400	08/05/91	EPA Method 6010	NT
Molybdenum	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Dissolved Sodium	9.8	mg/l	1400	08/05/91	EPA Method 6010	NT
Nickel	<.05	mg/l	1910	08/07/91	EPA Method 6010	GK
Lead	.002	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.1	mg/l	1910	08/07/91	EPA Method 6010	GK
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	8.0	mg/l	1350	08/15/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1350	08/15/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1350	08/15/91	EPA Method 6010	GDG

Continued

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

192240 Continued

Page 3

	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	Zinc	<.01	ma (l	1910	08/07/91	EPA Method 6010	CV.
			mg/l		•		GK
	Acrolein	ND(100)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Acrylonitrile	ND(100)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Benzene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Bromoform	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Bromomethane	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Carbon Tetrachloride	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Chlorobenzene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Chloroethane	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
	2-Chloroethylvinyl ether	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Chloroform	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Chloromethane	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Dibromochloromethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Bromodichloromethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	1,1-Dichloroethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	1,2-Dichloroethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	1,1-Dichloroethene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	trans-1,2-Dichloroethene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	Dichlorodiflouromethane	ND(1.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	1,2-Dichloropropane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
-							

Continued

192240 Continued

Page 4

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Ethyl benzene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Methylene Chloride	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Toluene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Trichloroethene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
Vinyl Chloride	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1230	08/13/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1230	08/13/91	EPA Method 8240	PM
Benzene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ
Ethyl benzene	<0.4	ug/l	0800	08/05/91	EPA Method 8020	КВ
Toluene	<0.2	ug/l	0800	08/05/91	EPA Method 8020	KB
Xylenes	<0.2	ug/l	0800	08/05/91	EPA Method 8020	КВ
,		-3/ -		,,		****

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

• • • • • • • •			· • • • • • • • • • • • • • • • • • • •					
Sample #	Description	Result	Units Dup/Std Va	lue Spk Conc.	Percent	Time	Date	Ву
			Alka	linity				
	Standard	2420	mg/l as C 2358	_	103	1900	08/13/91	BW
191618	Duplicate	300	mg/l as C 300		100	1900	08/13/91	BW
191618	Spike		mg/l as C		100	1900	08/13/91	BW
			Вс	ron				



Sample #	Description	Result	Units	Dup/Std Va	lue Spk Conc.	Percent	Time	Date	Ву
	Blank	.000	mg/l				1700	08/09/91	МВ
	Standard	.51	mg/l	.50		102	1700	08/09/91	MB
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
				Bro	mide				
	Standard	100	mg/kg	100		100	1200	08/16/91	ES
192244	Duplicate	55	mg/kg	50		110	1200	08/16/91	ES
			Sı	pecific	Conductanc	e			
192237	Duplicate	1000	Micrombo	os 1000		100	0030	08/01/91	SB
192239	Duplicate	800	Micromho			100	0030	08/01/91	SB
192240	Duplicate	810	Micromh			106	0030	08/01/91	SB
					oride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	BC
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	BC
					fate				
	Standard	92	mg/l	100		108	1230	08/14/91	MB
192324	Duplicate	1300	mg/l	1300		100	1230	08/14/91	МВ
192324	Spike		mg/l		100	133	1230	08/14/91	МВ
					рН				
	Standard	Calibrate		7.0			0100	08/01/91	SB
	Standard	Calibrate		10.0			0100	08/01/91	SB
	Standard	8.0	SU	8.0		100	0100	08/01/91	SB
192237	Duplicate	7.0	SU	7.0	· • •	100	0100	08/01/91	SB
			_		oride				
	Standard	72	mg/l	71		101	1300	08/12/91	HG
192997	Duplicate	16	mg/l	15	-	106	1300	08/12/91	HG
				Si	lver				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	.20	mg/l	.20		100	1910	08/07/91	GK
400040	Standard	1.0	mg/l	1.0		100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01	4.0	100	1910	08/07/91	GK
192239	Spike		mg/l	7. 7	1.0 minum	99	1910	08/07/91	GK
	D			Alu	minum		4/00	00.407.404	01/
	Blank	<.03	mg/l	4.0		100	1400	08/06/91	GK
	Standard	1.0	mg/l	1.0		100	1400	08/06/91	GK
400040	Standard	5.1	mg/l	5.0		102	1400	08/06/91	GK
192240	Duplicate	<.03	mg/l	<.03	2.0	100	1400	08/06/91	GK
192239	Spike		mg/l	3 70 0	2.0 enic	94	1400	08/06/91	GK
	Dlawle	- 005	m = / l	Ars	CHIC		1400	09/1//01	רע
	Blank	<.005	mg/l	100		101	1600	08/14/91	GK GK
101/10	Standard	.099	mg/l	.100		101	1600	08/14/91	GK GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK GK
191622 192240	Duplicate Spike	<.005	mg/l mg/l	<.005	.100	100 91	1600 1600	08/14/91 08/14/91	GK GK
	SDIKE		ma/l		1101	91	UUGI	UO/ 14/YI	UK





Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	3.9	mg/l	4.0		103	1910	08/07/91	GK
	Standard	5.2	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	.04	mg/l	.04		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	99	1910	08/07/91	GK
	·			Beryll	ium				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	.09	mg/l	.10		111	1910	08/07/91	GK
	Standard	2.0	mg/l	2.0		100	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	98	1910	08/07/91	GK
				Dissolved	Calcium				
	Blank	.16	mg/l				1400	08/05/91	NT
	Standard	10	mg/l	10		100	1400	08/05/91	NT
	Standard	46	mg/l	50		108	1400	08/05/91	NT
192237	Duplicate	200	mg/l	200		100	1400	08/05/91	NT
192240	Spike		mg/l	_	18	93	1400	08/05/91	NT
				Cadmi	um				
_	Blank	<.001	mg/l				1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
				Cobo	lt				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.97	mg/l	1.0		103	1910	08/07/91	GK
	Standard	4.6	mg∕l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l	_,	2.0	98	1910	08/07/91	GK
				Chrom	ium				
	Blank	<.02	mg/l				1910	08/07/91	GK
	Standard	.20	mg/l	.20		100	1910	08/07/91	GK
4000/0	Standard	4.8	mg/l	5.0		104	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	85	1910	08/07/91	GK
				Copp	er		4040	00.407.404	0 14
	Blank	<.02	mg/l	***		404	1910	08/07/91	GK
	Standard	.48	mg/l	.50		104	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.02	mg/l	<.02		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
	-1 .	e-		Dissolve	a iron		4100	00 (05 :04	
	Blank	<.05	mg/l			4.00	1400	08/05/91	NT
	Standard	2.0	mg/l	2.0		100	1400	08/05/91	NT
	Standard	5.2	mg/l	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.05	mg/l	<.05		100	1400	08/05/91	NT





Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
192240	Spike		ag/l		3.7	106	1400	08/05/91	NT
			D	issolved	Potassium				
	Blank	<2	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	49	mg/l	50		102	1400	08/05/91	NT
192237	Duplicate	<2	mg/l	<2		100	1400	08/05/91	NT
192240	Spike		mg/l		18	110	1400	08/05/91	NT
			D	issolved	Magnesium				
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	99	mg/l	100		101	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	ИT
192237	Duplicate	69	mg/l	70		101	1400	08/05/91	NT
192240	Spike		mg/l		18	95	1400	08/05/91	NT
			D	issolved	Manganese				
	Blank	<.01	mg/l				1400	08/05/91	NT
	Standard	.30	mg/l	.30		100	1400	08/05/91	NT
	Standard	5.2	mg/l	5.0		104	1400	08/05/91	NT
192237	Duplicate	<.01	mg/l	<.01		100	1400	08/05/91	NT
192240	Spike		mg/l		18	106	1400	08/05/91	NT
				Moly	odenum				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	5.4	mg/l	5.0		108	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l	_	2.0	99	1910	08/07/91	GK
				Dissolve	ed Sodium				
	Blank	3	mg/l				1400	08/05/91	NT
	Standard	100	mg/l	100		100	1400	08/05/91	NT
	Standard	50	mg/l	50		100	1400	08/05/91	NT
192237	Duplicate	10	mg/l	10		100	1400	08/05/91	NT
192240	Spike		mg/l	_	18	106	1400	08/05/91	NT
				Ni	ckel				
	Blank	<.05	mg/l				1910	08/07/91	GK
	Standard	.80	mg/l	.80		100	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.05	mg/l	<.05		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	97	1910	08/07/91	GK
				L	ead				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK



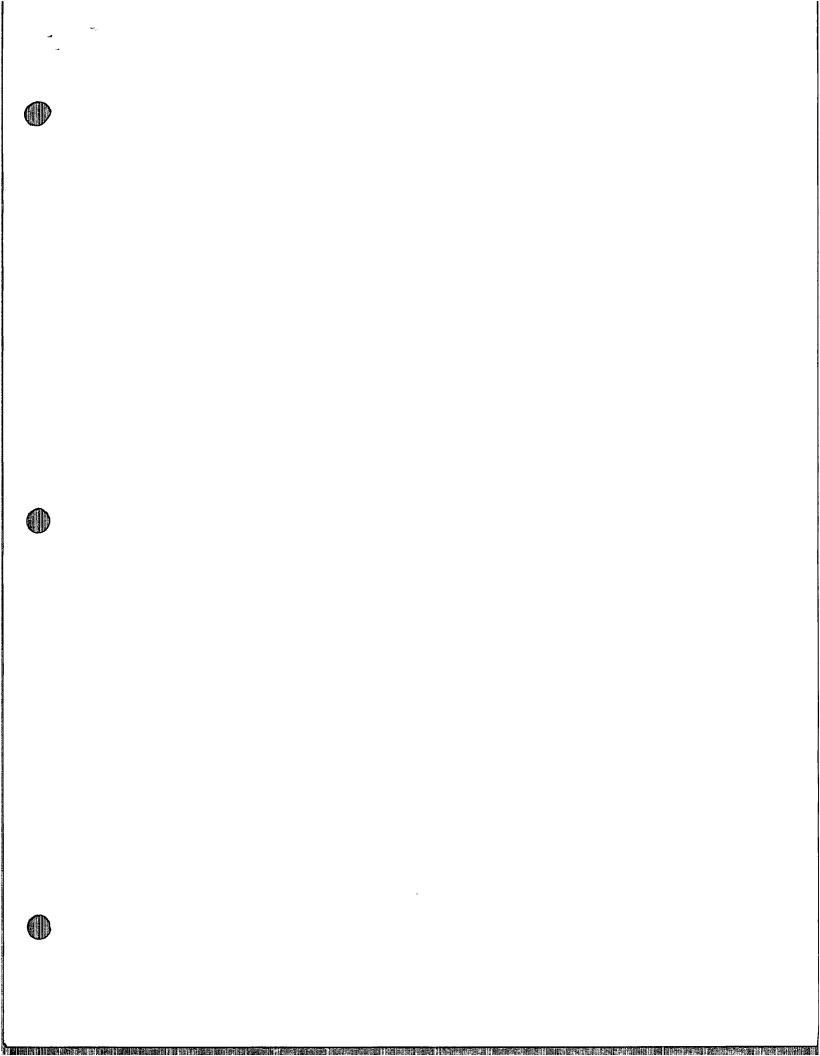


Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
	·			Antim					
	Blank	<.1	mg/l		_		1910	08/07/91	GK
	Standard	1.2	mg/l	1.2		100	1910	08/07/91	GK
	Standard	5.1	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.1	mg/l	<.1		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	96	1910	08/07/91	GK
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
				Silic	on				
	Blank	.4	mg/l				1350	08/15/91	GDG
	Standard	4.9	mg/l	5.0		102	1350	08/15/91	GDG
_	Standard	9.6	mg/l	10		104	1350	08/15/91	GDG
192240	Duplicate	8.1	mg/l	7.8		104	1350	08/15/91	GDG
192239	Spike		mg/l		2.0	95	1350	08/15/91	GDG
				Thall	ium				
	Blank	<.2	mg/l				13 50	08/15/91	GDG
	Standard	.95	mg/l	1.0		105	1350	08/15/91	GDG
	Standard	5.2	mg/l	5.0		104	1350	08/15/91	GDG
192240	Duplicate	<.2	mg/l	<.2		100	1350	08/15/91	GDG
192239	Spike		mg/l		2.0	102	1350	08/15/91	GDG
				Vanad	ium				
	Blank	<.05	mg/l				1350	08/15/91	GDG
	Standard	1.0	mg/l	1.0		100	1350	08/15/91	GDG
	Standard	5.2	mg/l	5.0		104	1350	08/15/91	GDG
192240	Duplicate	<.05	mg/l	<.05		100	1350	08/15/91	GDG
192239	Spike		mg/l	_	2.0	102	1350	08/15/91	GDG
				Zin	C				
	Blank	<.01	mg/l				1910	08/07/91	GK
	Standard	-41	mg/l	.40		102	1910	08/07/91	GK
	Standard	4.9	mg/l	5.0		102	1910	08/07/91	GK
192240	Duplicate	<.01	mg/l	<.01		100	1910	08/07/91	GK
192239	Spike		mg/l		2.0	101	1910	08/07/91	GK
				Benze	ne				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	115	0800	08/05/91	KB
				Ethyl be	nzene				
(D)									



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<5.0	ug/l				0800	08/05/91	КВ
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.4	ug/l	<0.4		100	0800	08/05/91	KB
192240	Spike				100	72	0800	08/05/91	KB
				Tolue	ne				
	Blank	<5.0	ug/l				0800	08/05/91	KB
	Standard	100		100		100	0800	08/05/91	КВ
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	96	0800	08/05/91	KB
				Xylen	es				
	Blank	<5.0	ug/l	_			0800	08/05/91	КВ
	Standard	100		100		100	0800	08/05/91	KB
192240	Duplicate	<0.2	ug/l	<0.2		100	0800	08/05/91	KB
192240	Spike				100	70	0800	08/05/91	КВ

I hereby certify that these results were obtained using the methods specified in this report.





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Cont	ract Lab_	910729	9//45			Contract No				
00	D Sample I	No. ANA	-LAB							
Colle	ection Date	Collection Time	Collected by —Person/	'Agency						
41	0729	1145	Johnny Rohe	neon o	CD For	David Bay	· jos		/OCD	
SI	TE INFORM	ATION	O			•				
	nple location		Arroug							
Co	lection Site De	scription	Arroyo Gas plant, ea	ust of p	lant 4	apstream c	F1st	road cross	ng	
		5_6	***************************************			Townshi	o, Range, Sect	lion, Tract:		
							+	+ +		
SENE FINA		RONMENTA	AL BUREAU RVATION DIVISION		SAMPLEF	IEL D TREATMENT	— Check o	roner boxes		
REPO	PO B	ox 2088 a Fe, NM 87			No. of samples submitted:					
D.	SAMPLING CONDITIONS Water level				⊠ NF:		ered)			
~ 5 <i>p</i>	IMPLING CI	CHOITIUNS	waterievei		☐ F:	Filtered in field with 0.4	15 Umembra			
] Pump] Tap	Discharge		☐ PF:	Pre-filtered w/45 //m	embrane iliter			
·	(00400)	,	Sample type Grab		⊠ NA:	No acid added	X /			
	<u>ሩ 5</u> ter Temp. (000	(Strip)	Conductivity (Uncorrected)	⁄′mho	☐ A: ☐ A:	HCL 2ml H,SO,/L added	/	A: 4ml fuming HNO ₃ a <u> ቀ</u> ዙ _ወ ር/ 2 ነሪ E	1	
****	2 a. :		Conductivity at 25° C		FIELD COMM	ENTS:		THASI & ICE		
	Ψοι,	<u></u> l		mho بر	<u> </u>					

ΔR	ANAI YSI	S REQUEST	ren:							
_,	IIEM	DESC	METHOD	ПЕМ	DESC	METHOD	ITEM	DESC	METHOD	
	□ 001	VOA	8020		PHENOL	604	□ 026	Cd	7130	
	☐ 002 ☐ 003	VOA VOH	602 8010		VOC VOC	8240 624	□ 027 ⊠ 028	Pb Hg(L)	7421 7470	
	□ 004	VOH	601	□016	SVOC	8250	031	Se	7740	
	5 ≊ 005 □ 006	SUITE SUITE	8010-8020 601-602		SVOC VOC	625 8260	⊠ 032 ⊠ 033	ICAP CATIONS/ANIONS	6010	
)	<u> </u>	HEADSPACE		□019	SVOC	8270	□ 034	N SUITE		
	□ 008 □ 009	PAH PAH	8100 610		O&G AS	9070 7060	□ 035 □ 036	NITRATE NITRITE		
	010	PCB	8080	□023	Ba	7080	037	AMMONIA		
	□ 011 □ 012	PCB PHENOL	608 8040		Cr Cr6	7190 7198	□ 038 □	TKN OTHER		
	L		3040			, 100		J.11E11		





LABORATORY 1 5 5 1 5 RESULTS

07/26/91

JOS NUMBER: 911398

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN DATE BAMPLED 07/22/91

LABORATORY 1.0...: 911398-0005 DATE RECEIVED ...: 07/26/91 TING RECEIVED: 13:15

TIME SAMPLED 15:55 WORK DESCRIPTION ...: #5

REMARKS......

ARROYD SPRING WATER

TEST DESCRIPTION	FINAL RESULT	LIMITE/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	4.1	0.5	mg/L	325.2 (1)	07/25/9
8020 - ARCHATIC VOLATILE ORGANICS		-1	}	8020 (2)	07/25/9
Benzene Toluene Ethyl Benzane Xylenem	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		
					Ì
	_				

PPROVED BY: Timbol & Bankers

1300 S. Potomac \$t., Suite 130 Aurore, CO 80012 (303) 751-1780

PAGE 15



LABORATORY TESTS

RESULTS

07/19/91

JOB NUMBER: 911323

1323 CUSTOMER

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE SAMPLED....: 07/15/91

TIME SAMPLED....: 12:50 WORK DESCRIPTION...: #5

LABORATORY I.D...: 911323-0005 DATE RECEIVED....: 07/17/91

TIME RECEIVED...: 13:15
REMARKS.....

ARROTO SPRINE WATER

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chloride (Unfilt.)	12.1	0.5	mg/L .	325.2 (1)	07/18/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
					•

APPROVED BY: Sinda J. Benkins

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



CLIENT I.D...... 32-03-144 INDIAN BASIN

CORE LABORATORIES

LABORATORY TESTS RESULTS

07/12/91

JOB NUMBER: 911259

DATE SAMPLED.....: 07/08/91

TIME SAMPLED.....: 11:55

WORK DESCRIPTION...: #5

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

LABORATORY I.D...: 911259-0005

DATE RECEIVED....: 07/10/91 TIME RECEIVED: 13:15

REMARKS....:

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	T
hloride (Unfilt.)	10.9	0.5	mg/L ·	325.2 (1)	07/11/91	(
020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/10/91	ı
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			
	,	•	1			

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LABGRATORY TEST\$ RESULTS

07/08/91

JUB NUMBER: 911228

CUSTOMER: MARATHEN OIL COMPANY

ATTNA U. NIXON.

CLIENT 1.0...... 32-03-144 [NDIAN BASIN

DATE SAMPLED 07/01/91

TIME SAMPLED 13:40 WORK DESCRIPTION ...: #9

LABORATORY 1.0...: 911228-0005 DATE RECEIVED...: 07/03/91 TIME RECEIVED 16:20

REMARKS.....

TEST DESCRIPTION	FINAL RESULT	LIMITS/#OFLUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	10.6	0.5	mg/l.	375.8 (1)	07/08/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/04/91
Benzono Toluene Ethyl Benzene Xylenee	NO ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY

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"CONFIDENTIAL BUSINESS [NEURMATION"



CORE LABORATORIES

LABORATORY

TESTS RESULTS

06/28/91

JOB MERSERY 911155 CUSTOMBAL MARATHON OLL COMPANY

ATTHE W. NIXON

CLIENT L.D. 32-03-144 INDIAN BASIN

LABORATORY 1.0...: 911153-0005 DATE RECEIVED....: 06/26/91 TIME RECEIVED...: 14:52

DATE SAMPLED.....: 06/24/91 TIME SAMPLED....: 12:30 WORK DESCRIPTION ... 5

REMARKS.....

THE DESCRIPTION	FINAL RESULT	LIMITS AND LLUT LON	UNITS OF MEASURE	TEST METHOD	DATE
Chieride (Unfilt.)	11.7	1	mg/L	325.2 (1)	06/28/91
AROMATIC VOLATILE ORGANICS		-1		8020 (2)	06/27/91
Benzena Toluono Ethyl Bonzena Xylenos	ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
			,		

APPROVED BY:

1300 S. Potomoc St., Suite 130 Aurora, CO 80812 (303) 751-1780





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CONFIDENTIAL

Core Laboratories

LABORATORY TESTS

RESULTS

06/21/91

JOR HUMBER: 911062 CUSTONER: MARATHON OIL COMPANY

MAMA-A' HIXON

LABORATORY I.D...: 911062-0005 DATE RECEIVED...: 06/19/91 TIME RECEIVED...: 12:55 REMARKS.....

CLIENT 1.0.....: 1EGP PIPELINE LENK \$2-03-144
DATE SAMPLED.....: 06/17/91
TIME SAMPLED.....: 10:40
WORK DESCRIPTION...: 5

Many Reports (1001) (1)			KEMAKKS		
ARROYU STRING WATE	R				
TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE: 15
Chloride (unfilt.)	11.4	0.5	mg/L	325.2 (1)	06/21/91 P
ARCHATIC VOLATILE ORGANICS		+1		8020 (2)	06/20/91 H
Benzene Toluene Ethyl Benzene Xylenes	NO ND ND	1 1	ug/L ug/L ug/L ug/L		
		-			
	,	\			
•					

APPROVED BY: 1

1300 S. Potomae St., Suite 130 Aurora, CO 50012 (303) 751-1780

, o-10-01 , 4:UIAM : CORE LABORATORIES-

"CONFIDENTIAL BUSINESS INFORMATION"



- Indicator Completel

CORE LABORATORIES

303 784 1720:

LASORATORY TESTE REBULTS 06/17/91

JOH HL#DERS: 951022 ATTHE W. HISTOR CUSTOMERY MARATHON OIL BONDANY

CLIENT 1.0..... 32.03.144 IBGP PIPELINE LEAK

DATE BANDLED.....: 06/11/91 TIME SANDLED.....: 10:30 WORK DESCRIPTION...: #5

LABORATORY 1.D...: 911022-0005 OATE RECEIVED 04/13/91

TIME RECEIVED 16:06 REMARKS.....

TEDT DESCRIPTION	FINAL REGULT.	CINITE/PDILUTION	UNITS OF HEABURE	TENT BETHOD	DATE
Chloride (Unfilt.)	11.3	0.5	mg/L	329.2 (1)	06/14/91
Bolido, Tetal Dissolved (TDS)	1040	10	mg/L	160.1 (1)	06/16/91
ARCHATIC VOLATILE ORGANICS	}	#1	}	8020 (2)	06/14/91
Benzène Tolugne Ethyl Benzene Xylenes	ND ND ND	7 9 9	ug/L ug/L ug/L ug/L		
					}

APT ED BY !_ PAGEIS

1300 S. Potomus St., Suite 190 Aurera, Co 90012 (303) 751-1720

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CORE LABORATORIES

LABORATORY TESTS RESULTS 06/28/91

JOS MUNBER! 910864 CLISTOMER'S MARATHON OIL COMPANY ATTN: W. NIXON

CLIENT 1.D..... 32.03.144 IBGP PIPELINE LEAK

DATE SAMPLED 06/03/91 TIME SAMPLED: 14:35

WORK DESCRIPTION ...: #5

APPROVED BY:

LABORATORY 1.D...: 910948-0007

DATE RECEIVED ...: 06/05/91 TIME RECEIVED: 16:11

1300 8. Potomac St., Suite 130

Aurora, CO 80012 (303) 751-1780

REMARKS.....

