

UTAH OIL AND GAS CONSERVATION COMMISSION

REMARKS: WELL LOG ELECTRIC LOGS **X** WATER SANDS LOCATION INSPECTED SUB REPORT/abd.

DATE FILED **January 21, 2000**

LAND: FEE & PATENTED STATE LEASE NO. **ML-45691**

PUBLIC LEASE NO

INDIAN

DRILLING APPROVED: **March 23, 2000**

SPUDED IN:

COMPLETED: PUT TO PRODUCING:

INITIAL PRODUCTION:

GRAVITY A.P.I.

GOR:

PRODUCING ZONES:

TOTAL DEPTH:

WELL ELEVATION:

DATE ABANDONED:

FIELD: **Drunkards Wash**

API 43-007-30656

UNIT:

COUNTY: **Carbon**

WELL NO. **SITLA SWD 1**

LOCATION **300' FNL** FT. FROM (N) (S) LINE. **300' FWL**

FT. FROM (E) (W) LINE. **NW NW**

1/4 - 1/4 SEC

TWP.	RGE.	SEC.	OPERATOR	TWP.	RGE.	SEC.	OPERATOR
15S	9E	23	MARATHON OIL COMPANY				



MONTGOMERY
ARCHAEOLOGICAL
CONSULTANTS

Box 147, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

October 18, 1999

John Baza
Division of Oil, Gas & Mining
1594 West North Temple
Salt Lake City, UT 84114-5801

Dear Mr. Baza:

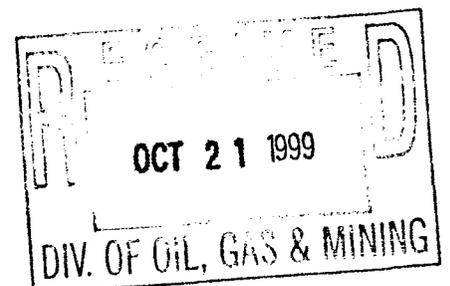
Enclosed please find a copy of the report entitled "Cultural Resource Inventory of Fleet Energy's SITLA SWD-1 Well Location in the Serviceberry Creek Area, Carbon County, Utah" (Report No. U-99-MQ-0592s). The inventory resulted in the documentation of one isolated find of artifact (IF-A), which is evaluated as not eligible to the NRHP based on the lack of research potential.

Based on the findings, a determination of "no effect" is recommended pursuant to Section 106, CFR 800 for this project. If you have any comments or questions about this project, please let me know.

Sincerely,

Keith R. Montgomery
Principal Investigator

cc: Kenny Wintch, TLA Archaeologist, SLC
James Dykmann, Compliance Archaeologist, SHPO, SLC
Mark Spear, Fleet Energy, Houston



WELL DATA

WELL SEARCH

WELL DATA

WELL HISTORY

WELL ACTIVITY

WELL NAME API NUMBER WELL TYPE WELL STATUS
 OPERATOR ACCOUNT ALT. ADDRESS FLAG FIRST PRODUCTION
 FIELD NAME FIELD NUMBER LA | PA DATE

WELL LOCATION:

SURF LOCATION
 Q. S. T. R. M.
 COUNTY

UTM Coordinates:

SURFACE - N BHL - N
 SURFACE - E BHL - E

LATITUDE

LONGITUDE

CONFIDENTIAL FLAG
 CONFIDENTIAL DATE
 DIRECTIONAL | HORIZONTAL
 HORIZONTAL LATERALS
 ORIGINAL FIELD TYPE
 WILDCAT TAX FLAG
 CB-METHANE FLAG
 ELEVATION
 BOND NUMBER
 BOND TYPE

LEASE NUMBER
 MINERAL LEASE TYPE
 SURFACE OWNER TYPE
 INDIAN TRIBE
 C.A. NUMBER

UNIT NAME

CUMULATIVE PRODUCTION:

OIL
 GAS
 WATER

COMMENTS

Create New Rec

Save

Cancel Change

To History

To Activity

Print Recd

Export Recd



CULTURAL RESOURCE INVENTORY OF
FLEET ENERGY'S SITLA SWD-1 WELL LOCATION
IN THE SERVICEBERRY CREEK AREA
CARBON COUNTY, UTAH

Sharyl Kinnear-Ferris
and
Mark C. Bond



MONTGOMERY ARCHAEOLOGICAL CONSULTANTS

Box 147, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

CULTURAL RESOURCE INVENTORY OF
FLEET ENERGY'S SITLA SWD-1 WELL LOCATION
IN THE SERVICEBERRY CREEK AREA
CARBON COUNTY, UTAH

Sharyl Kinnear-Ferris
and
Mark C. Bond

CULTURAL RESOURCE INVENTORY OF FLEET ENERGY'S
SITLA SWD-1 WELL LOCATION IN THE SERVICEBERRY CREEK AREA,
CARBON COUNTY, UTAH

by

Sharyl Kinnear-Ferris
and
Mark C. Bond

Prepared For:

State of Utah
School and Institutional
Trust Lands Administration

Prepared Under Contract With:

Fleet Energy LLC
2450 Fondren, Suite 310
Houston, TX 77063

Prepared By:

Montgomery Archaeological Consultants
P.O. Box 147
Moab, Utah 84532

October 18, 1999

United States Department of Interior (FLPMA)
Permit No. 99-UT-60122

State of Utah Antiquities Project (Survey)
Permit No. U-99-MQ-0592s

INTRODUCTION

In October, 1999, a cultural resource inventory was conducted by Montgomery Archaeological Consultants (MOAC) for a proposed salt water disposal well location and access route in Carbon County, Utah. The archaeological survey was initiated at the request of Mr. Mark Spears, representative for Fleet Energy LLC, Houston, Texas. The proposed well location is designated SITLA SWD-1. The project area is located in Township 15 South, Range 9 East, Sections 14 and 23 on State of Utah School and Institutional Trust Land.

The objective of the inventory was to locate, document, and evaluate any cultural or paleontological resources occurring within the project area in order to attain compliance with a number of federal and state mandates, including the National Historic Preservation Act of 1966 (as amended), National Environmental Policy Act of 1969, the Archaeological and Historic Conservation Act of 1972, the Archaeological Resources Protection Act of 1979, American Indian Religious Freedom Act of 1978, and the Utah State Antiquities Act of 1973 (amended 1992).

The fieldwork was performed by Mark Bond and Greg Nunn for Montgomery Archaeological Consultants on October 11, 1999, under the authority of U.S. Department of the Interior (FLPMA) Permit No. 99-UT-60122 and State of Utah Antiquities Permit (Survey) No. U-99-MQ-0592s. A file search was conducted by the Keith R. Montgomery on September 29, 1999, at the BLM Price River Resource Area, Price, Utah and by Evie Seelinger on October 18, 1999 at the Utah State Historic Preservation Office, Salt Lake City. These consultations revealed that a number of archaeological surveys were completed near the project area. In 1981, an inventory was completed along the Hiawatha telephone corridor by Archeological-Environmental Research Corporation (Hauck 1981). A number of seismic inventories were completed throughout the years (Billat 1982; Cook; Hammack 1983; Montgomery 1984; Thompson 1982). In 1985, the Wattis Road was surveyed by the Bureau of Land Management (Miller 1985). In 1997, Baseline Data Inc. completed the River Gas Corporation 1998 Drilling Season (Eccles 1997). Montgomery Archaeological Consultants (MOAC) has surveyed a number of well locations and pipeline corridors for Fleet Energy in Sections 22 and 27 (Montgomery 1998a, 1998b, 1998c, 1999).

Archaeological sites documented in the vicinity of the project area include a prehistoric temporary camp (42Cb361) recorded by Brigham Young University (Billat 1982); the Hiawatha to Price Railroad grade (42Cb364) documented by Brigham Young University (Thompson 1982); and a prehistoric isolated cist (42Cb1240) recorded by MOAC (Montgomery 1998a).

DESCRIPTION OF PROJECT AREA

The project area is located in Castle Valley between the towns of Price, Carbon County and Huntington, Emery County, Utah. The inventory consists of a proposed salt water disposal well location situated along Serviceberry Creek (Figure 1). Well Location SITLA SWD-1 is situated in T 15S, R 9E, S. 23 with a 1500 foot proposed access road which follows an existing two track road.

The project area occurs along the western margins of Castle Valley, a lowland plain eroded into the Mancos Shale between the uplifts of the Wasatch Plateau and San Rafael Swell. In general, the inventory area lies in the Mancos Shale Lowlands section of the Colorado Plateau and the Wasatch Plateau section of the Basin and Range-Colorado Plateau Transition physiographic subdivision (Stokes 1986). In particular, the Mancos Lowlands is characterized by sloping pediments, rugged badlands, and narrow flat-bottomed alluvial valleys (Ibid 1986:232). The geology of this area is defined by inter-bedded sandstone and shale beds of the Cretaceous Mancos Shale Formation, including the Masuk Shale, Emery Sandstone, Blue Gate Shale, Ferron Sandstone, and Tununk Shale Members. The inventory area lies near Serviceberry Creek, which flows east into the Price River. The majority of the project area occurs within a transitional Juniper-Sagebrush community which prefers well-drained sandy soils. Plant species observed in the area include Utah juniper, pinyon, tamarisk, greasewood, rabbitbrush, sagebrush, snakeweed, prickly pear cactus, and grasses. Modern disturbances to the project area include roads and livestock grazing.

SURVEY METHODOLOGY

An intensive pedestrian survey was performed for this project which is considered 100% coverage. Based on the Ferron Natural Gas Development Programmatic Agreement a square ten (10 acre) block centered on the staked location for the well pad is required to be inventoried. The proposed salt water disposal location was surveyed by the archaeologists walking parallel transects spaced no more than 10 meters (30 feet) apart. A 300 foot corridor was surveyed along the associated access route by walking parallel and zig-zag transects spaced no more than 10 meters (30 feet) apart. Ground visibility varied from good to excellent. A total of 30 acres was inventoried for this project situated on land administered by the State of Utah Trust Lands Administration.

Cultural resources were recorded as archaeological sites or isolated finds of artifacts. Archaeological sites are defined as spatially definable areas with features and/or ten or more artifacts. Isolated finds of artifacts are defined as individual artifacts or light scatter of items, which lack sufficient material culture to warrant IMACS forms, or to derive interpretation of human behavior in a cultural or temporal context. All isolated finds were plotted on a USGS map and described in this report.

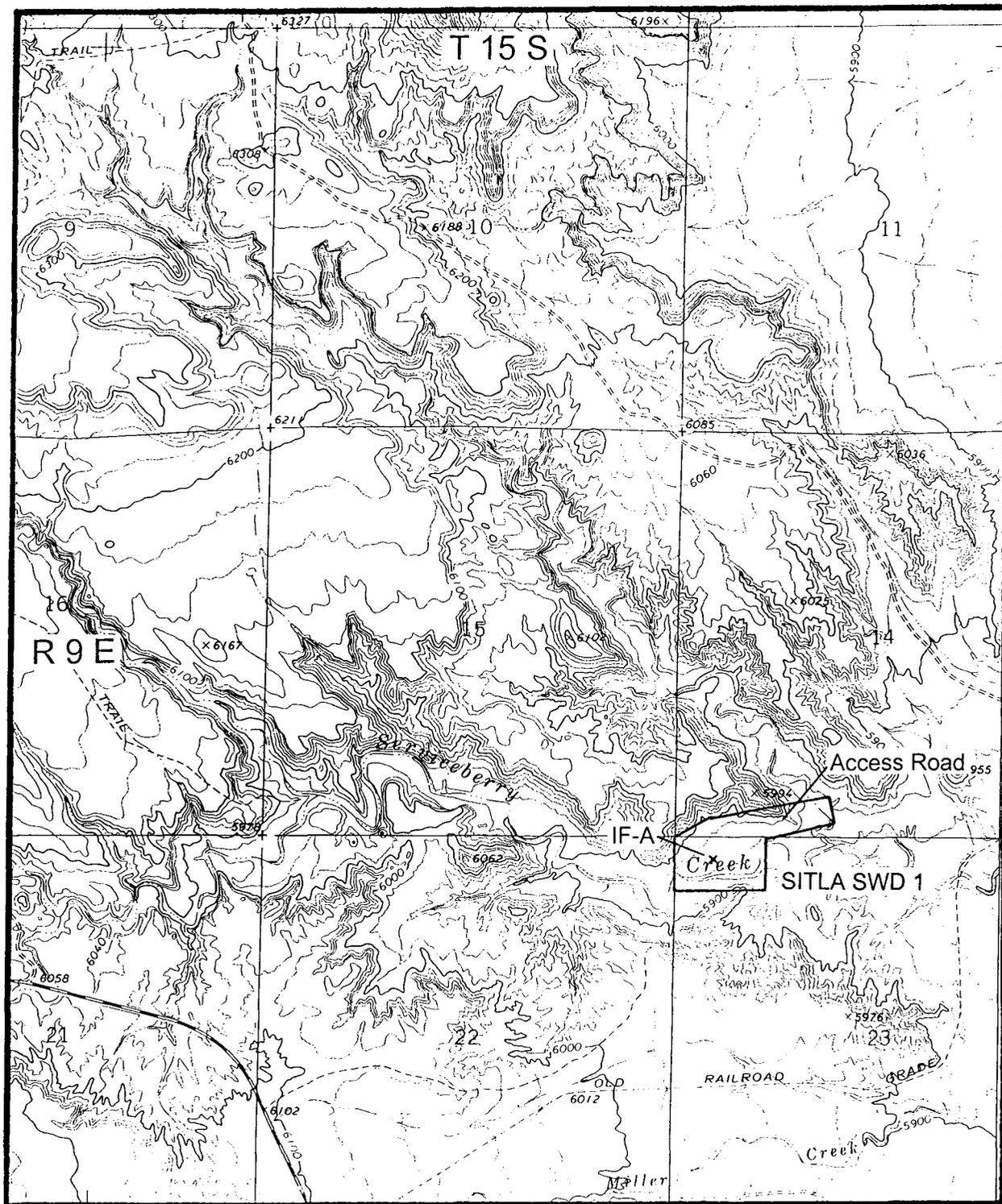


Figure 1. Inventory Area of Fleet Energy SITLA SWD-1 Well Location in the Serviceberry Creek Area, Carbon County, UT. USGS 7.5 Pinnacle Peak, UT 1972. Scale 1:24000.

INVENTORY RESULTS

The inventory of Fleet Energy's proposed salt water disposal well location (SITLA SWD-1) and associated access route resulted in the documentation of one isolated find of artifacts (IF-A). No paleontological localities were found.

Isolated Find of Artifacts

Isolated Find A (IF-A) is situated in T 15S, R 9E, Sec. 23, NW/NW/NW (UTM 509620E-4373500N). It is the top of a hole-in-cap can, measuring 4" diameter with a 2 1/4" cap. The fragmentary can has a match hole filler with soldered seams. Eight meters to the north are two sanitary milk cans measuring 2 15/16" by 3 7/8". Four rings are displayed on the bottom, with a flayed top and bottom. Also observed was a 1 screw lid one pound baking powder can lacking a manufacture's mark.

MANAGEMENT RECOMMENDATIONS

The inventory of Fleet Energy's proposed salt water disposal well location (SITLA SWD-1) and access route resulted in the documentation of a historic isolated find of artifacts. This cultural resource is considered not eligible to the NRHP, based on their lack of research potential other than description in this report. The project area retains minimal potential for subsurface cultural resources.

Based on the findings, a determination of "no effect" is recommended pursuant to Section 106, CFR 800 for this project.

REFERENCES CITED

- Billat, S.
1982 Cultural Resource Inventory of the Petty Ray Geophysical Seismic Project, Carbon County, Utah. Cultural Resource Management Services, Brigham Young University, Provo, Utah.
- Cook, C.W. Archaeological Reconnaissance of 37 Miles of Seismic Line in the Wellington Area of Carbon County, Utah. Utah Archaeological Research Corporation, Spanish Fork, Utah.
- Eccles, C.A. A Cultural Resource Inventory of the River Gas Corporation 1998 Drilling Season in Carbon County, Utah, on Private, State and Federal Land. Baseline Data Inc., Orem, Utah. Report No. U-97-BS-0237psf.
- Hammack, L.
1983 Cultural Resource Inventory of a Texaco Inc. Seismic Line West of Price, Carbon County, Utah. Complete Archaeological Service Associates, Cortez, Colorado. Report No. 83-30 on file at the BLM Price River Resource Area Office, Price, Utah.
- Hauck, F.R.
1981 Cultural Resource Survey Along a Proposed Telephone Corridor in the Hiawatha Locality of Carbon County, Utah. Archeological-Environmental Research Corporation, Salt Lake City, Utah. Report No. 81-1 on file at the BLM Price River Resource Area Office, Price, Utah.
- Miller, B.
1985 Cultural Resource Inventory of the Wattis Road, Carbon County, Utah. Bureau of Land Management No. 85-49, on file at the BLM Price River Resource Area Office, Price, Utah.
- Montgomery, K.R.
1984 Cultural Resources Survey of Four Seismic Lines in Emery and Carbon Counties, Utah. Sagebrush Archaeological Consultants, Ogden, Utah. Report No. 84-47 on file at the BLM Price River Resource Area Office, Price, Utah.
- 1998a Cultural Resource Inventories of F.L. Energy Corporation's Five Well Locations, Access Roads, and Pipeline in Carbon and Emery Counties, Utah. Montgomery Archaeological Consultants, Moab, Utah. Report No. 98-235 on file at the BLM Price River Resource Area Office, Price, Utah

Montgomery, K.R.

1998b Cultural Resource Inventory of F.L. Energy Corporation's Well Location Wildcat Wash 22-1 and Access Roads in Emery County Utah. Montgomery Archaeological Consultants, Moab, Utah. Report No. 98-509 on file at the BLM Price River Resource Area Office, Price, Utah

1998c Cultural Resource Inventory of F.L. Energy Corporation's Proposed Pipeline from Alker 1-22 Well Location to Questar's Main Pipeline, Carbon County, Utah. Montgomery Archaeological Consultants, Moab, Utah. Report No. 98-279b on file at the BLM Price River Resource Area Office, Price, Utah

1999 Cultural Resource Inventory of Fleet Energy's Four Well Locations and Access Corridors, Carbon County, Utah. Report No. U-99-MQ-0074s.

Stokes, W.L.

1986 *Geology of Utah*. Utah Museum of Natural History and Utah Geological and Mineral Survey. Salt Lake City.

Thompson, C.

1982 Cultural Resource Survey of the Mile High Seismic Project, Carbon, County, Utah. Cultural Resource Management Services, Brigham Young University, Provo, Utah.

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1A. Type of Work: DRILL DEEPEN

B. Type of Well OIL GAS OTHER: *Disposal* SINGLE ZONE MULTIPLE ZONE

2. Name of Operator:
Marathon Oil Company

3. Address and Telephone Number:
1501 Stampede Avenue, Cody, Wyoming 82414 (307) 527-3003

4. Location of Well (Footages)
At Surface:
300' FNL, 300' FWL, Section 23, T15S, R9E
At Proposed Producing Zone:
Same

14. Distance in miles and direction from nearest town or post office:
Approximately 13 miles SW of Price, Utah

15. Distance to nearest property or lease line (feet):
300'

16. Number of acres in lease:
1120

17. Number of acres assigned to this well:
40

18. Distance to nearest well, drilling, completed, or applied for, on this lease (feet):
Approx. 1200'

19. Proposed Depth:
7108'

20. Rotary or cable tools:
Rotary

21. Elevations (show whether DR, RT, GR, etc.):
5897' KB 5879' GL

22. Approximate date work will start:
ASAP

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	J-55, 13 3/8"	54.5#	300'	385 sx
12 1/4"	J-55, 9 5/8"	36#	2580'	635 sx
8 3/4"	J-55, 7"	26#	6118'	435 sx

DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

Marathon Oil Company requests approval to drill the above named well as described in the attached "Drilling Prognosis".

A Class III Archaeological Survey has been performed for this area and is attached.

All work will be performed under Marathon's statewide blanket bond #5217029 and SITLA Blanket Bond #5922542, both in the amount of \$80,000.00.

DOGM-Orig&2--cc: RPM,WRF,DRILLING(4), T&C(hou)

24. *R.P. Meabon* Regulatory
Name & Signature: *[Signature]* Title: *Coordinator* Date: *1/17/00*

(This space for State use only)

API Number Assigned: *43-007-30656*

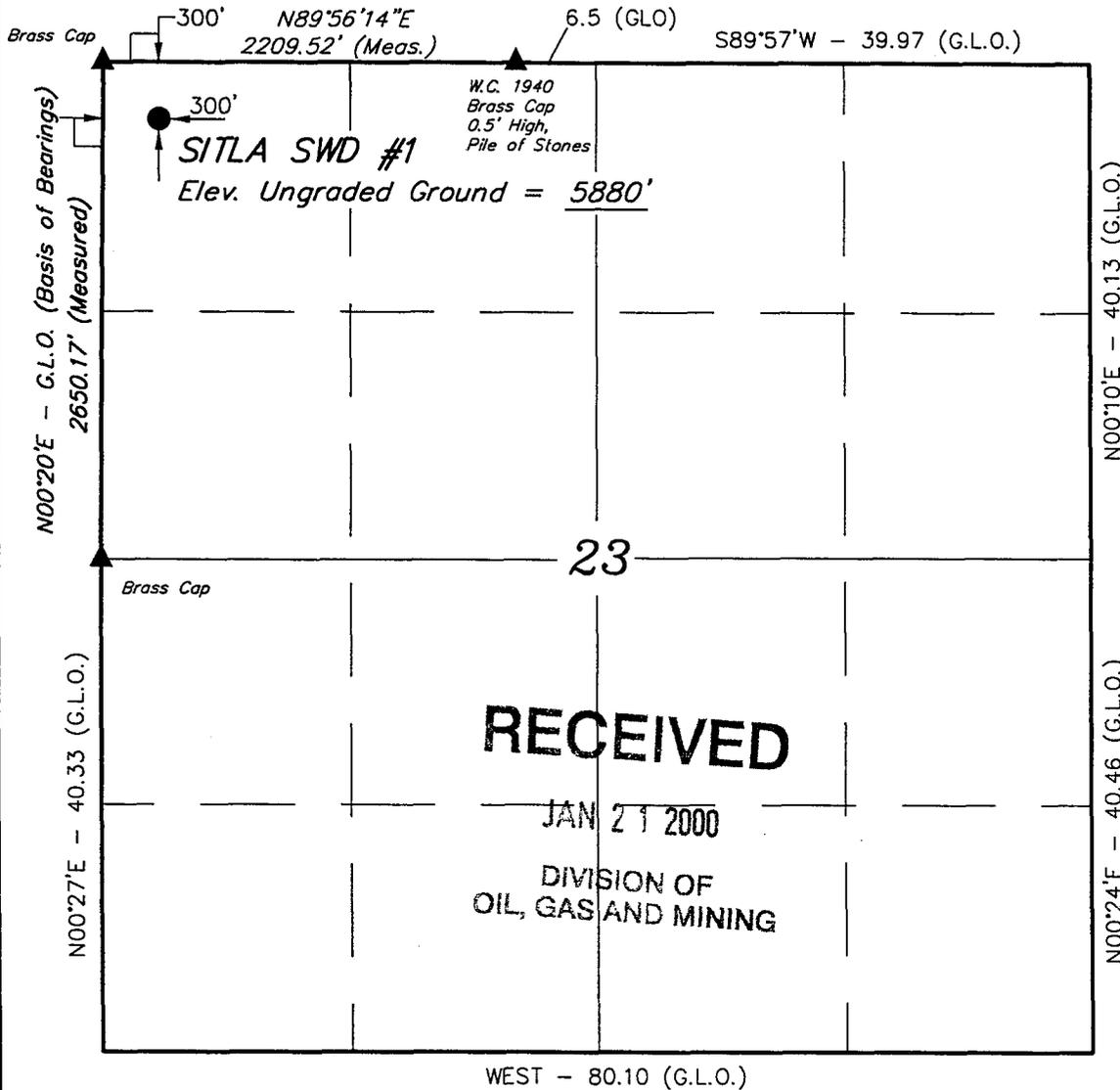
Approved by the Utah Division of Oil, Gas and Mining
Date: *3/23/00*
By: *[Signature]*
(See instructions on Reverse side)

RECEIVED
JAN 21 2000
DIVISION OF OIL, GAS AND MINING

T15S, R9E, S.L.B.&M.