YEST DESCRIPTION	FINAL REBULT	LIMITS/*OLEUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chlòride (Unfilt.)	11.0	0.5	mg/L	325.2 (1)	06/06/91	D
AROMATIC VOLATILE ORGANICS		*1		8020 (2)	06/06/91	M
Benzene Toluene Ethyl Benzene Xyl enes	ND ND ND NO	1 1 1	ug/t ug/L ug/t			
•						

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: 6-21-91 : 5:33PM : CORE LABORATORIES→

303 794 1720:

"CONFIDENTIAL BUSINESS INFORMATION"



Core Laboratories

LABORATORY TESTS 06/21/91

JOS HUMBER , PADSEY CUSTOHER: MARATHON OIL COMPANY ATTHE W. NIXON

GLIENT 1.D.....: 27-98-810 MINERAL ASSAY

DATE SAMPLED: 05/27/91 TIME SAMPLED: 14:00

HOSK DESCRIPTION ... 85

LABORATORY 1.0...: 910807-0005 DATE RECEIVED...: 05/29/91 TIME RECEIVED: 15:22

REMARKO.....

THAT DESCRIPTION	PINAL RESULT	LIMITS/*DILLITION	UNITS OF MEASURE	CONTEN TRET	DATE
Alkalinity, Toral (Unfilt.)	264	3	mg/L CoCO3	310.1 (1)	06/03/91
Bicarbonate (Unfilt.)	322	5	mg/L	403 (3)	06/03/91
Carboneta (Unfilt.)	<1	1	mg/L	403 (3)	06/03/91
Chloride (Unfilt.)	11.1	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (Unfilt.)	1210	1	umhos/cm #25d/	120.1 (1)	05/30/91
Herdnoos, Total (Unfilt.)	781	1	mg/L(as CaCO3)	314A (3)	06/20/91
Nitrogen, Nitrate (Unfilt.)	<0.1	0.1	mg/L (os N)	353.2 (1)	06/13/91
pH (Unfilt.)	7.29	0.01	pH Unita	190.1 (1)	06/03/91
Solids, Total Dissolved (TDS)	1090	10	mg/L	160.1 (1)	06/13/91
Sulfate (Unfilt.)	492	10	mg/L	379.3 (1)	06/19/91
Celcium, Total (Ca)	199	0.5	mg/L	200.7/6010 (1,2)	06/11/91
iron, Total (Fe)	<0.03	0.03	mg/L	200.7/6010 (1,2)	06/11/91
Magnasium, Total (Ng)	68.9	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Manganese, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91
Potaesium, Total (K)	1.59	0.01	mg/L	258.1 (1)	05/20/91
Fodium, Total (Ma)	13	1	mg/L	200.7/6010 (1,2)	06/11/91
ARCMATIC VOLATILE ORGANICS		n1		8020 (2)	05/29/91
Benzene Taluene Ethyl Benzene Xylanes	ND ND ND ND	1 1 1	ug/L ug/L ug/L		

APPROVED BY:

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: 6-21-91 : 5:33PM : CORE LABORATORIES-

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"CONFIDENTIAL BUSINESS INFORMATION"



Core Laboratories

	AMALYTICAL REPORT 06/21/91		
CUSTOMER: Marathon Oil Company			Rila No : 910
	CATION/ANION BALANC	CE	
Client Sample I.D	n '		
PARAMETER	RESULT		UNITS
pH Conductivity at 25 degrees C Alkalinity (as CaCO3) Total Diss. Solids (massured) Tatal Diss. Solids (colculated)	7.29 1210 264 1050 947		pH Unite Lathos/cm mg/L mg/L
		meg/Liter	·
Calcium (Ca) Magnosium (Mg) Sodium (Ng) Potassium (K)	199 68. 9 13 1.59	9.93 5.67 0.57 0.04	ese/L ma/L mg/L mg/L
Total Cations meg/Liter		16.21	-
		mag/Liter	
Bicarbonate (HCG3) Carbonate (CG3) Hydroxido (CH) Chidride (CL) Bulfate (SG4)	322 ND(1) ND(1) 11.1 492	5.28 0.00 0.00 0.31	æg/L æg/L mg/L mg/L
Total Anions mog/Liter		15.83	.=GF =

NO = NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

Approved By:

Cation-Anion Balance (RPD)

1300 Dauth Potomac, St., Suite 130 Aurora, Colorado 80012 Tele. (303) 751-1780

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: 6-21-91 : 4:37PM ; CORE LABORATORIES→

303 784 1720:# 8

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CORE LABORATORIES

LABORATORY TESTS RESULTS 06/21/91

JOB MUNBERS: 910852 EUSTONERS MARATHOM GIL COMPANY

ATTNE L. HIXOH

CLIENT 1.D...... 27 98 810 DATE SAMPLED.....: 05/20/91

LABORATORY I.D...: 910852-0005 DATE RECEIVED 05/22/91

TIME SAMPLED..... 15:03

TIME RECEIVED: 16:30

REMARKS SAMPLE TIME DIFFERS FROM CO

ARROYO SPRING WATER						
TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNLTS OF MEASURE	TEST HETHOD	DATE	TE
Chlorida (Unfilt.)	11.2	0.5	mg/L	329.2 (1)	05/24/91	0
ARGMATIC VOLATILE ORGANICS		41		\$020 (2)	05/23/91	Ħ
Benzene Toluene Ethyl Benzene Xylenee	MD MD ND ND	1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

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PAGE 15





LABORATORY TESTS RESULTS 05/16/91

JOS MUNISER: 910812 CUSTOMER: MARATHOM OIL COMPANY ATTHE M. NINOM

| CLIENT 1.D....: 2798810 | LABORATORY 1.D...: 910812-0005 |
| DATE BAMPLED.....: 05/12/91 | DATE RECEIVED...: 05/14/91 |
| TIME BAMPLED....: 09:00 | TIME RECEIVED...: 16:00

WORK DESCRIPTION...: 65

Sping Water in Arrayo

TEST DESCRIPTION	FINAL RESULT	LIMITS/PDILUTION	UNITS OF MEASURE	TEST METHOD	DATE TECH
Chlorido (Unfilt.)	11.8	0.5	mg/L	325.2 (1)	05/15/91 DTJ
AROMATIC VOLATILE ORGANICS		89		8240 (2)	05/15/91 MLD
Benzone Toluone Ethyl Benzene Xylenes	MD HD HD MD	5 5 5 5	ug/L ug/L ug/L ug/L		
				·	

APPROVED BY: Dula MCU has tu

1300 8. Potamac \$t., Suite 130 Aurora, CO 80012 (303) 751-1780

West Indian Holls Spring East



7 E B T 9 LABORATORY RESULTS

10/01/91

JOB NUMBER: \$11797 CUSTONER HARATHON OIL COMPANY ATTHE W. MINON

CLIENT 1.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911797-0006

DATE SAMPLED: 09/24/91 TIME SAMPLED..... 09:11

DATE RECEIVED: 09/26/91 PIME RECEIVED 15:40

REMARKS.....

Moses Hills Social - East

TRET DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TOST METHOD	DATE
Chioride (Unfilt.)	7.8	0.5	mg/L	325.2 (1)	09/27/91
8020 - ARCHATIC VOLATILE ORGANICE		#1		8020 (2)	10/01/91
Benzone Toluene Ethyl Benzene Xylenes	HD HD HD	1 1 1 1 3	ug/L ug/L ug/L ug/L		

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CORE LABORATORIES

LABORATORY TESTS RESULTS

09/13/91

JOB NUMBER: 911689 CUSTOMER: MARATHON OIL COMPANY ATTN: DAVID LOUCH

CLIENT I.D.....: 32-03-144 IBGP PIPELINE

DATE SAMPLED.....: 09/09/91 TIME SAMPLED.....: 14:28

WORK DESCRIPTION...: 6

LABORATORY I.D...: 911689-0006 DATE RECEIVED...: 09/11/91

TIME RECEIVED...: 15:25
REMARKS.....

EAST- UPPER INDIAN HILLS SPRING

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	8.9	0.5	mg/L	325.2 (1)	09/12/91
8020 - AROMATIC VOLATILE ORGANICS		*1	••	8020 (2)	09/12/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY: Ellen of Watger

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PAGE:



LABORATORY

TESTS 08/30/91

RESULTS

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/26/91 TIME SAMPLED....: 13:20 WORK DESCRIPTION ...: 6

LABORATORY I.D...: 911616-0006 DATE RECEIVED....: 08/28/91

TIME RECEIVED....: 15:26 REMARKS....:

UPPER INDIAN HILLS SPRING- FAST

TEST DESCRIPTION	FINAL RESULT	LIMITS/#DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TI
Chloride (Unfilt.)	7.7	0.5	mg/L	325.2 (1)	08/29/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/29/91	ı
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
		1				

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LABORATORY $R\;E\;S\;U\;L\;T\;S$ TESTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/19/91

TIME SAMPLED.....: 11:42 WORK DESCRIPTION ...: 6

LABORATORY I.D...: 911575-0006 DATE RECEIVED....: 08/21/91 TIME RECEIVED....: 16:06

REMARKS....:

UPPER INDIAN HILLS SPRING-EAST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	5.0	0.5	mg/L -	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91 M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
		•			
	:				
			•		

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LABORATORY

TESTS RESULTS

08/16/91

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/12/91

TIME SAMPLED.....: 13:45 WORK DESCRIPTION ...: 6

LABORATORY I.D...: 911529-0006 DATE RECEIVED....: 08/14/91

TIME RECEIVED: 13:25

REMARKS....:

UPPER INDIAN HILLS SPRING-EAST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Chloride (Unfilt.)	10.1	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		•	
•						

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Core Landratories

\$ T & B'T LABORATORY RESULTS 08/08/91

JOB NUMBER: 911476 CUSTOMER: MARATHON OIL COMPANY ATTR: W. NIXTH

CLIENT I.D...... 32-03-144 INDIAM BASIN

LABORATORY 1-D...: 911476-0005

DATE SAMPLED..... 08/04/91 TIME SAMPLED..... 10:05

DATE RECEIVED....: 08/06/91 TIME RECEIVED..... 13:55

WORK DESCRIPTION ...: 6

REMARKS.....

UPPER INDIAN HILLS SPRING - EAST

TEST DESCRIPTION	FINAL RESULT	EIMETS/*DILUTION	THILE OF NEVETIES	TEST METHOD	DATE
chloride (Unfilt.)	9.4	0.5	mg/L	325.2 (1)	08/08/91
8020 - ARGMATIC VOLATILE ORGANICS		* 1		8020 (2)	08/07/91
Benzene Toluena Ethyl Benzeno Xylenea	HD HD HD	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ug/L ug/L ug/L ug/L		and:

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CORE LABORATORIES

LABORATORY TESTS RESULTS

08/02/91

JOB NUMBER: 911436 CUSTOMER: HARATHON OIL COMPANY

ATTHE W. HIXON

CLIENT I.O....... 32-03-164 INDIAN BABIN DATE BAMPLED...... 07/29/91 TIME SAMPLED...... 11:16

LABORATORY 1.D..: 911436-0006 DATE RECEIVED...: 07/31/91 TIME RECEIVED 15:19

REMARKS.....

SORK DESCRIPTION ... 6 Hills Socials FAST

TEST DESCRIPTION	FIHAL REGULT	LIMITS/+01LUTIO	UNITS OF MEASURE	TEST HETHOD	DATE
Chloride (Unfilt.)	8.6	0.5	ゆ益/ L	325.2 (1)	08/01/91
ROZO - AROMATIC VOLATILE ORGANICS		+1		8020 (2)	08/02/91
Benzene Toluene Ethyl Benzene Xylenes	EN EN CIK DIA	1	ug/L ug/L ug/L		

WZ Birkus

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CORE LABORATORIES

LABUKATORY TESTS RESULTS

07/26/91

JOB NUMBER: 911398 CUSTOMER: MARATHON DIL COMPANY ATTN: W. NIXON

CLIENT 1.0...... 32-03-144 INDIAN BASIN

DATE SAMPLED..... 07/22/91

WORK DESCRIPTION ...: 46

DATE RECEIVED ...: 07/24/91

LABORATORY 1.D...: 911398-0006

TIME RECEIVED 13:15

REMARKS......

IST DESCRIPTION	FINAL RESULT	LIMITE/+DILUTION	UNITE OF MEASURE	TEST METHOD	DATE TE
aloride (Unfil(,)	3,8	0,5	mg/L	325.2 (1)	07/25/91
20 - AROMATIC VOLATILE ORGANICS		**		8020 (2)	Q7/25/91 H
Benzene Toluene Ethyl Benzene Xylenek	DK 044		ug/t ug/t ug/t ug/t		
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PAGE : 6

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CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/15/91 TIME SAMPLED.....: 12:15

WORK DESCRIPTION ...: #6

CORE LABORATORIES

LABORATORY

TESTS RESULTS 07/19/91

JOB NUMBER: 911323

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

LABORATORY I.D...: 911323-0006

TIME RECEIVED: 13:15

DATE RECEIVED....: 07/17/91

REMARKS....:

UPPER INDIAN HILLS SPRING EAST

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TECHN
Chloride (Unfilt.)	11.8	0.5	mg/L	325.2 (1)	07/18/91 DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91 MRC
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
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PAGE:6



CORE LABORATORIES

LABORATORY TESTS RESULTS

07/12/91

JOB NUMBER: 911259

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED....: 07/08/91 TIME SAMPLED....: 11:17 WORK DESCRIPTION ...: #6

LABORATORY I.D...: 911259-0006 DATE RECEIVED: 07/10/91

TIME RECEIVED....: 13:15 REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE T
Chloride (Unfilt.)	11.0	0.5	mg/L	325.2 (1)	07/11/91
8020 - AROMATIC VOLATILE ORGANICS		*1	-	8020 (2)	07/10/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L		
	•				

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PAGE:6



CORE LABORATORIES

T & \$ T \$ 07/08/91 LABORATORY RESULTS

JOB NUMBER: 911228

CUSTOSER: MARATHON DIL COMPANY

ATTN: W. HIXON

CLIENT I.D.....: 32-03-144 INDIAN BASIN DATE SAMPLED....: 07/01/91 TIME SAMPLED....: 12:58 WORK DESCRIPTION ...: #6

LABORATORY I.D...: 911228-0006 DATE RECEIVED ...: 07/03/91 TIME RECEIVED ...: 16:20

REMARKS.....

ST DESCRIPTION	FIHAL REGULT	LIMITS/POILUTION	Units of MEASURE	TEST METHOD	DATE
nloride (Unfilt.)	10.3	0.5	ing/L	325.2 (1)	07/08/91
DZO - ARCHATIC VOLATILE ORGANICE		+1		8020 (2)	07/04/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND NO NO		ug/L ug/L ug/L ug/L		
			,		

APPROVED BY:

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PAGE: 6

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: 6-28-91 :10:11AM : CORE LABORATOR!ES→

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CORE LABORATORIES

LABORATORY TESTS RESULTS 06/28/91

JOS HUMBER: 911133 CUSTONERS MARATHON OIL COMPANY

ATTINE BY HIXON

CLIENT 1.D...... 32-03-146 INDIAN BABIN

LABORATORY [.D...: 911153-0006 DATE RECEIVED : 06/26/91

DATE SAMPLED....: 06/24/91 TIME SAMPLED....: 11:05 WORK DESCRIPTION...: 6

TIME RECEIVED: 14:52

REMARKS.....

TEST DESCRIPTION	FINAL RESULT	LIMITEZ 40 LEUT TON	UNITS OF MEASURE	TEST METHOD	DATE	71
Chloride (Unfitt.)	11.3	1	mg/L	325.2 (1)	06/28/91	(
ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	06/27/91	i
Benzene Toluane Ethyl Benzene Xylanas	ND ND ND	1 1	니용/L 니용/L 니용/L 니용/L			

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CORE LABORATORIES

LABCRATORY TESTS RESULTS

06/21/91

ATTN. W. NIXON JOB NUMBER: 911062 CURTOMER: MARATHON DIE COMPANY

CLIENT I.D......: ISGP PIPELINE LEAK 32-03-144
DATE SAMPLED.....: 06/17/P1
TIME SAMPLED.....: 09:55
WORK DESCRIPTION...: 6

LABORATORY 1.D...: 911062-0006 DATE RECEIVED 06/19/91 TIME RECEIVED 12:55

UPPER INDIAN HILLS SPRING - EAST						
TEST DESCRIPTION	FINAL RESULT		TON UNITE OF MEASURE	TEST NETHOD	DATE	ÄĘCKN
Chioride (Unfilt.)	11.1	0.5	mg/L	325.2 (1)	06/21/91	PJH
ARCHATIC VOLATILE ORGANICS		•1		8020 (2)	06/20/91	MRC
Benzeno Toluena Ethyl Benzeno Xylènos	ND ND ND ND	1 1	ug/L ug/L ug/L ug/L			
			,			
·						

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CORE LABORATORIES

LABORATORY TESTS RESULTS

06/17/91

CUSTONS SE HARATHON DIE DONDANY ATTHY W. HERON. JOB: MUMBERS 911022

CLIENT 1.D...... 32.03.144 IBAP PIPELINE LEAK

DATE BAMPLED.....: 06/11/91 TIME BAMPLED.....: 09:18

MORK DESCRIPTION ... #8

LABORATORY J.D.... 911022-0006 DATE RECEIVED 04/15/91

TIME RECEIVED ...: 16:06

eor usedajārios	ALKAT MEGNIA	LIMITE/*OILUTION	UNITS OF MEASURE	TEAT NETROD	STAC
mioride (Unfilt.)	11.3	0.9	Ing/L	329.2 (1)	06/14/9
Boilds, Tetal Dianolyad (TD\$)	977	10	mg/L	160.1 (1)	06/14/9
APOHATIC VOLATILE ORGANICE		*1		8020 (2)	06/14/9
Benzene Toluene Ethyl Benzene Xylanes	HD HD HD	1	ug/L ug/L ug/L ug/L		
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	İ				,

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: 6-28-91 :10:01AM : CORE LABORATORIES-

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Core Laboratories

LABORATORY TESTS RESULTS

06/28/91

JOB HLMSER: 910948 CUSTOMER+ MARATHON DIC COMPANY

ATTNO W. HIXON

CLIENT I.D.....: 32.03.144 IBGP PIPELINE LEAK

DATE SAMPLED....: 06/03/91 TIME SAMPLEC....: 13:55 WORK DESCRIPTION...: #6

LABORATORY I.D...: 910948-0008 DATE RECEIVED.... 06/05/91 TIME RECEIVED...: 16:11

REMARKS....;

IST DESCRIPTION	FINAL RESULT	LIMITS/POILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hioride (Unfilt.)	17.1	0.5	mg/L	925.2 (1)	06/06/91
ROMATIC VOLATILE ORGANICS		•1		8020 (2)	06/05/91
Benzene Talumno Ethyl Benzene Xylones	HD HD HD ON	1 1 1	ug/L ug/L ug/L ug/L		
		·			
		·			

APPROVED BY:

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: 6-21-91 : 5:34PM : CORE LABORATORIES-

303 784 1720:#

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CORE LABORATORIES

TESTS LABORATORY RESULTS 06/21/91

JOB NUMBER: 910887 CUSTOMER: MARATHON GIL COMPANY HOXIN . W FRTTA

WORK DASCRIPTION ...: #6

LABORATORY 1.0...: 910887-0006 DATE RECEIVED ...: 05/29/91

TIME RECEIVED 15:22 REMARKS....;

TEST DESCRIPTION	FINAL REGULT	LINETS/"DILLITION	UNITS OF MEASURE	TEST HUTHOD	DATE
Alkalinity, Total (Unfilt.)	251	5	mg/L CeCO3	310.1 (1)	06/03/91
Bicarbonate (Unfilt,)	306	5	ing/L	403 (3)	06/03/91
Carbonate (unfilt.)	<1	1	mg/L	403 (3)	06/03/91
Chloride (Unfilt.)	11.2	0.5	mg/L	325.2 (1)	05/30/91
Conductivity (Unfilt.)	1190	1	umhos/am \$25df	120.1 (1)	05/30/91
Hardness, Total (Unfilt,)	745	1	mg/L(as CaCO3)	314A (3)	06/20/91
Nitrogen, Nitrate (Unfile.)	<0.1	0.1	mg/L (as N)	353.2 (1)	06/13/91
pH (Unfile.)	7.92	0.01	pH Units	150.1 (1)	06/08/91
Solida, Total Dissolved (TDS)	991	10	mg/L	160.1 (1)	06/17/91
Sulfate (Unfilt.)	463	10	mg/L	375.3 (1)	06/19/91
Calcium, Total (Ca)	190	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Iron, Total (Fe)	0.07	0.03	mg/L	200.7/6010 (1,2)	06/11/91
Magnesium, Total (Mg)	69.7	0.5	mg/L	200.7/6010 (1,2)	06/11/91
Menganese, Total (Mn)	<0.01	0.01	ng/L	200.7/6010 (1,2)	06/11/9
Potassium, Total (K)	1.70	0.01	mg/L	258.1 (1)	06/20/9
Sodium, Total (Na)	13	1	mg/L	200.7/6010 (1,2)	06/11/9
ARCMATIC VOLATILE ORGANICS		+1		8020 (2)	09/29/9
Benzene Töluene Ethyl Benzene Xylenee	NO MD MD	1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1800 8. Potemac St., Suite 130 Aurera, CO 80012 (303) 751-1780

PAGE 16

"CONFIDENTIAL BUSINESS INFORMATION"



CORE LABORATORIES

ANALYTICAL REPORT 06/21/91

CUSTOMER: Marethon Oil Company

File No ... 91088

CATION/ANION BALANCE

Client Eample 1.0.....