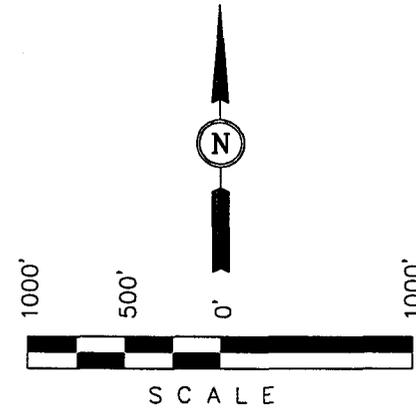
MARATHON OIL CO.

Well location, SITLA SWD #1, located as shown in the NW 1/4 NW 1/4 of Section 23, T15S, R9E, S.L.B.&M. Carbon County, Utah.



BASIS OF ELEVATION

SPOT ELEVATION AT THE SOUTH 1/4 CORNER OF SECTION 23, T15S, R9E, S.L.B.&M. TAKEN FROM THE POISON SPRING BENCH QUADRANGLE, UTAH, COUNTY 7.5 MINUTE QUAD. (TOPOGRAPHIC MAP) PUBLISHED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY. SAID ELEVATION IS MARKED AS BEING 5928 FEET.



CERTIFICATE

THIS IS TO CERTIFY THAT THE ABOVE PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Robert J. Kay
 REGISTERED LAND SURVEYOR
 REGISTRATION NO. 151319
 STATE OF UTAH

RECEIVED
 JAN 21 2000
 DIVISION OF
 OIL, GAS AND MINING

UINTAH ENGINEERING & LAND SURVEYING
 85 SOUTH 200 EAST - VERNAL, UTAH 84078
 (435) 789-1017

SCALE 1" = 1000'	DATE SURVEYED: 12-15-99	DATE DRAWN: 1-5-99
PARTY D.K. L.J. C.B.T.	REFERENCES G.L.O. PLAT	
WEATHER COOL	FILE MARATHON OIL CO.	

LEGEND:

- └─┘ = 90° SYMBOL
- = PROPOSED WELL HEAD.
- ▲ = SECTION CORNERS LOCATED.

Latitude = 39°30'45"
 Longitude = 110°53'20"

EXHIBIT D



1501 Stampede Avenue
Cody, WY 82414-4721
Telephone 307/587-4961

January 17, 2000

TO WHOM IT MAY CONCERN
(See Exhibit 'A')

Re: Application for Exception Well Location
SITLA Lease # ML-45691
SITLA SWD #1 Section 23-15S-9E
Drunkard's Wash Unit Area
Carbon County, Utah

Gentlemen:

In accordance with Rule R649-3-3 of the General Rules and Regulations of the Board of Oil, Gas and Mining, Marathon Oil Company requests a waiver for permission to drill the SITLA SWD #1 for the purpose of water disposal at a surface location 300' FNL, 300' FWL, Section 23, T15S, R9E, S.L.M., in Carbon County, Utah. Marathon will rely on natural drift, which is negligible in this area and anticipates the bottomhole location to be the same as the surface location. Marathon's lease is adjacent to the Drunkard's Wash Unit and the surface and bottomhole locations will be within the Drunkard's Wash unit. The SITLA SWD #1 well will be the responsibility of, and operated by Marathon for the disposal of produced fluids from adjacent non-unitized state leases.

Marathon proposes to drill the SITLA SWD #1 as a Navajo-Kayenta-Wingate disposal well in connection with its coalbed methane operations. The proposed bottomhole location is an exception to the Board's location and siting rules for unproven areas contained in Rule R649-3-2 and to the Division of Oil, Gas and Mining's disposal well spacing requirements for the area. The surface location will be situated on a lease not operated by Marathon Oil Company in the NW/4NW/4 of Section 23, T15S, R9E.

If you have no objections to the granting of this Application, please sign below and return this page to Marathon Oil Company in the enclosed self addressed envelope.

Sincerely,

Marathon Oil Company

R. P. Meabon
Regulatory Coordinator
Rocky Mountain Region
307-527-3003

WAIVER *

* Subject to Marathon setting
Intermediate Casing through
the Ferron Formation.

Company Name: TEXACO EXPLORATION AND PRODUCTION INC.

Print Name: DOROTHY A. BRELIH ATTORNEY-IN-FACT

Signature:

Date: 2/14/00

Leap\SLC\114824.2
01/14/00

THIS CONSENT IS GRANTED SOLELY FOR THE PURPOSES OF A WELL BEING UTILIZED AS AN INJECTION WELL. THIS CONSENT SHALL NOT BE APPLICABLE TO ANY FUTURE PROPOSED UTILIZATION OF THE WELL FOR OIL AND/OR GAS PRODUCTION.



1501 Stampede Avenue
Cody, WY 82414-4721
Telephone 307/587-4961

January 17, 2000

John R. Baza
Associate Director
State of Utah
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

RE: Application For Permit To Drill and Exception Well Location for:
SITLA SWD #1 Well
SITLA Lease # ML-45691
Section 23, T15S, R9E
Drunkard's Wash Unit Area
Carbon County, Utah

Dear Mr. Baza:

Attached please find the original and two (2) copies of Marathon Oil Company's APD and waiver request for spacing the above named well. The Request for Waiver was mailed to owners on January 17, 2000.

As you are aware, Marathon purchased leases from Fleet Energy which are located in the Drunkard's Wash Unit area. Marathon is in the process of permitting gas wells for this area and the anticipated start date for the gas wells is April 15, 2000 and the SITLA SWD #1 production fluid disposal well will be drilled as soon as possible in order to be ready for first production.

Please note the SITLA SWD #1 well location was picked to comply with the Division's distance requirement. Marathon preserves its rights with respect to this or any subsequent injection (disposal) wells location that is based all or in part upon information or reports that are not available to the public or Marathon, as an operator.

Thank you for your assistance in this matter. If you have any questions concerning this request, please feel free to contact me at the number listed below.

Sincerely,

MARATHON OIL COMPANY

A handwritten signature in black ink, appearing to read 'R.P. Meabon', written over the company name.

R.P. Meabon
Regulatory Coordinator
Rocky Mountain Region
307-527-3003

RECEIVED

JAN 21 2000

DIVISION OF
OIL, GAS AND MINING



1501 Stampede Avenue
Cody, WY 82414-4721
Telephone 307/587-4961

January 17, 2000

TO WHOM IT MAY CONCERN
(See Exhibit 'A')

Re: Application for Exception Well Location
SITLA Lease # ML-45691
SITLA SWD #1 Section 23-15S-9E
Drunkard's Wash Unit Area
Carbon County, Utah

RECEIVED

JAN 21 2000

**DIVISION OF
OIL, GAS AND MINING**

Gentlemen:

In accordance with Rule R649-3-3 of the General Rules and Regulations of the Board of Oil, Gas and Mining, Marathon Oil Company requests a waiver for permission to drill the SITLA SWD #1 for the purpose of water disposal at a surface location 300' FNL, 300' FWL, Section 23, T15S, R9E, S.L.M., in Carbon County, Utah. Marathon will rely on natural drift, which is negligible in this area and anticipates the bottomhole location to be the same as the surface location. Marathon's lease is adjacent to the Drunkard's Wash Unit and the surface and bottomhole locations will be within the Drunkard's Wash unit. The SITLA SWD #1 well will be the responsibility of, and operated by Marathon for the disposal of produced fluids from adjacent non-unitized state leases.

Marathon proposes to drill the SITLA SWD #1 as a Navajo-Kayenta-Wingate disposal well in connection with its coalbed methane operations. The proposed bottomhole location is an exception to the Board's location and siting rules for unproven areas contained in Rule R649-3-2 and to the Division of Oil, Gas and Mining's disposal well spacing requirements for the area. The surface location will be situated on a lease not operated by Marathon Oil Company in the NW/4NW/4 of Section 23, T15S, R9E. .

If you have no objections to the granting of this Application, please sign below and return this page to Marathon Oil Company in the enclosed self addressed envelope.

Sincerely,

Marathon Oil Company

R. P. Meabon
Regulatory Coordinator
Rocky Mountain Region
307-527-3003

WAIVER

Company Name: _____

Print Name: _____

Signature: _____

Date: _____

Learp\SLC\114824.2
01/14/00

EXHIBIT "A"

Request for Waiver of Marathon Oil Company
For Permission to Drill SITLA SWD #1
For Disposal at a Surface Location 300 Feet From
the North line and 300 Feet From the West Line
of Section 23, Township 15 South, Range 9 East,
S.L.M., Carbon County, Utah, in accordance with
R649-3-3.

The following named persons and corporations constitute all the owners (as defined in the Utah Oil and Gas Conservation Act and corresponding regulations) and other potentially interested persons within a 460' radius of the SITLA SWD #1 well described in the Application to which this Affidavit is attached, to wit:

Marathon Oil Company
1501 Stampede Avenue
Cody, Wyoming 82414-4721

✓ River Gas Corporation *Rec'd 2-22-00. Jc*
511 Energy Center Blvd.
Northport, Alabama 35476

✓ Texaco Exploration & *Rec'd 2-25-00. Jc*
Production, Inc.
P.O. Box 2100
Denver, Colorado 802021

Dominion Reserves-Utah, Inc.
Riverfront Plaza West
West Tower
Richmond, Virginia 23219

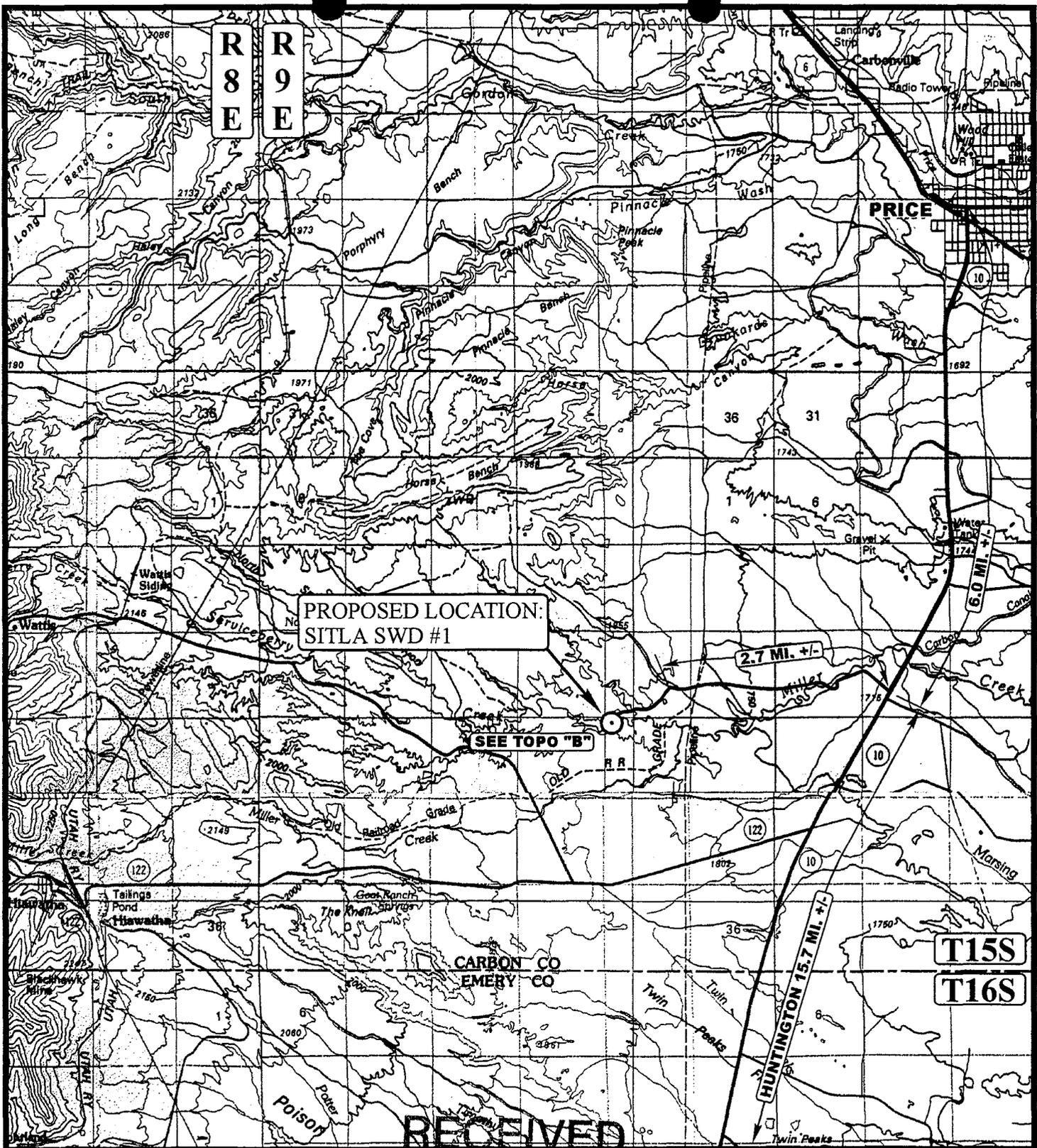
The addresses listed after the names of the foregoing owners constitute the last mailing addresses of said owners as far as the Applicant, Marathon Oil Company and the undersigned have been able to ascertain.

cc: John R. Baza
Associate Director
State of Utah
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

RECEIVED

JAN 21 2000

DIVISION OF
OIL, GAS AND MINING



PROPOSED LOCATION:
SITLA SWD #1

SEE TOPO "B"

CARBON CO
EMERY CO

T15S
T16S

RECEIVED

LEGEND:

⊙ PROPOSED LOCATION

JAN 21 2000

MARATHON OIL CO.

SITLA SWD #1

SECTION 23, T15S, R9E, S.L.B.&M.

300' FNL 300' FWL

DIVISION OF
OIL GAS AND MINING



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

TOPOGRAPHIC
MAP

12 28 99
MONTH DAY YEAR

SCALE: 1:100,000 DRAWN BY: J.L.G. REVISED: 00-00-00

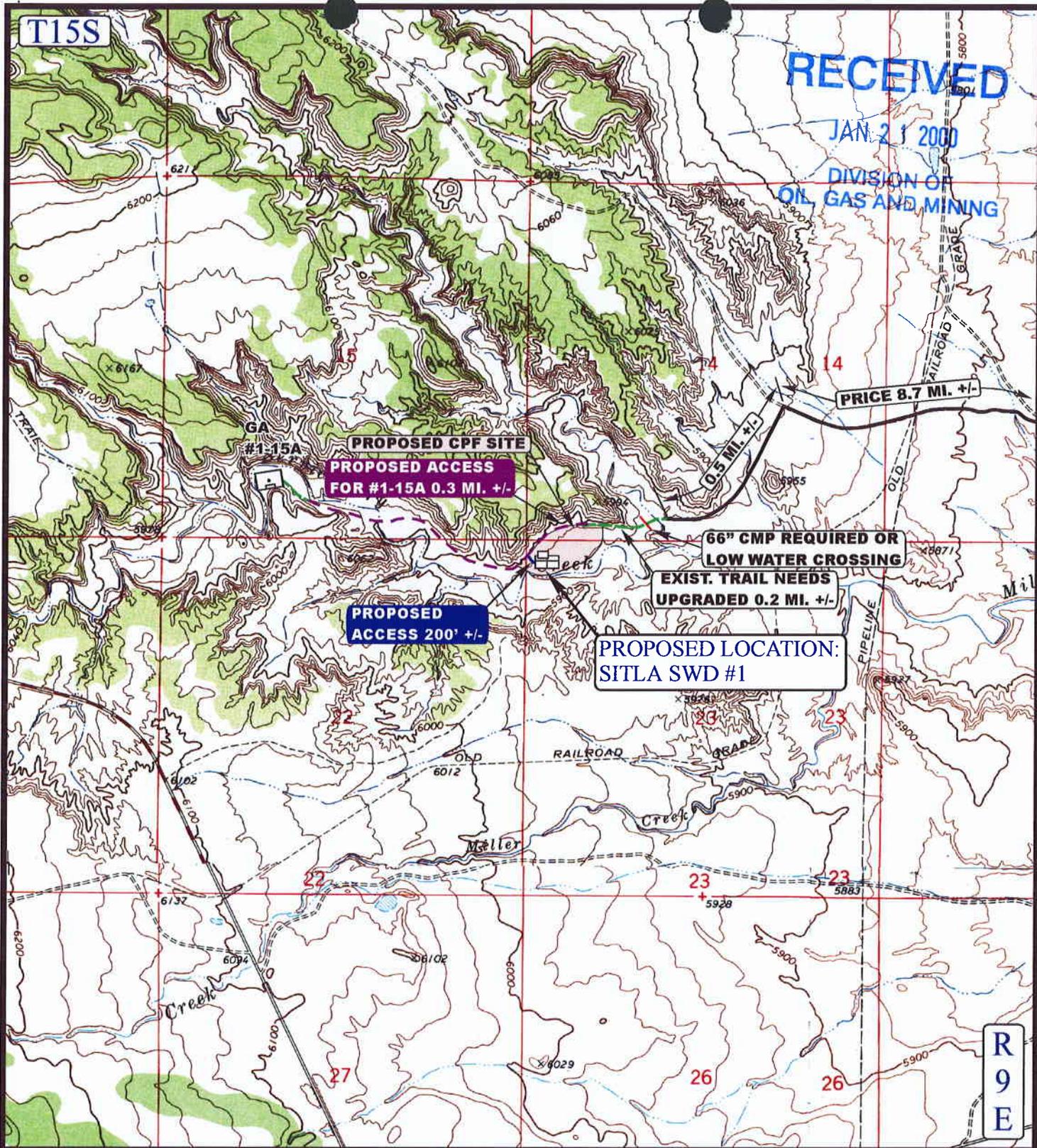


T15S

RECEIVED

JAN 21 2000

DIVISION OF OIL GAS AND MINING



LEGEND:

- PROPOSED ACCESS ROAD
- EXISTING ROAD

MARATHON OIL CO.

SITLA SWD #1
 SECTION 23, T15S, R9E, S.L.B.&M.
 300' FNL 300' FWL

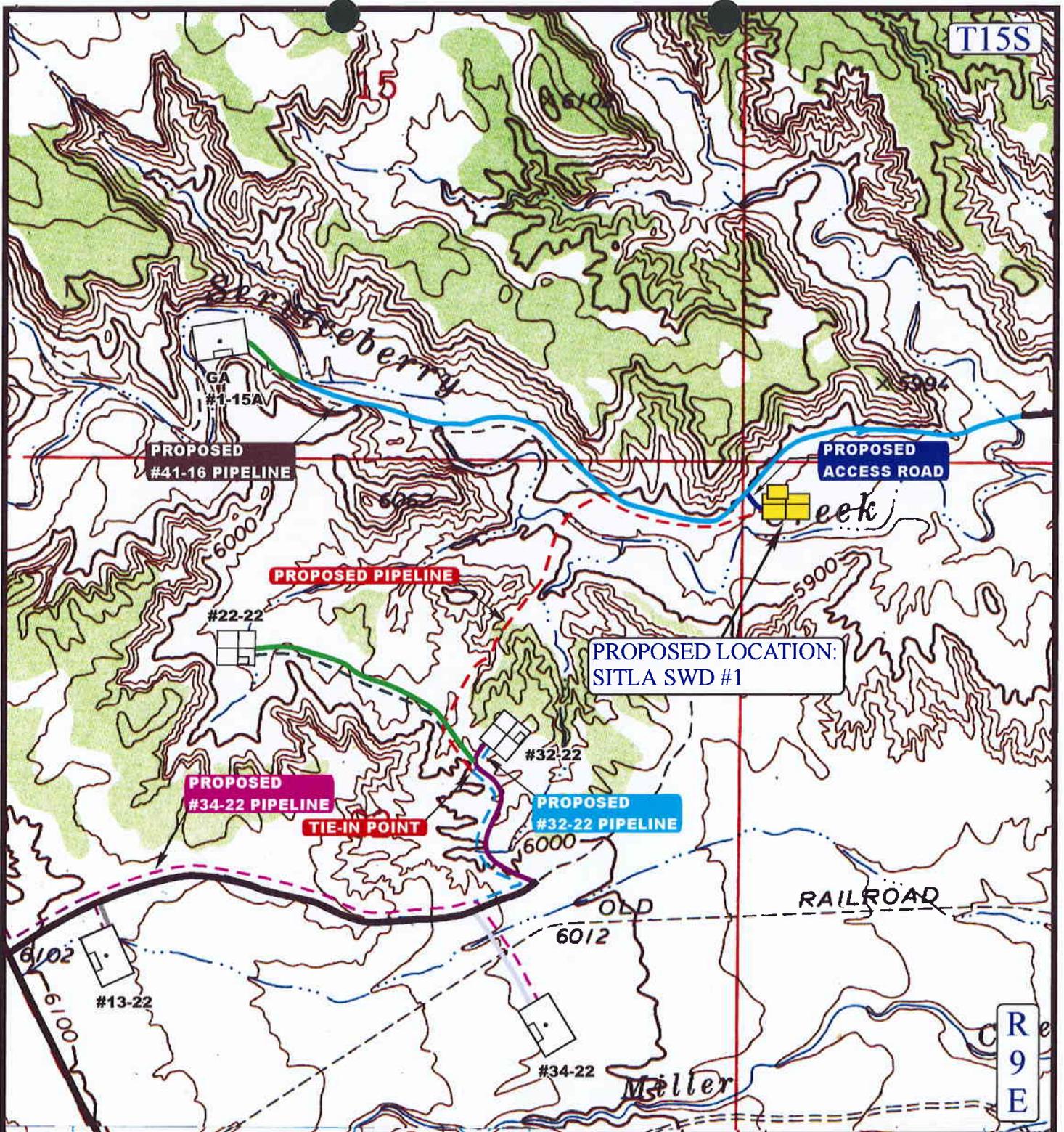


Uintah Engineering & Land Surveying
 85 South 200 East Vernal, Utah 84078
 (435) 789-1017 * FAX (435) 789-1813



TOPOGRAPHIC MAP 12 28 99
 MONTH DAY YEAR
 SCALE: 1" = 2000' DRAWN BY: J.L.G. REVISED: 00-00-00





APPROXIMATE TOTAL PIPELINE DISTANCE = 3700' +/-

LEGEND:

- EXISTING PIPELINE
- PROPOSED PIPELINE
- PROPOSED ACCESS

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MARATHON OIL CO.