27-98-810 Hineral Assay

Remark/Project..... Date/11ms Sampled...... 05-27-91/1520

Dote/Time Received...... 05-29-91/1522 Laboratory Semple 1.0..... 910887-4

PARAMETER	RESULT	UNITS
pH Conductivity at 25 degrees C Alkalinity (as CaCO3) Total Diss. Solids (measured) Total Diss. Solids (calculated)	7,52 1190 251 991	pH Unita umhog/cm mg/L mg/L
rain mine. potice (delegisted)	898	Rg/L

Caloium (Ça) Magnosium (Mg) Sodium (Ma) Potassium (K)	meg/Liter				
	190 65.7 13 1.70	9.48 5.41 0.57 0.04	mg/L mg/L mg/L		
Total Cations mag/Liter		15.50			

Bicarbonate (HCGI)	meg/Liter			
	306	5.02	ag/L	
Carbonete (CO3)	ND(1)	0.00	mg/L	
Hydroxide (OH)	ND(1)	0.00	ma/L	
Chioride (CL)	11.1	0.31	mg/L	
Sulfate (\$04)	463	9.64	mg/L	
Total Anions mag/Liter		14.97		

Cation-Anion Balance (RPO)

3,47 Percent

NO = NOT DETECTED AT LEVEL SHOUM IN PARENTHESIS

Approved By:

1300 South Potomoc, St., Suite 130 Aurora, Colorado (Tele. (303) 751-1780 80012

"CONFIDENTIAL BUSINESS INFORMATION"

: 6-21-91 : 4:38PM : CORE LABORATORIES-

303 794 1720;#10



CORE LABORATORIES

LABORATORY TESTS RESULTS 06/21/91 CUSTOMER: MARATHON OIL COMPANY ATTHE M. NIKON

CLIENT 1.D..... 27 98 810

DATE SAMPLED..... 05/20/91 TIME SAMPLED..... 16:52

JOB NUMBER: 910852

LABORATORY [.D...: 910852-0006

DATE RECEIVED ...: 05/22/91

HORE DESCRIPTION: 6			Time received 16:30 Remarks Sample time differs from C		
UPPER INC. HILL TEST DESCRIPTION	LS SPRING - E	ETHITE/MOTLUTION	UNITS OF MEASURE	TRAT METHIOD	DATE
Chloride (Unfilt.)	11.3	0.5	mg/L	325.2 (1)	05/24/91
ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	05/23/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

1300 S. Potompc St., Buite 130 Aurera, CO 80012 (303) 791-1780

PAGE 16

Lee Correspondence



October 3, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on September 24, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



September 19, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on September 9, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

C1 J Xmm

A. J. Kavran Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. collar (BLM-Roswell)

J. L. Benson

R. F. Unger



September 10, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on August 26, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee September 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



OIL CONSERVATION DIVISION

RECOVED POR BOX

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

'91 SE³ 3 AM 9 31 Telephone 915/682-1626

August 28, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on August 19, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee August 28, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: (Date: Boyer (NMOCD SantaMFe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 20, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on August 12, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee August 20, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger



August 13, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on August 4, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee August 13, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

Cly Kuran

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger



August 5, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on July 29, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee August 5, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kavran

AJ Kavan

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: 4D. G. Boyer (NMOCD=Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

A. R. Kukla

R. F. Unger



July 29, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on July 15, 1991 and July 23, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Lee July 29, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

(1) Karran

A. J. Kavran Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



July 15, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained from your well on July 8, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee July 15, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: (D. Boyer (NMOCD Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



July 10, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained from your well on June 29, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee July 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

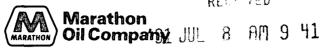
D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

OIL CONSERVE FOR DIVISION RECEIVED



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

July 2, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained from your well on June 3, 1991 and June 24, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee July 2, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8532.

Sincerely,

Thomas F. Zapatka

Advanced Environmental and Safety Engineer

TFZ/elg

Attachments

cc: (D. G. Boyer (NMOCD-Santa Fe)

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger

Marathon Oil Company

OIL CONSERVE ON DIVISION

REC: /ED

P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

Oil Company, 91 JUL 1 NM 9 47

June 27, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained May 20, 1991 and May 27, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present. You may note the attached reports contain results for numerous other parameters. The Environmental Bureau of the New Mexico Oil Conservation Division requested that this one-time analyses be conducted to appropriately characterize your water. The results indicate that your water is typical, as compared to other waters in this area.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Mr. & Mrs. Lee June 27, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a. J. Kavran

Environmental and Safety Supervisor

AJK/elg

NOTES AND THE POSITION OF POSITION AND A STATE OF THE POSITION
Attachments

cc: (D. G. Boyer (NMOCD Santa Fe))

D. L. Manus (BLM-Carlsbad)

J. L. Benson

A. R. Kukla

R. F. Unger



OIL CONSERVATION DIVISION

RESE VED

P.O. Box 552 Midland, Texas 79702 Talenhone 915/682-162

91 JUN 28 AM 9 30 lephone 915/682-1626

June 26, 1991

Mr. & Mrs. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Lee:

Final analytical results from the water samples obtained on June 11, 1991 and June 17, 1991 from your well located next to the paved road approximately 0.5 miles west of Marathon's Indian Basin Gas Plant have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for these parameters as established by EPA for drinking water.

REPORT THE PERSON AND PROPERTY OF THE PERSON
Mr. & Mrs. Lee June 26, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a. J. Kavran

Environmental and Safety Supervisor

AJK/elg

Attachments

cc: D. G. Boyers (NMOGD Santa Ee)

D. L. Manus (BLM-Carlsbad)

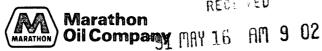
J. L. Benson

A. R. Kukla

R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 683

OIL CONSERV ON DIVISION RECEIVED



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

May 14, 1991

Mr. Lee P. O. Box 89 Lakewood, New Mexico 88254

Re: Freshwater Analysis

Dear Mr. Lee:

As discussed by telephone, no hydrocarbons or abnormally high chloride concentrations were found to exist within the freshwater sample obtained from your water well on April 24. The results of this analysis are attached.

For your information, the leak that occurred in the Indian Basin Field resulted in condensate and produced water being released. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analysis of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analysis utilizing a procedure specifically approved for drinking water, as specified by the EPA. The tests were designed to evaluate potential contamination of your water from the released fluids described above. The results of these tests indicate your water to be well within standards established by the EPA for drinking water.

We will test your water weekly over the near term and continue to report results by telephone, as well as by written correspondence including copies of laboratory analysis. In the meantime, should you have any questions, feel free to call me collect at (915) 687-8542.

Very truly yours,

T. N. Tipton

Operations Superintendent

TNT; nrt/09191

cc: J. L. Benson

A. J. Kavran

R. F. Unger

D. L. Mannus (BLM-Carlsbad)

√ D. G. Boyer (NMOCD-Santa Fe)

Lee water well



Core Laboratories

LABORATORY T E S T S

RESULTS

10/01/91

LOB NUMBER: 911797 CUSTONERY MARAYHON OLL COMPANY

ATTHE M. HINCH

CLIEHT 1.D...... 32-03-144 (NDIAH BASIN

LABORATORY 1.D...: 911797-0008 DATE RECEIVED....: 09/26/91

DATE SAMPLED 09/24/91

TIME SAMPLED 08:15

TIME RECEIVED: 15160

WORK DESCRIPTION ... 9

REMARKS....:

Lee Water Well

GET DESCRIPTION	PIBAL REBULT	LIMITS/*QILUTION	units of heasure	TEST METHOS	DATE
hloride (Unfilt.)	7.7	0.5	mg/L	325.8 (1)	09/27/91
020 - AROMATIC VOLATILE ORGANICS		61		8020 (2)	09/30/91
Benzene Tolueno Ethyl Benzene Xylenes	99 99 99 99	1 1	ug/L ug/L ug/L ug/L		
				į	
			-		
					}

ROVED BY: June & Bureline

1300 5. Potomoc 5t., Suite 130 Aurora, CD 80012 (303) 751-1780

PAGE : 8



LABORATORY TESTS RESULTS

STATE AND A STATE

09/13/91

JOB NUMBER: 911689

CUSTOMER: MARATHON CIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

LABORATORY I.D...: 911689-0009

DATE SAMPLED.....: 09/09/91

DATE RECEIVED....: 09/11/91

TIME SAMPLED.....: 10:15

TIME RECEIVED: 15:25

WORK DESCRIPTION...: 9

REMARKS....:

Lee Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	16.6	0.5	mg/L	325.2 (1)	09/12/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:11

"CONFIDENTIAL BUST ESS INFORMATION"



CORE LABORATORIES

LABORATORY

TESTS RESULTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D..... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/26/91 TIME SAMPLED.....: 15:32

WORK DESCRIPTION ...: 9

LABORATORY I.D...: 911616-0009

DATE RECEIVED ...: 08/28/91

TIME RECEIVED...: 15:26

REMARKS..... YELLOW PARTICLES IN SAMPLE

L	EE	WATER	WELL

FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
16.3	0.5	mg/L	325.2 (1)	08/29/91
	*1		8020 (2)	08/30/91
ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
	,			
	16.3 ND ND	16.3 0.5 *1 ND 1 ND 1 ND 1	16.3 0.5 mg/L *1 ND 1 ug/L ND 1 ug/L ND 1 ug/L Ug/L Ug/L	16.3 0.5 mg/L 325.2 (1) *1

APPROVED BY: Eller J. Magger

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:9



LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/19/91 TIME SAMPLED....: 14:25 WORK DESCRIPTION...: 9

DATE RECEIVED....: 08/21/91

TIME RECEIVED: 16:06

LABORATORY I.D...: 911575-0009

REMARKS....:

WATER WELL LEE

FINAL RESULT	EIMITS, DIEGITOR	UNITS OF MEASURE	TEST METHOD	DATE
11.8	0.5	mg/L	325.2 (1)	08/21/91
	*1		8020 (2)	08/22/91
ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
	11.8 ND ND	11.8 0.5 *1 ND 1 ND 1 ND 1 ND 1 ND 1	11.8 0.5 mg/L *1 ND 1 ug/L ND 1 ug/L ND 1 ug/L ug/L ug/L	11.8 0.5 mg/L 325.2 (1) *1

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

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LABORATORY

TESTS 08/16/91

RESULTS

JOB NUMBER: 911529

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/12/91

TIME SAMPLED....: 15:43 WORK DESCRIPTION ...: 9

LABORATORY I.D...: 911529-0009 DATE RECEIVED: 08/14/91

TIME RECEIVED: 13:25

REMARKS....:

LEE WATTER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECH
Chloride (Unfilt.)	16.2	0.5	mg/L	325.2 (1)	08/15/91	DTJ
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/15/91	PCM
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND		ug/L ug/L ug/L ug/L	8020 (2)	00/13/71	FUR
-						

inda I Berkus APPROVED BY:

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PAGE:9

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CORE LABORATORIES

T E S T S 08/08/91 RESULTS LABORATORY

CUSTOMER: MARATHON OIL COMPANY

ATTHE WE NIXON

CLIENT L.D......: \$2-03-144 INDIAN BASIN

DATE BAMPLED...... 08/04/91 TIME SAMPLED...... 12:01 WORK DESCRIPTION...: 9

JOS NUMSER; 911474

LABORATORY 1.D...: 911476-0007

DATE RECEIVED.... 06/06/91 TIME RECEIVED.... 13:55

REMARKS.......

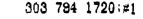
I FF

TEST DESCRIPTION	PINAL RESULT	LIMITS/*DILLUTION	UNITE OF WEATURE	TEST HEIMOS.	DATE
Chlorido (Unfile.)	15.7	0.5	mg/L	329.3 (1)	08/08/91
8020 - AROMATIC VOLATILE ORGANICS		+1		8020 (2)	08/07/91
Benzene Tetuena Ethyl Benzene Xylenea	NO ND ND	1 1 1	ug/L ug/L ug/L ug/L		A STATE OF THE STA
			:		

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CORE LABORATORIES

Y ROTATORY TESTS RESULTS

08/02/91

JOB NUMBER: 911436 CUSTOMER: MARATHON OIL COMPANY ATTHE U. NIXON

CLIENT 1.0...... 32-03-144 INDIAN BASIN

DATE SAMPLED..... 07/29/91

WORK DESCRIPTION ...: 9

LABORATORY 1.D...: 911436-0009 DATE RECEIVED: 07/31/91 TIME RECEIVED 19:15

REMARKS.....

LEE WATER	WELL	·			
TEST DESCRIPTION	PINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	BTAD
Chieride (Unfile.)	15.9	0.5	Mg/L	325.2 (1)	08/01/91
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (8)	08/02/91
Benzone Tolugne Ethyl Benzone Xyleneb	HD HD HD	1 1 1 1	ug/L ug/L ug/L		

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PAGE 19



LABORATORY

1 E S T \$ RESULTS

U7/26/91

JOB NUMBER: 911398

CUSTOMER: MARATHON OIL COMPANY.

ATTN: W. NIXON

CLIENT 1.D....... 32-03-144 INDIAN BASIN

LABORATORY 1.D...: 911398-0009

DATE SAMPLED..... 07/23/91 TIME SAMPLED..... 11:20

DATE RECEIVED: 07/24/91 TIME RECEIVED: 13:15

WORK DESCRIPTION #9

REMARKS.......

TEST DESCRIPTION	FINAL RESULT	I IMITE ZADILUTION	UNITE OF MEASURE	TEST NETHOD	DATE TE
Chloride (Unfilt.)	11.8	0.5	mg/L	325.2 (1)	07/25/91
3020 - AROMATIC VOLATILE ORGANICS		A1		8020 (2)	07/25/91 MI
Benzenu Poluena Ethyl Benzena Xylenes	ND HD HD	1 1 1	ug/L ug/L ug/L ug/L		
	,				

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PAGE:9

The grayons, nonlying winterpretations contained in this report are based your conservations and majorial supplied by the election whose evaluates and upunders of a larger has been made. The interpretations or opinions expressed tip eport to best polyground of the production, and opinions expressed tip eport to best polyground of the production, and opinions are the production, or profit to be the production of the production, or profit to be the production of the production



LABORATORY

TESTS

RESULTS

07/19/91

JOB NUMBER: 911323

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D......: 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/15/91 TIME SAMPLED.....: 15:48 WORK DESCRIPTION...: #9

LABORATORY I.D...: 911323-0009

DATE RECEIVED....: 07/17/91 TIME RECEIVED: 13:15

REMARKS....:

LEE WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE TE
Chloride (Unfilt.)	8.0	0.5	mg/L	325.2 (1)	07/18/91 D
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/18/91 M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY: Linds J. Berbers

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PAGE:9

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CORE LABORATORIES

LABORATORY TESTS RESULTS

07/12/91

JOB NUMBER: 911259

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 07/08/91 TIME SAMPLED.....: 14:32 WORK DESCRIPTION ...: #9

LABORATORY I.D...: 911259-0009 DATE RECEIVED: 07/10/91

TIME RECEIVED....: 13:15

REMARKS....:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	15.2	0.5	mg/L	325.2 (1)	07/11/91	D
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	07/11/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			

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PAGE:9

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LABORATORY TESTS RESULTS

07/08/91

CUSTOMER: MARATHON GIL COMPANY ATTN: U. NIXON JOS HUMBER1 911228

CLIENT I.D...... 32-03-144 INDIAN BABIN

DATE SAMPLED.....: 06/29/91 TINE SAMPLED....: 12:20 WORK DESCRIPTIOH...: 89

LABORATORY 1.D...: 911228-0009

DATE RECEIVED...: 07/03/91 TIME RECEIVED...: 16:20

REMARKS....:

TEST DESCRIPTION	FINAL REBULT	LIMITS/PDILUTION	UNITS OF MEASURE	TEST HETHOD	DATE
Chlorida (Unfilt.)	6.7	0.5	mg/L	325.2 (1)	07/08/91
8020 - ARCHATIC VOLATILE ORGANICS		+1		8020 (2)	07/04/91
Benzene Tolusne Ethyl Benzene Xylenes	HD HD HD	1 1 1	ug/t ug/t ug/t ug/t		
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PAGE:9

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CORE LABORATORIES

LABORATORY TESTS RESULTS

06/28/91

JOS HUMBER . 911153 GUGTONER: MARATHON OIL COMPANY

ATTHE W. HIXON

CLIENT 1.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED..... 106/24/91

LABORATORY 1.0...: 911153-0009 DATE RECEIVED 06/26/91

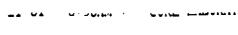
TIME RECEIVED: 14:52

REMARKS......

WORK DESCRIPTION ...: 9 TEST DESCRIPTION FINAL RESULT LIMITS/*DILUTION UNITS OF MEASURE TEST METHOD DATE Chieride (Unfilt.) mg/L 325.2 (1) 06/28/91 ARCHATIC VOLATILE ORGANICS *1 8020 (2) 06/27/91 9enzene U9/L NO Toluene ug/L Ethyl Benzene ND Ug/L Yylones Ug/L

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LABURATORY TESTS RESULTS

06/21/91

JOB NUMBER: 911062 CUSTOMER MARATHON OLL COMPANY ATTNE W. MIXON

CLIENT I.D......: 18GP PIPELINE LEAK 32-03-166
DATE SAMPLED.....: 06/17/91
TIME SAMPLED.....: 14:03
YORK DESCRIPTION...: 9

LABORATORY [.D...: 911062-0009 DATE RECEIVED...: 06/19/91 TIME RECEIVED...: 12:53

REMARKS

WATER WELL LEE

TEST DESCRÍPTION	PINAL REBULT	TIMETS/COLLARION	UNITS OF MEASURE	TEST METHOD	DATE TECH
Chloride (Unfilt.)	12.3	0.5	mg/L	325.2 (1)	06/21/91 PJM
AROMATIC VOLATILE GROANICS		•1		8020 (2)	06/20/91 HRC
Benzene Toluene Ethyl Benzene Xylenes	MD ND ND NO	1	ມ _ອ /L ມອ/L ມອ/L ນອ/L		
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Core Laboratories

LABORATORY T E 8 T S 06/17/91 REBULTA

THE STATE OF

108-HUMBERT 911028 CUSTOMORY HARATHON DIL COMPANY

ATTU: W. HIXON

CLIENT I.D..... 32.03.144 IBCP PIPELINE LEAK

DATE BAMPLED...... 1 06/11/91 TIME SAMPLED...... 1 12:18 WORK DESCRIPTION...: #9

REMARKS.....

LABORATORY I.D...: 911022-0009 DATE RECEIVED...: 06/13/91 TIME RECEIVED...: 16:06

gar phoeothion	PINAL RESULT	rimites solmilia	UNITS OF MEABURE	TERT HETHOR	DATE
hioride (unfilt.)	7.5	0.5	mg/L	325.2 (1)	06/14/91
olids, Total Dissolved (TDS)	451	10	mg/L	160.1 (1)	06/14/91
ROMATIC VOLATILE DRUMNICS		•1		8020 (2)	06/14/91
Bongeng Tolucha Ethyl Benzang Xylenag	10 40 40	1	ug/L ug/L ug/L ug/L		
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CORE LABORATORIES

LABGRATORY TESTS RESULTS Q6/28/91

JOB HEMBERY SIDES CUSTOMER: MARATHON DIL COMPANY ATTN: W. NIXON

CLIENT 1.D..... 32.03.144 19GP PIPELINE LEAK

DATE SAMPLED.....: 06/03/91 TIME SAMPLED.....: 13:05 WORK DESCRIPTION...: 09 LABORATORY 1.D...: 910948-0011 DATE RECEIVED...: 06/05/91 TIME RECEIVED...: 16:11

REMARKS

TEST DESCRIPTION	FINAL REBULT	LIMITE/MOTEUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	10.7	0.5	rtag/L	325.2 (1)	06/06/91
AROMATIC VOLATILE ORGANICS		-1	·	8020 (2)	06/05/91
Benzene Tolumne Sthyl Benzene Xylenes	HD ND ND HD	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ug/L ug/L ug/L ug/L		

APPROVED BY: Dayed Mcyllante

1300 \$. Potonac \$t., \$uite 130 Aurora, CO 80012 (303) 751-1780

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LABORATORY

TESTS

RESULTS

06/21/91

JOB NUMBER: 910887

WORK DESCRIPTION ...: #9

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D..... 27-98-810 MINERAL ASSAY

DATE SAMPLED.....: 05/27/91 TIME SAMPLED.....: 12:40

DATE RECEIVED: 05/29/91 TIME RECEIVED: 15:22

LABORATORY I.D...: 910887-0008

REMARKS....:

Lee Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Alkalinity, Total (Unfilt.)	254	5	mg/L CaCO3	310.1 (1)	06/03/91	K
Bicarbonate (Unfilt.)	310	5	mg/L	403 (3)	06/03/91	K
Carbonate (Unfilt.)	<1	1	mg/L	403 (3)	06/03/91	K
Chloride (Unfilt.)	14.1	0.5	mg/L	325.2 (1)	05/30/91	ĸ
Conductivity (Unfilt.)	623	1	umhos/cm a25dF	120.1 (1)	05/30/91	
Hardness, Total (Unfilt.)	316	1	mg/L(as CaCO3)	314A (3)	06/20/91	1
Nitrogen, Nitrate (Unfilt.)	5.0	0.1	mg/L (as N)	353.2 (1)	06/13/91	F
pH (Unfilt.)	7.54	0.01	pH Units	150.1 (1)	06/03/91	k
Solids, Total Dissolved (TDS)	413	10	mg/L	160.1 (1)	06/17/91	K
Sulfate (Unfilt.)	60	10	mg/L	375.3 (1)	06/19/91	R
Calcium, Total (Ca)	71.6	0.5	mg/L	200.7/6010 (1,2)	06/11/91	Ţ
Iron, Total (Fe)	<0.03	0.03	mg/L	200.7/6010 (1,2)	06/11/91	Ţ
Magnesium, Total (Mg)	33.3	0.1	mg/L	200.7/6010 (1,2)	06/11/91	1
Manganese, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91	T
Potassium, Total (K)	1.70	0.01	mg/L	258.1 (1)	06/20/91	1
Sodium, Total (Na)	17	1	mg/L	200.7/6010 (1,2)	06/11/91	7
AROMATIC VOLATILE ORGANICS		*1	ł	8020 (2)	05/29/91	ŀ
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			
•	\ \	1				

APPROVED BY:

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PAGE:8

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ANALYTICAL REPORT 06/21/91

CUSTOMER: Marathon Oil Company

File No..: 910887

CATION/ANION BALANCE

Client Sample I.D....#

Lee Wate lex!

PARAMETER	RESULT		UNITS
pH Conductivity at 25 degrees C Alkalinity (as CaCO3) Total Diss. Solids (measured) Total Diss. Solids (calculated)	7.54 623 254 413 353		pH Units umhos/cm mg/L mg/L mg/L
		meg/Lit er	
Calcium (Ca)	71.6	3.57	mg/L
Magnesium (Mg)	33.3	2.74	mg/L
Sodium (Na)	17	0.74	mg/L
Potassium (K)	1.70	0.04	mg/L
Total Cations meq/Liter		7.10	
		meg/Liter	
Bicarbonate (HCO3)	310	5.08	mg/L
Carbonate (CO3)	ND(1)	0.00	mg/L
Hydroxide (OH)	ND(1)	0.00	mg/L
Chloride (Cl)	14.1	0.40	mg/L
Sulfate (\$04)	60	1.25	mg/L
Total Anions meg/Liter		6.73	

ND = NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

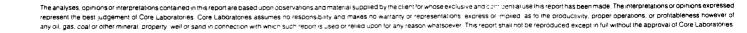
5.33 Percent

Approved By: Dana McWla

Cation-Anion Balance (RPD)

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Tele. (303) 751-1780



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CORE LABORATORIES

T E S T 8 06/21/91 REBULT 6 LABORATORY

JOE HIMBER: 910852 CUSTCHERS MARATHON DIE COMPANY

ATTN: W. NIXON 19.

CLIENT I.D...... 27 98 810 MINERAL ASSAY

LABORATORY 1.0...: 910852-0009 DATE RECEIVED ...: 05/22/91 TIME RECEIVED: 16:30

DATE SAMPLED..... 05/20/91 TIME SAMPLED.....: 18:50 WORK DESCRIPTION ... 9

REMARKS.....

WATER WELL

TEST DESCRIPTION	PINAL RESULT	LINITE/ OCCUTION	UNITS OF MEASURE	TEST METHOD	DATE
Alkalinity, Total (Unfilt.)	239	5	mg/L CaCO3	310.1 (1)	05/28/91
Bicarbonate (Unfilt.)	392	5	mg/L	403 (3)	05/28/91
Carbonata (Unifilt.)	<1	1	mg/L	403 (3)	05/28/91
Chloride (Unfilt.)	7.9	0.5	mg/L	325.2 (1)	05/24/91
Conductivity (Unfilt.)	635	1	umhos/cm @25df	120.1 (1)	05/24/91
Hardnoss, Total (Unfile.)	348	, 1	mg/L(as CaCO3)	314A (3)	06/20/91
Nitrogen, Hitrate (Unfilt.)	4.8	0.1	mg/L (49 N)	353.2 (1)	06/11/91
PH (Un(Ilt.)	7.71	0.01	pH Units	150.1 (1)	05/28/91
Solids, Total Dissolved (108)	403	10	mg/L	160.1 (1)	05/28/91
Sulfate (Unfilt.)	115	10	mg/L	375.2 (1)	06/12/91
Calcium, fotal (Ca)	85.7	0.5	mg/L	200.7/6010 (1,2)	06/11/91
iron, Total (fc)	<0.03	0.03	ing/L	200.7/6010 (1,2)	06/11/91
Mugnesium, Total (Mg)	32.6	0.1	mg/L	200.7/6010 (1,2)	06/11/91
Manganese, Total (Mn)	<0.01	0.01	mg/L	200.7/6010 (1,2)	06/11/91
Potassium, Total (K)	1.51	0.01	mg/L	258.1 (1)	06/20/91
Sodium, Total (Na)	11	1	mg/L	200.7/6010 (1,2)	06/11/91
AROMATIC VOLATILE ORGANICS	ľ	•1		8020 (2)	05/23/91
Benzenø Toluene Ethyl Bonzone Xylenes	ND ND NG ND	1 1	ug/L ug/L ug/L ug/L		

APPROVED BY:

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: 6-21-91 : 4:40PM : CORE LABORATORIES-

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CORE LABORATORIES

ANALYTICAL REPORT 06/21/91

CUSTONER: Marathon Oil Company

File No . . : 9108852

303 794 1720:#14

CATION/ANION BALANCE

Client Sample 1.D.....