JAN 21 2000

N

SITLA SWD #1

SECTION 23, T15S, R9E, S.L.B.&M.

300' FNL 300' FWL



Uintah Engineering & Land Surveying
85 South 200 East Vernal, Utah 84078
(435) 789-1017 * FAX (435) 789-1813

DIVISION OF OIL, GAS AND MINING

TOPOGRAPHIC
MAP

1	10	00
MONTH	DAY	YEAR

SCALE: 1" = 2000' DRAWN BY: J.L.G. REVISED: 00-00-00



MARATHON OIL COMPANY	DRILLING PROGNOSIS	AFE # TBD
SITLA SWD #1	DRUNKARDS WASH FIELD	CARBON CO., UTAH
VERTICAL WELL	Revision #7	January 11, 2000

1. LOCATION AND DIRECTIONAL SUMMARY

SURFACE LOCATION	BOTTOM HOLE LOCATION	DISPLACEMENT	ELEVATIONS
300' FNL, 300' FWL	Natural Drift	N/A	5897' KB
Sec. 23, T15S, R9E Carbon County, Utah			5879' GL

The SITLA SWD #1 well will be drilled to the Chinle Shale and completed open hole as a disposal well in the Navajo, Kayenta, and Wingate formations.

Surface casing will be 13-3/8" cemented to surface from 300' in a 17-1/2" hole. A 9-5/8" intermediate casing will be cemented to surface from 2,580' in a 12-1/4" hole. An 8-3/4" hole will be drilled to a projected total depth of 7,108' TD.

A 7" casing string will be set at the top of the Navajo formation and cemented back into the 9-5/8" intermediate casing in two stages.

2. GEOLOGIC DATA AND OBJECTIVES

FORMATION	DEPTH		POSSIBLE CONTENT
	TVD	SUBSEA	
Ferron Sandstone	2213'	+3680'	Water, Gas
Tununk Shale	2448'	+3445'	
Dakota Sandstone	2813'	+3080'	
Cedar Mountain	2846'	+3047'	
Buckhorn	3596'	+2297'	
Morrison	3631'	+2262'	
Curtis Sandstone	4503'	+1390'	
Entrada Sandstone	4708'	+1185'	
Carmel Shale	5440'	+453'	
Navajo Sandstone	6118'	-225'	Water

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FORMATION	DEPTH		POSSIBLE CONTENT
	TVD	SUBSEA	
Navajo Sandstone	6118'	-225'	Water
Kayenta Sandstone	6488'	-595'	Water
Wingate Sandstone	6600'	-707'	Water
Chinle	6961'	-1068'	Water
TD	7108'	-1215'	

3. CASING SUMMARY

INTERVAL	PURPOSE	HOLE SIZE	CASING DETAIL			
			SIZE	GRADE	THRD.	WT.
0-45'	Conductor	24"	20"	.438" Wall		
0-300'	Surface	17-1/2"	13-3/8"	J-55	STC 8rd	54.5#
0-2580'	Intermediate	12-1/4"	9-5/8"	J-55	STC 8rd	36#
0-6118'	Injection	8-3/4"	7"	J-55	LTC 8rd	26#

4. SUMMARY OF DRILLING HAZARDS

Lost circulation is possible in all hole intervals. H₂S has been reported in the solution gas of the Navajo – Wingate zones. H₂S monitoring equipment will be rigged up prior to drilling these zones (see attached H₂S Contingency Plan).

5. MUD PROGRAM

FROM	TO	TYPE MUD	WEIGHT	VISCOSITY	PV	YP	WATER LOSS
0'	300'	Air/Gel/ Lime	8.4-9.2	36-42	6-8	6-8	N/C
300'	2580'	Air/LSND	8.6-9.0	36-45	8-12	12-20	8-12
2580'	7108'	LSND	8.6-9.0	45-50	8-12	12-20	8-12

6. EVALUATION PROGRAM

A manned mud logging unit with a gas chromatograph will be used from 2,000'-TD.

- Run #1 – Intermediate Casing Point –2,580’:
- 1) Array Induction Log (PEX)
 - 2) Gamma Ray-SP-Caliper
 - 3) Spectral Density-PEF
 - 4) Compensated Dual-Spaced Neutron Microlog
 - 5) Microlog

- Run #2 – Intermediate Casing Point to Total Depth
- 1) Array Induction Log (PEX)
 - 2) Gamma Ray-SP-Caliper
 - 3) Spectral Density-PEF
 - 4) Compensated Dual-Spaced Neutron
 - 5) Microlog
 - 6) Dipole Sonic

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7. **CASING AND CEMENTING PROGRAM**

13-3/8" Surface Casing

Casing equipment: a guide shoe, insert float, and bow spring centralizers (bottom joint and every third joint to surface). Both ends of the bottom two casing collars will be tack welded, strapped, or "Baker locked".

Casing will be lowered slowly to avoid excessive surge pressure. Mud volumes will be monitored throughout the job. Cement will be pumped through the shoe at greater than 5 bpm. Cement volumes assume 100% excess of gauge hole.

This cementing program may be altered if dictated by the availability of additional data prior to the job.

LEAD SLURRY TYPE	Class 'G' w/ 2% CaCl ₂ and 1/4 #/sk celloflake
Slurry Weight	15.6 ppg –
Yield	1.19 cu ft/sk
Mix Water	5.2 gps
Min. Cement Required	385 sx (gauge hole + 100% excess)
Top of Cement	Surface

22%

Note: If the cement falls in the annulus, a 1" top job will be performed.

9-5/8" Intermediate Casing

The 9-5/8" intermediate casing will be cemented to surface in an attempt to isolate the zones of interest and to protect the casing and shallow formations.

Excessive surge pressure should be avoided while running the casing. Once the casing is in place the

Also, the casing will be reciprocated while circulating and conditioning mud and while cementing as hole condition permits. Cement will be pumped at greater than 3 bpm.

The cementing job may be altered if dictated by the availability of additional data prior to the job. Actual cement volumes will be based on caliper log data.

SINGLE STAGE: (TD-Surface)

Casing equipment will include a float shoe, 1 shoe joint, float collar, and bow spring centralizers, one per joint from TD through the Feron and every third joint to 300'.

Spacer: 20 bbls. super flush

LEAD SLURRY TYPE	Halco-Lite with 1% Econolite, .25 lb/sk Flocele, 2% Microbond, 1% Salt
Weight	12.7 lb/gal
Yield	1.86 cu ft/sk
Mix Water Required	9.88 gps
Volume	375 sxs (gauge hole + 25% excess)
Cement Top	Surface

4%

TAIL SLURRY TYPE	Class 'G' with 2% CaCl ₂ + .25 lb/sk Flocele
Weight	15.6 lb/gal
Yield	1.19 cu ft/sk
Mix Water Required	5.20 gps
Volume	260 sxs (gauge hole + 20% excess)
Cement Top	1,780'

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7" Injection Casing

Casing Equipment will include a float shoe, 1 shoe joint and bow spring centralizers. Centralize each joint through the curve section, then every 3rd joint to 2,000'. Place the DV tool at ±5,418'.

Deleted per R.M. 3-21-00 RSK

First Stage: (6,118'-5,418')

Spacer: 20 bbls super flush

SLURRY TYPE	50/50 Pozmix Cement with 2% Econolite, .25 lb/sk Flocele, 3% Halad 344, 2% Microbond + 10% Salt
Weight	14.3 lb/gal
Yield	1.3 cu ft/sk

4%

Mix Water Required	5.68 gps
Volume	135 sxs (gauge hole + 15% excess)
Cement Top	5,418'

Open DV tool and circulate for four hours or until thickening time of first stage cement.

Second Stage: (5,418'-2,000')

Spacer: 20 bbls. super flush

LEAD SLURRY TYPE	Halco-Lite with 2% Econolite, 25 lb/sk Flocele, 2% Microbond, 3% Salt
Weight	12.4 lb/gal
Yield	2.09 cu ft/sk
Mix Water Required	11.43 gps
Volume	300 sxs (gauge hole + 15% excess)
Cement Top	2,000'

8. WELL EQUIPMENT

13-3/8" Casinghead

Casinghead, "C-22", 13-3/8" SO x 11" 3M w/2-2" LPO's
 Slip assembly, "C-22", 13-3/8" x 9-5/8", automatic (weight set)
 Ball valve, 2" NPT 3M

9-5/8" Casinghead

11" x 9-5/8" 3M w/2-2" LPO'S
 Slip assembly, 7" x 11"

All 9-5/8" wellhead equipment to be H2S trim.

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9. WELL CONTROL

- Below surface casing, arrange the well control system as shown on the attached "Well Control Schematic". All equipment exposed to wellbore pressure will be rated at 3,000 psi or greater. The equipment will meet or exceed, and be tested per API Guidelines and/or governmental requirements for 3,000 psi systems (including Onshore Oil and Gas Order #2 dated November 18, 1988).
- Test pressures will be as follows:

ITEM	LOW PRESSURE TEST	HIGH PRESSURE TEST
Annular	500 psi for 5 min	1500 psi for 10 min

Pipe Rams (against plug)	500 psi for 5 min	3000 psi for 10 min
Blind Rams (against plug)	500 psi for 5 min	3000 psi for 10 min
Casing	none required	70% of rated burst

- Any pressure bleed-off while testing against the plug constitutes a failed test.
- Test the casing to 70% of rated burst prior to drilling out the shoe. No more than a 10% bleed-off in 30 minutes is allowed while testing casing.
- Prior to drilling out the cement plug, check the accumulator precharge and perform an API Accumulator and Pump Performance Test.
- Auxiliary equipment will include the following items:
 - Upper kelly cock (kelly safety valve), 3000 psi WPD drill string safety valve(s) for all string components, 3000 psi WP
 - Visual mud monitoring equipment
 - ROP, hookload and pump pressure pen recorder
 - Drill string float
 - Lower kelly cock
 - Combustible gas detector
 - H2S monitoring equipment below intermediate casing
- Additionally, the following procedures will be followed:
 - Each tour, record slow pump rates.
 - Each tour, inspect the well control system and record the accumulator pressure.
 - Fill out "Trip sheets" on all trips.
 - Schedule and conduct BOP drills each week. Each crew will carry out a weekly BOP drill on their first tour after drilling out from under surface casing; during this drill, function test the annular.

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10. The anticipated duration: 30 days.

Prepared by Jerry W. Collins
 J. W. Collins

1-11-2000
 Date

CASING DESIGN

SITLA SWD #1

Sec 23 - T15S - R 9E

Carbon Co., Ut.

HOLE SIZE	SET To	CMT TOP	CASING SIZE	DRIFT	GRADE	WEIGHT LB/FT	CONN.	TENSION (1000 LBS.)			COLLAPSE (PSI)			BURST (PSI)		
								RATING	LOAD	S.F.	RATING	LOAD	S.F.	RATING	LOAD	S.F.

SURFACE CASING

17.5"	300'	SURF	13-3/8"	12.615	J-55	54.5	STC	514	116	4.43	1,130	140	8.07	2,730	956	2.37
-------	------	------	---------	--------	------	------	-----	-----	-----	------	-------	-----	------	-------	-----	------

INTERMEDIATE CASING

12.1/4"	2580'	SURF	9 5/8"	8.921	J-55	36	STC	394	193	2.04	2,020	1207	1.67	3,520	1486	2.37
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INJECTION CASING

8 3/4"	6,118'	SURF	7"	6.276	J-55	26	LTC	367	259	1.42	4,320	2863	1.51	4,980	3000	1.66
--------	--------	------	----	-------	------	----	-----	-----	-----	------	-------	------	------	-------	------	------

SURFACE CASING NOTES:

BURST DESIGN is based on maximum BHP of 1207 psi (9 ppg gradient) with a .1 psi/ft gas gradient to give a maximum surface pressure of 956 psi.

COLLAPSE DESIGN is based on 9 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

INTERMEDIATE CASING NOTES:

BURST DESIGN is based on a 13 ppg fracture gradient at the shoe, 9 ppg pressure gradient at TD and a .1 psi/ft gas gradient.

COLLAPSE DESIGN is based on 9.0 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

INJECTION CASING NOTES:

BURST DESIGN is based on a maximum surface treating pressure of 3,000 psi.

COLLAPSE DESIGN is based on 9.0 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

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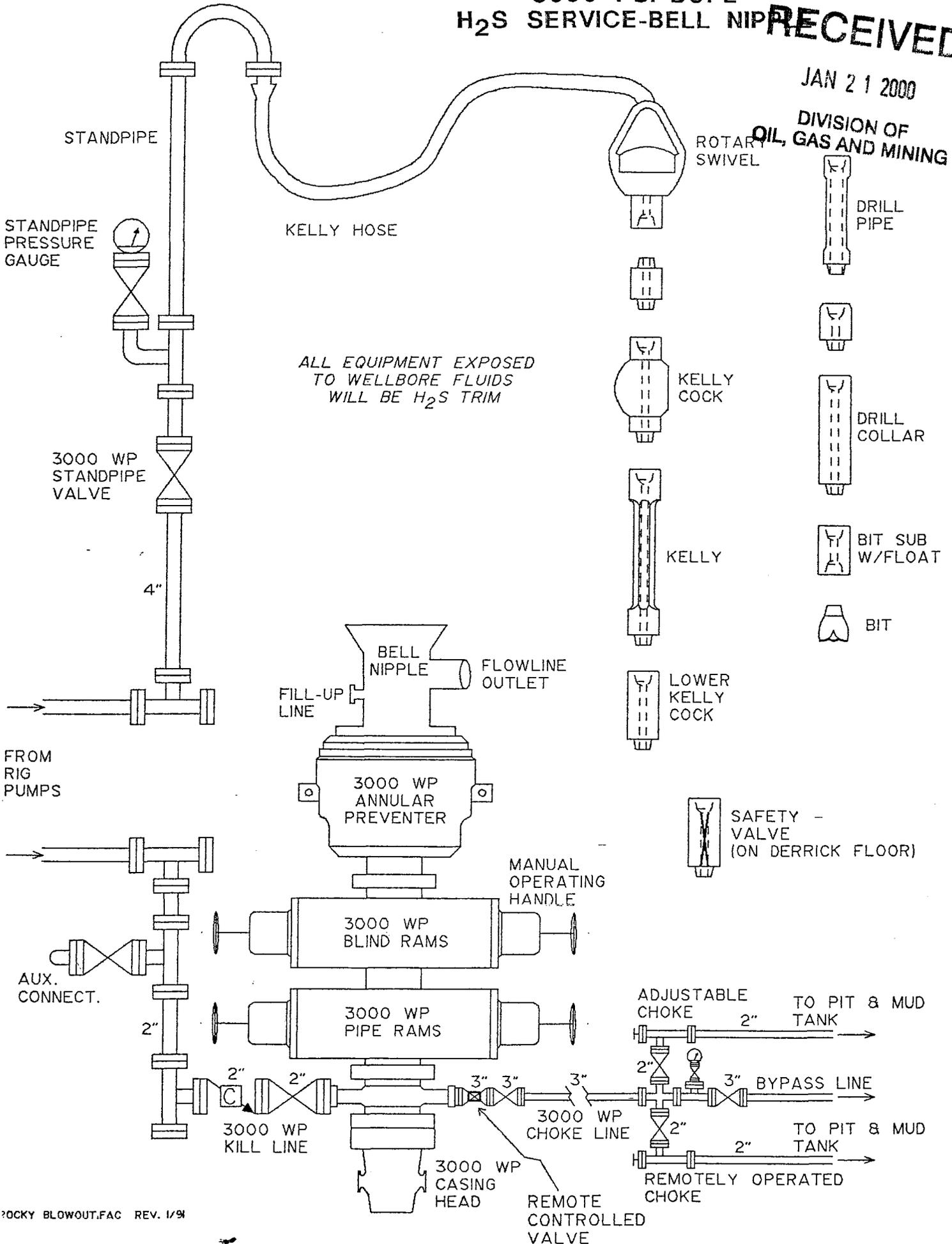
MARATHON COMPANY

3000 PSI BOPE

H₂S SERVICE-BELL NIP RECEIVED

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Marathon Oil Company - Rocky Mountain Region
H₂S DRILLING OPERATIONS AND CONTINGENCY PLAN

SITLA SWD #1
Section 23, T15S, R9E
Carbon County, Utah

MARATHON OIL COMPANY

1501 STAMPEDE AVENUE

CODY, WYOMING 82414

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EMERGENCY PROCEDURE FOR THE ACCIDENTAL RELEASE OF H₂S GAS

Marathon Oil Company - Rocky Mountain Region
H₂S DRILLING OPERATIONS AND CONTINGENCY PLAN

TABLE OF CONTENTS

<u>Section</u>	<u>CONTENTS</u>
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II.	PROPERTIES OF HYDROGEN SULFIDE GAS
III.	TREATMENT OF HYDROGEN SULFIDE POISONING
IV.	EMERGENCY AND H ₂ S DETECTION EQUIPMENT
V.	WELL CONTROL EQUIPMENT
VI.	PERSONNEL TRAINING
VII.	MUD PROGRAM
VIII.	WELL TESTING
IX.	EMERGENCY PROCEDURE
X.	BLOWOUT PREVENTION POLICY
XI.	PROPOSED RIG LAYOUT

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I. PURPOSE

The provisions set forth within this plan have been established to safeguard both wellsite personnel and the general public in the event of an undesirable hydrogen sulfide related occurrence, during the drilling of formations which may contain this gas. Marathon Oil Company has drilled approximately 1400 development wells in our Big Horn Basin Fields, without recording a single problem with an uncontrolled hydrogen sulfide gas (H₂S) influx reaching the surface. However, as a precautionary measure, this plan has been prepared to ensure the safety of all involved, should such an occurrence ever take place.

II. PROPERTIES OF HYDROGEN SULFIDE GAS

H₂S is a colorless gas. It has a foul odor similar to that of rotten eggs, when it is present in low concentrations. In large concentrations, or over long periods of exposure to low concentrations, the characteristic odor of H₂S cannot be relied upon for warning, since it will deaden the sense of smell. H₂S is heavier than air and on still days tends to accumulate in low areas. Also, it is flammable in concentrations of 4.3 to 46.0 percent by volume in air.

H₂S is considered to be an irritant gas as well as a toxic gas. In low concentrations (50-500 ppm) H₂S acts primarily as a respiratory irritant. In higher concentrations (500-1000 ppm) H₂S acts primarily as a systemic poison, causing unconsciousness and death through respiratory paralysis. Typical physical effects resulting from exposure to H₂S are given below.

<u>Concentration</u>	<u>Physical Effect</u>
10 ppm	Obvious and unpleasant odor. (Considered to be the safe 8 hour level of exposure, measured as a time weighted average, by Wyoming OSHA.)
100 ppm	Kills smell in 3 to 15 minutes; may sting eyes and throat.
200 ppm	Kills smell shortly; stings eyes and throat.
500 ppm	Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration.

II. PROPERTIES OF HYDROGEN SULFIDE GAS (Continued)

700 ppm	Unconsciousness quickly; death will result if not rescued promptly.
1,000 ppm	Unconscious at once; followed by death within minutes.

III. TREATMENT OF HYDROGEN SULFIDE POISONING

If a person has been overcome by exposure to H₂S, prompt rescue and first aid are necessary to save the victim's life. The following steps should be taken.

1. Put on a breathing apparatus before attempting a rescue. Otherwise, you too may become a victim.
2. Immediately move the victim to fresh air.
3. If victim is not breathing, commence artificial respiration immediately.
4. Summon medical help or get victim to a physician as soon as possible.

IV. EMERGENCY AND H₂S DETECTION EQUIPMENT

As a minimum, the emergency equipment listed below will be available at the wellsite.

- 1 - First aid kit (24 unit minimum)
- 1 - Set of arm splints
- 1 - Set of leg splints
- 1 - Stretcher
- 2 - Wool blankets, or blankets equal in strength and fire resistance
- 4 - Fire extinguishers, 20 pound multi-purpose dry chemical or equivalent
- 1 - 5 minute SCBA escape pack in the derrick
- 5 - 30 minute SCBA packs, Scott Pressure-Pac II (or equivalent)
- 2 - Blaze orange wind direction indicators
- 1 - T.A.C. Model 303 (or equivalent) monitor, 3 sensors with audible (10 ppm) and visual (15 ppm) alarms

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IV. EMERGENCY AND H₂S DETECTION EQUIPMENT (Continued)

- 1 - Portable Gastec (or equivalent) gas tester
- 2 - 4'x4' H₂S warning signs with 3 color flags placed "500'
from the location on each road leading to the location
- 1 - Flare gun with flares for ignition of flare line
- 1 - Mobile radio
- 1 - Telephone (if available)

A poster will be located at or near all radios and/or radio phones plainly stating the phone numbers of available doctors, hospitals, and ambulance services within the area. Additionally, an emergency procedure, as attached, will be maintained on location along with the names and telephone numbers of the person or persons to be informed in case of emergencies. All emergency equipment will be on site and operational at least 500 feet or three days (whichever comes first) prior to penetrating any formation suspected or known to contain H₂S gas. All H₂S safety equipment will be checked to assure readiness before each tour change. See attached Proposed Rig Layout for location of safety equipment.

V. WELL CONTROL EQUIPMENT

- 1 - Pit volume totalizer
- 1 - Flow sensor
- 1 - Rotating head - Grant Model 70-68 (or equivalent)
- 1 - Mud-gas separator with flare lines (if applicable)
- 1 - Remote control choke - Swaco Superchoke (or equivalent)
- 1 - Choke manifold with appropriate lines (choke & flare lines)
Flare line can be ignited by flare or bucket of burning
diesel
- 1 - Properly sized B.O.P.

Metallurgical properties of all tubular goods and well control equipment which could be exposed to wellbore fluids will meet H₂S requirements per NACE Standard MR-01-75

The casing design and properties are located on the Casing Design page of the attached Drilling Operations Plan and are designed to meet H₂S requirements. The well head, BOP, rotating head, kill lines, chokes, choke lines, choke manifold, and all valves are shown and described on the attached BOP diagram. Drill pipe will be grade G-105 (quenched and tempered), grade X-95, or grade E-75 to meet H₂S requirements in a controlled drilling environment per NACE Standard MR-01-75.

VI. PERSONNEL TRAINING

All employees on location will have been currently trained in H₂S safety 500 feet or three days prior to penetrating any formation suspected or known to contain H₂S gas. The training of personnel will include, as a minimum, the elements listed below.