Remark/Project...... 27-98-810 Mineral Assay

Date/Time Sampled...... 05-20-91/1850 Date/Time Received...... 05-22-91/1630

Laboratory Sample 1.D..... 910852-9

WATER LEE WELL

7.71 55 39 03 00 85.7 4.28 32.6	pH Units umhoa/cn mg/L mg/L mg/L mg/L
85.7 4.38 32.6 2.68	mg/L
32.6 2.68	mg/L
11 0.48 1.51 0.06	mg/L mg/L
7.48	
mcg/Liter	
92 4.79 (1) 0.00 (1) 0.00 7.9 0.22	mg/L mg/L mg/L mg/L
)	mcg/Liter 292 4.79 0(1) 0.00 0(1) 0.00 7.9 0.22 115 7.39

ND & NOT DETECTED AT LEVEL SHOWN IN PARENTHESIS

0.98 Percent

Approved By:

Cation-Anion Balance (RPD)

1300 South Potomac, St., Suite 130 Aurora, Colorado E Tele. (303) 751-1780 80012



LABORATORY

TESTS RESULTS

05/07/91

JOB NUMBER: 910711

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 27 98 810 DATE SAMPLED.....: 04/24/91

TIME SAMPLED.....: 14:00

WORK DESCRIPTION...: STOCK TANK WATER SUPPLY

LABORATORY I.D...: 910711-0002 DATE RECEIVED: 04/25/91 TIME RECEIVED: 15:02

REMARKS....:

EST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
hloride (Unfilt.)	9.7	0.5	mg/L	325.2 (1)	04/26/91
ROMATIC VOLATILE ORGANICS		*1		8240 (2)	04/30/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	5 5 5 5	ug/L ug/L ug/L ug/L		
,					

APPROVED BY:

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PAGE:2

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Howell Correspondence



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

October 3, 1991

Mr. & Mrs. Howell
P. O. Box 94
Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Howell:

Final analytical results from the water samples obtained from your domestic and stock wells on September 23, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Howell October 3, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

a g Komm

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 735

- STUISION



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P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 19, 1991

Mr. & Mrs. Howell P. O. Box 94 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Howell:

Final analytical results from the water samples obtained from your domestic and stock wells on September 9, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Howell September 19, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Karran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD-Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 734

Mid-Continent Region Production United States

OIL CONSER! IN DIVISION

REU JED



'91 SEP 3 (III) P.O. Box 552 91 SEP 3 (IIII) P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

August 28, 1991

Mr. & Mrs. Howell P. O. Box 94 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Howell:

Final analytical results from the water samples obtained from your domestic and stock wells on August 19, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Howell August 28, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

A. J. Kayran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D.G. Boyer (NMOCDESanta Fe)

A. Collar (BLM-Roswell)

J. L. Benson

R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 727



P.O. Box 552 Midland, Texas 79702 Telephone 915/682-1626

September 10, 1991

Mr. & Mrs. Howell P. O. Box 94 Lakewood, New Mexico 88254

Re: Water Well Analysis

Dear Mr. & Mrs. Howell:

Final analytical results from the water samples obtained from your domestic and stock wells on August 26, 1991 have been received and are attached. No hydrocarbons or abnormally high chloride concentrations were found to be present.

As you know, the leak that occurred in the Indian Basin Field resulted in the release of condensate and produced water. The condensate is a light, clear oil, while the produced water is a brine which is more saline than water from your water well.

Analyses of your water was conducted at Core Laboratories in Aurora, Colorado. This lab, which is certified by the Environmental Protection Agency (EPA), conducted the analyses utilizing procedures approved by the EPA. The analyses were utilized to evaluate potential contamination of your water from the released fluids described above. The results of these analyses indicate your water to be within standards for hydrocarbons and chlorides as established by EPA for drinking water.

Mr. & Mrs. Howell September 10, 1991 Page 2

Plans are to continue to conduct routine sampling of your water over the near term. You will continue to be provided with the analytical results as they become available. In the meantime, should you have any questions, feel free to contact me collect through Marathon's Midland office, (915) 687-8528.

Sincerely,

ay Kuran

A. J. Kavran

Environmental and Safety Supervisor

AJK/elk

Attachments

cc: D. G. Boyer (NMOCD Santa Fe)

A. Collar (BLM-Roswell)

J. L. Benson R. F. Unger

CERTIFIED MAIL RETURN RECEIPT REQUESTED - P 546 958 730

Howell water well



LABORATORY TESTS RESULTS

10/01/91

CUSTOMER : MARATHON CIL COMPANY ATTHE B. HIXON

CLIENT 1.0..... 32-03-144 INDIAN BASIN

DATE BAMPLED 09/83/91

TIME SAMPLED 14:20 WORK DESCRIPTION ... 10

JOB MUNDER: 911797

Howell Water Well

LAGORATORY 1.D...: 911797-0009 DATE RECEIVED: 09/26/91 TIME RECEIVED 15:40

REMARKS.....

Acceptable and the second	Contractor and	 -

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF HEASURE	TERT HETHOD	DATO	78
Chloride (Unfilt.)	80	1	Mg/L	325.2 (1)	09/27/91	<u>نند</u> 0
8020 - ARCHATIC VOLATILE ORGANICS		*1		8020 (2)	09/30/91	M
Sentane Toluana Ethyl Banzena Xylanes	ND ND ND	1 1 1	ug/L Ug/L Ug/L ug/L			
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•						
1						
		}				

OVED SY: Links & Benkus

1300 S. Potemac St., Suite 130 Aurora, CO 80012 (303) 751-1780

PAGE:9

HARLES



LABORATORY

TESTS RESULTS

09/13/91

JOB NUMBER: 911689

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE

DATE SAMPLED.....: 09/09/91 TIME SAMPLED....: 12:38
WORK DESCRIPTION...: 10

LABORATORY I.D...: 911689-0010 DATE RECEIVED: 09/11/91 TIME RECEIVED: 15:25

REMARKS....:

Howell Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TEC
Chloride (Unfilt.)	80	1	mg/L	325.2 (1)	09/12/91	۲
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	MR
Benzene Toluene Ethyl Benzene	ND ND ND	1 1	ug/L ug/L ug/L			
Xy l enes	ND	1	ug/L			
		[
		į				
		į				
			<u> </u>			
		}			j	

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780



CORE LABORATORIES

LABORATORY TESTS

08/30/91

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

COM ADMINISTRAÇÃO

ATTN: W. NIXON

RESULTS

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/26/91 TIME SAMPLED.....: 11:06

DATE RECEIVED....: 08/28/91 TIME RECEIVED: 15:26 REMARKS....:

LABORATORY I.D...: 911616-0010

WORK DESCRIPTION...: 10

HOWELL WATER WELL

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	77	1	mg/L	325.2 (1)	08/29/91
8020 - AROMATIC VOLATILE ORGANICS		*1	•	8020 (2)	08/30/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
				ļ	

APPROVED BY:

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

The prayees upmons or merpretations contained in this report are based, upon opseruations and mitterial subplied by the Chert for whose exclusive and confidential use this report has been made. The interpretations or por The spaces of the period of th



CORE LABORATORIES

LABORATORY

TESTS RESULTS

08/23/91

JOB NUMBER: 911575

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

DATE SAMPLED.....: 08/19/91 TIME SAMPLED.....: 08:50

WORK DESCRIPTION...: 10

LABORATORY I.D...: 911575-0010 DATE RECEIVED: 08/21/91

TIME RECEIVED: 16:06 REMARKS....:

Howell Water Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	83	1	mg/L	325.2 (1)	08/21/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	08/22/91	۴
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1	ug/L ug/L ug/L ug/L			
		1				

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

Howell Windmill



Core Laboratories

Howell Windmill	We //		REHARKO	TO THE STATE OF TH	MBBLE-CL ON
Chloride (Unfilt.)	FIMAL REDULT		UNITE OF MEASURE	TABT METHOD	BYAU
8020 - ARCMATIC VOLATILE ORGANICE Bensene		111	mg/L	325.2 (1) 8020 (2)	09/27/91
Toluene Ethyl genzene Xylenee	ND ND ND		ug/L ug/L ug/L ug/L		09/30/91
			f		
			i		
			-		

ROVED BY Bird & Birden

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CORE LABORATORIES

LABORATORY

TESTS RESULTS

09/13/91

JOB NUMBER: 911689

WORK DESCRIPTION...: 11

CUSTOMER: MARATHON OIL COMPANY

ATTN: DAVID LOUCH

CLIENT I.D...... 32-03-144 IBGP PIPELINE DATE SAMPLED.....: 09/09/91

TIME SAMPLED.....: 13:12

LABORATORY I.D...: 911689-0011 DATE RECEIVED: 09/11/91

TIME RECEIVED: 15:25

REMARKS....:

Howell Windmill Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TE
Chloride (Unfilt.)	22	1	mg/L	325.2 (1)	09/12/91	
8020 - AROMATIC VOLATILE ORGANICS		*1		8020 (2)	09/13/91	M
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L			

APPROVED BY: 91

1300 S. Potomac St., Suite 130 Aurora, CO 80012 (303) 751-1780

CUMPLECTURE. - LIF CRIMALLON



CORE LABORATORIES

LABORATORY

TESTS 08/30/91

RESULTS

JOB NUMBER: 911616

CUSTOMER: MARATHON OIL COMPANY

ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN

LABORATORY I.D...: 911616-0011

DATE SAMPLED.....: 08/26/91

DATE RECEIVED....: 08/28/91

TIME SAMPLED.....: 11:54

TIME RECEIVED...: 15:26

WORK DESCRIPTION...: 11

REMARKS..... 1 VOA HAS BUBBLE; BROWN PAR

HOWELL WINDOW

W/FII

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	20	1	mg/L	325.2 (1)	08/29/91
3020 - AROMATIC VOLATILE ORGANICS	1	*1		8020 (2)	08/30/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		

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CORE LABORATORIES

LABORATORY TESTS RESULTS

08/23/91

JOB NUMBER: 911575 CUSTOMER: MARATHON OIL COMPANY ATTN: W. NIXON

CLIENT I.D...... 32-03-144 INDIAN BASIN DATE SAMPLED.....: 08/19/91

LABORATORY I.D...: 911575-0011 DATE RECEIVED....: 08/21/91 TIME RECEIVED....: 16:06

TIME SAMPLED.....: 09:20 WORK DESCRIPTION...: 11

REMARKS....:

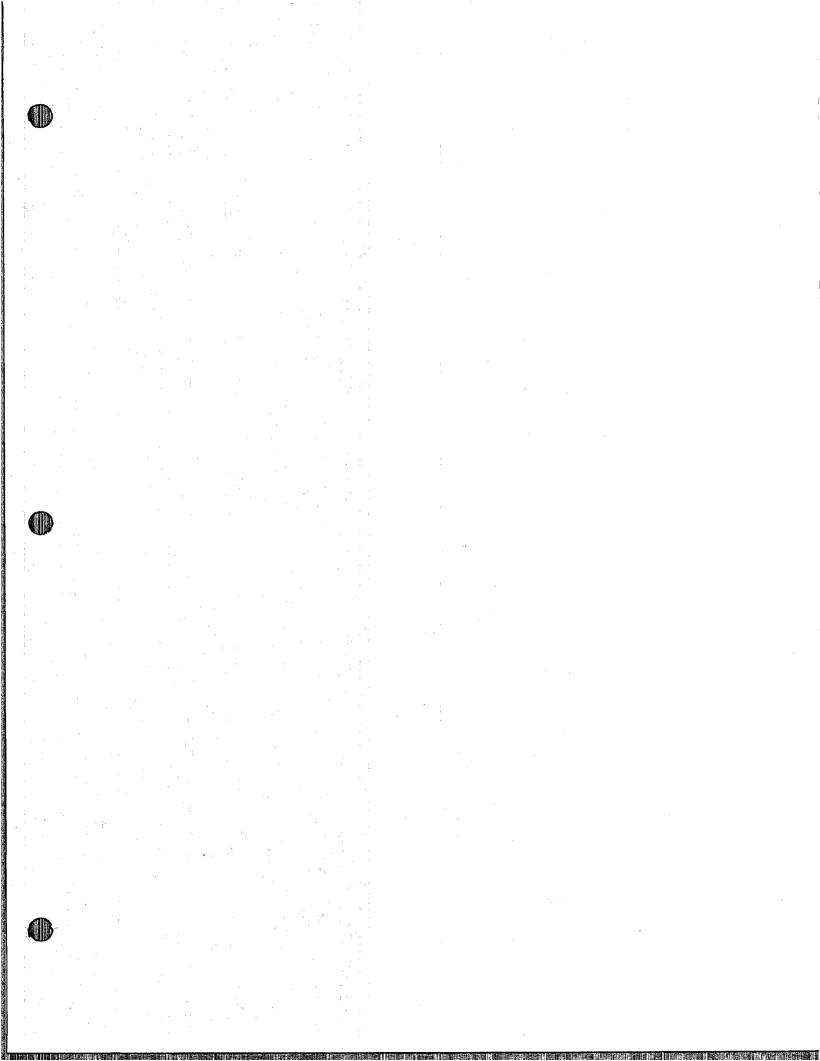
Howell Windmill Well

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE
Chloride (Unfilt.)	20	1	mg/L -	325.2 (1)	08/21/91
8020 - AROMATIC VOLATILE ORGANICS		*1	•	8020 (2)	08/22/91
Benzene Toluene Ethyl Benzene Xylenes	ND ND ND ND	1 1 1 1	ug/L ug/L ug/L ug/L		
		•			
			}		
				,	

APPROVED BY:

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The grankses, opinions or interpretations contained in this report are based upon observations and material supplied by the crient for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgement of Core Laboratories. Core Caporatories, nowever, assumes no responsibility and makes no warranty or representations, express or implied, as to the productivity proper operations, or profitableness of any judges, coal or other mineral, property, well-or sand in connection with which such reports used or relied upon for any reason whatsoever. This report shall not be reproduced, except in its entirety, without the written approval of Core Laboratories.





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

08/12/91

RECEIVED

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

AUG 1 4 1991

OIL CONSERVATION DIV. SANTA FE

EPA Method 8240

EPA Method 8240

PM

Sample Identification: Rocky Arroyo Back Water

Collected By:

Date & Time Taken: 07/19/91 1955

On Site Data:

Marathon Indian Basin

ND(5.0)

ND(10)

Other:

Bromoform

Chloroethane

Back water down stream of road crossing east

of plant sample from west side of crossing.

Lab Sample Number	er: 191623	Receive	e d: 07	//23/91	Client	: SNM1
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Acrolein	ND(100)	ug/l	1426	08/03/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1426	08/03/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM

1426

1426

08/03/91

08/03/91

Bromomethane EPA Method 8240 ND(10) ug/l 1426 08/03/91 Carbon Tetrachloride 08/03/91 EPA Method 8240 1426 ND(5.0) ug/l Chlorobenzene EPA Method 8240 1426 08/03/91 ND(5.0) ug/l

ug/l

2-Chloroethylvinyl ether 08/03/91 EPA Method 8240 1426 ND(10) ug/l Chloroform ND(5.0) 1426 08/03/91 EPA Method 8240 ug/l

ug/l

Chloromethane ND(10) ug/l 1426 08/03/91 EPA Method 8240

Dibromochloromethane ND(5.0) 1426 08/03/91 EPA Method 8240 ug/l Bromodichloromethane EPA Method 8240 ND(5.0) 1426 08/03/91 ug/l

1,1-Dichloroethane ND(5.0) ug/l 1426 08/03/91 EPA Method 8240

1,2-Dichloroethane 1426 08/03/91 EPA Method 8240 ND(5.0) ug/l

Continued

2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

191623 Continued

Page 2

1	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
	1,1-Dichloroethene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	trans-1,2-Dichloroethene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Dichlorodiflouromethane	ND(1.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	1,2-Dichloropropane	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Ethyl benzene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Methylene Chloride	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
A	Tetrachloroethene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
410	Toluene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	РМ
	1,1,1-Trichloroethane	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	РМ
	1,1,2-Trichloroethane	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Trichloroethene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Trichlorofluoromethane	ND(10)	ug/l	1426	08/03/91	EPA Method 8240	PM.
	Vinyl Chloride	ND(10)	ug/l	1426	08/03/91	EPA Method 8240	PM
	trans-1,3-Dichloropropene	ND(5.0)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Xylenes	ND(10)	ug/l	1426	08/03/91	EPA Method 8240	PM
	Benzene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
	Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
	Toluene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	KB
	Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	KB



191623 Continued

Page 3

PARAMETER RESULTS UNITS TIME DATE METHOD BY

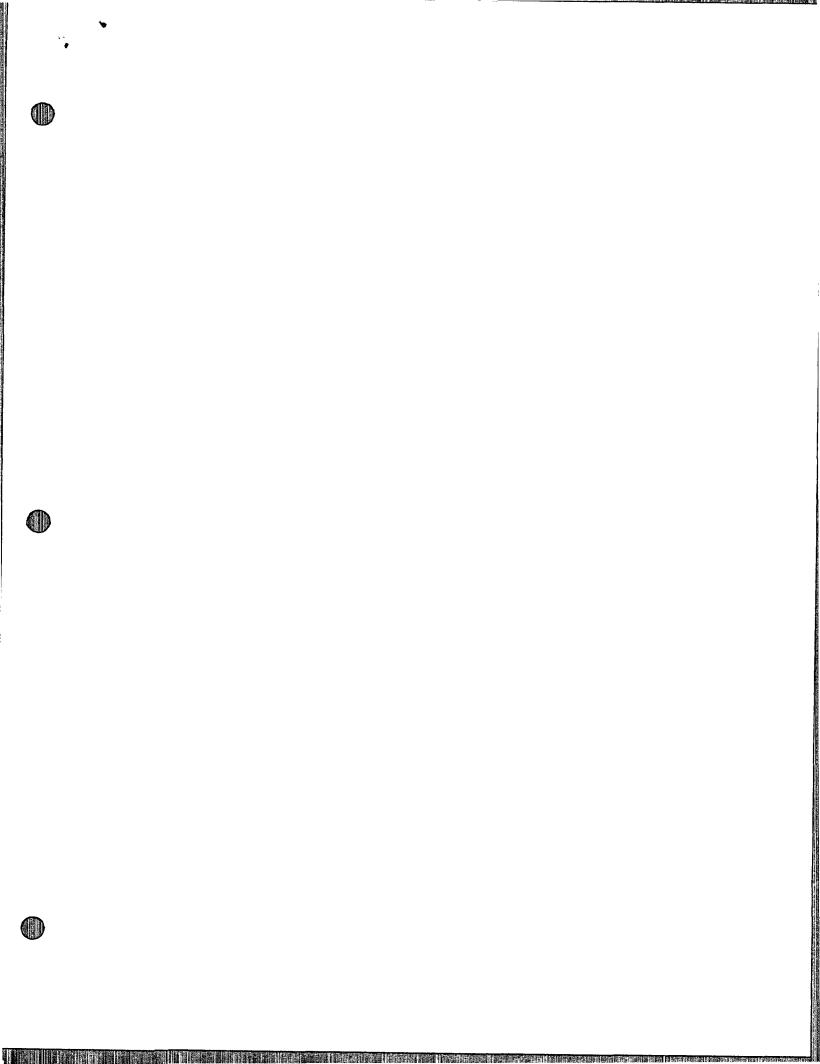
Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 191623

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Benze	ne				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	75		100			0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	116	0800	07/29/91	KB
				Ethyl be	nzene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	90		100		111	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	86	0800	07/29/91	KB
				Tolue	ne				
lacksquare	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	96		100		104	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	93	0800	07/29/91	KB
				Xylen	es				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	86		100		115	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	81	0800	07/29/91	КВ

I hereby certify that these results were obtained using the methods specified in this report.

C H Whiteside Ph D President





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Con	tract Lab_	ANA-	LAR_			Contract No	18/1	023			
00	D Sample i	Vo. 910	7191955								
Colle	ection Date	Collection Time	Collected by —Pers	on/Agency							
91	07/19	1955	D. Boye,	ξ					/OCD		
Sa		ROCK scription	y Arroys terdown n wert sig	stream	8/200	est crosse	Me La hip, Hange, Sect	st of planion, Tract: + + +	ne		
SENI		RONMENTA									
FINA REPO	DRT POR	OL CONSER ox 2088	RVATION DIVISION		SAMPLE	FIELD TREATMEN	T— Checkp	roper boxes			
то •	Santa	a Fe, NM 87	504-2088		No. of samp	oles submitted: /					
] [SAMPLING CONDITIONS Waterlevel Bailed Pump Discharge Dipped Tap					 MF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 ∠(membrane filter ☐ PF: Pre-filtered w/45 ∠(membrane filter 					
	(00400)		Sample type			∫ ☑ NA: No acid added ☐ A: 5ml conc. HNO ₃ added ☐ A: 4ml fuming HNO ₃ added					
Wa	ater Temp. (000	10)	Conductivity (Uncorrected	d) /′mt	DA 2mlHSO A added by D 1/c/						
			Conductivity at 25° C	mh ہر	FIELD COM	IMENTS:					
	Sheer	n celsí	Jegn m' j			veln NOO	D ans) Pack wa	De la		
LAE	B ANALYSI ITEM	S REQUEST	red: Method	ITEM	DESC	METHOD	ITEM	neec	METHOD		
	*521 001	VOA			PHENOL			<u>DESC</u>			
	☐ 002 ☐ 003 ☐ 004 ☐ 005 ☐ 006 ☐ 007 ☐ 008 ☐ 009 ☐ 010	VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB	8100 610 8080 608	013	VOC VOC SVOC VOC SVOC O&G AS Ba Cr	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190	☐ 026 ☐ 027 ☐ 028 ☐ 031 ☐ 032 ☐ 033 ☐ 034 ☐ 035 ☐ 036 ☐ 037 ☐ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN	7130 7421 7470 7740 6010		
	□ 012	PHENOL	8040	025	Cr6	7198		OTHER			

09/11/91

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

RECEIVED

SEP 1 3 1991

OIL CONSERVATION DIV. SANTA FE

Sample Identification: Rocky Arroyo

Collected By:

Date & Time Taken: 07/19/91 2002

On Site Data:

Marathon Indian Basin

Other:

Upstream of 1st road crossing east of plant, west end of crossing.