1. The characteristics of H₂S and its hazards.
2. The proper first aid procedures to be used in the event of an H₂S knockdown.
3. Use of personal protective equipment and hand signals for communication while wearing protective breathing apparatus.
4. Corrective action, shutdown procedures, and the emergency procedure.
5. H₂S drills and tests of H₂S monitoring equipment will be scheduled and conducted each week and recorded in the IADC report.

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The anticipated radius of exposure for 100 ppm and 500 ppm concentrations are .4' and .1', respectively. Radius of exposure calculations are based on .08% H₂S and 10 MCFPD flow rates. As no public areas exist within the above stated radii, a public protection plan is not required.

VII. MUD PROGRAM

The drilling mud will be monitored to maintain its pH in the range of 9.5 to 10.0. This action, along with a slightly over-balanced mud weight, will not allow H₂S to reach the surface in a potentially dangerous raw form. Materials to scavenge H₂S from the mud system will be on location at all times.

VIII. WELL TESTING

Plans for testing (if any) can be found in Section #6 of the attached Drilling Operations Plan.

(To be posted on the bulletin board in the dog house.)

IX. EMERGENCY PROCEDURE

In order to assure the proper execution of this procedure, it is essential that one person be responsible for its implementation. Therefore, responsibility shall be designated in the following order, depending upon who is on location.

1. Marathon Oil Company's Representative
2. Contract Toolpusher

In the event of an undesirable H₂S release, all wellsite personnel should move upwind of the location. A check will be made to ensure that all persons are present. If not, proceed with rescue. Two persons, each wearing a self-contained breathing apparatus, should re-enter the hazardous area to locate the missing individuals. If overcome persons are located, prompt rescue and first aid are necessary to save the victims' lives. All rescue and first aid attempts should be conducted in a manner consistent with the procedures presented during each employee's H₂S safety training session. A list of emergency medical help in the area is given below.

MEDICAL PERSONNEL

Hospitals

Castle View Hospital, Price Utah

435-637-4800

Ambulance

911

Once all wellsite personnel are accounted for and safe, attempts will be made to locate and define the problem, and to proceed with emergency shut-in procedures.

Marathon Oil Company personnel should then be contacted to inform them of the present status of the situation. It will be Marathon's responsibility to ignite the well, in the event of an uncontrolled blowout.

X. BLOWOUT PREVENTION POLICY

1. Light plant will be located a minimum of 125 feet from the well.
2. Rig will be equipped with a vapor proof lighting system. A switch panel will be located on the rig floor to provide sufficient circuits for maintaining light on rig floor and under the substructure during blowout. All other lights will be out in the event of a blowout.
3. Engine exhausts will be horizontal and equipped with a remote operated spray system.
4. Pump and drawworks engines will have a remote ignition 'kill' system readily accessible to the driller.
5. All vehicles will be parked at least 125 feet from the well unless supplying rig material.
6. The contract pusher will instruct each man of his duties in case of any emergency and inform Marathon of these duties.
7. The contract pusher on each rig will have blowout preventer, fire and H₂S drills with each crew once each week and note same in Marathon log book.
8. The contract pusher will instruct the derrickman in the use of the Geronimo.
9. Gate type blowout preventers and choke manifold valves will be operated on each trip out for a new bit and so noted in the log book. All valves will be equipped with handles.
10. Blowout preventers will stay in place and be operable until casing is cemented and packing and slips are in place.
11. The choke line will be cleaned from the BOP's to the pit immediately after setting surface casing and once a week thereafter.
12. Manual handles must be on blowout preventers.
13. The pipe from the blowout preventer to the choke manifold will be kept free of all sharp bends or be rigged with targeted tees.
14. The choke manifold will be out from under the rig floor and braced.
15. Choke lines will run straight from rig and be tied down.
16. The choke lines will be run to the reserve pit and/or mud tank as indicated on the attached exhibit.

IX. EMERGENCY PROCEDURE (continued)

MARATHON OIL COMPANY PERSONNEL

W. D. Holmes, Operations Manager	(307) 587-4961 Business (307) 527-4446 Home
J. J. Moran, Drilling Superintendent	(307) 587-4961 Business (307) 527-9452 Home

EMERGENCY PHONE NUMBERS

FIRE DEPARTMENT	911
SHERIFF	911
POLICE DEPARTMENT	911
State of Utah Department of Natural Resources Division of Oil, Gas, and Minerals Gil Hunt	801-538-5297

MEANS OF COMMUNICATION FROM WELL SITE

- 1) Two-way radio in company vehicle and/or dog house.
- 2) Telephone in company trailer if available.

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MARATHON OIL COMPANY

ROCKY MOUNTAIN REGION

PROPOSED RIG LAYOUT

NOT TO SCALE

NOV. 1999

Sitla SWD #1

CARBON COUNTY, UTAH

+++ PORTABLE H2S MONITOR

▣ 30 MINUTE SCBA

/// WINDSOCK

□ WARNING SIGN

NORTH DIRECTION

PREDOMINENT WIND DIRECTION

□ TRASH CAGE
□ CHEM. TOILET

RESERVE PIT

FLARE LINES

MUD VAN

MUD TANK

MUD TANK

CHOKE HOUSE

PIPE BASKET

+/- 75'

BOILER

FUEL

#1 & #2
PUMP HOUSE

SUBSTRUCTURE

CHOKE LINES

PIPE BASKET

PIPE BASKET

CATWALK

PROPOSED ACCESS ROAD

+/- 110'

ACCUMULATOR

DOGHOUSE

WATER TANK

PIPE RACKS

SECONDARY BRIEFING AREA

PRIMARY BRIEFING AREA

TOOLPUSHER TRAILER

COMPANYMAN TRAILER

+/- 170'

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SURFACE USE PLAN

Attached to Form 3
Marathon Oil Company
Well Name: SITLA SWD #1
Lease: ML-45691
Sec. 23, T15S, R9E
Carbon County, Utah

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MULTI-POINT SURFACE USE PLAN

1. Existing Roads -- Legible maps listed as Topo 'A & B'.

A. Proposed wellsite as staked, Exhibit 'C'.

Actual staking included four directional survey reference stakes as shown on the attached survey plat from: Uintah Engineering & Land Surveying of Vernal, Utah.

B. The proposed well is approximately 13 miles SW of Price, Utah.

C. All roads in the immediate area are shown on the attached Vicinity Maps, Topo 'A & B'.

D. A new access road will be constructed. Existing field roads will also be utilized for access. Topo 'B'.

E. If snow removal outside the roadway is undertaken, equipment used for snow removal operations will be equipped with shoes to keep the blade 4 inches off the ground surface. Special precautions will be taken where the surface of the ground is uneven to ensure that equipment blades do not destroy vegetation.

F. Unless otherwise exempted, free and unrestricted public access will be maintained on the access road.

G. The existing road will be maintained in the same or better condition. A regular maintenance program will include, but is not limited to blading, ditching, culvert installation and surfacing.

2. Description of New Access Road Construction, Operations & Maintenance

A. Planned Access Roads

- (1) A new access road to the location will be necessary for this well. Topo 'B'.
- (2) Roads constructed on SITLA lands will meet the minimum standards for a resource road.
- (3) Roads constructed across SITLA lands will be inspected by or under the direction of a licensed professional engineer or qualified inspector.
- (4) The maximum width of the road right-of-way will be 40 feet.
- (5) A topo map showing the centerline of the road is attached. Topo 'B'.
- (6) The road will be graded to the following specifications:
 - I) 14 foot travelway width (Finished Surface).
 - ii) 0 percent maximum grade.
 - iii) No cut slopes and no fill slopes.
 - iiii) No Turnouts will be necessary.
- (7) Location and size of culverts – One (1) 66" culvert will be required as part of the access road for this well. See TOPO 'B'.
- (8) Surface Material -- Onsite surface materials will be used to construct the road. Gravel will be applied to the road and crucial areas of the pad prior to drilling activities.
- (9) Necessary gates, cattleguards, or fence cuts -- None
- (10) A center line survey was conducted on the road leading to the location from the existing road. See Topo 'B'.

B. Clearing and Grading

- (1) All woody plant materials will be cleared from the surfaces to be cleared or excavated. Cleared vegetative materials will be disposed of by spreading on cut areas or ditches.
- (2) Construction activity will not be conducted using frozen or saturated soil material or during periods when watershed damage is likely to occur.

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- (3) The travelway , in crucial areas, will be surfaced with gravel to a depth of 4 to 6 inches.

C. Drainage

- (1) Culverts will be placed on channel bottoms on firm, uniform beds which have been shaped to accept them and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.

- (2) The minimum diameter of the culvert— 66"

D. Operations and Maintenance of New Road

(1) Maintenance

i) If snow removal outside the roadway is undertaken, equipment used for snow removal operations will be equipped with shoes to keep the blade 4 inches off the ground surface. Special precautions will be taken where the surface of the ground is uneven to ensure that equipment blades do not destroy vegetation.

ii) The access road will be maintained in a safe and usable condition. A regular maintenance program will include, but is not limited to, blading, ditching, culvert installation and surfacing.

(2) Access

Unless otherwise exempted, free unrestricted access will be maintained on the access road.

(3) Location of Wells

The location of all existing wells within a one-mile radius are shown on Exhibit "G".

- A. Water Wells – None
- B. Abandoned Wells -- None
- C. Temporarily Abandoned Wells -- None
- D. Disposal Wells -- None
- E. Drilling Wells -- None
- F. Producing Wells – Yes
- G. Shut-In Wells -- None
- H. Injection Wells -- None
- I. Monitoring or Observation Wells for Other Resources -- None

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4. Location of Existing or Proposed Facilities

A. Marathon does own facilities within a one-mile radius.

These facilities include:

- (1) Tank Batteries -- Yes
- (2) Production Facilities -- Yes
- (3) Oil Gathering Lines -- Yes
- (4) Gas Gathering Lines -- Yes
- (5) Injection Lines -- No
- (6) Disposal Lines -- Yes

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B. Disposal Facilities will be needed.

(1) Production facilities will be located on the well location. This well will be located in the proposed central facilities area which will handle all production, treatment, sales of gas from Marathon's leases, and disposal of produced water from Marathon leases. See TOPO "B".

(3) Areas of the drill pad not required for production will be rehabilitated.

(4) All construction materials required for pad will be obtained by the dirt contractor.

(5) A tank battery will not be necessary for this well.

(6) Rat and mouse holes will be filled and compacted from bottom to top immediately upon release of the drilling rig from location.

C. All disturbed areas no longer needed for operations will be restored as nearly as possible to the original contour and will be reseeded and revegetated, as specified by SITLA.

D. Powerlines

No powerlines will be necessary.

5. Location and Type of Water Supply

A. Water will be purchased from Price River Water Improvement District, The City of Price or will be obtained from an authorized water hauler contractor.

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6. Source of Construction Materials

- A. Construction materials will consist of native materials. Gravel will be used to surface crucial areas of the location and access road.
- B. Gravel will be obtained by the dirt contractor.
- C. The dirt contractor will obtain any necessary permits in association with the gravel.

7. Methods for Handling Waste Disposal

- A. Cuttings: Cuttings will be disposed of in the reserve pit, see Exhibit 'E'.
- B. Drilling Fluids: Drilling fluids will be disposed of in the reserve pit, see Exhibit 'E'.
- C. Produced water and/or oil will be contained in steel tanks and hauled to proper facilities.
- D. Sewage, of which there will be very little, will be disposed of in portable chemical latrines and holding tanks, then transported to proper facilities.
- E. Burnable wastes and other solid waste materials will be gathered and contained in a wire mesh cage. This waste will be transported to a State approved waste disposal site upon completion of operations.
- F. Upon completion of drilling operations, all waste materials on location will be gathered and will be buried or hauled from the drill site. The reserve pit will be back filled when it is dry enough to do so. No waste materials will be disposed of the reserve pit. All waste will be transported to an approved disposal site.
- G. All State and Local Laws pertaining to disposal of human and solid waste will be complied with.
- H. Marathon and its contractor(s) maintain a file, per 29 CFR 1910.1200 (g) containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds, and/or substances which are used during the course of construction, drilling completion, and production operations for this project. Hazardous materials (substances) which may be found at the site may include drilling mud and cementing products which are primarily inhalation hazards, fuels (flammable and/or combustible), materials that may be necessary for well completion/stimulation activities such as flammable or combustible substances and acids/gels (corrosives). The opportunity for Superfund Amendments and Reauthorization Act (SARA) listed Extremely Hazardous Substances (EHS) at the site is generally limited to proprietary treating chemicals. All

hazardous and Extremely Hazardous Substances and commercial preparations will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

8. Ancillary Facilities

Ancillary facilities will be temporary and will consist of two to four trailer houses on the drill site. One trailer will be for Marathon personnel and the others will be for contractor personnel. Location of these facilities is shown on the attached Exhibit 'E'. Trailers will also be utilized to house drilling personnel.

9. The Well Site Layout is Shown on Exhibit 'E'

A. Exhibit 'E' shows the drill pad. A cross section of the drill pad through the center line of the hole showing cuts and fill is on Exhibit 'F'.

B. The location of mud tanks, reserve pit, pipe racks and living facilities are shown on Exhibit 'E'.

C. Rig orientation, parking and trailer locations are shown on Exhibit 'E'.

1) Clearing and Grading

Construction activity will not be conducted using frozen or saturated soil material or during periods when watershed damage is likely to occur.

2) Pits

a) The reserve pit will be lined. Completion fluids will be placed in the reserve pit.

b) Production pits will be flagged /fenced overhead and fenced around the perimeter of the pit to prevent wildlife and livestock use.

c) Reserve pit will be fenced on three non-working sides during drilling and on the remaining side following rig release.

d) The reserve pit will be constructed so that half of its total volume is below natural ground level.

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10. Plans for Restoration of the Surface

A. The disturbed areas will be backfilled and contoured to as near original contours as possible except for the necessary area required for operation. Mud pits, burn pits, reserve pits and any cuts and fills will be filled, leveled or sloped as needed, to return the location to its original contour as specified by the land owner.

B. Revegetation and rehabilitation will be conducted during a period when optimum success can be expected.

C. The reserve pit as mentioned above will be fenced.

D. Should there be oil on any pit, the oil will be removed or overhead flagging will be installed until the oil is removed in a timely manner.

E. Rehabilitation will commence in the Spring of 2000, with final reseeding of the area conducted either in the Fall of 2000 or the Spring of 2001.

F. Recontouring

(1) All disturbed areas will be recontoured by grading to return the site to approximately the original contour of the ground by forming natural, rounded slopes.

(2) The entire roadway, including cut and fill slopes, will be scarified and obliterated. The ditches will be filled and structures removed. Fills will be removed and placed into cut areas, and the entire roadway will be rough graded to approximately the original contour by forming natural, rounded slopes.

G. Pits

(1) The contents of the reserve pit(s) will be allowed to dry. Fluids that will not dry after two years will be moved to a site approved by the Utah Department of Environmental Quality.

(2) Reserve pit(s) will be backfilled when dry with a minimum of 5 feet of soil material.

H. Surface Manipulation

(1) After final grading and prior to the replacement of topsoil, the entire surface of the site will be ripped on 24" centers, 18" deep.

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- (2) The surface soil material shall be chiseled with small ridges to form longitudinal depressions 12 - 18 inches deep. The entire area will be uniformly covered with the depressions constructed perpendicular to the natural flow of water.
- (3) Waterbars will be constructed on all areas to: (1) simulate the imaginary contour lines of the slope with a grade of one or two percent; (2) drain away from the disturbed area; and (3) begin and end in undisturbed vegetation or soil.

I. Seeding

- (1) All disturbed areas except areas required for production, access roads, etc. will be drill seeded. When drilling is impractical, seed will be broadcast. If broadcast, the rate will be doubled.
- (2) The following seed mixture will be used.

<u>Seed Mixture</u>	<u>Drilled Rate</u>
---------------------	---------------------

Areas will be reseeded with the seed mixture specified by the Price Coalbed Methane Project Final Environmental Impact Statement.

J. Weed Control

Weeds will be controlled on disturbed areas within the exterior boundaries of the well pad and road. The control methods will be in accordance with guidelines established by the State and Local authorities.

11. Surface Ownership

Surface ownership of the involved lands containing the road, pad and flow line will be State of Utah School and Institutional Trust Lands Administration.

12. Other Information

- A. The general terrain of the area is flat. The land is presently being used for cattle and sheep grazing and oilfield activities. There is no occupied dwelling in close proximity of the proposed well location.
- B. Other surface use consists of wildlife habitat.
- C. An Archaeological inventory was conducted of the involved area and is attached. The operator will be responsible for informing all persons associated with this project

that they will be subject to prosecution for damaging, altering, excavating or removing and archaeological, historical, or vertebrate fossil objects on the site. If archaeological, historical, or vertebrate fossil materials are discovered, the operator will suspend all operations that further disturb such materials and immediately contact the authorized officer. Operations will not resume until written authorization to proceed issued by the authorized officer.

Within (5) five working days, the authorized officer will evaluate the discovery and inform the operator of actions that will be necessary to prevent loss of significant cultural or scientific values.

The operator will be responsible for the cost of any mitigation required by the authorized officer. The authorized officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the operator will be allowed to resume operations.

D. Permanent structures other than pumping units, electrical equipment, tie downs, wellheads and lines will be painted the standard environmental color Carlsbad Canyon or as otherwise specified by SITLA.

E. No fracs with volatile fluids are anticipated. However, the drill pad is of adequate size to comply with safety regulations with a frac using volatile fluids.

G. The operator will be responsible for the prevention and suppression of fires on public lands caused by its employees, contractors or subcontractors. During conditions of extreme fire danger, surface use operations may be either limited or suspended in specific areas, or additional measures taken as required by the authorized officer.

13. Lessee's or Operator's Representative and Certification

	<u>OPERATIONS</u>	<u>DRILLING</u>
Name:	Mark P. Fisher	J. J. Moran
Address:	1501 Stampede Ave. Cody, Wyoming	1501 Stampede Ave. Cody, Wyoming
Telephone:	(307) 527-2081	(307) 527-3206

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14. Certification

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, are true and correct; and, that the work associated with operations proposed herein will be performed by Marathon Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

Self Certification

Bond coverage pursuant to SITLA for lease activities is being provided by Marathon Oil Company who will be responsible for compliance with all the terms and conditions of that portion of the lease associated with this application. SITLA Bond #5922542 and State of Utah, Department of Natural Resources Bond #5217029.



By: R. P. Meabon
Regulatory Coordinator
Marathon Oil Company
Rocky Mountain Region

1/17/2000
(Date)

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MARATHON OIL CO.

LOCATION LAYOUT FOR

SITLA SWD #1
SECTION 23, T15S, R9E, S.L.B.&M.
300' FNL 300' FWL

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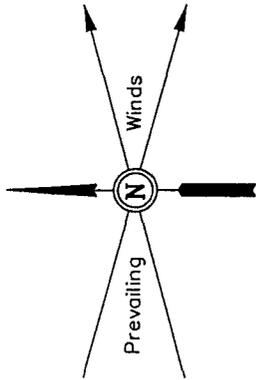
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F-7.8'
El. 71.3'

Sta. 3+40

F-4.5'
El. 74.6'

Sta. 0+00



SCALE: 1" = 50'
DATE: 1-5-00
Drawn By: C.B.T.

NOTE:

Flare Pit is to be located a min. of 100' from the Well Head.

El. 84.4'
C-15.3'
(btm. pit)

Approx. Top of Cut Slope

Reserve Pit Backfill & Spoils Stockpile

FLARE PIT

C-1.9'
El. 81.0'

C-1.0'
El. 80.1'

C-0.5'
El. 79.6'

10' WIDE BENCH

RESERVE PITS
(10' Deep)

Pit Capacity
With 2' of
Freeboard is
± 15,490 Bbls.

Sta. 0+50

El. 92.5'
C-23.4'
(btm. pit)

El. 89.3'
C-10.2'

El. 86.8'
C-7.7'

El. 91.3'
C-12.2'

C-6.4'
El. 85.5'

C-0.5'
El. 79.6'

Elev. Ungraded Ground at Location Stake = 5879.6'
Elev. Graded Ground at Location Stake = 5879.1'

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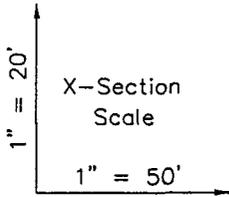
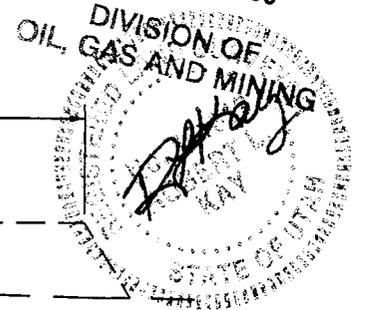
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TYPICAL CROSS SECTIONS FOR

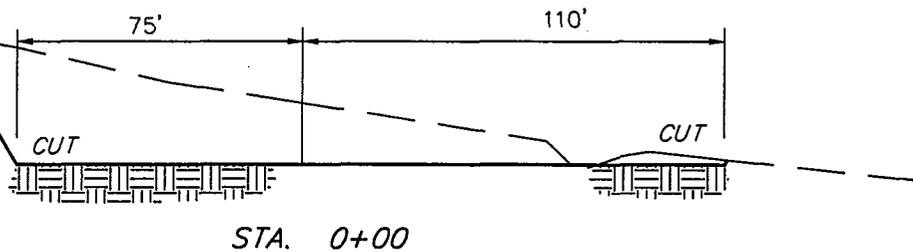
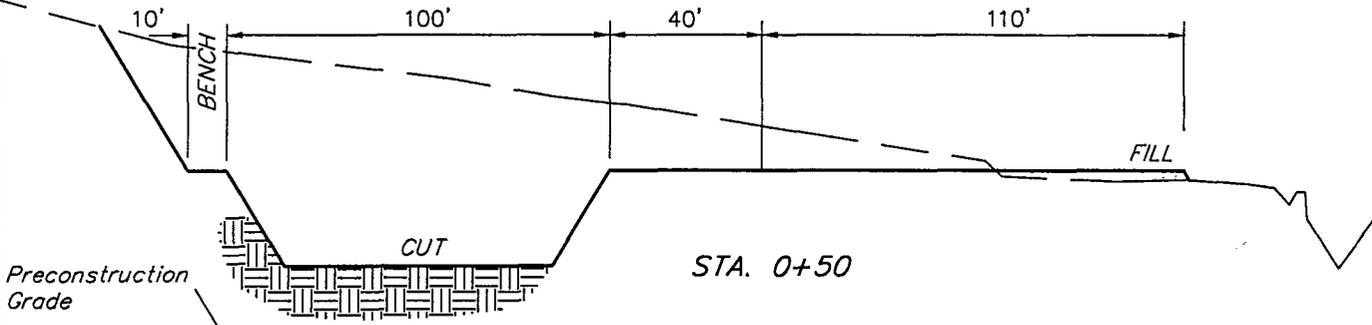
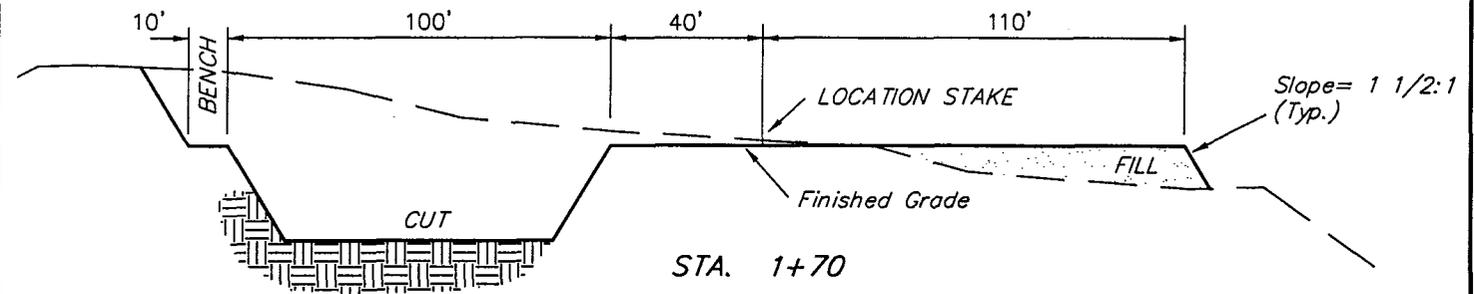
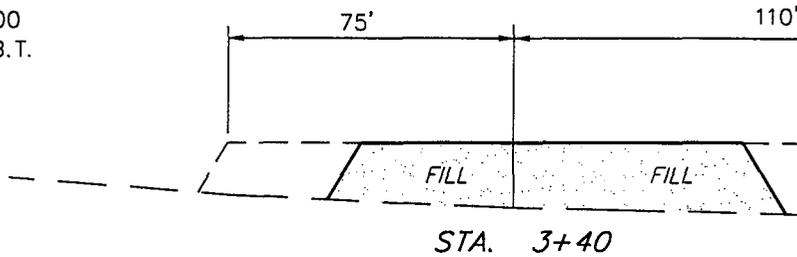
SITLA SWD #1
SECTION 23, T15S, R9E, S.L.B.&M.
300' FNL 300' FWL

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DATE: 1-5-00
Drawn By: C.B.T.



NOTE:
Topsoil should not be Stripped Below Finished Grade on Substructure Area.

APPROXIMATE YARDAGES

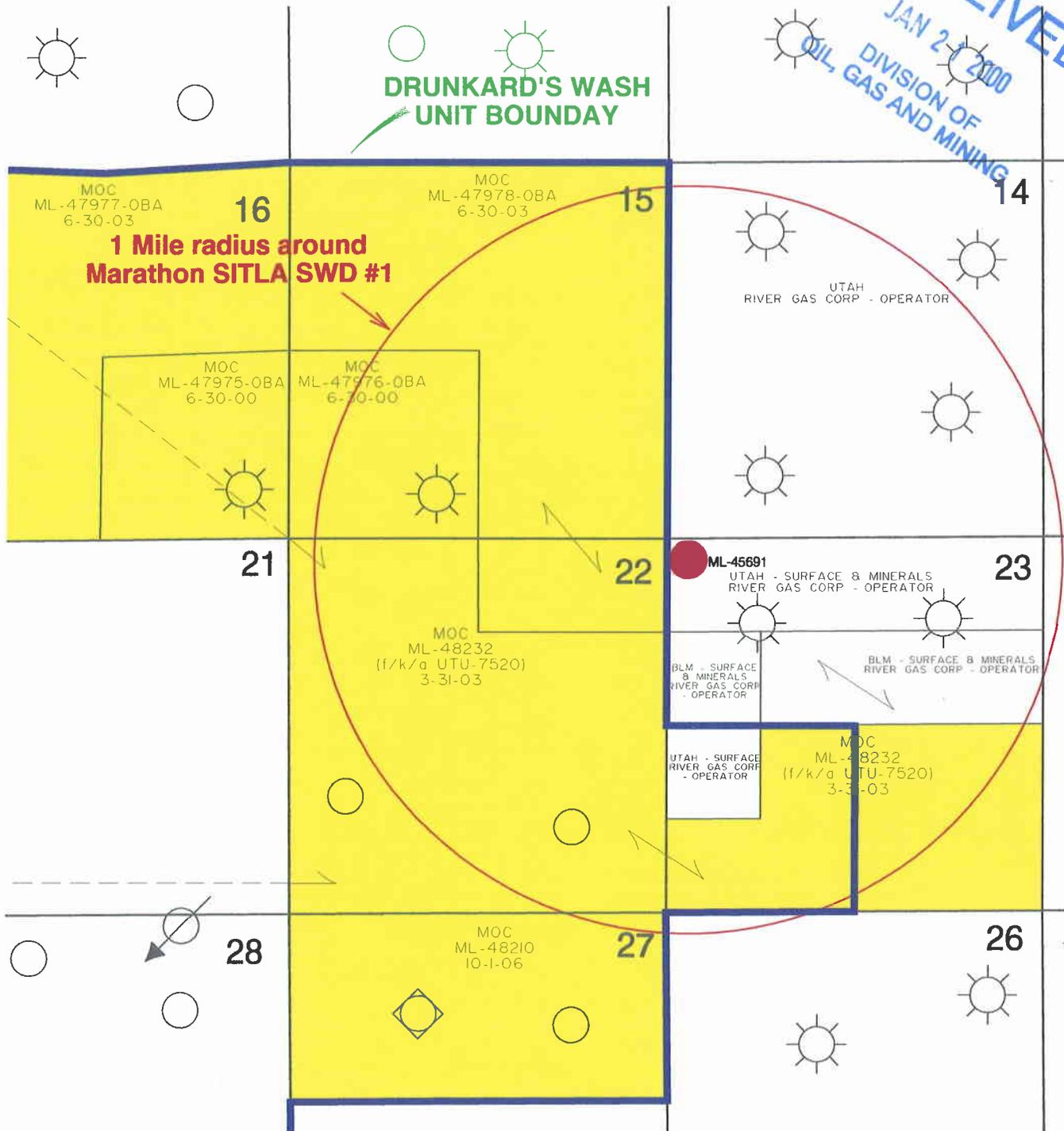
(6") Topsoil Stripping	= 1,400 Cu. Yds.
Remaining Location	= 11,600 Cu. Yds.
TOTAL CUT	= 13,000 CU.YDS.
FILL	= 6,240 CU.YDS.

EXCESS MATERIAL AFTER 5% COMPACTION	= 6,430 Cu. Yds.
Topsoil & Pit Backfill (1/2 Pit Vol.)	= 2,280 Cu. Yds.
EXCESS UNBALANCE (After Rehabilitation)	= 4,150 Cu. Yds.

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DRUNKARD'S WASH
UNIT BOUNDARY



T
15
S

R 9 E

DRUNKARD'S WASH FIELD
CARBON COUNTY, UTAH

0 1/2 1 MILE

MARATHON OIL CO.
SITLA SWD#1

CULTURAL RESOURCE INVENTORY OF
FLEET ENERGY'S SITLA SWD-1 WELL LOCATION
IN THE SERVICEBERRY CREEK AREA
CARBON COUNTY, UTAH

Sharyl Kinnear-Ferris
and
Mark C. Bond

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MONTGOMERY ARCHAEOLOGICAL CONSULTANTS

Box 147, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

CULTURAL RESOURCE INVENTORY OF FLEET ENERGY'S
SITLA SWD-1 WELL LOCATION IN THE SERVICEBERRY CREEK AREA,
CARBON COUNTY, UTAH

by

Keith R. Montgomery
and
Sharyl Kinnear-Ferris

Prepared For:

State of Utah
School and Institutional
Trust Lands Administration

Prepared Under Contract With:

Fleet Energy LLC
2450 Fondren, Suite 310
Houston, TX 77063

Prepared By:

Montgomery Archaeological Consultants
P.O. Box 147
Moab, Utah 84532

October 18, 1999

United States Department of Interior (FLPMA)
Permit No. 99-UT-60122

State of Utah Antiquities Project (Survey)
Permit No. U-99-MQ-0592s

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INTRODUCTION

In October, 1999, a cultural resource inventory was conducted by Montgomery Archaeological Consultants (MOAC) for a proposed salt water disposal well location and access route in Carbon County, Utah. The archaeological survey was initiated at the request of Mr. Mark Spears, representative for Fleet Energy LLC, Houston, Texas. The proposed well location is designated SITLA SWD-1. The project area is located in Township 15 South, Range 9 East, Sections 14 and 23 on State of Utah School and Institutional Trust Land.

The objective of the inventory was to locate, document, and evaluate any cultural or paleontological resources occurring within the project area in order to attain compliance with a number of federal and state mandates, including the National Historic Preservation Act of 1966 (as amended), National Environmental Policy Act of 1969, the Archaeological and Historic Conservation Act of 1972, the Archaeological Resources Protection Act of 1979, American Indian Religious Freedom Act of 1978, and the Utah State Antiquities Act of 1973 (amended 1992).

The fieldwork was performed by Mark Bond and Greg Nunn for Montgomery Archaeological Consultants on October 11, 1999, under the authority of U.S. Department of the Interior (FLPMA) Permit No. 99-UT-60122 and State of Utah Antiquities Permit (Survey) No. U-99-MQ-0592s. A file search was conducted by the Keith R. Montgomery on September 29, 1999, at the BLM Price River Resource Area, Price, Utah and by Evie Seelinger on October 18, 1999 at the Utah State Historic Preservation Office, Salt Lake City. These consultations revealed that a number of archaeological surveys were completed near the project area. In 1981, an inventory was completed along the Hiawatha telephone corridor by Archeological-Environmental Research Corporation (Hauck 1981). A number of seismic inventories were completed throughout the years (Billat 1982; Cook; Hammack 1983; Montgomery 1984; Thompson 1982). In 1985, the Wattis Road was surveyed by the Bureau of Land Management (Miller 1985). In 1997, Baseline Data Inc. completed the River Gas Corporation 1998 Drilling Season (Eccles 1997). Montgomery Archaeological Consultants (MOAC) has surveyed a number of well locations and pipeline corridors for Fleet Energy in Sections 22 and 27 (Montgomery 1998a, 1998b, 1998c, 1999).

Archaeological sites documented in the vicinity of the project area include a prehistoric temporary camp (42Cb361) recorded by Brigham Young University (Billat 1982); the Hiawatha to Price Railroad grade (42Cb364) documented by Brigham Young University (Thompson 1982); and a prehistoric isolated cist (42Cb1240) recorded by MOAC (Montgomery 1998a).

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DESCRIPTION OF PROJECT AREA

The project area is located in Castle Valley between the towns of Price, Carbon County and Huntington, Emery County, Utah. The inventory consists of a proposed salt water disposal well location situated along Serviceberry Creek (Figure 1). Well Location SITLA SWD-1 is situated in T 15S, R 9E, S. 23 with a 1500 foot proposed access road which follows an existing two track road.

The project area occurs along the western margins of Castle Valley, a lowland plain eroded into the Mancos Shale between the uplifts of the Wasatch Plateau and San Rafael Swell. In general, the inventory area lies in the Mancos Shale Lowlands section of the Colorado Plateau and the Wasatch Plateau section of the Basin and Range-Colorado Plateau Transition physiographic subdivision (Stokes 1986). In particular, the Mancos Lowlands is characterized by sloping pediments, rugged badlands, and narrow flat-bottomed alluvial valleys (Ibid 1986:232). The geology of this area is defined by interbedded sandstone and shale beds of the Cretaceous Mancos Shale Formation, including the Masuk Shale, Emery Sandstone, Blue Gate Shale, Ferron Sandstone, and Tununk Shale Members. The inventory area lies near Serviceberry Creek, which flows east into the Price River. The majority of the project area occurs within a transitional Juniper-Sagebrush community which prefers well-drained sandy soils. Plant species observed in the area include Utah juniper, pinyon, tamarisk, greasewood, rabbitbrush, sagebrush, snakeweed, prickly pear cactus, and grasses. Modern disturbances to the project area include roads and livestock grazing.

SURVEY METHODOLOGY

An intensive pedestrian survey was performed for this project which is considered 100% coverage. Based on the Ferron Natural Gas Development Programmatic Agreement a square ten (10 acre) block centered on the staked location for the well pad is required to be inventoried. The proposed salt water disposal location was surveyed by the archaeologists walking parallel transects spaced no more than 10 meters (30 feet) apart. A 300 foot corridor was surveyed along the associated access route by walking parallel and zig-zag transects spaced no more than 10 meters (30 feet) apart. Ground visibility varied from good to excellent. A total of 30 acres was inventoried for this project situated on land administered by the State of Utah Trust Lands Administration.

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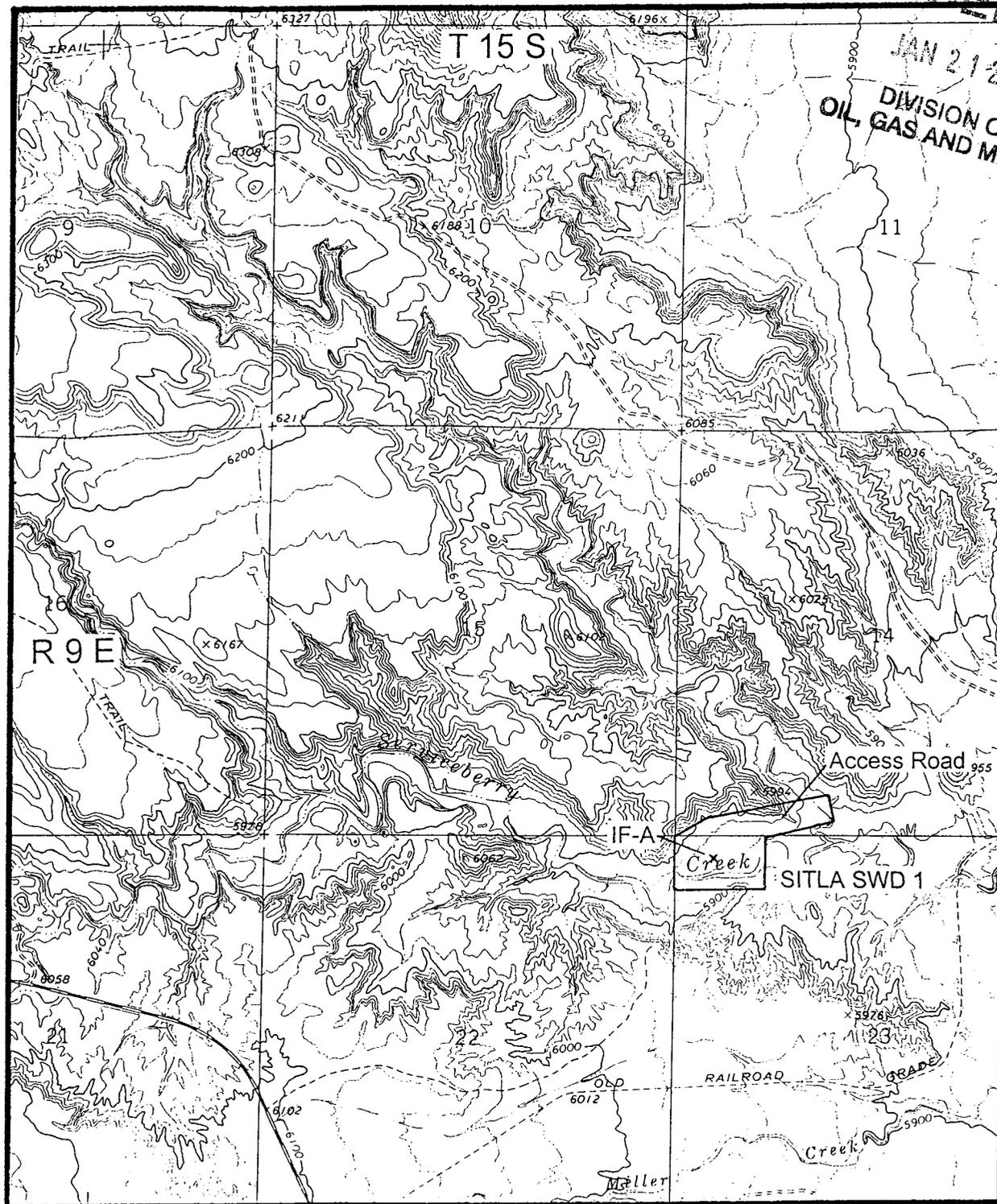


Figure 1. Inventory Area of Fleet Energy SITLA SWD-1 Well Location in the Serviceberry Creek Area, Carbon County, UT. USGS 7.5 Pinnacle Peak, UT 1972. Scale 1:24000.

Cultural resources were recorded as archaeological sites or isolated finds of artifacts. Archaeological sites are defined as spatially definable areas with features and/or ten or more artifacts. Isolated finds of artifacts are defined as individual artifacts or light scatter of items, which lack sufficient material culture to warrant IMACS forms, or to derive interpretation of human behavior in a cultural or temporal context. All isolated finds were plotted on a USGS map and described in this report.

INVENTORY RESULTS

The inventory of Fleet Energy's proposed salt water disposal well location (SITLA SWD-1) and associated access route resulted in the documentation of one isolated find of artifacts (IF-A). No paleontological localities were found.

Isolated Find of Artifacts

Isolated Find A (IF-A) is situated in T 15S, R 9E, Sec. 23, NW/NW/NW (UTM 509620E-4373500N). It is the top of a hole-in-cap can, measuring 4" diameter with a 2 1/4" cap. The fragmentary can has a match hole filler with soldered seams. Eight meters to the north are two sanitary milk cans measuring 2 15/16 by 3 7/8 inches. Four rings are displayed on the bottom, with a flayed top and bottom. Also observed was a 1 screw lid one pound baking powder can lacking a manufacture's mark.

MANAGEMENT RECOMMENDATIONS

The inventory of Fleet Energy's proposed salt water disposal well location (SITLA SWD-1) and access route resulted in the documentation of a historic isolated find of artifacts. This cultural resource is considered not eligible to the NRHP, based on their lack of research potential other than description in this report. The project area retains minimal potential for subsurface cultural resources.

Based on the findings, a determination of "no effect" is recommended pursuant to Section 106, CFR 800 for this project.

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Montgomery, K.R.

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1501 Stampede Avenue
Cody, WY 82414-4721
Telephone 307/587-4961

January 17, 2000

TO WHOM IT MAY CONCERN
(See Exhibit 'A')

Re: Application for Exception Well Location
SITLA Lease # ML-45691
SITLA SWD #1 Section 23-15S-9E
Drunkard's Wash Unit Area
Carbon County, Utah

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OIL, GAS AND MINING

Gentlemen:

In accordance with Rule R649-3-3 of the General Rules and Regulations of the Board of Oil, Gas and Mining, Marathon Oil Company requests a waiver for permission to drill the SITLA SWD #1 for the purpose of water disposal at a surface location 300' FNL, 300' FWL, Section 23, T15S, R9E, S.L.M., in Carbon County, Utah. Marathon will rely on natural drift, which is negligible in this area and anticipates the bottomhole location to be the same as the surface location. Marathon's lease is adjacent to the Drunkard's Wash Unit and the surface and bottomhole locations will be within the Drunkard's Wash unit. The SITLA SWD #1 well will be the responsibility of, and operated by Marathon for the disposal of produced fluids from adjacent non-unitized state leases.

Marathon proposes to drill the SITLA SWD #1 as a Navajo-Kayenta-Wingate disposal well in connection with its coalbed methane operations. The proposed bottomhole location is an exception to the Board's location and siting rules for unproven areas contained in Rule R649-3-2 and to the Division of Oil, Gas and Mining's disposal well spacing requirements for the area. The surface location will be situated on a lease not operated by Marathon Oil Company in the NW/4NW/4 of Section 23, T15S, R9E.

If you have no objections to the granting of this Application, please sign below and return this page to Marathon Oil Company in the enclosed self addressed envelope.

Sincerely,

Marathon Oil Company

R. P. Meabon
Regulatory Coordinator
Rocky Mountain Region
307-527-3003

**WAIVER - SUBJECT TO MARATHON
SETTING INTERMEDIATE CASING
THROUGH THE FERRON FORMATION.**

Company Name: River Gas Corporation

Print Name: Joseph L. Stephenson,
Vice President - Land

Signature:

Date: February 8, 2000

Learp\SLC\114824.2
01/14/00

THIS CONSENT IS GRANTED SOLELY FOR THE PURPOSES OF A WELL BEING UTILIZED AS AN INJECTION WELL. THIS CONSENT SHALL NOT BE APPLICABLE TO ANY FUTURE PROPOSED UTILIZATION OF THE WELL FOR OIL AND/OR GAS PRODUCTION.