Lab Sample Number: 191624 Received:

07/23/91

Client: SNM1

ran sampre number	191624	Kecelve	u. 07	/23/91	crient:	PIMIT
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	110	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
Bromide	2	mg/l	1200	07/30/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	2.5/2.5	meq/meq	1600	09/10/91		SK
Carbonate	<.5	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	190	ppm	1500	09/06/91	APHA Method 1030f	BP2
Specific Conductance	170 (On Site)	Micromhos	1402	07/19/91	EPA Method 120.1	SB
Fluoride	<1	mg/l	1400	08/06/91	EPA Method 340.1	ВС
Bicarbonate	100	mg/l	1600	08/14/91	APHA Method 263	BC
Sulfate	30	mg/l	1030	08/08/91	EPA Method 375.4	МВ
рН	6.5 (On Site)	su	1402	07/19/91	EPA Method 150.1	SB
Chloride	5	mg/l	1400	08/08/91	EPA Method 325.3	HG
Silver	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Aluminum	8.0	mg/l	1100	07/30/91	EPA Method 6010	GDG
Arsenic	.009	mg/l	1600	08/14/91	EPA Method 206.2	GK

Continued

191624 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Barium	.08	mg/l	1100	07/30/91	EPA Method 6010	GDG
Beryllium	<.01	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Calcium	40	mg/l	1045	07/26/91	EPA Method 6010	GDG
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Chromium	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Copper	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Dissolved Iron	<.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
ercury	<.001	mg/l	1030	08/09/91	EPA Method 245.3	NT
Dissolved Potassium	10	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Magnesium	3.0	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Manganese	<.01	mg/l	1045	07/26/91	EPA Method 6010	GDG
Molybdenum	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Sodium	<1	mg/l	1045	07/26/91	EPA Method 6010	GDG
Nickel	<.05	mg/l	1220	08/01/91	EPA Method 6010	GDG
Lead	.005	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	31	mg/l	1440	07/30/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1440	07/30/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG



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Analytical Chemistry • Utility Operations

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	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВЧ
	Zinc	02	m= (1	1100	07/70/01	FDA Markad (040	000
		.02	mg/l		07/30/91	EPA Method 6010	GDG
	Acrolein	ND(100)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Acrylonitrile	ND(100)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Benzene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Bromoform	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Bromomethane	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Carbon Tetrachloride	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Chlorobenzene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	hloroethane	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	PM
-	2-Chloroethylvinyl ether	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Chloroform	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Chloromethane	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	P M
	Dibromochloromethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Bromodichloromethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,1-Dichloroethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,2-Dichloroethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,1-Dichloroethene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	trans-1,2-Dichloroethene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Dichlorodiflouromethane	ND(1.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,2-Dichloropropane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	cis-1,3-Dichloropropene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM



191624 Continued

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:	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
	Ethyl benzene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Methylene Chloride	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Tetrachloroethene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Toluene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,1,1-Trichloroethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	1,1,2-Trichloroethane	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Trichloroethene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Trichlorofluoromethane	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	PM
W.	Vinyl Chloride	ND(10)	ug/l	1509	08/03/91	EPA Method 8240	P M
	trans-1,3-Dichloropropene	ND(5.0)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Xylenes	ND (10)	ug/l	1509	08/03/91	EPA Method 8240	PM
	Benzene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
	Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
	Toluene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
	Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 191624

Sample # Description Result Units Dup/Std Value Spk Conc. Percent Time D

Date Ву Alkalinity 2420 Standard mg/l as C 2358 103 1900 08/13/91 191618 Duplicate 300 mg/l as C 300 100 1900 08/13/91 ₿₩ 191618 Spike mg/l as C 100 1900 08/13/91 Boron





Sample #	Description	Result	Units	Dup/Std Valu	e Spk Conc.	Percent	Time	Date	Ву
	Blank	.000	mg/l				1700	08/09/91	МВ
	Standard	.51	mg/l	.50		102	1700	08/09/91	MB
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
	•			Brom	ide				
	Standard	100	mg/l	100		100	1200	07/30/91	ES
190679	Duplicate	3	mg/l	3		100	1200	07/30/91	ES
				Fluo	ride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	ВС
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	BC
				Sulf	ate				
	Standard	98	mg/l	100		102	1030	08/08/91	MB
191239	Duplicate	10	mg/l	9		111	1030	08/08/91	MB
192196	Duplicate	130	mg/l	130		100	1030	08/08/91	MB
192196	Spike		mg/l		100	99	1030	08/08/91	MB
				Chlo	ride				
	Standard	70	mg/l	71		101	1400	08/08/91	HG
191620	Duplicate	16	mg/l	15		106	1400	08/08/91	HG
				Sil	ver				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
(II)	Standard	.20	mg/l	.20		100	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1100	07/30/91	GDG
191930	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		1.0	82	1100	07/30/91	GDG
191620	Spike		mg/l		1.0	81	1100	07/30/91	GDG
				Alum	inum				
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.59	mg/l	.61		103	1100	07/30/91	GDG
191618	Duplicate	1.4	mg/l	1.4		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	105	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1100	07/30/91	GDG
				Arse	nic				
	Blank	<.005	mg/l				1600	08/14/91	GK
	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike		mg/l		.100	91	1600	08/14/91	GK
				Bar	ium				





Quality Assurance for the SET with Sample 191624

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.03	mg/l	.03		100	1100	07/30/91	GDG
191618	Duplicate	.15	mg/l	.15		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	101	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	101	1100	07/30/91	GDG
				Beryll	lium				
	Blank	<.01	mg/l				1440	07/30/91	GDG
	Standard	.41	mg/l	.40		102	1440	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1440	07/30/91	GDG
191618	Duplicate	<.01	mg/l	<.01		100	1440	07/30/91	GDG
191620	Spike		mg/l		1.6	96	1440	07/30/91	GDG
]	Dissolved	Calcium				
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	5 3	mg/l	50		106	1045	07/26/91	GDG
191620	Duplicate	160	mg/l	160		100	1045	07/26/91	GDG
191622	Spike		mg/l		. 18	98	1045	07/26/91	GDG
				Cadmi	Lum				
	Blank	<.001	mg/l				1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
				Cobo	olt				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Chron	nıum				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l			400	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	104	1100	07/30/91	GDG
191620	Spike		mg/l	_	4.0	103	1100	07/30/91	GDG
		e =		Copi	per		4.55	07.70.00	 -
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg∕i				1100	07/30/91	GDG





Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.02	mg/l	.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	100	1100	07/30/91	GDG
191620	Spike		mg/l	_	4.0	98	1100	07/30/91	GDG
				Dissol	ved Iron				
	Blank	<.05	mg∕i				1045	07/26/91	GDG
	Standard	.93	mg/l	1.0		107	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	<.05	mg/l	<.05		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	103	1045	07/26/91	GDG
				Merc	cury				
	Blank	.002	mg/l				1030	08/09/91	NT
	Blank	<.05	mg/kg				1030	08/09/91	NT
	Standard	.010	mg/l	.010		100	1030	08/09/91	NT
191624	Duplicate	<.001	mg/l	<.001		100	1030	08/09/91	NT
192380	Duplicate	.52	mg/kg	.50		104	1030	08/09/91	NT
191624	Spike		mg/l		.010	98	1030	08/09/91	NT
192380	Spike		mg/kg_		.010	117	1030	08/09/91	NT
				issolved	Potassiu	m			
	Blank	<2	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	48	mg/l	50		104	1045	07/26/91	GDG
191620	Duplicate	<2	mg/l	<2		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	117	1045	07/26/91	GDG
				12201Aed	Magnesiu	ım	40.5	07:04:04	
	Blank	<.01	mg/l			400	1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	60	mg/l	60		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	97	1045	07/26/91	GDG
	-1 1	. 04		ISSOIVEG	Manganes	e	10/5	07/2//04	000
	Blank	<.01	mg/l			400	1045	07/26/91	GDG
	Standard	1.0	mg/l	1.0		100	1045	07/26/91	GDG
404 (80	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	.13	mg/l	. 13	2.2	100	1045	07/26/91	GDG
191622	Spike		mg/l	Mal III	2.0 b denum	105	1045	07/26/91	GDG
	n1 l-	- 05	41	MOTA	baenum		1//0	07/70/01	cnc
	Blank	<.05	mg/l	F 0		100	1440	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1440	07/30/91	GDG
404440	Standard	10	mg/l	10		100	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG





Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
				Dissolved	Sodium				
	Blank	<1	mg/l				1045	07/26/91	GDG
	Standard	9.8	mg/l	10		102	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	13	mg/l	14		107	1045	07/26/91	GDG
191622	Spike		mg/l	Ni ale	18	82	1045	07/26/91	GDG
	D11	. 05		Nick	61		1220	09 (01 (01	GDG
	Blank	<.05	mg/l					08/01/91	
	Blank	<.05	mg/l	00		407	1220	08/01/91	GDG
	Standard	.78	mg/l	.80		103	1220	08/01/91	GDG
	Standard	1.1	mg/l	1.0		110	1220	08/01/91	GDG
45455	Standard	5.3	mg/l	5.0		106	1220	08/01/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GD G GD G
191618	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191933	Spike		mg/l		4.0	100	1220	08/01/91	
191620	Spike		mg/l	Lea	4.0 đ	101	1220	08/01/91	GDG
	Blank	.002	mg/l		_		1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
(Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
,,,,,,,,,				Antim					
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
				Silic	on				
	Blank	<.1	mg/l				1440	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1440	07/30/91	GDG
	Standard	9.7	mg/l	10		103	1440	07/30/91	GDG



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
191618	Duplicate	20	mg/l	19		105	1440	07/30/91	GDG
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
	•		•	Thall	ium				
	Blank	<.2	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.2	mg/l	<.2		100	1440	07/30/91	GDG
191620	Spike	•••	mg/l		4.0	95	1440	07/30/91	GDG
171020	opike		1113/1	Vanad		,,	1440	0.73077.	450
	Blank	<.05	mg/l	vanac			1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1		5.0		102	1440	07/30/91	GDG
101410			mg/t				1440		
191618	Duplicate	<.05	mg/l	<.05		100		07/30/91	GDG
191620	Spike		mg/l	Zir	6.0	100	1440	07/30/91	GDG
	Bll.	. 04		211	ic		1100	07/70/01	00.0
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
(D)	Standard	5.3	mg/l	5.0		106	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.05	mg/l	.06		118	1100	07/30/91	GDG
191618	Duplicate	.03	mg/l	.04		129	1100	07/30/91	GDG
191933	Spike		mg/l		2.0	99	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	99	1100	07/30/91	GDG
				Benze	ene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	7 5		100			0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	116	0800	07/29/91	KB
				Ethyl be	enzene				
	Blank	<5.0	ug/l	-			0800	07/29/91	KB
	Standard	90	•	100		111	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	КВ
191938	Spike		-3/3		100	86	0800	07/29/91	KB
171750	OPING			Tolue		33	0000	0.,2,,,,	
	Blank	<5.0	ug/l	1014			0800	07/29/91	КВ
	Standard	96	ug/ t	100		104	0800	07/29/91	KB
191938		<5.0	um/km	<5.0		100	0800	07/29/91	KB
191938	Duplicate	٧٥.٥	ug/kg	\ 3.0	100	93	0800	07/29/91	KB
191930	Spike			V1 A		93	0800	01/29/91	KD
	5 1 1	.r. ^		Xyler	169		0000	07/20/01	VB.
	Blank	<5.0	ug/l	400		445	0800	07/29/91	KB
	Standard	86	_	100		115	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
_									





2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 191624

Sample #	Description	Result	Units	Dup/Std Value		Percent	Time	Date	Ву
191938	Spike				100	81	0800	07/29/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contr	act Lab_	310	7192002		***************************************	Contract No	19/	624	
OC	D Sample I	No. ANA	1-Lab						
Colle	ction Date	Collection Time	Collected by —Person	n/Agency			_		
9/	07/19	2002	D. Boryes	2					/OCD
Sam	re INFORMA pple location ection Site De	Rock scription	MARROYO m Of 15T croffing	RoalC	rossing	o less t	Aplan Ship, Range, Seci	J, west	5
	<u> </u>	Co of	Ows sing	<u></u>			+	+ +	
SEND FINAL REPO	NM C	IL CONSEP	AL BUREAU RVATION DIVISION		SAMPLEF	IELD TREATMEI	NT — Check p	properboxes	
то р	PUB	ox 2088 1 Fe, NM 87	504-2088		No. of sample	s submitted: 3			
		Pump	Water level		3 Ø NF: □ F: □ PF:	Filtered in field with	0.45 Amembra		
pH(00400) 6 , 5 ((strip)	Sample type () Sall () Conductivity (Uncorrected)			No acid added HCL 2ml H ₂ SO ₄ L added	/ <u>\$</u> X./	A: 5ml conc. HNO, ac A: 4ml fuming HNO, a	
""	• •	·o, 5_5	Conductivity at 25° C		FIELD COMM	ENTS:			
	No	odo,	lurlow	mho ٻير	J				
LAB	ANALYSI	S REQUES	ſED:						
	ITEM	DESC	METHOD	ПЕМ	DESC	METHOD	ITEM	DESC	METHOD
D	001	VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB	8020 602 8010 601 8010-8020 601-602 8100 610 8080 608	□013 □014 □015 □016 □017 □018 □019 □020 □020 □023 □024 □025	PHENOL VOC VOC SVOC VOC SVOC O&G AS Ba Cr	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190	□ 026 □ 027 □ 028 □ 031 □ 032 □ 033 □ 034 □ 035 □ 036 □ 037 □ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN OTHER	7130 7421 7470 7740 6010



	2,40%	On An Room	THE IN HOAD WILL KILGODE TEXAS TESS ON LOAD AND LOSS	ĘŽ		849	150	SUAT		
INA-CONTER SENCE LAB	News	Mexic	503/584-1551	ortra	£29 l n 0	800 800 800 800 800 800 800) 6060 -e-20	Sea	900	,
Customer Name ((),	\sim	aiso vator	ust. Code Project Name Project Name Man Allan	(%)			Tests	S		
Samplers: (Signature)		Jun	out och	<u> </u>		₩.	(1/77 h)	Par	(4	
Sample No.	Date	Tirne	Sample ID	ı	0603	DEW 1471	בין <i>ש</i> יו	Mens	H 49	
1	61/69/16	328	Borehole 83 (MW 57)		<u> </u>					
2	61/10/16	9+01 e/colip	Field Blank	>	4		d processing the second			
E	Ч	1055	G 87A	3	>	>		>	<u> </u>	
4	2	125a		>	7	7		3	7	
5	И	1448	vale well #	7	>			2		
9	11	1955	ARROYI	>		Section (Quantity)				15/10 (15/10 (16/10)) (16/10)
7	,,	300s	Rocky ARROYO	>	1	1		>	<u>.</u>	Cart City (Display is
	·) D			And and Andrews	Gezer wedense			
\$ Section					_	Balanders, est fo	A Property of the Control of the Con			
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and the second							e di sassit - vicin			Commo vetado d
· ea						tu e le ieu ins	our age			
in the second	-									of the output St.
Retinquished by:	Date -	THE SECOND	Received in Lab by:	- E	Remarks:					is defined in the
N. W.	00 Lali	1345		<u>۲ </u>	A von A	Server 2	ď	BeTLLE	q	erther som . Transis hoperet
5					!					en Care

Wew Client, please fill in the information on the reverse side.

2 1000 @ 320 1(5tm) 2 5 2 100, 50, 1m Borehole BC, MW 60 Boxchole 870, MW 6/B 9107191252 50. con 8 930 91071911053 Weather Payty Cloudy Warm Bo Boshole 88 - Startel 7/19 64600 5/806 Cample For VOA, C/A, HIM Field Blend from Wols Carried from Santo Ce 910719 1046 Sp. Cond 650 as 22 phy totains Railes = 12 fallong Monether Indian Karun Relph Skinner Englich 900719850 BUS 30 Rehole 83, MW 57

-- Tumpos lewis Cherca Rain Gaye: 2,24"@1726 (No pt on SP - Heaven Roin Ray 1450 to Somple for VOA, Cld Rain Sapur 1450 910717144 Wates Woll# Run bos hits town ighthriang al

Location # 4 Beibelle With Well O. 9 part Mm 47 [1.9 Part Hwy 137/CR #9-Lee Waterlank 0.9Ming Spring 350 yell Location #1 LYMANS 2-300 Jacobs From First Rock Chaffing #3 Lower Indian Hills Spring Realing Eurobes #2 Wyer Frolin Bills I Mile eart 07 85. H Ocation # 6 Wholfred TROPONS Mile 47 scation #5 hine 4 New Rive had Kind, will replace. Location MOC#/ 8 MOC#/ tanhores on groun Barles



09/11/91

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

RECEIVED

SEP 1 3 1991

OIL CONSERVATION AM SANTA FE

Sample Identification: Water Well #1

Collected By:

Date & Time Taken: 07/19/91 1448

On Site Data:

Marathon Indian Basin

Other:

Sample From Valve At Pump,

Run-10 Minutes

Lab Sample Number: 191622

Received:

07/23/91

Client: SNM1

	Dan Dampic Number	• 171022	NCCC1 VCC	••	123/31	crienc.	DIVITI
-	PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ву
	Alkalinity	260	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
	Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
	Bromide	7	mg/l	1200	07/30/91	ASTM D3869 vol 11.02	ES
	Cation-Anion Balance	9.7/9.4	meq/meq	1600	09/10/91		SK
	Carbonate	<.5	mg/l	1600	08/14/91	APHA Method 263	ВС
	Calulated Total Dissolved Solids	620	ppm	1500	09/06/91	APHA Method 1030F	BP2
	Specific Conductance	650 (On Site)	Micromhos	1443	07/19/91	EPA Method 120.1	DB
	Fluoride	1.3	mg/l	1400	08/06/91	EPA Method 340.1	ВС
	Bicarbonate	230	mg/l	1600	08/14/91	APHA Method 263	ВС
	Sulfate	200	mg/l	1030	08/08/91	EPA Method 375.4	МВ
	Нq	7.0	SU	2130	07/23/91	EPA Method 150.1	SB
	Chloride	19	mg/l	1400	08/08/91	EPA Method 325.3	HG
	Silver	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
	Aluminum	.14	mg/l	1100	07/30/91	EPA Method 6010	GDG
	Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK



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Analytical Chemistry • Utility Operations

191622 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Barium	.03	mg/l	1100	07/30/91	EPA Method 6010	GDG
Beryllium	<.01	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Calcium	120	mg/l	1045	07/26/91	EPA Method 6010	GDG
Cadmium	.004	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Chromium	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Copper	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Dissolved Iron	<.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
Mercury	<.001	mg/l	1030	08/09/91	EPA Method 245.3	NT
Dissolved Potassium	<2	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Magnesium	40	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Manganese	<.01	mg/l	1045	07/26/91	EPA Method 6010	GDG
Molybdenum	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Sodium	10	mg/l	1045	07/26/91	EPA Method 6010	GDG
Nickel	<.05	mg/l	1220	08/01/91	EPA Method 6010	GDG
Lead	<.001	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	9.2	mg/l	1440	07/30/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1440	07/30/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG



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Analytical Chemistry • Utility Operations

191622 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Zinc	.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Acrolein	ND(100)	ug/l	1343	08/03/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1343	08/03/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Bromoform	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM

191622 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Ethyl benzene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Methylene Chloride	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Toluene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Trichloroethene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
Vinyl Chloride	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1343	08/03/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1343	08/03/91	EPA Method 8240	PM
Benzene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
Toluene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Sample #	Description	Result	Units D	up/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/las C 2	358	_	103	1900	08/13/91	B₩
191618	Duplicate	300	mg/las C 3	000		100	1900	08/13/91	BW
191618	Spike		mg/l as C			100	1900	08/13/91	BW
				Poro	n				



Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
	Blank	.000	mg/l				1700	08/09/91	MB
	Standard	.51	mg/l	.50		102	1700	08/09/91	МВ
191621	Duplicate	<.5		<.5		100	1700	08/09/91	MB
171021	Dupticate	\. .	mg/l	Brom	ide	100	1700	08/09/91	MD
	Standard	100	mg/l	100		100	1200	07/30/91	ES
190679	Duplicate	3	mg/l	3		100	1200	07/30/91	ES
	•		•		ride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	ВС
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	BC
	•			Sulf	ate				
	Standard	98	mg/l	100		102	1030	08/08/91	MB
191239	Duplicate	10	mg/l	9		111	1030	08/08/91	MB
192196	Duplicate	130	mg/l	130		100	1030	08/08/91	MB
192196	Spike		mg/l		100	99	1030	08/08/91	MB
				p	H				
	Standard	Calibrate	SU	7.0			2130	07/23/91	SB
	Standard	10.0	SU	10.0		100	2130	07/23/91	SB
				Chlo	ride				
	Standard	70	mg/l	71		101	1400	08/08/91	HG
191620	Duplicate	16	mg/l	15		106	1400	08/08/91	HG
				sil	.ver				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	.20	mg/l	.20		100	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1100	07/30/91	GDG
191930	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		1.0	82	1100	07/30/91	GDG
191620	Spike		mg/l		1.0	81	1100	07/30/91	GDG
				Alun	ninum				
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.59	mg/l	.61		103	1100	07/30/91	GDG
191618	Duplicate	1.4	mg/l	1.4		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	105	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1100	07/30/91	GDG
				Arse	enic				
	Blank	<.005	mg/l				1600	08/14/91	GK
	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike		mg/l		.100	91	1600	08/14/91	GK
	-•		•	Bari					
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.03	mg/l	.03		100	1100	07/30/91	GDG
191618	Duplicate	.15	mg/l	.15		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	101	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	101	1100	07/30/91	GDG
			•	Beryll					
	Blank	<.01	mg/l	•			1440	07/30/91	GDG
	Standard	.41	mg/l	.40		102	1440	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1440	07/30/91	GDG
191618	Duplicate	<.01	mg/l	<.01		100	1440	07/30/91	GDG
191620	Spike		mg/l		1.6	96	1440	07/30/91	GDG
				Dissolved					
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	53	mg/l	50		106	1045	07/26/91	GDG
191620	Duplicate	160	mg/l	160		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	98	1045	07/26/91	GDG
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	op.iks			Cadmi					
	Blank	<.001	mg/l	-			1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
1,1021	э арт гоа со			Cobo	1t				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike	.,03	mg/l		4.0	97	1440	07/30/91	GDG
171020	op mo			Chrom					
	Blank	<.02	mg/l	0002			1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	<.05	mg/t	<.05		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike	\.UZ	mg/l mg/l	1.02	4.0	104	1100	07/30/91	GDG
191620	Spike Spike		mg/l mg/l		4.0	103	1100	07/30/91	GDG
171020	Spike		mg/ t	Сорр		103	.,,,,	0.,50,,1	



Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.02	mg/l	.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	100	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	98	1100	07/30/91	GDG
	•			Dissolv	ed Iron				
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	.93	mg/l	1.0		107	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	<.05	mg/l	<.05		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	103	1045	07/26/91	GDG
				Merc	cury				
	Blank	.002	mg/l				1030	08/09/91	NT
	Blank	<.05	mg/kg				1030	08/09/91	NT
	Standard	.010	mg/l	.010		100	1030	08/09/91	NT
191624	Duplicate	<.001	mg/l	<.001		100	1030	08/09/91	NT
192380	Duplicate	.52	mg/kg	.50		104	1030	08/09/91	NT
191624	Spike		mg/l		.010	98	1030	08/09/91	NT
192380	Spike		mg/kg	_	.010	117	1030	08/09/91	NT
			D	issolved	Potassiur	n			
	Blank	<2	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	48	mg/l	50		104	1045	07/26/91	GDG
191620	Duplicate	<2	mg/l	<2		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	117	1045	07/26/91	GDG
			D	issolved	Magnesiur	n			
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	60	mg/l	60		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	97	1045	07/26/91	GDG
			D	issolved	Manganes	e			
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	1.0	mg/l	1.0		100	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	.13	mg/l	.13		100	1045	07/26/91	GDG
191622	Spike		mg/l	,	2.0	105	1045	07/26/91	GDG
				Moly	bdenum				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1440	07/30/91	GDG



									Ву
	Standard	10	mg/l	10		100	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
				Dissolved	Sodium				
	Blank	<1	mg/l				1045	07/26/91	GDG
	Standard	9.8	mg/l	10		102	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	13	mg/l	14		107	1045	07/26/91	GDG
191622	Spike		mg/l		18	82	1045	07/26/91	GDG
				Nick	el				
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Standard	.78	mg/l	.80		103	1220	08/01/91	GDG
	Standard	1.1	mg/l	1.0		110	1220	08/01/91	GDG
	Standard	5.3	mg/l	5.0		106	1220	08/01/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191933	Spike		mg/l		4.0	100	1220	08/01/91	GDG
191620	Spike		mg/l		4.0	101	1220	08/01/91	GDG
				Lea	đ.				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
				Antim	ony				
	Blank	<.05	mg/l		_		1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
	·		_	Silic					
		<.1	mg/l				1440	07/30/91	GDG



Sample #	Description	Result	Units	Dup/Std Value Spk Con	c. Percent	Time	Date	Ву
	Standard	5.2	mg/l	5.0	104	1440	07/30/91	GDG
	Standard	9.7	mg/l	10	103	1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0	100	1440	07/30/91	GDG
191618	Duplicate	20	mg/l	19	105	1440	07/30/91	GDG
191620	Spike		mg/l	2.0	100	1440	07/30/91	GDG
				Thallium				
	Blank	<.2	mg/l			1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0	100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0	102	1440	07/30/91	GDG
191618	Duplicate	<.2	mg/l	<.2	100	1440	07/30/91	GDG
191620	Spike		mg/l	4.0	95	1440	07/30/91	GDG
				Vanadium				
	Blank	<.05	mg/l			1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0	100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0	102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05	100	1440	07/30/91	GDG
191620	Spike		mg/l	6.0	100	1440	07/30/91	GDG
				Zinc				
	Blank	<.01	mg/l			1100	07/30/91	GDG
	Blank	<.01	mg/l			1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0	100	1100	07/30/91	GDG
	Standard	5.3	mg/l	5.0	106	1100	07/30/91	GDG
	Standard	10	mg/l	10	100	1100	07/30/91	GDG
191930	Duplicate	.05	mg/l	.06	118	1100	07/30/91	GDG
191618	Duplicate	.03	mg/l	.04	129	1100	07/30/91	GDG
191933	Spike		mg/l	2.0	99	1100	07/30/91	GDG
191620	Spike		mg/l	4.0	99	1100	07/30/91	GDG
				Benzene				
	Blank	<5.0	ug/l			0800	07/29/91	KB
101070	Standard	75		100		0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0	100	0800	07/29/91	KB
191938	Spike			100	116	0800	07/29/91	KB
	- / /			Ethyl benzene				
	Blank	<5.0	ug/(0800	07/29/91	KB
101079	Standard	90		100	111	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0	100	0800	07/29/91	KB
191938	Spike			100	86	0800	07/29/91	KB
	Blank	<5.0		Toluene		0000	07.100.104	
			ug/l	400	10/	0800	07/29/91	КВ
191938	Standard	96 -5-0		100	104	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0	100	0800	07/29/91	KB
171730	Spike			100 Yylanas	93	0800	07/29/91	KB
	Plon!	√ E ∩		Xylenes		0000	07/20/04	
	Blank	<5.0	ug/l			0800	07/29/91	KB



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 191622

Sample #	Description	Result	Units	Dup/Std Value		Percent	Time	Date	Ву
	Standard	86		100		115	0800	07/29/91	КВ
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	81	0800	07/29/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President



PCB

PHENOL

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ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab_	ANI	9-LAR_			_ Contract No	191	620	
OCD Sample	No.910	191448						
Collection Date	Collection Time	Collected by —Perso	on/Agency					
91 07 19	1448	R. SKIN		orathe	, b. 8	oyer		/OCD
SITE INFORM Sample location		() () () () () () () () () ()	· · · · · ·	-, - ,	# 121	14.		
	Marie	han Indie	en Bes	in Wa	to well	K)		
Collection Site De	escription							
					Towns	hip, Range, Sec	tion, Tract:	
						+	+ +	
FINAL NM	IRONMENTA	AL BUREAU RVATION DIVISION		SAMPLI	FIELD TREATMEN	T— Check	oroper boxes	
10.8	3ox 2088 a Fe, NM 87	504-2088		No. of sam	ples submitted: 3			
SAMPLING C	ONDITIONS	Water level					ine filler	
1	Tap	Discharge		PI	F: Pre-filtered w/45 A	membrane filte	r	
pH(00400)		Sample type Gral)	」 ス ⋈ N A:	A: No acid added HCL	/ 🔯	•	
Water Temp. (000	010)	Conductivity (Uncorrected) <u>∠″m</u>	ho 🗆 A		1 28		e_
~	•	Conductivity at 25° C	m þv	FIELD COI	MMENTS:		V	
<	Samp	Co Fram	rali	11 cc	t pump	, ru	nolo min	iles
					<i>y</i>			
LAB ANALYS	IS DEVILES.	ren.						
ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
	VOA	8020	013	PHENOL	604	□ 026	Cd	7130
☐ 002	VOA	602	□013 □014	VOC	8240	☐ 026 ☐ 027	Pb	7421
□ 003 □ 004	VOH	8010	□015 □016	VOC	624	□ 028 □ 021	Hg(L)	7470
□ 004 □ 005	VOH SUITE	601 8010-8020	□016 □017	SVOC SVOC	8250 625	□ 031 □ 032	Se ICAP	7740 6010
☐ 006	SUITE	601-602	018	VOC	8260	☐ 033	CATIONS/ANIONS	3310
007	HEADSPACE		□019 □000	SVOC	8270	□ 034 □ 035	N SUITE	
□ 008 □ 009	PAH PAH	8100 610	□ 020 □ 022	O&G AS	9070 7060	□ 035 □ 036	NITRATE NITRITE	
	PAN DCD	9090	□ 022	Ra	7080	☐ 030 ☐ 037	MMMONIA	

Cr

Cr6

024

□ 025

8040

7190

7198

□ 038

TKN

OTHER



09/11/91

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

RECEIVED

SEP 1 3 1991

Sample Identification: Borehole 83 (MW 57)

OIL CONSERVATION DIV. SANTA FE

Collected By:

Date & Time Taken: 07/19/91 0925

On Site Data:

Marathon Indian Basin

Other:

Bailed-2 1/2 Gallons, No Odor Drilled 6/19, Completed 6/25

Lab Sample Number: 191618

Received: 07/23/91

Client: SNM1

rap sample wamper	• 191010	Kecelve	. 07	/23/91	CITEIL.	SIMIL
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	300	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
Bromide	4	mg/l	1200	07/30/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	7.3/7.1	meq/meq	1600	09/10/91		SK
Carbonate	2.0	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	510	ppm	1500	09/06/91	APHA Method 1030F	BP2
Specific Conductance	650 (On Site)	Micromhos	0925	07/19/91	EPA Method 120.1	SB
Fluoride	<1	mg/l	1400	08/06/91	EPA Method 340.1	ВС
Bicarbonate	300	mg/l	1600	08/14/91	APHA Method 263	ВС
Sulfate	60	mg/l	1030	08/08/91	EPA Method 375.4	МВ
Н	7.0 (On Site)	su	0925	07/19/91	EPA Method 150.1	SB
Chloride	21	mg/l	1400	08/08/91	EPA Method 325.3	HG
Silver	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Aluminum	1.4	mg/l	1100	07/30/91	EPA Method 6010	GDG
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK



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Analytical Chemistry • Utility Operations

191618 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Barium	.15	mg/l	1100	07/30/91	EPA Method 6010	GDG
Beryllium	<.01	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Calcium	90	mg/l	1045	07/26/91	EPA Method 6010	GDG
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Chromium	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Copper	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Dissolved Iron	<.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
Mercury	<.001	mg/l	1030	08/09/91	EPA Method 245.3	NT
Dissolved Potassium	<2	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Magnesium	30	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Manganese	<.01	mg/l	1045	07/26/91	EPA Method 6010	GDG
Molybdenum	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Sodium	7.9	mg/l	1045	07/26/91	EPA Method 6010	GDG
Nickel	<.05	mg/l	1220	08/01/91	EPA Method 6010	GDG
Lead	.003	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	20	mg/l	1440	07/30/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1440	07/30/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG



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Analytical Chemistry • Utility Operations

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Zinc	.04	mg/l	1100	07/30/91	EPA Method 6010	GDG
Acrolein	ND(100)	ug/l	1047	08/03/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1047	08/03/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Bromoform	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM

191618 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ву
Ethyl benzene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Methylene Chloride	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Toluene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	P M
Trichloroethene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
Vinyl Chloride	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1047	08/03/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1047	08/03/91	EPA Method 8240	PM
Benzene	0.5	ug/l	0800	07/29/91	EPA Method 8020	КВ
Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
Toluene	0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	KB

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/l as	C 2358	_	103	1900	08/13/91	B₩
191618	Duplicate	300	mg/l as	C 300		100	1900	08/13/91	BW
191618	Spike		mg/l as	С		100	1900	08/13/91	B₩
				Boro	n				



Sample #	Description	Result	Units	Dup/Std Valu	e Spk Conc.	Percent	Time	Date	Ву
	Blank	.000	mg/l				1700	08/09/91	МВ
	Standard	.51	mg/l	.50		102	1700	08/09/91	MB
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
				Brom	ide				
	Standard	100	mg/l	100		100	1200	07/30/91	ES
190679	Duplicate	3	mg/l	3		100	1200	07/30/91	ES
				Fluo	ride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	BC
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	ВС
				Sulf	ate				
	Standard	98	mg/l	100		102	1030	08/08/91	MB
191239	Duplicate	10	mg/l	9		111	1030	08/08/91	MB
192196	Duplicate	130	mg/l	130		100	1030	08/08/91	MB
192196	Spike		mg/l		100	99	1030	08/08/91	MB
					ride				
	Standard	70	mg/l	71		101	1400	08/08/91	HG
191620	Duplicate	16	mg/l	15		106	1400	08/08/91	HG
				Sil	ver				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	.20	mg/l	.20		100	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1100	07/30/91	GDG
191930	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		1.0	82	1100	07/30/91	GDG
191620	Spike		mg/l		1.0	81	1100	07/30/91	GDG
				Alum	inum				
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.59	mg/l	.61		103	1100	07/30/91	GDG
191618	Duplicate	1.4	mg/l	1.4		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	105	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1100	07/30/91	GDG
				Arse	nic				
	Blank	<.005	mg/l				1600	08/14/91	GK
	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike		mg/l		.100	91	1600	08/14/91	GK
				Bar	ium				



Blank	<.01	mg/l				1100	07/30/91	GDG
Blank	<.01	mg/l				1100	07/30/91	GDG
Standard		mg/l	1.0		100	1100	07/30/91	GDG
Standard	5.1		5.0		102	1100	07/30/91	GDG
Standard	10		10		100	1100	07/30/91	GDG
Duplicate	-03		.03		100	1100	07/30/91	GDG
Duplicate	.15				100	1100	07/30/91	GDG
•				4.0	101	1100	07/30/91	GDG
Spike				4.0	101	1100	07/30/91	GDG
•		-	Beryll	ium				
Blank	<.01	mg/l	. –			1440	07/30/91	GDG
Standard	.41		.40		102	1440	07/30/91	GDG
Standard			2.0		100	1440	07/30/91	GDG
Duplicate			<.01		100	1440	07/30/91	GDG
Spike				1.6	96	1440	07/30/91	GDG
•			Dissolved	Calcium				
Blank	<.05	mg/l				1045	07/26/91	GDG
Standard	10	mg/l	10		100	1045	07/26/91	GDG
Standard		mg/l	50		106	1045	07/26/91	GDG
Duplicate	160	mg/l	160		100	1045	07/26/91	GDG
Spike		mg/l		18	98	1045	07/26/91	GDG
			Cadmi	um				
Blank	<.001	mg/l				1300	08/16/91	GK
Standard	.002		.002		100	1300	08/16/91	GK
Duplicate	<.001		<.001		100	1300	08/16/91	GK
,			Cobo	lt				
Blank	<.05	mg/l				1440	07/30/91	GDG
Standard	1.0		1.0		100	1440	07/30/91	GDG
Standard		_			102	1440	07/30/91	GDG
Duplicate					100	1440	07/30/91	GDG
•		_		4.0	97	1440	07/30/91	GDG
•			Chrom					
Blank	<.02	mg/l				1100	07/30/91	GDG
Blank	<.02	_				1100	07/30/91	GDG
Standard			1.0		100	1100		GDG
Standard		=				1100		GDG
								GDG
								GDG
•								GDG
The state of the s	-		-	4.0				GDG
								GDG
		a/ \	Conn			, , , , ,	,,-	
Blank	<.02	mg/l		- -		1100	07/30/91	GDG
		a/ ·				1100	,,,	
	Standard Standard Standard Duplicate Duplicate Spike Spike Blank Standard Duplicate Spike Spike Spike Spike	Blank <.01 Standard 1.0 Standard 5.1 Standard 10 Duplicate .03 Duplicate .15 Spike Spike Blank <.01 Standard .41 Standard 2.0 Duplicate <.01 Spike Blank <.05 Standard 10 Standard 53 Duplicate 160 Spike Blank <.001 Standard 53 Duplicate <.001 Standard 53 Duplicate <.001 Standard .002 Duplicate <.001 Blank <.05 Standard 1.0 Standard 5.1 Duplicate <.05 Spike Blank <.02 Standard 5.1 Duplicate <.05 Spike Spike Standard 1.0 Standard 5.1 Duplicate <.05 Spike Spike Spike Spike Spike Spike	Blank <.01 mg/l Standard 1.0 mg/l Standard 5.1 mg/l Standard 10 mg/l Duplicate .03 mg/l Duplicate .15 mg/l Spike mg/l Spike mg/l Spike mg/l Standard .41 mg/l Standard 2.0 mg/l Spike mg/l Spike mg/l Standard 5.01 mg/l Spike mg/l Blank <.05 mg/l Standard 53 mg/l Standard 53 mg/l Spike mg/l Blank <.05 mg/l Standard 53 mg/l Spike mg/l Blank <.001 mg/l Standard 53 mg/l Spike mg/l Blank <.001 mg/l Spike mg/l Blank <.001 mg/l Standard .002 mg/l Spike mg/l Blank <.05 mg/l Standard 5.1 mg/l Standard 5.2 mg/l Spike mg/l Standard 1.0 mg/l Standard 5.2 mg/l	Blank	Blank	Standard 1.0	Standard	Standard



Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.02	mg/l	.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	100	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	98	1100	07/30/91	GDG
				Dissolv	ed Iron				
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	.93	mg/l	1.0		107	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	<.05	mg/l	<.05		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	103	1045	07/26/91	GDG
				Merc	ury				
	Blank	.002	mg/l				1030	08/09/91	NT
	Blank	<.05	mg/kg				1030	08/09/91	NT
	Standard	.010	mg/l	.010		100	1030	08/09/91	NT
191624	Duplicate	<.001	mg/l	<.001		100	1030	08/09/91	NT
192380	Duplicate	.52	mg/kg	.50		104	1030	08/09/91	NT
191624	Spike		mg/l		.010	98	1030	08/09/91	NT
192380	Spike		mg/kg		.010	117	1030	08/09/91	NT
			D:	issolved	Potassium	n			
	Blank	<2	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	48	mg/l	50		104	1045	07/26/91	GDG
191620	Duplicate	<2	mg/l	<2		100	1045	07/26/91	GDG
191622	Spike		mg/l	_	18	117	1045	07/26/91	GDG
			D:	issolved	Magnesiur	n			
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	60	mg/l	60		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	97	1045	07/26/91	GDG
			D:	issolved	Manganes	2			
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	1.0	mg/l	1.0		100	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	. 13	mg/l	. 13		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	105	1045	07/26/91	GDG
				Molyh	denum				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1440	07/30/91	GDG
	Standard	10	mg/l	10		100	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
				Dissolved	Sodium				
	Blank	<1	mg/l				1045	07/26/91	GDG
	Standard	9.8	mg/l	10		102	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	13	mg/l	14		107	1045	07/26/91	GDG
191622	Spike		mg/l		18	82	1045	07/26/91	GDG
				Nick	el				
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Standard	.78	mg/l	.80		103	1220	08/01/91	GDG
	Standard	1.1	mg/l	1.0		110	1220	08/01/91	GDG
	Standard	5.3	mg/l	5.0		106	1220	08/01/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191933	Spike		mg/l		4.0	100	1220	08/01/91	GDG
191620	Spike		mg/l		4.0	101	1220	08/01/91	GDG
				Lea	đ				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
				Antim	ony				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
				Silic	on				
	Blank	<.1	mg/l				1440	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1440	07/30/91	GDG
	Standard	9.7	mg/l	10		103	1440	07/30/91	GDG



Standard 1.0 mg/l 1.0 100 1440 07/30/91 191620	GDG GDG GDG GDG GDG GDG GDG GDG GDG
191618	GDG GDG GDG GDG GDG GDG GDG GDG
191620	GDG GDG GDG GDG GDG GDG GDG
Standard 1.0 mg/l 1.0 100 1440 07/30/91 191618 Duplicate -2.2 mg/l -2.2 100 1440 07/30/91 191620 Spike mg/l -2.0 100 1440 07/30/91 191618 Standard 5.1 mg/l -2.0 -2.2 100 1440 07/30/91 191620 Spike mg/l -4.0 95 1440 07/30/91 191620 Spike mg/l -4.0 95 1440 07/30/91 191620 Spike mg/l -5.0 100 1440 07/30/91 191618 Duplicate -0.5 mg/l -5.0 100 1440 07/30/91 191620 Spike mg/l -5.0 100 1440 07/30/91 191620 Spike mg/l -6.0 100 100 07/30/91 191930 Standard 1.0 mg/l 1.0 100 1100 07/30/91 191930 Standard 5.3 mg/l 5.0 106 1100 07/30/91 191930 Spike -5.0 mg/l 0.6 118 1100 07/30/91 191930 Spike mg/l 0.6 118 1100 07/30/91 191618 Duplicate .05 mg/l 0.6 118 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike Spike mg/l 2.0 99 1100 07/30/91 191620 Spike Spike Spike mg/l 2.0 99 1100 07/30/91 191620 Spike Spike	GDG GDG GDG GDG GDG GDG GDG
Standard 1.0	GDG GDG GDG GDG GDG GDG GDG
Standard S.1 mg/l S.0 102 1440 07/30/91 191618	GD G GD G GD G GD G GD G GD G GD G
Standard S.1 mg/l S.0 102 1440 07/30/91 191618	GD G GD G GD G GD G GD G GD G
191618	GDG GDG GDG GDG GDG
191620 Spike mg/l 4.0 95 1440 07/30/91	GDG GDG GDG GDG
Blank	GDG GDG GDG GDG
Standard 1.0 mg/l 1.0 100 1440 07/30/91 Standard 5.1 mg/l 5.0 102 1440 07/30/91 191618 Duplicate <.05 mg/l <.05 100 1440 07/30/91 191620 Spike mg/l 6.0 100 1440 07/30/91	GDG GDG GDG GDG
Standard S.1 mg/l S.0 102 1440 07/30/91 191618	GDG GDG GDG
191618	GD G GD G
191620 Spike mg/l 6.0 100 1440 07/30/91	GDG
Blank <.01 mg/l	
Blank <.01 mg/l	
Blank <.01 mg/l 1.0 07/30/91	
Standard 1.0 mg/l 1.0 100 1100 07/30/91 Standard 5.3 mg/l 5.0 106 1100 07/30/91 Standard 10 mg/l 10 100 1100 07/30/91 191930 Duplicate .05 mg/l .06 118 1100 07/30/91 191618 Duplicate .03 mg/l .04 129 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0 ug/l 0800 07/29/91 Standard 75 100 0800 07/29/91 191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	GDG
Standard 5.3 mg/l 5.0 106 1100 07/30/91 191930 Duplicate .05 mg/l .06 118 1100 07/30/91 191618 Duplicate .03 mg/l .04 129 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0	GDG
Standard 10 mg/l 10 100 1100 07/30/91 191930 Duplicate .05 mg/l .06 118 1100 07/30/91 191618 Duplicate .03 mg/l .04 129 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0	GDG
191930 Duplicate .05 mg/l .06 118 1100 07/30/91 191618 Duplicate .03 mg/l .04 129 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0 ug/l 0800 07/29/91 Standard 75 100 0800 07/29/91 191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	GDG
191618 Duplicate .03 mg/l .04 129 1100 07/30/91 191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0 ug/l 0800 07/29/91 Standard 75 100 0800 07/29/91 191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	GDG
191933 Spike mg/l 2.0 99 1100 07/30/91 191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0 ug/l 0800 07/29/91 Standard 75 100 0800 07/29/91 191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	GDG
191620 Spike mg/l 4.0 99 1100 07/30/91 Benzene Blank <5.0 ug/l 0800 07/29/91 Standard 75 100 0800 07/29/91 191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	GDG
Benzene Blank <5.0	GDG
Blank <5.0	GDG
Standard 75 100 0800 07/29/91 191938 Duplicate <5.0	
191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	KB
	KB
101938 Snike 100 116 0800 07/29/91	KВ
171730 Spike 100 110 0000 01/E/771	KB
Ethyl benzene	
Blank <5.0 ug/l 0800 07/29/91	KB
Standard 90 100 111 0800 07/29/91	KB
191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	KB
191938 Spike 100 86 0800 07/29/91	KB
Toluene	
Blank <5.0 ug/l 0800 07/29/91	KB
Standard 96 100 104 0800 07/29/91	KB
191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	KB
191938 Spike 100 93 0800 07/29/91	KB
Xylenes	
Blank <5.0 ug/l 0800 07/29/91	KB
Standard 86 100 115 0800 07/29/91	KB
191938 Duplicate <5.0 ug/kg <5.0 100 0800 07/29/91	KB



2600 DUDLEY ROAD — KILGORE, TEXAS 75662 — 903/984-0551 — FAX 903/984-5914

Analytical Chemistry • Utility Operations

Quality Assurance for the SET with Sample 191618

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191938	Spike				100	81	0800	07/29/91	KB

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President



ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab	HNA-	LAR	* * ****		Contract No	19/6	18			
OCD Sample	No. 9107	190925								
Collection Date	Collection Time	Collected by —Pers	on/Agency							
9/107/19	0925	Boyer	ex.	Ral	ph Skins	ier, Ma	rathon	√0€B		
SITE INFORM Sample location	Marion Mara	Then Ton	linen 1	Zasin	Bosehole	83/1	nW57)			
Collection Site D										
					Townsh	ip, Range, Sect	ion, Tract:			
						1 +-	+ + +			
FINAL NM	/IRONMENTAL OIL CONSER\	. BUREAU /ATION DIVISION	I	SAMPLE	FIELD TREATMENT	Г— Checkp	roperboxes			
T/3 A	Box 2088 ta Fe, NM 875	04-2088		No. of samp	oles submitted: 3		•			
SAMPLING CONDITIONS Water level Bailed Pump Discharge Dipped Tap				→ NF: Whole sample (Non-filtered) F: Filtered in field with 0.45 µ membrane filter PF: Pre-filtered w/45 ৸ membrane filter						
pH(00400) 7 (5/R/D 0	conductivity (Uncorrected Conductivity at 25° C	6 1) M mh	A: No acid added A: 5ml conc. HNO, added A: 4ml fuming HNO, added A: 2ml H₂SO / L added A: 4ml fuming HNO, added A:						
	John P	Carlel ~ 200 D 6/19	2/2 (0	nd, NO 125	odo,	4 LCC			
	SIS REQUESTE	ED:								
ITEM.	DESC	METHOD	ITEM	DESC	METHOD	ПЕМ	DESC	METHOD		
001 002 003 004 005 006 007 008 009 010 011 012	VOA VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB PHENOL	8020 602 8010 601 8010-8020 601-602 8100 610 8080 608 8040	□013 □014 □015 □016 □017 □018 □019 □020 ⊠022 □023 □024 □025	PHENOL VOC SVOC SVOC VOC SVOC O&G AS Ba Cr Cr6	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190 7198	□ 026 □ 027 □ 028 □ 031 □ 032 □ 034 □ 035 □ 036 □ 037 □ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN OTHER	7130 7421 7470 7740 6010		



2600 DUDLEY ROAD - KILGORE, TEXAS \$5668 ERV 903/984-05510N FAX 903/984-5914

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'91 AUR 7- AM 8 40

08/12/91

RECEIVED

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

AUG 1 4 1991

OIL CONSERVATION DIV. SANTA FE

Sample Identification: Field Blank

Collected By:

On Site Data:

Date & Time Taken: 07/19/91 1046 Marathon Indian Basin

Other:

Sample from water transported from Sante Fe

Lab Sample Number: 191619 Received: 07/23/91

Client: SNM1

-				, ,		
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Acrolein	ND(100)	ug/l	1135	08/03/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1135	08/03/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Bromoform	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM



191619 Continued

Page 2

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
1,1-Dichloroethene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	РМ
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	РМ
Ethyl benzene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Methylene Chloride	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Toluene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Trichloroethene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
Vinyl Chloride	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1135	08/03/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1135	08/03/91	EPA Method 8240	PM
Benzene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
Toluene	0.7	ug/l	0800	07/29/91	EPA Method 8020	КВ
Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ

191619 Continued

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PARAMETER RESULTS UNITS TIME DATE METHOD BY

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 191619

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Benze	ne				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	75		100			0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	116	0800	07/29/91	KB
				Ethyl be	nzene				
	Blank	<5.0	ug/l	_			0800	07/29/91	КВ
	Standard	90		100		111	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	КВ
191938	Spike				100	86	0800	07/29/91	КВ
				Tolue	ne				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	96		100		104	0800	07/29/91	КВ
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	93	0800	07/29/91	KB
				Xylen	es				
	Blank	<5.0	ug/l	_			0800	07/29/91	KB
	Standard	86		100		115	0800	07/29/91	КВ
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	КВ
191938	Spike				100	81	0800	07/29/91	КВ

I hereby certify that these results were obtained using the methods specified in this report.