**WORKSHEET
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 01/21/2000

API NO. ASSIGNED: 43-007-30656

WELL NAME: SITLA SWD 1
 OPERATOR: MARATHON OIL COMPANY (N3490)
 CONTACT: R P MEABON

PHONE NUMBER: 307-527-3003

PROPOSED LOCATION:

NWNW 23 150S 090E
 SURFACE: 0300 FNL 0300 FWL
 BOTTOM: 0300 FNL 0300 FWL
 CARBON
 DRUNKARDS WASH (48)

INSPECT LOCATN BY: / /		
Tech Review	Initials	Date
Engineering	<i>RPM</i>	
Geology		
Surface		

LEASE TYPE: 3 *State*
 LEASE NUMBER: ML-45691
 SURFACE OWNER: 3 *State*

PROPOSED FORMATION: NAVA

RECEIVED AND/OR REVIEWED:

- Plat
- Bond: Fed[] Ind[] Sta[3] Fee[]
(No. 5922542)
- Potash (Y/N)
- Oil Shale (Y/N) *190 - 5 (B)
- Water Permit
(No. MUNICIPAL / PFWID)
- RDCC Review (Y/N)
(Date: _____)
- Fee Surf Agreement (Y/N)

LOCATION AND SITING: ** Located within Drunkards Wash Unit Boundary, but a non unit well.*

___ R649-2-3. Unit _____

___ R649-3-2. General _____

Siting: _____

R649-3-3. Exception _____

___ Drilling Unit _____

Board Cause No: _____

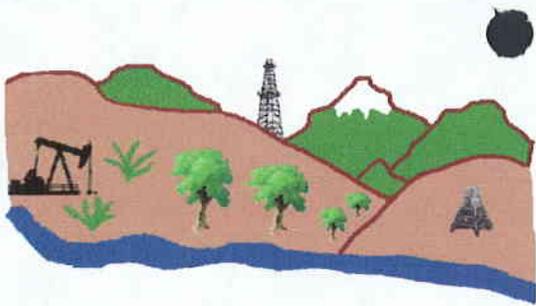
Eff Date: _____

Siting: _____

___ R649-3-11. Directional Drill _____

COMMENTS: *Need Presite.*
Need add'l info. "Ex. Loc."
** Rec'd RGC Consent 2-22-00.*

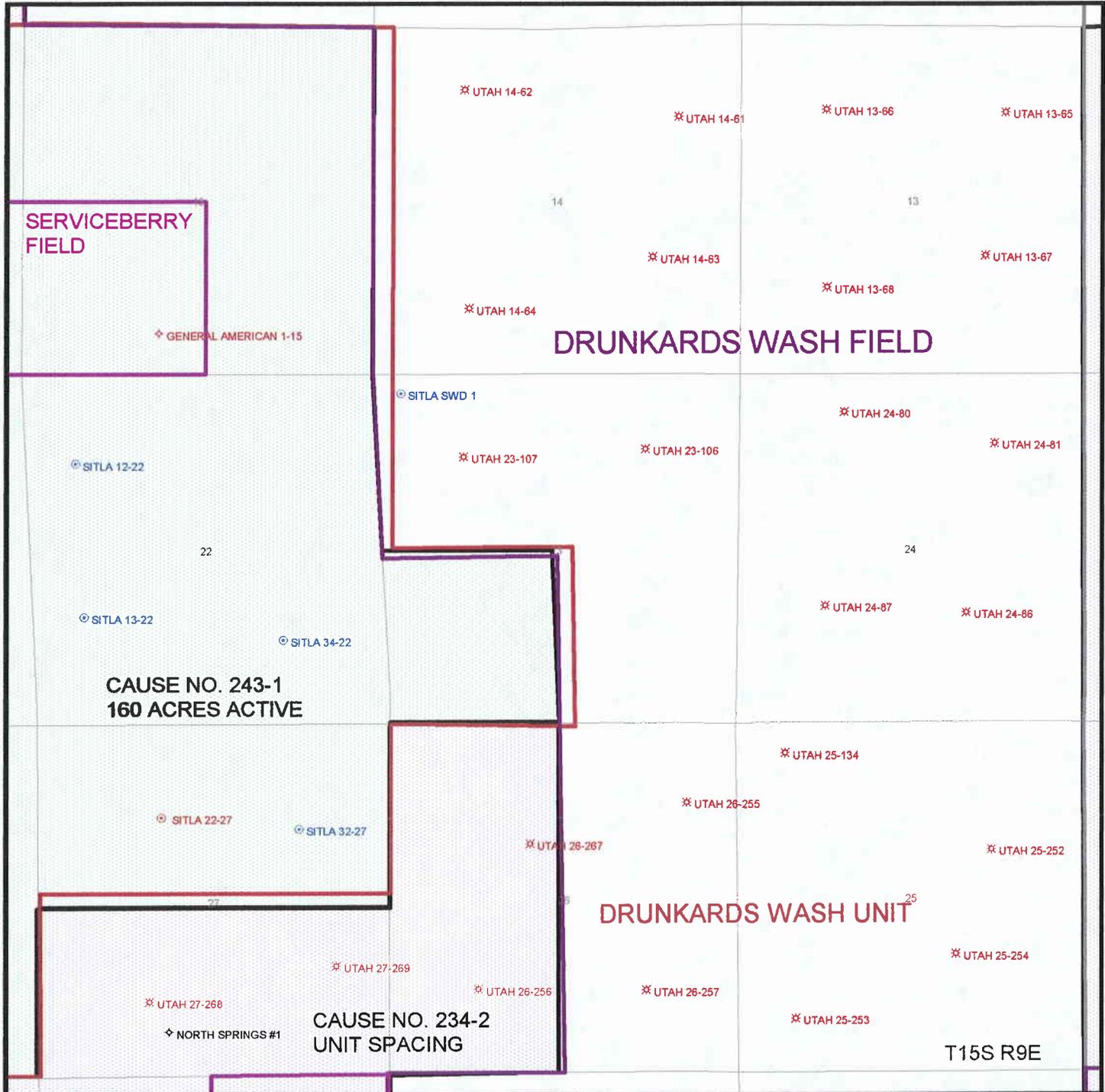
- STIPULATIONS: ① STATEMENT OF BASIS
- ② NOTIFY DOGM PRIOR TO CEMENTING INTERMEDIATE CASING.
- ③ WATER SAMPLES SHALL BE OBTAINED FROM THE PROPOSED INJECTION ZONE UPON COMPLETION OF THE WELL.
- ④ THE PROPOSED INJECTION ZONE SHALL BE TESTED UPON COMPLETION TO DETERMINE THE PRESENT FORMATION PRESSURE.



Utah Oil Gas and Mining

Serving the Industry, Protecting the Environment

OPERATOR: MARATHON OIL COMPANY (N3490)
 FIELD: DRUNKARDS WASH (048)
 SEC. 23, T 15 S, R 9 E,
 COUNTY: CARBON CAUSE: ~~243-2 UNIT~~



PREPARED
DATE: 24-Jan-2000

ON-SITE PREDRILL EVALUATION

Division of Oil, Gas and Mining

OPERATOR: Marathon Oil Company
WELL NAME & NUMBER: SWD #1
API NUMBER: 43-007-30656
LEASE: SITLA FIELD/UNIT: Drunkards Wash
LOCATION: 1/4, 1/4 NWNW Sec: 23 TWP: 15 S RNG: 9 E 300 FNL 300 FWL
LEGAL WELL SITING: 'F SEC. LINE; 'F 1/4, 1/4 LINE; 'F ANOTHER WELL.
GPS COORD (UTM): X = 509502; Y = 4373447
SURFACE OWNER: SITLA

PARTICIPANTS

C. Kierst (DOGM), C. Colt (DWR), B. Ryan (Rocky Mtn. Consulting), D. Kay (U.E.L.S.), Randy Meabon (Marathon), D. Wilcox (Nielsen Construction), C. Arterbery (drilling consultant)

REGIONAL/LOCAL SETTING & TOPOGRAPHY

Western margin of Colorado Plateau/~7 miles east of the base of Wasatch Plateau. The location is on the westward-dipping Blue Gate Member of the Mancos Shale (below the Garley Canyon Beds). The pad is at the foot of a low bench on ground which gently slopes to nearby Serviceberry Creek and is ~1 1/4 mile northeast of the Wattis Highway. It is near Quaternary/Tertiary Pediment Mantle-capped erosional remnants. Igneous intrusive dikes having surface expression are in the area.

SURFACE USE PLAN

CURRENT SURFACE USE: Grazing and wildlife habitat.

PROPOSED SURFACE DISTURBANCE: 240' X 185' pad with 100' X 150' X 10' partially inboard pit, ~1270' of upgraded surface for approach road and 200' of new road are requested. The operator seeks to develop a greater ~11 acre area for ancillary facilities.

LOCATION OF EXISTING WELLS WITHIN A 1 MILE RADIUS: 1 SGW status CBM well (Marathon), 1 APD status CBM location (Fleet), 5 PGW status CBM production wells (RGC) and 5 NEW status CBM locations (Marathon).

LOCATION OF PRODUCTION FACILITIES AND PIPELINES: Major gas pipeline ~1 mile east of pad (Questar pipeline runs north-south).

SOURCE OF CONSTRUCTION MATERIAL: Material will be borrowed from the pad at the time of construction. Water turnouts and berms will be placed as needed and the road and pad will be graveled as needed. Ancillary gravel needs will be satisfied by the dirt contractor from legally permitted sources.

ANCILLARY FACILITIES: Compressor station, SWD holding / evaporation pit, tank battery.

WASTE MANAGEMENT PLAN:

Portable chemical toilets which will be emptied into the municipal waste treatment system; garbage cans on location will be emptied into centralized dumpsters which will be emptied into an approved landfill. No crude oil is expected to be produced. Drilling fluid, completion frac fluid and cuttings will be buried in the pit after evaporation and slashing the pit liner. Produced water will be gathered to the evaporation pit and eventually injected into the Navajo Sandstone via a Marathon-operated salt water disposal well. Used oil from drilling operations and support is hauled to a used oil re-cycler and re-used.

ENVIRONMENTAL PARAMETERS

AFFECTED FLOODPLAINS AND/OR WETLANDS: Location is on the north flank of Serviceberry Creek, a seasonal, intermittent watercourse. The Price River is about 6.5 miles to the northeast. Miller Creek is about 3/4 mile south.

FLORA/FAUNA: Sagebrush, juniper, grasses / birds, lizards, coyotes, rodents, raptors, elk, deer, reptiles. 7 inactive or old/dilapidated raptor nests within 1/4 mile and 2 more within 1/2 mile.

SOIL TYPE AND CHARACTERISTICS: Moderately-permeable finely sandy and silty soil on unconsolidated Pediment Mantle-derived scree. (SM-GM)

SURFACE FORMATION & CHARACTERISTICS: Blue Gate Shale Member (below Garley Canyon Beds) of Mancos Shale.

EROSION/SEDIMENTATION/STABILITY: Ground slopes toward Serviceberry Creek which is just south of the drill pad. Stable.

PALEONTOLOGICAL POTENTIAL: None observed.

RESERVE PIT

CHARACTERISTICS: Dugout, earthen pit, as above.

LINER REQUIREMENTS (Site Ranking Form attached): Synthetic liner

SURFACE RESTORATION/RECLAMATION PLAN

As per State surface agreement.

SURFACE AGREEMENT: Agreement filed with State.

CULTURAL RESOURCES/ARCHAEOLOGY: Completed and filed with State.

OTHER OBSERVATIONS/COMMENTS

Gathering system (primarily poly pipe buried 3 to 5' deep) arrives at SWD #1 pad from the 1-15A well (~3/4 mile west) and from across Serviceberry Creek (from near the 32-22 well which is about 1/2 mile southwest). This pipeline configuration calls for a crossing of the creek for each pipeline branch. I have requested a copy of the development plat for the greater area (11 ac.) depicting the ancillary facilities planned by the operator.

ATTACHMENTS:

4 Photos were taken of this location. (1-4)

Chris Kierst
DOGM REPRESENTATIVE

9-March-2000 9:40 AM
DATE/TIME

**Evaluation Ranking Criteria and Ranking Score
For Reserve and Onsite Pit Liner Requirements**

<u>Site-Specific Factors</u>	<u>Ranking</u>	<u>Site Ranking</u>
Distance to Groundwater (feet)		
>200	0	
100 to 200	5	
75 to 100	10	
25 to 75	15	
<25 or recharge area	20	<u>0</u>
Distance to Surf. Water (feet)		
>1000	0	
300 to 1000	2	
200 to 300	10	
100 to 200	15	
< 100	20	<u>0</u>
Distance to Nearest Municipal Well (feet)		
>5280	0	
1320 to 5280	5	
500 to 1320	10	
<500	20	<u>0</u>
Distance to Other Wells (feet)		
>1320	0	
300 to 1320	10	
<300	20	<u>0</u>
Native Soil Type		
Low permeability	0	
Mod. permeability	10	
High permeability	20	<u>10</u>
Fluid Type		
Air/mist	0	
Fresh Water	5	
TDS >5000 and <10000	10	
TDS >10000 or Oil Base Mud Fluid	15	
containing significant levels of hazardous constituents	20	<u>0</u>
Drill Cuttings		
Normal Rock	0	
Salt or detrimental	10	<u>0</u>
Annual Precipitation (inches)		
<10	0	
10 to 20	5	
>20	10	<u>5</u>
Affected Populations		
<10	0	
10 to 30	6	
30 to 50	8	
>50	10	<u>0</u>
Presence of Nearby Utility Conduits		
Not Present	0	
Unknown	10	
Present	15	<u>0</u>
Final Score	<u>15</u>	(Level II Sensitivity)

DIVISION OF OIL, GAS AND MINING

APPLICATION FOR PERMIT TO DRILL STATEMENT OF BASIS

Operator Name: Marathon Oil Company

Name & Number: SWD #1

API Number: 43-007-30656

Location: 1/4, 1/4 NWNW Sec. 23 T. 15 S R. 9 E **County:** Carbon

Geology/Ground Water:

No high quality ground water is expected to be encountered. The proposed casing and cement program will adequately isolate any zones of water penetrated. Underground water well water rights exist within a mile radius involving three River Gas CBM production wells in Section 14.

Reviewer: C. Kierst **Date:** 3/15/2000

Surface:

The silty, moderately-permeable soil is developed on scree / slopewash derived from Quaternary / Tertiary Pediment Mantle covered bluffs protecting erosional remnants of the Blue Gate Member of the Mancos Shale. The nearest moving surface waters are in Serviceberry Wash (just off pad to south) and ~ 0.75 mile south in Miller Creek. Precipitation will not need to be deflected around the location, however, berms will be placed up slope around the pad and low water crossings will be used in the areas that would otherwise collect water. Pit integrity will be maintained by the use of a synthetic liner. Underground water well water rights exist within a mile radius involving three River Gas CBM production wells in Section 14. The site was photographed and characterized on 3/9/2000. Provision was made to ensure site rehabilitation, litter and waste control, preservation of drainage patterns and the integrity of local infrastructure, groundwater and other resources. The well utilities and water gathering system will follow the approach roadway which crosses Serviceberry Creek and a branch joins from the south, as well, also crossing the creek. The poor condition and antiquity of the existing raptor nests in this area precludes these as presenting a significant wildlife issue.

Reviewer: C. Kierst **Date:** 3/15/2000

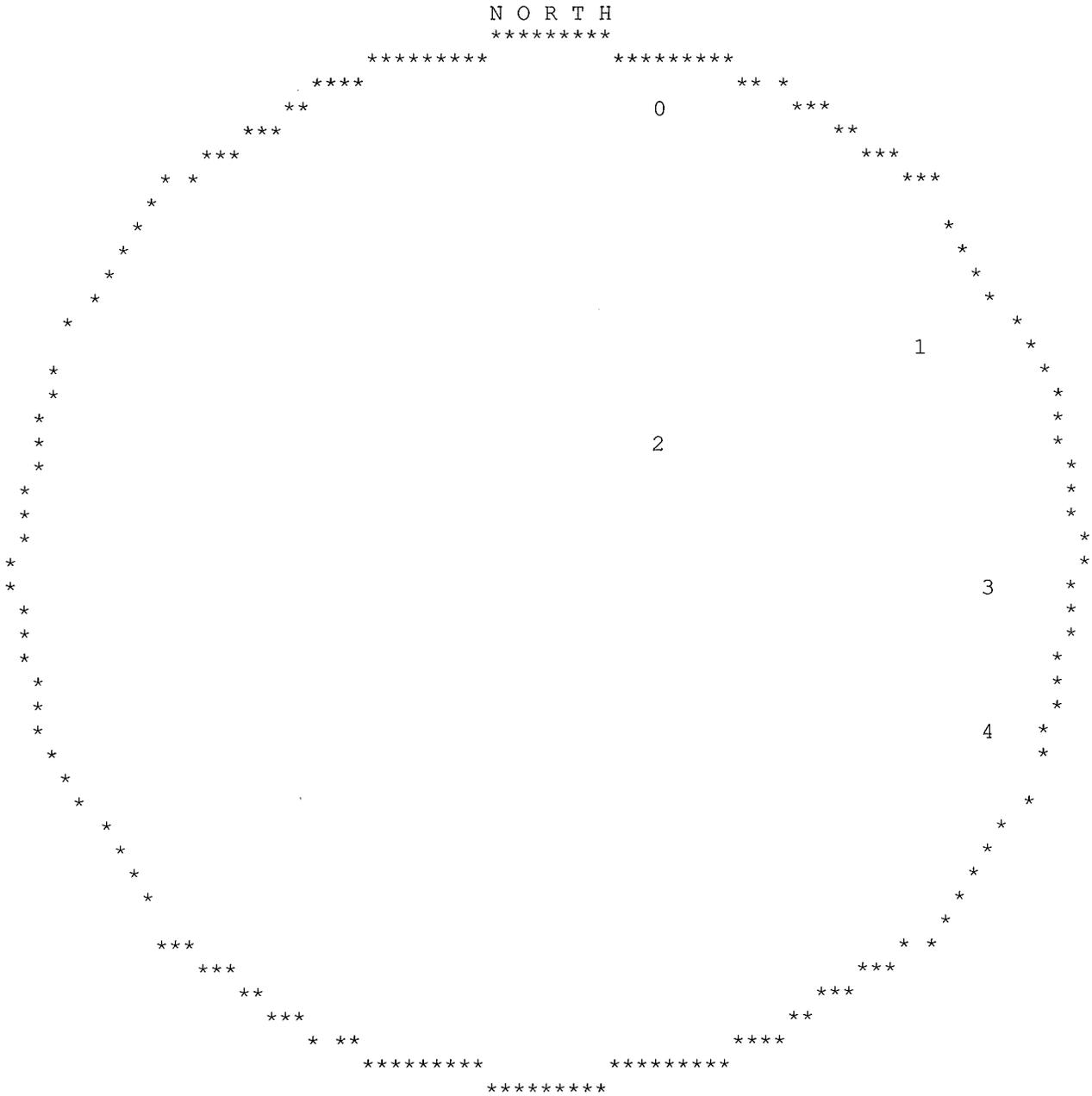
Conditions of Approval/Application for Permit to Drill:

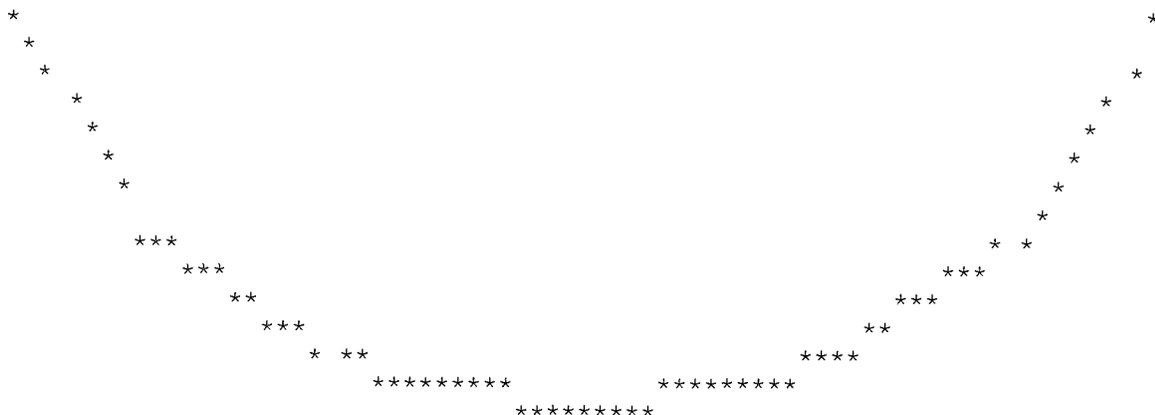
- 1) Culverts sufficient to manage expected runoff, standing and surface water shall be installed in crossed drainages.
- 2) Berm drilling and disposal location, tank batteries and pits.
- 3) Minimum 12 mil synthetically lined reserve pit and blooie pit (SWD holding / evaporation pit must be permitted separately).
- 4) Site infrastructure as per drilling location plat.
- 5) Dust abatement will be used while drilling and on access roads.
- 6) 404 Dredge and Fill Permits must be obtained when required or waived by the U.S. Army Corp. of Engineers or their authorized agents for crossings of any watercourses by pipelines or access roads, or prior to any bank or streambed modifications.
- 7) Easements for gathering systems and a Special Use Lease Agreement for the greater ~11 ac. ancillary facilities development area associated with SWD #1 should be procured from SITLA.
- 8) Provide DOGM a copy of the plat of the above proposed ancillary facilities development area.
- 9) Set back pad from the above floodplain bank of Serviceberry Creek by at least the approximate local depth as measured from the streambed to the adjacent above floodplain bank.
- 10) Compliance with terms of the governing EIS.

UTAH DIVISION OF WATER RIGHTS
WATER RIGHT POINT OF DIVERSION PLOT CREATED THU, MAR 1
PLOT SHOWS LOCATION OF 9 POINTS OF DIV

PLOT OF AN AREA WITH A RADIUS OF 5280 FEET
S 300 FEET, E 300 FEET OF THE NW CORNER,
SECTION 23 TOWNSHIP 15S RANGE 9E SL BASE

PLOT SCALE IS APPROXIMATELY 1 INCH = 2000 FE





UTAH DIVISION OF WATER RIGHTS
 NWPLAT POINT OF DIVERSION LOCATION PROGRAM

MAP CHAR	WATER RIGHT	QUANTITY CFS	AND/OR AC-FT	SOURCE DESCRIPTION or WELL INFO DIAMETER DEPTH YEAR LOG	POINT OF DIVERSION DESCRIPTION NORTH EAST CNR SEC TWN RNG B&M
0	91 4952	5.0000	.00	Underground Water Wells	S 980 E 1385 NW 14 15S 9E SL
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER	PRIORITY DATE: 06/23/19
				River Gas Corporation	511 Energy Center Blvd. <i>980 E 1385</i> Northport
0	a19276	5.0000	.00	Underground Water Wells	S 980 E 1385 NW 14 15S 9E SL
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER	PRIORITY DATE: 08/31/19
				River Gas Corporation	511 Energy Center Blvd. Northport
1	91 4952	5.0000	.00	Underground Water Wells	N 1780 W 1320 SE 14 15S 9E SL
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER	PRIORITY DATE: 06/23/19
				River Gas Corporation	511 Energy Center Blvd. Northport
1	a19276	5.0000	.00	Underground Water Wells	N 1780 W 1320 SE 14 15S 9E SL
				WATER USE(S): IRRIGATION STOCKWATERING MUNICIPAL OTHER	PRIORITY DATE: 08/31/19
				River Gas Corporation	511 Energy Center Blvd. Northport

2	<u>91 4952</u>	5.0000	.00	Underground Water Wells	N	907	E	1392	SW 14 15S 9E SL	
		WATER USE(S):		IRRIGATION STOCKWATERING MUNICIPAL OTHER					PRIORITY DATE: 06/23/19	
		River Gas Corporation		511 Energy Center Blvd.					Northport	
2	<u>a19276</u>	5.0000	.00	Underground Water Wells	N	907	E	1392	SW 14 15S 9E SL	
		WATER USE(S):		IRRIGATION STOCKWATERING MUNICIPAL OTHER					PRIORITY DATE: 08/31/19	
		River Gas Corporation		511 Energy Center Blvd.					Northport	
3	<u>91 3156</u>	.0000	.00	Miller Creek						
		WATER USE(S):							PRIORITY DATE: 00/00/18	
		State of Utah School & Institutional Tru		675 East 500 South, 5th Floor					Salt Lake City	
4	<u>91 2136</u>	.0000	.00	Miller Creek						
		WATER USE(S):		STOCKWATERING					PRIORITY DATE: 00/00/18	
		State of Utah School & Institutional Tru		675 East 500 South, Suite 500					Salt Lake City	
4	<u>91 2405</u>	.0000	.00	Miller Creek						
		WATER USE(S):							PRIORITY DATE: 00/00/18	
		State of Utah School & Institutional Tru		675 East 500 South, Suite 500					Salt Lake City	

Well name:	3-00 MAR SWD 1		
Operator:	Marathon		
String type:	Surface		Project ID: 43-007-30656
Location:	Carbon County		

Design parameters:

Collapse
 Mud weight: 8.330 ppg
 Design is based on evacuated pipe.