C. H. Whiteside, Ph.D., President





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab ANA - LAB Contract No. 1916/9

OCD Sample i	No.910-	1191046	Field B	lank					
Collection Date	Collection Time	Collected by —Person	n/Agency						
9110719	1046	Ralphs	Kinne	, Mará	Thon, D.B	OPR		/OCD	
SITE INFORM.				1					
Collection Site De		Thon Indie	n Bast	n Fix	ld Bloss	rK			
CORRECTION SILE DE	mple	63 Am Wa	to tro	n trans	1.0		±1.5 (*** a * * * * * * * * * * * * * * * *		
<u> </u>	Than	Sonto fo	09 11 11 12 12 12 12 12 12 12 12 12 12 12	19100	Towns	hip, Range, Sect	tion, Tract:		
	SHOW	1000004				+-	+ + +		
SEND ENVI	RONMENTA	AL BUREAU							
	OIL CONSER ox 2088	RVATION DIVISION		SAMPLE	FIELD TREATMEN	I T — Checkp	oroper boxes		
[O A	a Fe, NM 87	504-2088		No. of sampl	es submitted:				
SAMPLING C	ONDITIONS	Waterlevel	·	NF: Whole sample (Non-filtered) □ F: Filtered in field with 0.45 ∠(membrane filter					
☐ Bailed ☐ ☐ Dipped ☐	Pump Tap	Discharge		☐ PF:	Pre-filtered w/45 /4	membrane filte	•		
pH(00400)		Sample type		⊠ NA:			3		
Water Temp. (000	110)	Conductivity (Uncorrected)	∠ (mho	A: A:	HCL 2ml H ₂ SO ₄ /L added	1 英	A: 4ml fuming HNO ₃ a $P'H_{\phi}C/_{2}$	idded	
		Conductivity at 25° C	, mhc	FIELD COM	MENTS:				
							(11)		
			1						
LAB ANALYSI ITEM	S REQUEST	red: <u>Method</u>	ITEM	DESC	<u>METHOD</u>	ITEM	DECO	METHOD	
				DESC		ITEM	<u>DESC</u>	METHOD	
☐ 001 ☐ 002	VOA VOA	8020 602	□013 □014	PHENOL VOC	604 8240	□ 026 □ 027	Cd Pb	7130 7421	
 003	VOH	8010	015	VOC	624	028	Hg(L)	7470	
□ 004 ½ 2 005	VOH SUITE	601	□016 □017	SVOC	8250 625	□ 031 □ 032	Se	7740	
<u>æ</u> 005 □ 006	SUITE	8010-8020 601-602	□017 □018	SVOC VOC	625 8260	□ 032 □ 033	ICAP CATIONS/ANIONS	6010	
007	HEADSPACE		□ 019	SVOC	8270	034	N SUITE		
□ 008 □ 009	PAH PAH	8100 610	□ 020 □ 022	O&G AS	9070 7060	□ 035 □ 036	NITRATE		
□ 010	PCB	8080	□ 022 □ 023	Ba	7080 7080	□ 036 □ 037	NITRITE AMMONIA		
□ 011 □ 012	PCB PHENOL	608 8040	□ 024 □ 025	Cr Cr6	7190 7198	□ 038 □	TKN OTHER		
LJ 012	LITEINCE	0040		Gr.	/ 130	L i	UITER		



09/11/91

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

RECEIVED

SEP 1 3 1991

OIL CONSERVATION DIV. SANTA FE

Sample Identification: Borehole 87A (MW 61A)

Collected By:

Date & Time Taken: 07/19/91 1055 On Site Data:

Marathon Indian Basin

Other:

Bailed-2 1/2 Gallons, No Odor

Lab Sample Number: 191620 Received: 07/23/91

Client: SNM1

•				' '		
PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Alkalinity	220	mg/l as C	1900	08/13/91	EPA Method 310.1	BW
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
Bromide	2	mg/l	1200	07/30/91	ASTM D3869 vol 11.02	E\$
Cation-Anion Balance	13.5/13.8	meq/meq	1600	09/10/91		sĸ
Carbonate	<.5	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	850	ppm	1500	09/06/91	APHA Method 1030F	BP2
Specific Conductance	1000 (On Site)	Micromhos	1055	07/19/91	EPA Method 120.1	SB
Fluoride	1.6	mg/l	1400	08/06/91	EPA Method 340.1	ВС
Bicarbonate	200	mg/l	1600	08/14/91	APHA Method 263	ВС
Sulfate	400	mg/l	1030	08/08/91	EPA Method 375.4	МВ
рН	7.0 (On Site)	su	1055	07/19/91	EPA Method 150.1	SB
Chloride	16	mg/l	1000	08/08/91	EPA Method 325.3	HG
Silver	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Aluminum	1.8	mg/l	1100	07/30/91	EPA Method 6010	GDG
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK



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Analytical Chemistry • Utility Operations

191620 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Barium	.05	mg/l	1100	07/30/91	EPA Method 6010	GDG
Beryllium	<.01	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Calcium	160	mg/l	1045	07/26/91	EPA Method 6010	GDG
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Chromium	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Copper	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Dissolved Iron	<.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
Mercury	<.001	mg/l	1030	08/09/91	EPA Method 245.3	NT
Dissolved Potassium	<2	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Magnesium	60	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Manganese	.13	mg/l	1045	07/26/91	EPA Method 6010	GDG
Molybdenum	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Sodium	14	mg/l	1045	07/26/91	EPA Method 6010	GDG
Nickel	<.05	mg/l	1220	08/01/91	EPA Method 6010	GDG
Lead	.005	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Selenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	18	mg/l	1440	07/30/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1440	07/30/91	EPA Method 6010	GDG
Vanadium	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG



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Analytical Chemistry • Utility Operations

191620 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Zinc	.03	mg/l	1100	07/30/91	EPA Method 6010	GDG
Acrolein	ND(100)	ug/l	1217	08/03/91	EPA Method 8240	РМ
Acrylonitrile	ND(100)	ug/l	1217	08/03/91	EPA Method 8240	PM
Benzene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Bromoform	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Chlorobenzene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
Dibromochloromethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Bromodichloromethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM

Continued



191620 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Ethyl benzene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Methylene Chloride	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Toluene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Trichloroethene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
Vinyl Chloride	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1217	08/03/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1217	08/03/91	EPA Method 8240	PM
Benzene	2.0	ug/l	0800	07/29/91	EPA Method 8020	КВ
Ethyl benzene	0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
Toluene	1.5	ug/l	0800	07/29/91	EPA Method 8020	КВ
	0.5					
Xylenes	0.5	ug/l	0800	07/29/91	EPA Method 8020	KB

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/l as	C 2358	_	103	1900	08/13/91	BW
191618	Duplicate	300	mg/l as	C 300		100	1900	08/13/91	BW
191618	Spike		mg/l as	С		100	1900	08/13/91	BW
				Boro	n				



Sample #	Description	Result	Units	Dup/Std V	alue Spk Conc.	Percent	Time	Date	Ву
	Blank	.000	mg/l				1700	08/09/91	МВ
	Standard	.51	mg/l	.50		102	1700	08/09/91	MB
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
17101,	bapt reace	1.5	mg/ t		omide	.00	1100	00,00,71	,,,,
	Standard	100	mg/l	100		100	1200	07/30/91	ES
190679	Duplicate	3	mg/l	3		100	1200	07/30/91	ES
	•			Fl	uoride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	ВС
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	ВС
	,		-	Su:	lfate				
	Standard	98	mg/l	100		102	1030	08/08/91	MB
191239	Duplicate	10	mg/l	9		111	1030	08/08/91	МВ
192196	Duplicate	130	mg/l	130		100	1030	08/08/91	МВ
192196	Spike		mg/l		100	99	1030	08/08/91	МВ
				S	ilver				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	.20	mg/l	.20		100	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1100	07/30/91	GDG
191930	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		1.0	82	1100	07/30/91	GDG
191620	Spike		mg/l		1.0	81	1100	07/30/91	GDG
				Alı	uminum				
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Blank	<.05	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
191930	Duplicate	.59	mg/l	-61		103	1100	07/30/91	GDG
191618	Duplicate	1.4	mg/l	1.4		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	105	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1100	07/30/91	GDG
				Ar	senic				
	Blank	<.005	mg/l				1600	08/14/91	GK
	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike		mg/l		.100	91	1600	08/14/91	GK
				В	arium				
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	5.1	mg/l	5.0		102	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.03	mg/l	.03		100	1100	07/30/91	GDG
191618	Duplicate	.15	mg/l	.15		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	101	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	101	1100	07/30/91	GDG
.,,,,,,				Beryll					
	Blank	<.01	mg/l	•			1440	07/30/91	GDG
	Standard	.41	mg/l	.40		102	1440	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1440	07/30/91	GDG
191618	Duplicate	<.01	mg/l	<.01		100	1440	07/30/91	GDG
191620	Spike	•••	mg/l		1.6	96	1440	07/30/91	GDG
171020	SP I KG		37 -	Dissolved					
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	53	mg/l	50		106	1045	07/26/91	GDG
191620	Duplicate	160	mg/l	160		100	1045	07/26/91	GDG
191622	Spike	100	mg/l		18	98	1045	07/26/91	GDG
171022	op i ko			Cadmi					
	Blank	<.001	mg/l	-			1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
171021	Dapticate	11001	g, t	Cobo	1t			,,	
	Blank	<.05	mg/l	0020			1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	< .05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike	٧.05	mg/l	1.03	4.0	97	1440	07/30/91	GDG
191020	Spike		mg/ t	Chron		,,		0.,00,,.	
	Blank	<.02	mg/l	0 0			1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	<.05	mg/t	<.05		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike	1.02	mg/l	102	4.0	104	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	103	1100	07/30/91	GDG
191020	Spike		mg/ t	Copp		103		01,20,71	
	Blank	<.02	mg/l	COPE	- 		1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1100	07/30/91	GDG
	Standard	9.8	mg/l	10		102	1100	07/30/91	GDG
	standard	7.0	ilig/ t	10		102	1100	01,30,71	909



Analytical Chemistry • Utility Operations

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
191930	Duplicate	.02	mg/l	.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	100	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	98	1100	07/30/91	GDG
	·		_	Dissolve	d Iron				
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	.93	mg/l	1.0		107	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	<.05	mg/l	<.05		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	103	1045	07/26/91	GDG
				Mercu	ry				
	Blank	.002	mg/l		_		1030	08/09/91	NT
	Blank	<.05	mg/kg				1030	08/09/91	NT
	Standard	.010	mg/l	.010		100	1030	08/09/91	NT
191624	Duplicate	<.001	mg/l	<.001		100	1030	08/09/91	NT
192380	Duplicate	.52	mg/kg	.50		104	1030	08/09/91	NT
191624	Spike		mg/l		.010	98	1030	08/09/91	NT
192380	Spike		mg/kg		.010	117	1030	08/09/91	NT
			D	issolved P	otassium				
	Blank	<2	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	48	mg/l	50		104	1045	07/26/91	GDG
191620	Duplicate	<2	mg/l	<2		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	117	1045	07/26/91	GDG
			D.	issolved M	lagnesium				
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	60	mg/l	60		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	97	1045	07/26/91	GDG
			D	issolved M	langanese				
	Blank	<.01	mg/l				1045	07/26/91	GDG
	Standard	1.0	mg/l	1.0		100	1045	07/26/91	GDG
	Standard	5.2	mg/l	5.0		104	1045	07/26/91	GDG
191620	Duplicate	.13	mg/l	.13		100	1045	07/26/91	GDG
191622	Spike		mg/l		2.0	105	1045	07/26/91	GDG
				Molybo	lenum				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	5.0	mg/l	5.0		100	1440	07/30/91	GDG
	Standard	10	mg/l	10		100	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
				Dissolved	l Sodium				
	Blank	<1	mg/l				1045	07/26/91	GDG



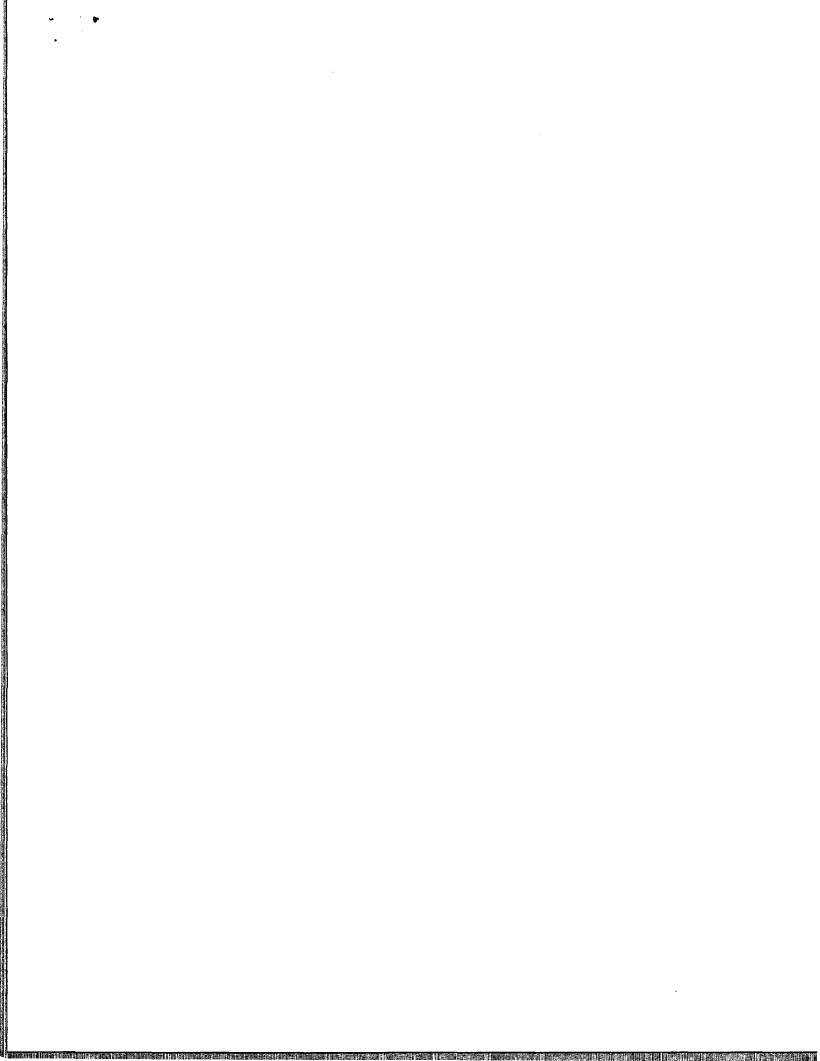
Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Standard	9.8	mg/l	10		102	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	13	mg/l	14		107	1045	07/26/91	GDG
191622	Spike		mg/l		18	82	1045	07/26/91	GDG
	'			Nick	el				
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Standard	.78	mg/l	.80		103	1220	08/01/91	GDG
	Standard	1.1	mg/l	1.0		110	1220	08/01/91	GDG
	Standard	5.3	mg/l	5.0		106	1220	08/01/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191933	Spike		mg/l		4.0	100	1220	08/01/91	GDG
191620	Spike		mg/l		4.0	101	1220	08/01/91	GDG
	'			Lea				•	
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
	'			Antin					
	Blank	<.05	mg/l		2		1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike	102	mg/l	105	4.0	97	1440	07/30/91	GDG
171020	ортко		mg/ t	Seler				0.,20,,.	
	Blank	<.005	mg/l	50201			2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike	1.005	mg/l	1.003	.100	108	2030	08/14/91	GK
172237	Spike		mg/ t	Silio		100	2030	00, 14, 71	- GR
	Blank	<.1	mg/l	V			1440	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1440	07/30/91	GDG
	Standard	9.7	mg/l	10		103	1440	07/30/91	GDG
	Standard	1.0	mg/t	1.0		100	1440	07/30/91	GDG
191618	Duplicate	20	mg/l	19		105	1440	07/30/91	GDG
191620	Spike	r.	mg/l	17	2.0	100	1440	07/30/91	GDG
.,	op i ko		···3/ \	Thall			, 4-40	,, , .	



Quality Assurance for the SET with Sample 191620

Sample #	Description	Result	Units	Dup/Std V	alue Spk Conc.	Percent	Time	Date	Ву
	Blank	<.2	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.2	mg/l	<.2		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	95	1440	07/30/91	GDG
	•		•	Vai	nadium				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg∕l		6.0	100	1440	07/30/91	GDG
	'		.	:	Zinc				
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.3	mg/l	5.0		106	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.05	mg/l	.06		118	1100	07/30/91	GDG
191618	Duplicate	.03	mg/l	.04		129	1100	07/30/91	GDG
191933	Spike		mg/l		2.0	99	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	99	1100	07/30/91	GDG
	·		<u>-</u> -	Bei	nzene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	75	<u> </u>	100			0800	07/29/91	КВ
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	КВ
191938	Spike				100	116	0800	07/29/91	KB
				Ethvl	benzene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	90	-3, -	100		111	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	КВ
191938	Spike		3,3		100	86	0800	07/29/91	KB
	-,-			To	luene				
	Blank	<5.0	ug/l	_			0800	07/29/91	KB
	Standard	96		100		104	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike		-3/3		100	93	0800	07/29/91	KB
,,,,,,,				XV	lenes		-	.,,,,.	
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	86	- J , .	100		115	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike		-31 "3		100	81	0800	07/29/91	KB
	-F · · · •								

I hereby certify that these results were obtained using the methods specified in this report.



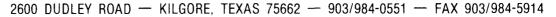


ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab_	ANA-	-LAB			Contract No	1916	20	
OCD Sample	No. 910	7191055						
Collection Date	Collection Time	Collected by —Pers	on/Agency					
91/07/19	1055	R. Sky	iner,	Mora the	on, D.,	Boyer	Q	/OCD
SITE INFORM Sample location Collection Site De	Moral	hon Inde	en Bo	sin, B	mehala 8°	n A (M	1W61A)	
		***************************************			Townsh	nip, Range, Sect	lion, Tract:	
						1 + 1	<u> </u>	
FINAL NM (AL BUREAU RVATION DIVISION		SAMPLE	FIELD TREATMEN	T— Checkp	proper boxes	······································
TO A	3ox 2088 a Fe, NM 87	504-2088		No. of samp	oles submitted: 3			
	ONDITIONS] Pump] Tap	Discharge		3 × NF.	Filtered in field with 0	.45 Umembra		
pH(00400)	2/p) 010)	Conductivity (Uncorrected 1 25° C	lo (1) 1)	ho A:	: No acid added HCL 2ml H ₂ SO ₄ /L added		A: 4ml fuming HNO ₃ a	
	Bail	ed ~ 21/2			DUDR			
LAB ANALYSI	IS REQUES	TED:						
ITEM	DESC	METHOD	ITEM	DESC	METHOD	ПЕМ	DESC	METHOD
☐ 001 ☐ 002 ☐ 003 ☐ 004 ※ 005 ☐ 006 ☐ 007 ☐ 008 ☐ 009 ☐ 010 ☐ 011	VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB PHENOL	8020 602 8010 601 8010-8020 601-602 5 8100 610 8080 608	013 014 015 016 017 018 019 020 \$202 023 024 025	PHENOL VOC VOC SVOC VOC SVOC O&G AS Ba Cr Cr6	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190 7198	□ 026 □ 027 ⋈ 028 ⋈ 031 ⋈ 032 ⋈ 033 □ 034 □ 035 □ 036 □ 037 □ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN OTHER	7130 7421 7470 7740 6010





09/11/91

RECEIVED

Environmental Bureau NM Oil D. PO Box 2088 Santa Fe, NM 87504

SEP 1 3 1991

OIL CONSERVATION DIV. SANTA FE

Sample Identification: Borehole 86 (MW 60)

Collected By:

Date & Time Taken: 07/19/91 1252

On Site Data:

Marathon Indian Basin

Other:

Bailed- 2 1/2 Gallons, No Odor

Lab Sample Number: 191621 Received: 07/23/91

Client: SNM1

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	BY
Sep. Liquid-Liquid Extraction	700->1	ml->ml	1200	08/07/89	EPA Method 3520	LW
Alkaliníty	240	mg/l as C	1900	08/13/91	EPA Method 310.1	В₩
Boron	<.5	mg/l	1700	08/09/91	EPA Method 212.3	МВ
Bromide	5	mg/l	1200	07/30/91	ASTM D3869 vol 11.02	ES
Cation-Anion Balance	13.4/13.9	meq/meq	1600	09/10/91		SK
Carbonate	<.5	mg/l	1600	08/14/91	APHA Method 263	ВС
Calulated Total Dissolved Solids	860	ppm	1500	09/06/91	APHA Method 1030F	BP2
Specific Conductance	980 (On Site)	Micromhos	1252	07/19/91	EPA Method 120.1	SB
Fluoride	2.0	mg/l	1400	08/06/91	EPA Method 340.1	ВС
Bicarbonate	210	mg/l	1600	08/14/91	APHA Method 263	ВС
Sulfate	400	mg/l	1030	08/08/91	EPA Method 375.4	МВ
рН	7.0 (On Site)	SU	1252	07/19/91	EPA Method 150.1	SB
Chloride	13	mg/l	1400	08/08/91	EPA Method 325.3	HG
Silver	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Aluminum	.51	mg/l	1100	07/30/91	EPA Method 6010	GDG