Minimum design factors:

Collapse:
 Design factor 1.125

Environment:

H2S considered? No
 Surface temperature: 75 °F
 Bottom hole temperature: 79 °F
 Temperature gradient: 1.40 °F/100ft
 Minimum section length: 290 ft

Burst:

Design factor 1.00

Cement top: Surface

Burst

Max anticipated surface pressure: -3,235 psi
 Internal gradient: 11.221 psi/ft
 Calculated BHP 130 psi

Tension:

8 Round STC: 1.80 (J)
 8 Round LTC: 1.80 (J)
 Buttress: 1.60 (J)
 Premium: 1.50 (J)
 Body yield: 1.50 (B)

Non-directional string.

No backup mud specified.

Tension is based on buoyed weight.
 Neutral point: 263 ft

Re subsequent strings:

Next setting depth: 7,500 ft
 Next mud weight: 9.000 ppg
 Next setting BHP: 3,506 psi
 Fracture mud wt: 19.250 ppg
 Fracture depth: 7,500 ft
 Injection pressure 7,500 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	300	13.375	54.50	J-55	ST&C	300	300	12.49	32.3

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	130	1130	8.71	130	2730	21.04	14	514	35.87 J

Prepared RJK
 by: Utah Dept. of Natural Resources

Date: March 21,2000
 Salt Lake City, Utah

ENGINEERING STIPULATIONS:NONE
 Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name:	3-00 MAR SWD 1	
Operator:	Marathon	Project ID:
String type:	Intermediate	43-007-30656
Location:	Carbon County	

Design parameters:

Collapse

Mud weight: 8.330 ppg
 Design is based on evacuated pipe.

Minimum design factors:

Collapse:

Design factor 1.125

Environment:

H2S considered? No
 Surface temperature: 75 °F
 Bottom hole temperature: 111 °F
 Temperature gradient: 1.40 °F/100ft
 Minimum section length: 1,475 ft

Burst:

Design factor 1.00

Cement top: 1,537 ft

Burst

Max anticipated surface pressure: 0 psi
 Internal gradient: 0.433 psi/ft
 Calculated BHP 1,116 psi

No backup mud specified.

Tension:

8 Round STC: 1.80 (J)
 8 Round LTC: 1.80 (J)
 Buttress: 1.60 (J)
 Premium: 1.50 (J)
 Body yield: 1.50 (B)

Non-directional string.

Tension is based on buoyed weight.
 Neutral point: 2,262 ft

Re subsequent strings:

Next setting depth: 8,000 ft
 Next mud weight: 8.330 ppg
 Next setting BHP: 3,462 psi
 Fracture mud wt: 19.250 ppg
 Fracture depth: 8,000 ft
 Injection pressure 8,000 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	2580	9.625	36.00	J-55	ST&C	2580	2580	8.796	183.7
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	1116	2020	1.81	1116	3520	3.15	81	394	4.84 J

Prepared RJK
 by: Utah Dept. of Natural Resources

Date: March 21,2000
 Salt Lake City, Utah

ENGINEERING STIPULATIONS:NONE

Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

Well name:	3-00 MAR SWD 1		
Operator:	Marathon		Project ID:
String type:	Production		43-007-30656
Location:	Carbon County		

Design parameters:

Collapse
 Mud weight: 9.000 ppg
 Design is based on evacuated pipe.

Burst
 Max anticipated surface pressure: 213 psi
 Internal gradient: 0.433 psi/ft
 Calculated BHP: 2,860 psi

 No backup mud specified.

Minimum design factors:

Collapse:
 Design factor: 1.125

Burst:
 Design factor: 1.00

Tension:
 8 Round STC: 1.80 (J)
 8 Round LTC: 1.80 (J)
 Buttress: 1.60 (J)
 Premium: 1.50 (J)
 Body yield: 1.50 (B)

Tension is based on buoyed weight.
 Neutral point: 5,287 ft

Environment:

H2S considered? No
 Surface temperature: 75 °F
 Bottom hole temperature: 161 °F
 Temperature gradient: 1.40 °F/100ft
 Minimum section length: 368 ft

Cement top: 1,963 ft

Non-directional string.

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	6118	7	26.00	J-55	LT&C	6118	6118	6.151	320.7
Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	2860	4320	1.51	2860	4980	1.74	137	367	2.67 J

Prepared by: RJK
 Utah Dept. of Natural Resources

Date: March 21, 2000
 Salt Lake City, Utah

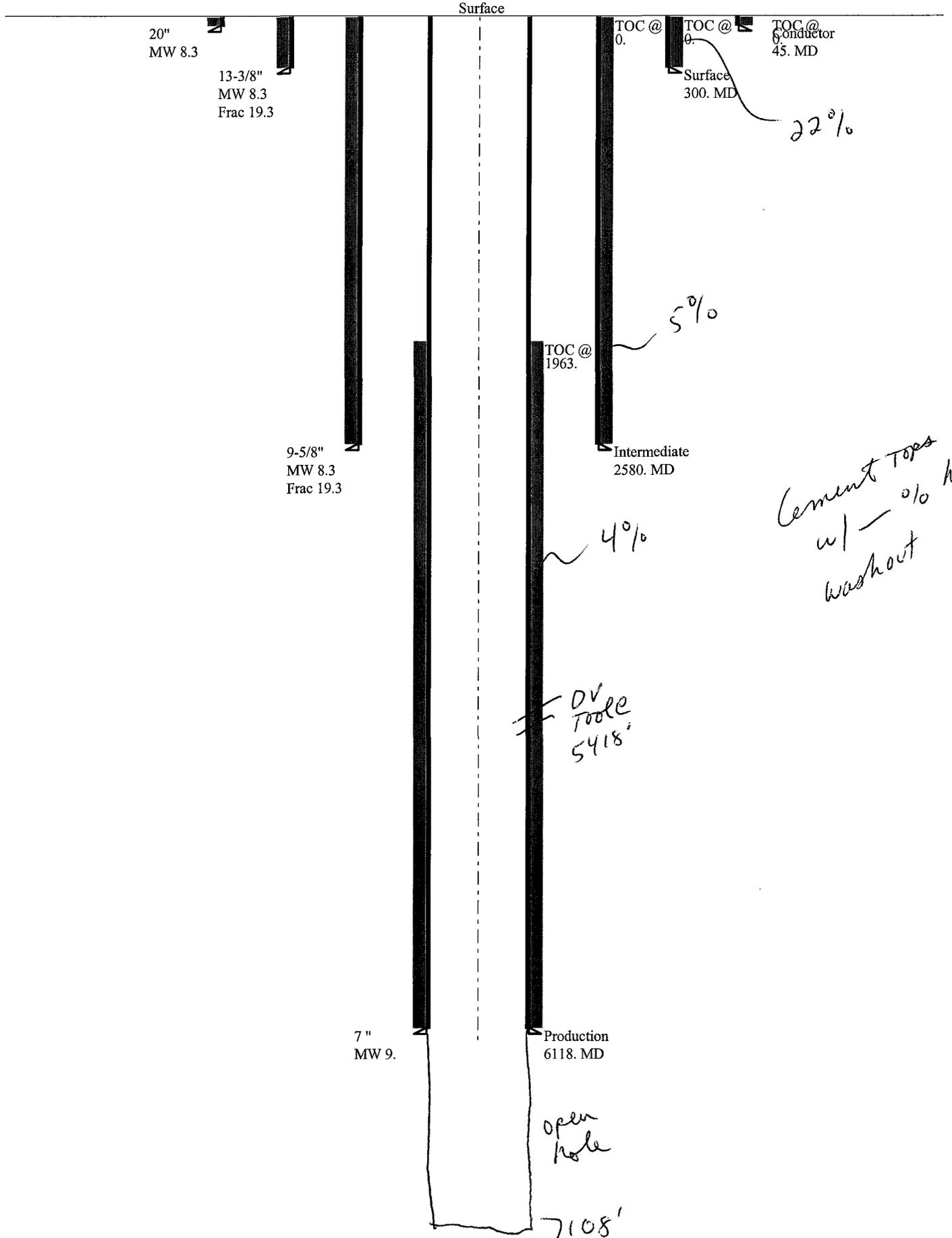
ENGINEERING STIPULATIONS: NONE
 Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

3-00 MAR SWD 1

Casing Schematic





State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
Lowell P. Braxton
Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

March 23, 2000

Marathon Oil Company
1501 Stampede Avenue
Cody, WY 82414

Re: SITLA SWD 1 Well, 300' FNL, 300' FWL, NW NW, Sec. 23, T. 15S, R. 9E,
Carbon County, Utah

Gentlemen:

Pursuant to the provisions and requirements of Utah Code Ann. § 40-6-1 *et seq.*, Utah Administrative Code R649-3-1 *et seq.*, and the enclosed Conditions of Approval, approval to drill the referenced well is granted.

This approval will expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date. The API identification number assigned to this well is 43-007-30656.

Sincerely,


John R. Baza
Associate Director

er

Enclosures

cc: Carbon County Assessor
SITLA

Operator: Marathon Oil Company

Well Name & Number: SITLA SWD 1

API Number: 43-007-30656

Lease: ML-45691

Location: NW NW Sec. 23 T. 15S R. 9E

Conditions of Approval

1. General

Compliance with the requirements of Utah Admin. R. 649-1 *et seq.*, the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

2. Notification Requirements

Notify the Division of the following actions during drilling of this well:

- . 24 hours prior to cementing or testing casing
- . 24 hours prior to testing blowout prevention equipment
- . 24 hours prior to spudding the well
- . within 24 hours of any emergency changes made to the approved drilling program
- . prior to commencing operations to plug and abandon the well

Division contacts (please leave a voice mail message if the person is not available to take the call):

- . Dan Jarvis at (801)538-5338
- . Robert Krueger at (801)538-5274 (plugging)
- . Carol Daniels at (801)538-5284 (spud)

3. Reporting Requirements

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

4. Compliance with the State of Utah Antiquities Act forbids disturbance of archeological, historical, or paleontological remains. Should archeological, historical or paleontological remains be encountered during your operations you are required to immediately suspend all operations and immediately inform the Trust Lands Administration and the Division of State History of the discovery of such remains.

5. Compliance with the Conditions of Approval/Application for Permit to Drill outlined in the Statement of Basis. (Copy Attached)

6. Notify DOGM prior to cementing intermediate casing.

7. Water samples shall be obtained from the proposed injection zone upon completion of the well.

8. The proposed injection zone shall be tested upon completion to determine the present formation pressure.

CASING DESIGN

SITLA SWD #1

Sec 23 - T15S - R 9E

Carbon Co., Ut.

*Verbal approval for design change
received from Dan Jarvis 4-27-2000
Utah DGM*

HOLE SIZE	SET To	CMT TOP	CASING SIZE	DRIFT	GRADE	WEIGHT LB/FT	CONN.	TENSION (1000 LBS.)			COLLAPSE (PSI)			BURST (PSI)				
								RATING	LOAD	S.F.	RATING	LOAD	S.F.	RATING	LOAD	S.F.		
SURFACE CASING			* CHANGE - H-40					48	STC	322	114.4	2.81	770	140	5.50	1730	956	1.81
17.5"	300'	SURF	13-3/8"	12.615	J-55	54.5	STC	514	116	4.43	1,130	140	8.07	2,730	956	2.86		

INTERMEDIATE CASING

12.1/4"	2580'	SURF	9 5/8"	8.921	J-55	36	STC	394	193	2.04	2,020	1207	1.67	3,520	1486	2.37
---------	-------	------	--------	-------	------	----	-----	-----	-----	------	-------	------	------	-------	------	------

INJECTION CASING

8 3/4"	6,118	SURF	7"	6.276	J-55	26	LTC	367	259	1.42	4,320	2863	1.51	4,980	3000	1.66
--------	-------	------	----	-------	------	----	-----	-----	-----	------	-------	------	------	-------	------	------

SURFACE CASING NOTES:

BURST DESIGN is based on maximum BHP of 1207 psi (9 ppg gradient) with a .1 psi/ft gas gradient to give a maximum surface pressure of 956 psi.

COLLAPSE DESIGN is based on 9 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

INTERMEDIATE CASING NOTES:

BURST DESIGN is based on a 13 ppg fracture gradient at the shoe, 9 ppg pressure gradient at TD and a .1 psi/ft gas gradient.

COLLAPSE DESIGN is based on 9.0 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

INJECTION CASING NOTES:

BURST DESIGN is based on a maximum surface treating pressure of 3,000 psi.

COLLAPSE DESIGN is based on 9.0 ppg mud in the annulus and evacuated casing.

TENSION DESIGN is based on air weight with 100,000# overpull requirement.

RECEIVED

MAY 02 2000

DIVISION OF
OIL, GAS AND MINING

350
premium and circulated TO Surface

STATE OF UTAH
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF OIL, GAS AND MINING

SUNDRY NOTICES AND REPORTS ON WELLS <small>Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT -- for such proposals</small>		6. Lease Designation and Serial Number ML-45691
		7. Indian Allottee or Tribe Name NA
1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other (specify) <u>Water Disposal</u>		8. Unit or Communitization Agreement NA
2. Name of Operator Marathon Oil Company		9. Well Name and Number SITLA SWD #1
3. Address of Operator 1501 Stampede Ave., Cody, Wyoming 82414	4. Telephone Number 307-527-3003	10. API Well Number 43-007-30656
5. Location of Well Footage : 300' FNL, 300' FWL County : CARBON QQ, Sec, T., R., M : NW NW SECTION 23-15S-9E State : UTAH		11. Field and Pool, or Wildcat DRUNKARDS WASH

12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

<p align="center">NOTICE OF INTENT (Submit in Duplicate)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Abandonment</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Recompletion</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Multiple Completion</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table> <p>Approximate Date Work Will Start _____</p>	<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off	<input type="checkbox"/> Other _____		<p align="center">SUBSEQUENT REPORT (Submit Original Form Only)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Abandonment *</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input checked="" type="checkbox"/> Other <u>Commence Drilling Operations</u></td> <td></td> </tr> </table> <p>Date of Work Completion <u>04/30/00</u></p> <p><small>Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form. * Must be accompanied by a cement verification report.</small></p>	<input type="checkbox"/> Abandonment *	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off	<input checked="" type="checkbox"/> Other <u>Commence Drilling Operations</u>	
<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction																										
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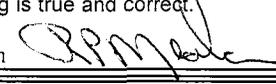
13. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

4/30/00
 Moved in and rigged up Cyclone #12 drilling rig to drill a 7108' water disposal well. Surface casing was pre-set @ 317'.

RECEIVED
 MAY 05 2000
 DIVISION OF
 OIL, GAS AND MINING

cc: RPM, WRF, DRILLING, WAMSUTTER OFFICE, TKS, KLM

14. I hereby certify that the foregoing is true and correct.

Name & Signature R.P. Meabon  Title Reg. Coord. Date 05/01/00

(State Use Only)



1501 Stampede Avenue
Cody, WY 82414
Telephone 307/587-4961

June 19, 2000

Mr. John Baza
Associate Director
State of Utah
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

RE: Injection Application for SITLA SWD #1
NW/4 NW/4 Section 23, T15S, R9E
Carbon County, Utah

Dear Sir:

Pursuant to Rule R649-5-2 of the Rules and Regulations of the Utah Division of Oil, Gas and Mining (DOGM), Marathon Oil Company hereby makes application for approval of water disposal into the Navajo - Kayenta - Wingate formation(s) in the above named well. The information requested by Rule R649-5-2 of the DOGM is as follows:

- (2.1) A plat showing the location of the injection, all abandoned or active wells within a one-half mile radius of the proposed well, and the surface owner and the operator of any lands or producing leases, respectively, within a one-half mile radius of the proposed injection well: Exhibit 'A'.
- (2.2) Copies of electric or radioactive logs, including gamma ray logs, for the proposed well run prior to the installation of casing and indicating resistivity, spontaneous potential, caliper, and porosity.

The above logs were submitted to DOGM by Schlumberger on June 5, 2000 and are on file.

- (2.3) A copy of a cement bond or comparable log run for the proposed injection well after casing was set and cemented.

The above log(s) are attached to the original DOGM application.

*CBL not run and is
pressure*

- (2.4) Copies of logs already on file with the division should be referenced, but need not be refiled.

See Item 2.2 above.

- (2.5) A description of the proposed casing or proposed casing program of the disposal well and of the proposed method for testing the casing before use of the well:

~~48*~~

SITLA SWD #1 will have 13 3/8", ~~54.5#~~ surface casing set at 329', 9 5/8", 36# Intermediate casing set from surface to 2606', and 7", 26# casing set from surface to 6173'. The casing has been tested in accordance of R649-5-5 before use of the disposal well. Exhibit 'C'.

No cement program information Open hole completion

- (2.6) A statement as to the type of fluid to be used for injection, its source and estimated amounts to be injected daily:

Produced water from the Marathon's Coalbed Methane wells will be the only water disposed of in this well at a rate of 5000 - 7000 BWIPD.

- (2.7) Standard laboratory analyses of (1) the fluid to be injected, (2) the fluid in the formation into which the fluid is being injected, and (3) the compatibility of the fluids:

- 1) A copy of standard laboratory analysis of fluid to be injected is attached as Exhibit 'D'
- 2) A copy of the standard laboratory analysis of the fluid in the formation into which the fluid is being injected is attached as Exhibit 'E'. NOTE: This well has been completed as an openhole disposal well and one analysis from the Navajo - Kayenta - Wingate formations is attached.
- 3) The compatibility model simulating mixing of the two waters at various ratios is shown in Table #1. Numerical results from this model can be reviewed in Table #2 with summary graphical representations seen in Graphs 1-4.

These reports are undisturbed and swapped. What is the conclusion?

- (2.8) The proposed average and maximum injection pressures:

The proposed average injection pressure is anticipated to be 1250 psi with a maximum anticipated injection pressure not to exceed 1350 psi.

Sample from 1996? Stimlab test of RGC pit as input to get permits for D-3 + D-10

- (2.9) Evidence and data to support a finding that the proposed injection well will not initiate fractures through the overlying strata or a confining interval that could enable the injected fluid or formation fluid to enter the fresh water strata:

Marathon has not initiated and undertaken any actual step-rate tests or logging programs to help define the Navajo-Kayenta-Wingate fracture parting pressure. Thus, Marathon will have to rely upon existing data collected by the Drunkard's Wash Unit operator, River Gas Corporation, which is available in the DOGM State files. Available data was collected on the three surrounding offsets: Utah D-3, Utah D-8 and RGC D-10. Marathon's proposed SITLA SWDW #1 is located between the three wells. Shown below is a summary of this data:

Well	Location	Disposal Interval	Maximum Allowable Pressure, psig	Fracture Gradient, psi/ft
Utah D-3	18-T15S-R10E	5561' - 6058'	1700	0.71
Utah D-8	12-T15S-R9E	6028' - 6580'	1350	0.51-0.55
RGC D-10	28-T15S-R9E	6650' - 7264'	1350	0.49

The maximum allowable pressure shown above is at least equivalent to the 1350 psig recommended maximum surface pressure for the proposed SITLA SWDW #1. Substantial data

have been submitted by River Gas Corporation, utilizing their own step-rate test results plus detailed studies by Stim-Lab. Log data on all three wells reveal the predictable presence of the overlying high-stress anhydrite barrier sitting on top of the lower-stress Navajo sandstone. Regarding the Utah D-3 well, Stim-Lab suggested a maximum surface injection pressure of 2500 psi. Likewise, the data for Utah D-8 shows that its injection can be conducted at the maximum pressure limit currently in place for other wells in the area. Regarding RGC D-10, Stim-Lab states a surface injection pressure up to 3000 psi could be used without breaching the upper anhydrite barrier. In all cases, analyses of injection and log data confirm that fluids injected into the Navajo sandstone will be confined to that interval.

Marathon believes SITLA SWDW #1 encountered the same high-stress anhydrite barriers sitting above the low-stress Navajo-Kayenta-Wingate sandstones. This observation was expected given the well is located between all three previously-mentioned River Gas water disposal wells. At Marathon's SITLA SWDW #1, these high-stress anhydrite barriers are located at the following log depths: 5750'-5760', 5814'-5823', and 5887'-5938'. In addition, there are two higher-stress limestone barrier layers located at 5965'-6054' and 6118'-6188'. The vertical extent of these anhydrite and limestone barrier zones, coupled with their higher-stress condition and excellent casing cement bond, should prevent any upward migration of disposal fluids. This finding is based upon the SITLA SWDW #1 log data and comparisons to offset well logs and reports, such as available River Gas WDW step-rate test information and Stim-Lab reports. In summary, Marathon believes the data offers conclusive evidence that injection will be contained in the targeted Navajo-Kayenta-Wingate disposal horizons.

Upon completion of the wellwork phase on our well and once water disposal has been established, Marathon will be conducting a step-rate test to determine formation parting pressure. This data will be submitted as a followup to this application. Should the data suggest an increase or decrease in the proposed 1350 psig maximum allowable surface injection pressure, a change will be proposed at that time.

- (2.10) Appropriate geological data on the injection interval and confining beds, and nearby Underground Sources of Drinking Water, including the geologic name, lithologic description, thickness, depth, water quality, and lateral extent; also information relative to geologic structure near the proposed well which may effect the conveyance and/or storage of the injected fluids:

The confining beds overlying the proposed Navajo-Kayenta-Wingate disposal zones include the Carmel shale, which has interbedded high-stress, confining anhydrite and limestone layers. This zone is approximately 685 feet thick at a depth interval of 5503'-6188'. The targeted-disposal Navajo-Kayenta-Wingate horizons are mostly sandstones, with interbedded shale and anhydrite layers. Overall, these zones are approximately 840 feet thick, with log depths being 6188' to 7032'. The underlying Chinle horizon is a non-porous, tight shale interval and is approximately 400 feet thick. The top of the Chinle was encountered at 7032' drilling depth with the well's total depth being 7033' drilling measurement.

Marathon believes the overlying Carmel shale/anhydrite/limestone intervals, the targeted Navajo-Kayenta-Wingate disposal zones and underlying Chinle zone extend laterally across the entire Drunkard's Wash Field. This statement is based upon a review of all available deep well logs that penetrated the Carmel-through-Chinle intervals.

Water quality in the targeted disposal zones is shown in the attached water analyses. In general, the quality of water in the disposal zones is much worse than the intended water to be disposed from the Ferron producing horizon.

- (2.11) A review of the mechanical condition of each well within a one-half mile radius of the proposed injection well to assure that no conduit exists that could enable fluids to migrate up or down the

Mr. John Baza
June 15, 2000
Page 4

wellbore and enter improper intervals:

All other wells with a one-half mile radius of the proposed disposal well, are shallow Ferron coalbed methane wells with a TD in the Lower Ferron or Tunuck Shale. Thus, no other wellbore (conduit) could exist that would enable fluids to migrate up or down a wellbore and enter improper intervals.

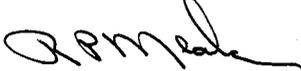
- (2.12) An affidavit certifying that a copy of the application has been provided to all operators, owners, and surface owners within a one-half mile radius of the proposed injection well: Exhibit 'B'.
- (2.13) Any other additional information that the board or division may determine is necessary to adequately review the application: N/A

If no objections to the granting of this Application are timely filed for disposal of produced water into the Navajo - Kayenta - Wingate Formations(s) from any lease operators or owners and surface owners within one-half (1/2) mile radius thereof, Applicant requests that this Application be approved administratively. If objections to the injection into the Navajo - Kayenta - Wingate Formation(s) are timely filed, then Applicant requests that the matter be set for hearing and that it be advised of the hearing date.