191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ву
Arsenic	<.005	mg/l	1600	08/14/91	EPA Method 206.2	GK
Barium	.04	mg/l	1100	07/30/91	EPA Method 6010	GDG
Beryllium	<.01	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Calcium	160	mg/l	1045	07/26/91	EPA Method 6010	GDG
Cadmium	<.001	mg/l	1300	08/16/91	EPA Method 213.2	GK
Cobolt	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Chromium	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Copper	<.02	mg/l	1100	07/30/91	EPA Method 6010	GDG
Dissolved Iron	<.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
Mercury	<.001	mg/l	1030	08/09/91	EPA Method 245.3	NT
Dissolved Potassium	<2	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Magnesium	60	mg/l	1045	07/26/91	EPA Method 6010	GDG
Dissolved Manganese	.05	mg/l	1045	07/26/91	EPA Method 6010	GDG
Molybdenum	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Dissolved Sodium	12	mg/l	1045	07/26/91	EPA Method 6010	GDG
Nickel	<.05	mg/l	1220	08/01/91	EPA Method 6010	GDG
Lead	.004	mg/l	1915	08/15/91	EPA Method 239.2	GK
Antimony	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Setenium	<.005	mg/l	2030	08/14/91	EPA Method 270.2	GK
Silicon	9.5	mg/l	1440	07/30/91	EPA Method 6010	GDG
Thallium	<.2	mg/l	1440	07/30/91	EPA Method 6010	GDG

191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Vanadium	<.05	mg/l	1440	07/30/91	EPA Method 6010	GDG
Zinc	.04	mg/l	1100	07/30/91	EPA Method 6010	GDG
Acenaphthene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Acenaphthylene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	P M
Acrolein	ND(100)	ug/l	1300	08/03/91	EPA Method 8240	PM
Acrylonitrile	ND(100)	ug/l	1300	08/03/91	EPA Method 8240	PM
Aldrin	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Anthracene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Benzidine	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzo(a)anthracene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzo(a)pyrene	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzo(b)fluoranthene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzo(ghi)perylene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzo(k)fluoranthene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Alpha-BHC	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Beta-BHC	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Gamma-BHC	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Delta-BHC	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Bis(2-chloroethyl)ether	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Bis(2-chloroethoxy)methane	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM

191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Bis(2-chloroisopropyl)ether	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
4-Bromophenyl phenyl ether	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Bis(2-ethylhexyl)phthalate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Bromaform	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Bromomethane	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
4-Chlorophenyl phenyl ether	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Benzyl butyl phthalate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Carbon Tetrachloride	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Chlordane	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
4-Chloro-3-methylphenol	ND(29)	ug/l	1454	08/16/91	EPA Method 8270	PM
Chlorobenzene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Chloroethane	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
2-Chloroethylvinyl ether	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
Chloroform	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Chloromethane	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
2-Chloronaphthalene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
2-Chlorophenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Chrysene	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
4,4'-DDD	ND(14)	ug/i	1454	08/16/91	EPA Method 8270	PM
4,4'-DDE	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
4,4'-DDT	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM

$\textbf{Analytical Chemistry} \quad \bullet \quad \textbf{Utility Operations}$

191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Dibenzo(a,h)anthracene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Dibromochloromethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,3-Dichlorobenzene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,2-Dichlorobenzene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,4-Dichlorobenzene	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
3,3'-Dichlorobenzidine	ND(29)	ug/l	1454	08/16/91	EPA Method 8270	PM
Bromodichloromethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,1-Dichloroethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,2-Dichloroethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,1-Dichloroethene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
trans-1,2-Dichloroethene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
2,4-Dichlorophenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Dichlorodiflouromethane	ND(1.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,2-Dichloropropane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
cis-1,3-Dichloropropene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Dieldrin	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Diethyl phthalate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
2,4-Dimethylphenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Dimethyl phthalate	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Di-n-butylphthalate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Di-n-octylphthalate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM



191621 Continued

Page 6

PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
2-Mathyl / 4 dimits and anal	ND (74)	(1	1/5/	09/14/01	CDA Markad 9270	214
2-Methyl-4,6-dinitrophenol	ND (71)	ug/l	1454	08/16/91	EPA Method 8270	PM
2,4-Dinitrophenol	ND (71)	ug/l	1454	08/16/91	EPA Method 8270	PM
2,4-Dinitrotoluene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
2,6-Dinitrotoluene	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,2-Diphenyl Hydrazine	ND(14)	ug/l	1454	08/16/91	(as azobenzene)	PM
Endosulfan I	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Endosulfan II	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Endosulfan sulfate	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Endrin	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Endrin aldehyde	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Ethyl benzene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Fluoranthene	ND(14)	ug/i	1454	08/16/91	EPA Method 8270	PM
Fluorene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Heptachlor	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Heptachlor epoxide	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Hexachlorobenzene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Hexachlorobutadiene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Hexachlorocyclopentadiene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Hexachloroethane	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Indeno(1,2,3-cd)pyrene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Isophorone	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM

Continued

191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	вч
Methylene Chloride	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Naphthalene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Nitrobenzene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
2-Nitrophenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
4-Nitrophenol	ND(71)	ug/l	1454	08/16/91	EPA Method 8270	PM
N-nitrosodimethylamine	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
N-Nitrosodi-n-propylamine	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
N-nitrosodiphenylamine	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1016	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1221	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1232	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1242	ND (14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1248	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1254	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
PCB-1260	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Pentachlorophenol	ND(71)	ug/l	1454	08/16/91	EPA Method 8270	PM
Phenanthrene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Phenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Pyrene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,1,2,2-Tetrachloroethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Tetrachloroethene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM



191621 Continued

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PARAMETER	RESULTS	UNITS	TIME	DATE	METHOD	ВУ
Toluene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Toxaphene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,2,4-Trichlorobenzene	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
1,1,1-Trichloroethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
1,1,2-Trichloroethane	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Trichloroethene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Trichlorofluoromethane	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
2,4,6-Trichlorophenol	ND(14)	ug/l	1454	08/16/91	EPA Method 8270	PM
Vinyl Chloride	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
trans-1,3-Dichloropropene	ND(5.0)	ug/l	1300	08/03/91	EPA Method 8240	PM
Xylenes	ND(10)	ug/l	1300	08/03/91	EPA Method 8240	PM
Benzene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	KB
Ethyl benzene	<0.4	ug/l	0800	07/29/91	EPA Method 8020	КВ
Toluene	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ
Xylenes	<0.2	ug/l	0800	07/29/91	EPA Method 8020	КВ

Reported detection limits are EPA suggested practical quantitation limits. Actual limit may vary with matrix.

Quality Assurance for the SET with Sample 191621

Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
				Alkali	nity				
	Standard	2420	mg/l as	C 2358	_	103	1900	08/13/91	BW
191618	Duplicate	300	mg/l as	C 300		100	1900	08/13/91	BW
191618	Spike		mg/las	С		100	1900	08/13/91	BW
				Boro	n				
	Blank	.000	mg/l				1700	08/09/91	MB



Sample #	Description	Result	Units	Dup/Std	Value Spk Conc.	Percent	Time	Date	Ву
	Standard	.51	mg/l	.50		102	1700	08/09/91	МВ
191621	Duplicate	<.5	mg/l	<.5		100	1700	08/09/91	MB
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					romide				
	Standard	100	mg/l	100		100	1200	07/30/91	ES
190679	Duplicate	3	mg/l	3		100	1200	07/30/91	ES
170017	buptionte	J	3/ \		luoride				
	Standard	5.0	mg/l	5.0		100	1400	08/06/91	вс
191618	Duplicate	<1	mg/l	<1		100	1400	08/06/91	BC
171010	Daptioate	• •			ulfate		,	,, -	
	Standard	98	mg/l	100		102	1030	08/08/91	мв
191239	Duplicate	10	mg/l	9		111	1030	08/08/91	MB
192196	Duplicate	130	mg/l	130		100	1030	08/08/91	MB
192196	Spike	150	mg/l	150	100	99	1030	08/08/91	MB
172170	эртко		mg/ t	C	hloride	••	,	00,00,7	
	Standard	70	mg/l	71		101	1400	08/08/91	HG
191620	Duplicate	16	mg/l	15		106	1400	08/08/91	HG
171020	Dupticate	10	mg/ t		Silver	100	,	00,00,77	
	Blank	<.02	mg/l	•	511.01		1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	.20	mg/l	.20		100	1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1100	07/30/91	GDG
191930	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike	1.02	mg/l	1.02	1.0	82	1100	07/30/91	GDG
191620	Spike		mg/l		1.0	81	1100	07/30/91	GDG
191020	Spike		ilig/ t	2	luminum	0.	1100	01/30//1	45 0
	Blank	<.05	mg/l	A	1 am 111 am		1100	07/30/91	GDG
	Blank	<.05	mg/l				1100	07/30/91	GDG
		1.0		1.0		100	1100	07/30/91	GDG
	Standard		mg/l	5.0		100	1100	07/30/91	GDG
	Standard	5.0	mg/l	10		102	1100	07/30/91	GDG
404070	Standard	9.8	mg/l			102	1100	07/30/91	GDG
191930	Duplicate	.59	mg/l	.61		103	1100	07/30/91	GDG
191618	Duplicate	1.4	mg/l	1.4		105	1100		GDG
191933	Spike		mg/l		4.0	97		07/30/91 07/30/91	GDG
191620	Spike		mg/l	A	4.0 rsenic	91	1100	07/30/91	GDG
	Blank	<.005	mg/l				1600	08/14/91	GK
	Standard	.099	mg/l	.100		101	1600	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	1600	08/14/91	GK
192240	Spike	1,003	mg/l	1005	.100	91	1600	08/14/91	GK
1,2240	٠, ٠,٠		3/ 1		Barium				
	Blank	<.01	mg/l				1100	07/30/91	GDG
			-						



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.03	mg/l	.03		100	1100	07/30/91	GDG
191618	Duplicate	.15	mg/l	.15		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	101	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	101	1100	07/30/91	GDG
				Beryll	ium				
	Blank	<.01	mg/l				1440	07/30/91	GDG
	Standard	.41	mg/l	.40		102	1440	07/30/91	GDG
	Standard	2.0	mg/l	2.0		100	1440	07/30/91	GDG
191618	Duplicate	<.01	mg/l	<.01		100	1440	07/30/91	GDG
191620	Spike		mg/l		1.6	96	1440	07/30/91	GDG
	·			Dissolved	Calcium				
	Blank	<.05	mg/l				1045	07/26/91	GDG
	Standard	10	mg/l	10		100	1045	07/26/91	GDG
	Standard	53	mg/l	50		106	1045	07/26/91	GDG
191620	Duplicate	160	mg/l	160		100	1045	07/26/91	GDG
191622	Spike		mg/l		18	98	1045	07/26/91	GDG
				Cadmi	um				
	Blank	<.001	mg/l				1300	08/16/91	GK
	Standard	.002	mg/l	.002		100	1300	08/16/91	GK
191621	Duplicate	<.001	mg/l	<.001		100	1300	08/16/91	GK
				Cobo	lt				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Chrom	ium				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1100	07/30/91	GDG
191618	Duplicate	<.02	mg/l	<.02		100	1100	07/30/91	GDG
191933	Spike		mg/l		4.0	104	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	103	1100	07/30/91	GDG
				Copp	er				
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Blank	<.02	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG



Standard								
Standard		*1	r 0		100	4400	07/70/04	00.0
	5.0	mg/l	5.0		100	1100	07/30/91	GDG
								GDG
•		_						GDG
•	<.02	_	<.02					GDG
								GDG
Spike		mg/l	241-		98	1100	07/30/91	GDG
			DISSOIA	ed Iron		4045	07.04.04	
		=					• •	GDG
		-						GDG
								GDG
·	<.05	_	<.05					GDG
Spike		mg/l			103	1045	07/26/91	GDG
			Merc	ury				
		mg/l						NT
Blank		mg/kg						NT
Standard		mg/l	.010				• •	NT
Duplicate		mg/l						NT
Duplicate	.52	mg/kg	.50		104		08/09/91	NT
Spike		mg/l		.010			08/09/91	NT
Spike		mg/kg	_			1030	08/09/91	NT
		D	issolved	Potassiu	ım			
Blank	<2	mg/l				1045	07/26/91	GDG
Standard	10	mg/l	10		100	1045	07/26/91	GDG
Standard	48	mg/l	50		104	1045	07/26/91	GDG
Duplicate	<2	mg/l	<2		100	1045	07/26/91	GDG
Spike		mg/l		18	117	1045	07/26/91	GDG
		D.	issolved	Magnesiu	ım			
Blank	<.01	mg/l				1045	07/26/91	GDG
Standard	10	mg/l	10		100	1045	07/26/91	GDG
Standard	49	mg/l	50		102	1045	07/26/91	GDG
Duplicate	60	mg/l	60		100	1045	07/26/91	GDG
		mg/l		18	97	1045	07/26/91	GDG
·		_	issolved		se .			
Blank	<.01			-		1045	07/26/91	GDG
		_	1.0		100	1045		GDG
		_				1045		GDG
								GDG
•			*	2.0				GDG
5F 1.115			Molvh					
Blank	<.05	ma/l	<u> </u>			1440	07/30/91	GDG
		_	5.0		100			GDG
Standard	10	mg/l	10		100	1440	07/30/91	GDG
	10	mg/ t	10		100		0.,50,,1	909
		ma / l	< 05		100	1ፊፊበ	07/30/01	cnc
Duplicate Spike	<.05	mg/l mg/l	<.05	2.0	100 100	1440 1440	07/30/91 07/30/91	GD G GD G
	Duplicate Duplicate Spike Spike Blank Standard Standard Duplicate Spike Blank Standard Duplicate Spike Blank Standard Duplicate Spike Blank Standard Duplicate Spike Blank Standard	Duplicate .02 Duplicate <.02 Spike Spike Blank <.05 Standard .93 Standard 5.2 Duplicate <.05 Spike Blank .002 Blank <.05 Standard .010 Duplicate <.001 Duplicate <.001 Duplicate <.52 Spike Spike Blank <2 Standard 10 Standard 48 Duplicate <2 Spike Blank <.01 Standard 48 Duplicate <2 Spike Blank <.01 Standard 49 Duplicate 60 Spike Blank <.01 Standard 10 Standard 49 Duplicate 60 Spike Blank <.01 Standard 5.2 Duplicate .13 Spike Blank <.05 Standard 5.2 Duplicate .13 Spike	Duplicate .02 mg/l Duplicate <.02	Duplicate .02 mg/l .02 Duplicate <.02	Duplicate .02 mg/l .02 Spike mg/l <.02	Duplicate .02 mg/l .02 100 Duplicate <.02 mg/l <.02 100 Spike mg/l <.00 98 Dissolved Iron Blank <.05	Duplicate .02 mg/l .02 100 1100 Spike mg/l <.02 100 1100 Spike mg/l <.02 100 1100 Spike mg/l <.05 mg/l <.0 98 1100 Blank <.05 mg/l <.0 98 1100 Standard <.93 mg/l <.0 107 1045 Standard <.05 mg/l <.05 100 1045 Spike mg/l <.05 100 1045 Mercury Blank <.05 mg/l <.05 100 1045 Spike mg/l <.010 100 1030 Duplicate <.52 mg/kg <.50 104 1030 Spike mg/l <.001 100 1045 Standard 10 mg/l 10 100	Duplicate



Sample #	Description	Result	Units	Dup/Std Value	Spk Conc.	Percent	Time	Date	Ву
	Blank	<1	mg/l				1045	07/26/91	GDG
	Standard	9.8	mg/l	10		102	1045	07/26/91	GDG
	Standard	49	mg/l	50		102	1045	07/26/91	GDG
191620	Duplicate	13	mg/l	14		107	1045	07/26/91	GDG
191622	Spike		mg/l		18	82	1045	07/26/91	GDG
	•		-	Nick	el				
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Blank	<.05	mg/l				1220	08/01/91	GDG
	Standard	.78	mg/l	.80		103	1220	08/01/91	GDG
	Standard	1.1	mg/l	1.0		110	1220	08/01/91	GDG
	Standard	5.3	mg/l	5.0		106	1220	08/01/91	GDG
191930	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1220	08/01/91	GDG
191933	Spike		mg/l		4.0	100	1220	08/01/91	GDG
191620	Spike		mg/l		4.0	101	1220	08/01/91	GDG
				Lea	.đ				
	Blank	.002	mg/l				1915	08/15/91	GK
	Blank	<.001	mg/l				1915	08/15/91	GK
	Standard	.028	mg/l	.025		111	1915	08/15/91	GK
	Standard	.027	mg/l	.025		108	1915	08/15/91	GK
	Standard	.048	mg/l	.050		104	1915	08/15/91	GK
	Standard	.051	mg/l	.050		102	1915	08/15/91	GK
191621	Duplicate	.004	mg/l	.005		122	1915	08/15/91	GK
193075	Duplicate	.002	mg/l	.001		167	1915	08/15/91	GK
191621	Spike		mg/l		.020	100	1915	08/15/91	GK
193075	Spike		mg/l		.020	76	1915	08/15/91	GK
				Antim	ony				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	97	1440	07/30/91	GDG
				Selen	ium				
	Blank	<.005	mg/l				2030	08/14/91	GK
	Standard	.097	mg/l	.100		103	2030	08/14/91	GK
191618	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
191622	Duplicate	<.005	mg/l	<.005		100	2030	08/14/91	GK
192237	Spike		mg/l		.100	108	2030	08/14/91	GK
				Silic	on				
	Blank	<.1	mg/l				1440	07/30/91	GDG
	Standard	5.2	mg/l	5.0		104	1440	07/30/91	GDG
	Standard	9.7	mg/l	10		103	1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
191618	Duplicate	20	mg/l	19		105	1440	07/30/91	GDG



Sample #	Description	Result	Units	Dup/Std Val	ue Spk Conc.	Percent	Time	Date	Ву
191620	Spike		mg/l		2.0	100	1440	07/30/91	GDG
	·			Thal	lium				
	Blank	<.2	mg/t				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.2	mg/l	<.2		100	1440	07/30/91	GDG
191620	Spike		mg/l		4.0	95	1440	07/30/91	GDG
•				Vana	dium				
	Blank	<.05	mg/l				1440	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1440	07/30/91	GDG
	Standard	5.1	mg/l	5.0		102	1440	07/30/91	GDG
191618	Duplicate	<.05	mg/l	<.05		100	1440	07/30/91	GDG
191620	Spike		mg/l		6.0	100	1440	07/30/91	GDG
				Zi	.nc				
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Blank	<.01	mg/l				1100	07/30/91	GDG
	Standard	1.0	mg/l	1.0		100	1100	07/30/91	GDG
	Standard	5.3	mg/l	5.0		106	1100	07/30/91	GDG
	Standard	10	mg/l	10		100	1100	07/30/91	GDG
191930	Duplicate	.05	mg/l	.06		118	1100	07/30/91	GDG
191618	Duplicate	.03	mg/l	-04		129	1100	07/30/91	GDG
191933	Spike		mg/l		2.0	99	1100	07/30/91	GDG
191620	Spike		mg/l		4.0	99	1100	07/30/91	GDG
				Benz	ene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	75		100			0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	116	0800	07/29/91	КВ
				Ethyl b	enzene				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	90		100		111	0800	07/29/91	КВ
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	86	0800	07/29/91	KB
				Tolu	lene				
	Blank	<5.0	ug/l				0800	07/29/91	КВ
	Standard	96		100		104	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	93	0800	07/29/91	KB
				Xyle	enes				
	Blank	<5.0	ug/l				0800	07/29/91	KB
	Standard	86		100		115	0800	07/29/91	KB
191938	Duplicate	<5.0	ug/kg	<5.0		100	0800	07/29/91	KB
191938	Spike				100	81	0800	07/29/91	KB



Quality Assurance for the SET with Sample 191621

DECAFLUOROTRIPHENYLPHOSPHINE

	I on	Abundance	Crite	ria	
m/z	Min %	Max %	Mass	Actual	Status
51	30.0	60.0	198	45.4	PASS
68		2.0	69	1.2	PASS
69				0.0	PASS
70		2.0	69	1.2	PASS
127	40.0	60.0	198	53.2	PASS
197		1.0	198	0.5	PASS
198	100.0			100.0	PASS
199	5.0	9.0	198	6.7	PASS
275	10.0	30.0	198	12.5	PASS
365	1.0		198	1.8	PASS
441		100.0	443	96.7	PASS
442	40.0		198	54.9	PASS
443	17.0	23.0	442	21.3	PASS
			SI	PIKE	

Compound Name	Concent.	Sample	Recovery
1,4-Dichlorobenzene	100	78	78%
N-Nitrosodi-n-propyl	100	98	98%
1,2,4-Trichlorobenze	100	112	112%
2,4-Dinitrotoluene	100	135	135%
Di-n-butylphthalate	100	87	87%
Pyrene	100	65	65%
Phenol	100	112	112%
2-Chlorophenol	100	132	132%
4-Chloro-3-methylphe	100	105	105%
4-Nitrophenol	100	94	94%
Pentachlorophenol	100	97	97%
,	SPI	KE	

Compound Name Red

Recovery

Lindane

118%

Endrin

98%

Methoxychlor

110%

C. H. Whiteside, Ph.D., President

I hereby certify that these results were obtained using the methods specified in this report.





ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

ANALYSIS REQUEST FORM

Contract Lab_	ANA -	LAB			Contract No	191	1621	
OCD Sample	No. 910	7191252						
Collection Date	Collection Time	Collected by —Perso	n/Agency	 				
91107119	1252	Ralph	5K, N.	ver Im	arothon,	A. S.	OYPR	/OCD
SITE INFORM						***************************************		
Sample location	Masa	thontond	ian B	asin i	Bire hole	186 (M	W60)	
Collection Site De	escription							
					Town	ship, Range, Sec	tion, Tract:	
FINAL NM (IRONMENTA DIL CONSER	L BUREAU VATION DIVISION		SAMPLE	FIELDTREATME			
TOA	3ox 2088 a Fe, NM 879	504-2088		No. of samp	es submitted: 4			
SAMPLING C		Nater level Discharge		- 4 ⊠ NF: □ F: □ PF:	Whole sample (Nor Filtered in field with	0.45 Umembra		
pH(00400) Water Temp. (000		Conductivity (Uncorrected) Conductivity at 25° C) /'m	FIELD COM	HCL 2ml H ₂ SO ₄ /L added	1 反	A: 5ml conc. HNO, and A: 4ml fuming HNO, and Hook I	added Fce
	Brice	2.Q ~ 21	Am 2 Gall		00001			
LAB ANALYSI	IS REQUEST	ED:						
ITEM	DESC	METHOD	ITEM	DESC	METHOD	ITEM	DESC	METHOD
001 002 003 004 005 006 007 008 009 010 011 012	VOA VOA VOH VOH SUITE SUITE HEADSPACE PAH PAH PCB PCB PHENOL	8020 602 8010 601 8010-8020 601-602 8100 610 8080 608 8040	□013 □014 □015 □016 □017 □018 □019 □020 ≥022 □023 □024 □025	PHENOL VOC SVOC SVOC VOC SVOC O&G AS Ba Cr Cr6	604 8240 624 8250 625 8260 8270 9070 7060 7080 7190 7198	☐ 026 ☐ 027 ☑ 028 ○ 039 ○ 034 ☐ 035 ☐ 036 ☐ 037 ☐ 038	Cd Pb Hg(L) Se ICAP CATIONS/ANIONS N SUITE NITRATE NITRITE AMMONIA TKN OTHER	7130 7421 7470 7740 6010