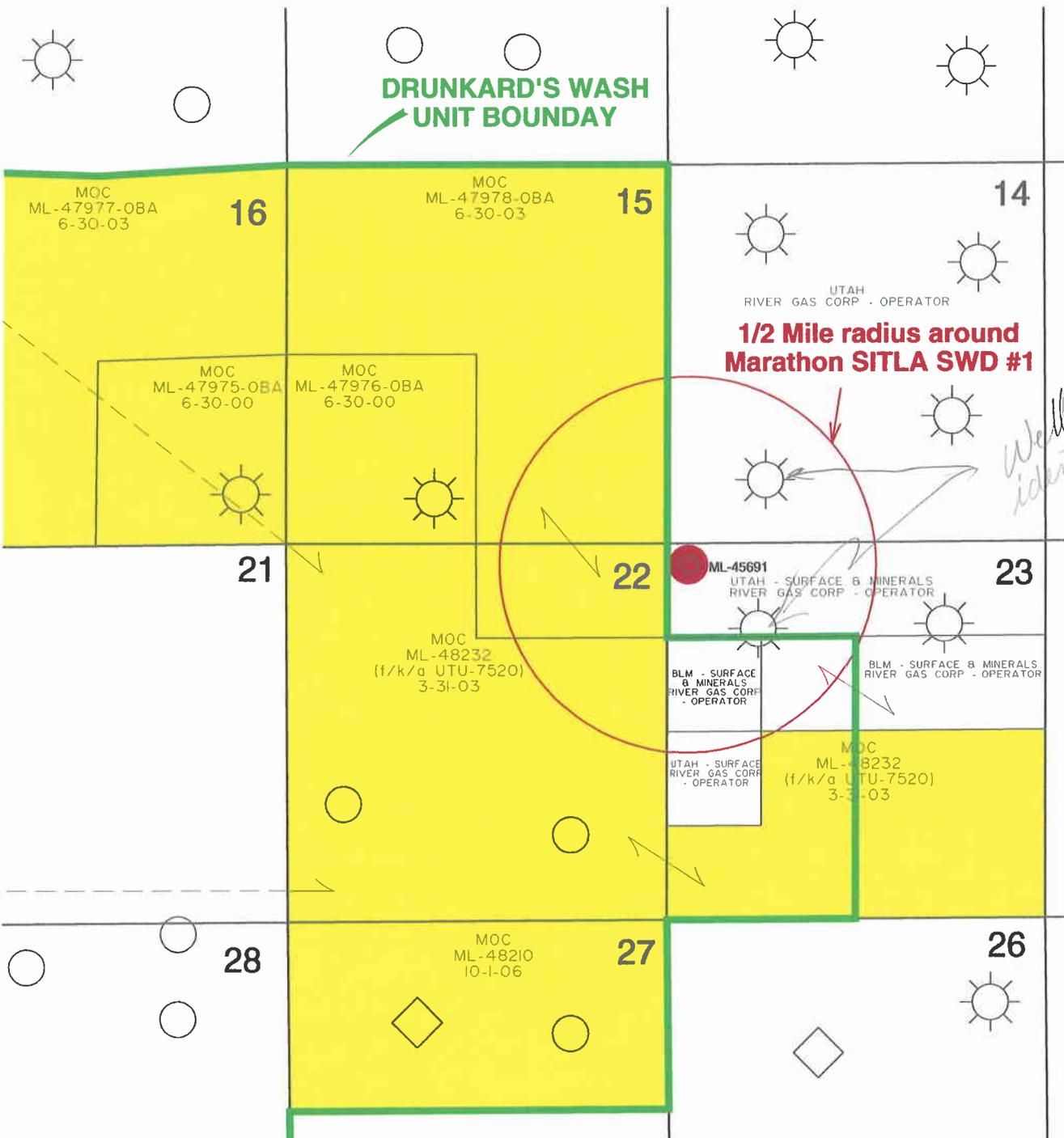
Two (2) additional copies of this Application are attached hereto and, in addition.

Respectfully submitted,

MARATHON OIL COMPANY



R.P. Meabon
Regulatory Coordinator
Rocky Mountain Region
(307) 527-2211
RPM/rpm
Attachments

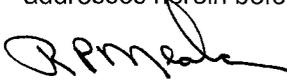


DRUNKARD'S WASH FIELD
 CARBON COUNTY, UTAH

0 1/2 1 MILE

MARATHON OIL CO.
Application for Disposal
SITLA SWD#1

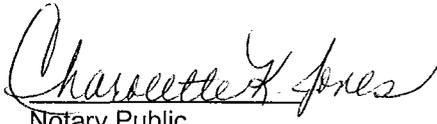
On the 19th day of June, 2000, Applicant caused a full and true copy of the Application to which the Affidavit is attached, to be mailed to the operators or owners, other than Applicant, at their addresses herein before mentioned.



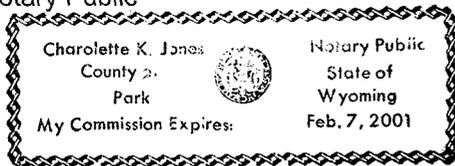
R. P. Meabon
Regulatory Coordinator
Rocky Mountain Region

Subscribed and sworn to before me this 19th day of June, 2000.

My commission expires 2-7-2001.

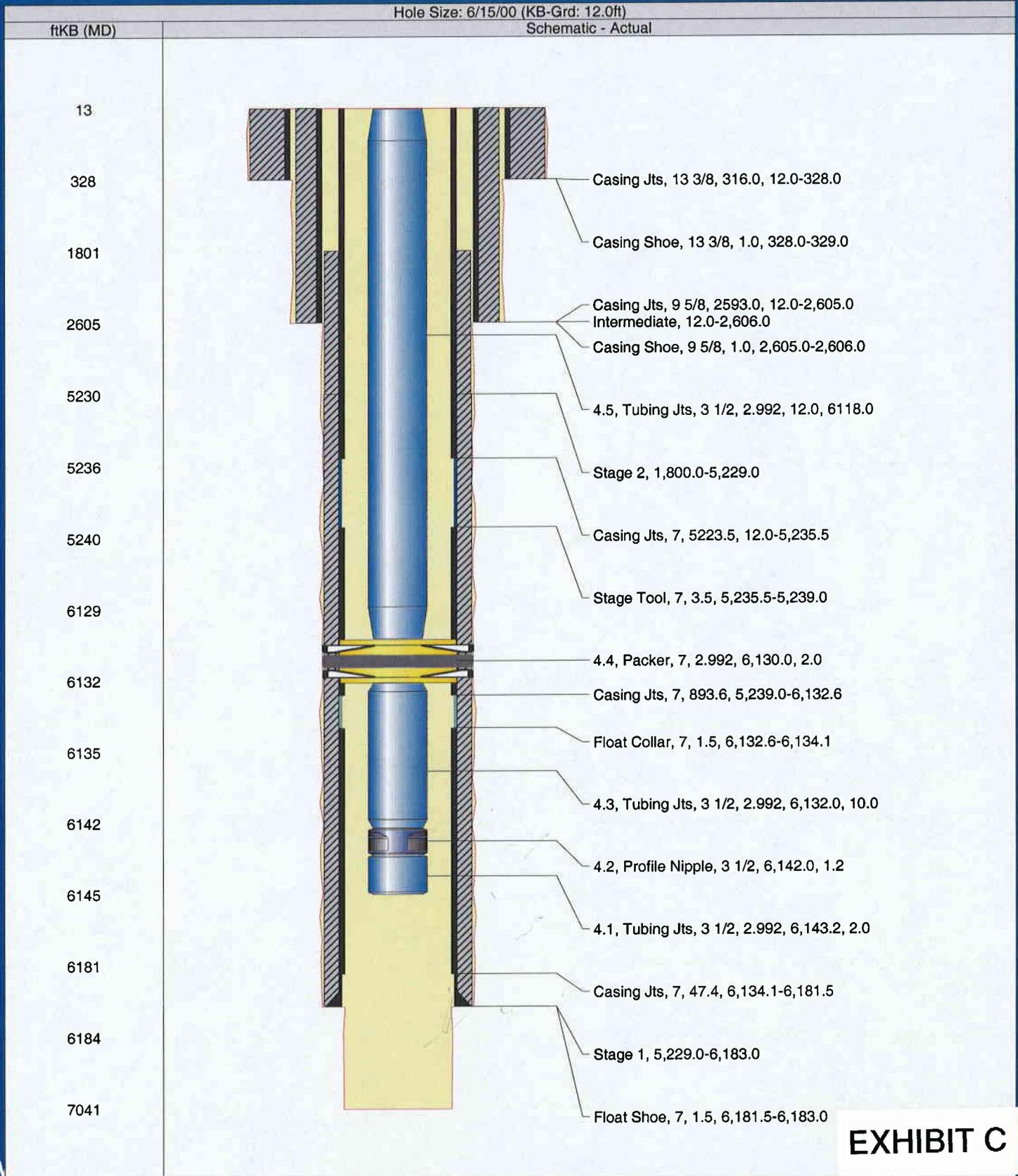


Notary Public



Current Schematic

API	43-007-30656	Field Name	DRUNKARDS WASH	Area	Operator	Marathon Oil Company	County	CARBON	State/Province	UTAH
KB Elev (ft)	5891.00	Ground Elev (ft)	5879.00	Casing Flange Elev (ft)	KB-Ground (ft)	KB-Casing Flange (ft)	Spud Date			
			5878.00		12.00	13.00	4/30/00			





Field : DRUNKARDS WASH	Sample Date : 6/9/2000
County : CARBON	Formation : FERRON
Location : SITLA SWDW#1 CONNATE	Rock Type : COAL / SANDSTONE
Lab ID : 001-99-54655	Depth :
Comments :	

CATIONS	mg/l	meq/l	ANIONS	mg/l	meq/l
Potassium	247.0	6.32	Sulfate	3,250.0	67.67
Sodium	33,990.5	1,478.49 by Difference	Chloride	52,000.0	1,466.73
Calcium	1,060.0	52.89	Carbonate	0.0	0.00
Magnesium	220.0	18.10	Bicarbonate	1,340.0	21.97
Iron	nd	nd	Bromide	0.0	0.00
Barium	6.0	0.09	Organic Acids	0.0	0.00
Strontium	21.0	0.48	Hydroxide	0.0	0.00
SUM +	35,544.5	1,556.37	SUM -	56,590.0	1,556.37

Solids

Total Dissolved Solids @180°C	nd
Total Solids, Calc less CO ₂	91,330 mg/l
Total Solids, Calculated	92,134 mg/l
Total Solids, NaCl equivalents	54,611 mg/l
Chloride as NaCl	85,720 mg/l
NaCl% of Total Dissolved Solids	93.04 %
Accuracy	0.00 Sigma

Sample Conditions

pH, s.u. (Field)	6.30 s.u.
Sample Pressure	12.60 psia
Mole% CO ₂ Gas	49.19 %
pH, s.u. (from CO ₂)	6.38 s.u.
Surface Temp	70 °F
Downhole Temp	115 °F
Ionic Strength	1.780 μ

Dissolved Gases

Bisulfide Ion, HS ⁻	nd
Hydrogen Sulfide, H ₂ S	nd
Total Sulfide	nd

Dissolved O ₂ , aq	nd
Measured CO ₂ , aq	nd
Calculated CO ₂ , aq	435.9 mg/l

Other Properties

Calcium Hardness as CaCO ₃	2,646.6 mg/l
Magnesium Hardness as CaCO ₃	905.4 mg/l
Total Hardness as CaCO ₃	3,552.0 mg/l
Hardness, grains	206.84 grains/gallon

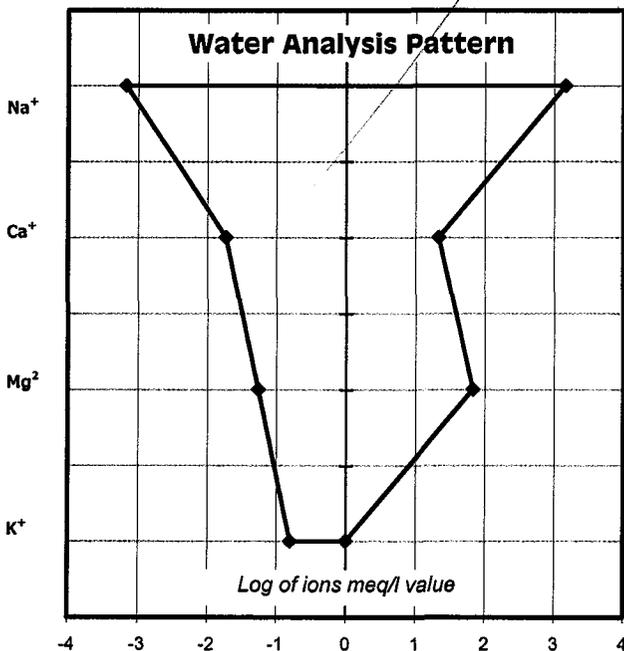
Specific Gravity	1.065 measured
Specific Gravity	1.064 calculated
Resistivity, 68°F	0.086 ohm-cm
Conductivity 25°C	116,600 μmhos/cm

Microbiological

Sulfate Reducing	nd
Aerobic Bacteria	nd

Scaling Conditions

Calcium Carbonate	CaCO ₃ +
Calcium Sulfate	CaSO ₄ - - -
Barium Sulfate	BaSO ₄ +
Strontium Sulfate	SrSO ₄ -



Probable Mineral Residue, Dry

Calculation error = 0 %

See Max
from Woody Salzman
8/17/2000

COMPOUND	mg/l
NaCl	85,372.4
CaSO ₄	2,129.7
Ca(HCO ₃) ₂	1,751.0
Na ₂ SO ₄	1,257.8
MgSO ₄	1,089.5
KCl	443.6
SrSO ₄	44.0
BaSO ₄	10.2

Note: nd denotes 'Not Determined'

Analyzed by: Energy Laboratories

Approved by: M.D. Carney

v942MDCarney 5/31/2000

EXHIBIT D



Field : DRUNKARDS WASH	Sample Date : 5/2/1996
County :	Formation :
Location : INJECTION	Rock Type :
Lab ID : SL4377	Depth :
Comments :	

CATIONS	mg/l	meq/l	ANIONS	mg/l	meq/l
Potassium	63.0	1.61	Sulfate	1.6	0.03
Sodium	3,332.4	144.95 by Difference	Chloride	2,518.0	71.02
Calcium	17.5	0.87	Carbonate	420.0	14.00
Magnesium	15.8	1.30	Bicarbonate	3,890.0	63.77
Iron	2.5	0.09	Bromide	0.0	0.00
Barium	nd	nd	Organic Acids	0.0	0.00
Strontium	nd	nd	Hydroxide	0.0	0.00
SUM +	3,431.2	148.82	SUM -	6,829.6	148.82

Solids

Total Dissolved Solids @180°C	nd
Total Solids, Calc less CO ₂	7,675 mg/l
Total Solids, Calculated	10,261 mg/l
Total Solids, NaCl equivalents	4,010 mg/l
Chloride as NaCl	4,151 mg/l
NaCl% of Total Dissolved Solids	40.45 %
Accuracy	0.00 Sigma

Sample Conditions

pH, s.u. (Field)	8.71 s.u.
Sample Pressure	12.60 psia
Mole% CO ₂ Gas	0.67 %
pH, s.u. (from CO ₂)	8.71 s.u.
Surface Temp	70 °F
Downhole Temp	120 °F
Ionic Strength	0.159 μ

Dissolved Gases

Bisulfide Ion, HS ⁻	nd	Dissolved O ₂ , aq	nd
Hydrogen Sulfide, H ₂ S	nd	Measured CO ₂ , aq	nd
Total Sulfide	nd	Calculated CO ₂ , aq	8.1 mg/l

Other Properties

Calcium Hardness as CaCO ₃	43.7 mg/l	Specific Gravity	1.007 measured
Magnesium Hardness as CaCO ₃	65.3 mg/l	Specific Gravity	1.007 calculated
Total Hardness as CaCO ₃	109.0 mg/l	Resistivity, 68°F	nd
Hardness, grains	6.35 grains/gallon	Conductivity 25°C	nd

Microbiological

Sulfate Reducing	nd
Aerobic Bacteria	nd

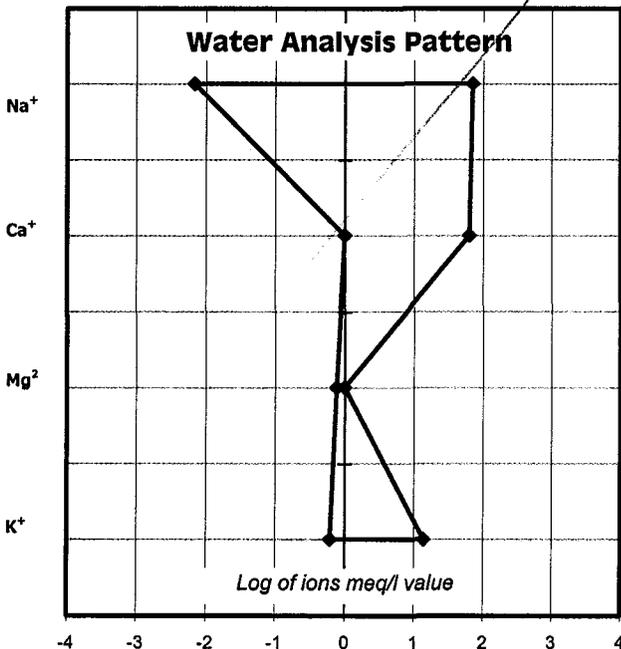
Scaling Conditions

Calcium Carbonate	CaCO ₃ +
Calcium Sulfate	CaSO ₄ - - -
Barium Sulfate	BaSO ₄ -
Strontium Sulfate	SrSO ₄ -

Probable Mineral Residue, Dry

Calculation error = 0 %

COMPOUND	mg/l
NaHCO ₃	5,085.7
NaCl	4,150.8
Mg(HCO ₃) ₂	95.1
Ca(HCO ₃) ₂	70.8
Na ₂ SO ₄	2.4



Note: nd denotes 'Not Determined'
 Analyzed by: Energy Laboratories
 Approved by: M.D. Carney
 v942MDCarney 5/31/2000

*See FAX from
Woody Sandlin
5/17/2000*

Injection Commingling Waters Scaling Tendencies

6/15/2000

Version : 502

Comment : DRUNKARDS WASH	BWPD	RATIO
INPUT 'A' : SITLA SWDW#1	1,000	50.0%
INPUT 'B' : INJECTION	1,000	50.0%
INPUT 'C' :	0	0.0%

Table #1

DATE : 15-Jun-00

WATER 'A'		1	2	3	4	5	6	7	8	9	WATER 'B'	
	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%		0%
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%		100%
K⁺	247.0	228.6	210.2	191.8	173.4	155.0	136.6	118.2	99.8	81.4	63.0	K⁺
Na⁺	33,990.0	30,924.2	27,858.5	24,792.7	21,727.0	18,661.2	15,595.4	12,529.7	9,463.9	6,398.2	3,332.4	Na⁺
Ca⁺⁺	1,060.0	955.8	851.5	747.3	643.0	538.8	434.5	330.3	226.0	121.8	17.5	Ca⁺⁺
Mg⁺⁺	220.0	199.6	179.2	158.7	138.3	117.9	97.5	77.1	56.6	36.2	15.8	Mg⁺⁺
Fe⁺⁺	0.0	0.3	0.5	0.8	1.0	1.3	1.5	1.8	2.0	2.3	2.5	Fe⁺⁺
Ba⁺⁺	6.0	5.4	4.8	4.2	3.6	3.0	2.4	1.8	1.2	0.6	0.0	Ba⁺⁺
Sr⁺⁺	21.0	18.9	16.8	14.7	12.6	10.5	8.4	6.3	4.2	2.1	0.0	Sr⁺⁺
Br⁻	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Br⁻
SO₄⁼	3,250.0	2,925.2	2,600.3	2,275.5	1,950.6	1,625.8	1,301.0	976.1	651.3	326.4	1.6	SO₄⁼
Cl⁻	52,000.0	47,051.8	42,103.6	37,155.4	32,207.2	27,259.0	22,310.8	17,362.6	12,414.4	7,466.2	2,518.0	Cl⁻
CO₃⁼	0.0	42.0	84.0	126.0	168.0	210.0	252.0	294.0	336.0	378.0	420.0	CO₃⁼
HCO₃⁻	1,340.0	1,595.0	1,850.0	2,105.0	2,360.0	2,615.0	2,870.0	3,125.0	3,380.0	3,635.0	3,890.0	HCO₃⁻
OH⁻	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OH⁻
OA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	OA
SpG	1.065	1.059	1.053	1.048	1.042	1.036	1.030	1.024	1.019	1.013	1.007	SpG
pH	6.30	6.54	6.78	7.02	7.26	7.51	7.75	7.99	8.23	8.47	8.71	pH
TDS	92,134.0	83,946.7	75,759.4	67,572.1	59,384.8	51,197.5	43,010.2	34,822.9	26,635.6	18,448.3	10,261.0	TDS
Surf Temp	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0	Surf Temp
Samp PSI	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	Samp PSI
H₂S, meas		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	H₂S, meas
Mole%CO₂	49.2	44.3	39.5	34.6	29.8	24.9	20.1	15.2	10.4	5.5	0.7	Mole%CO₂
CO₂, calc	435.9	393.1	350.3	307.6	264.8	222.0	179.2	136.4	93.7	50.9	8.1	CO₂, calc
CO₂, meas		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	CO₂, meas

*Note - Sodium and TDS values at variance with RGC D-3 analysis values despite otherwise using RGC D-3 analysis values as input for SITLA SWDW#1 permitting.

CATIONS			ANIONS			Mole% CO2 = 49.19 %	
	mg/L	meq/L		mg/L	meq/L		
Sodium Na+	33,990.0	1,478.47	Chloride Cl-	52,000.0	1,466.73	Sample PSI =	12.60 psi
Potassium K+	247.0	6.32	Bromide Br-	0.0	0.000	FIELD CO2 =	0.0 mg/L
Calcium Ca++	1,060.0	52.89	Sulfate SO4=	3,250.0	67.67	Calc CO2 aq=	435.9 mg/L
Magnesium Mg++	220.0	18.10	Bicarbonate HCO3-	1,340.0	21.97	TDS (calc'd)=	92,134 mg/l
Barium Ba++	6.0	0.09	Carbonate CO3=	0.0	0.00	Specific Gravity=	107%
Srortium Sr++	21.0	0.48	Organic Acids as Acetate	0.0	0.00	Sigma :	0.00
Iron Fe++	0.0	0.00	Hydroxide OH-	0.0	0.00	Surface Temp	70 °F
SUM+	35544	1,556.35	SUM-	56,590.0	1,556.37	Ionic Strength	1.780 μ

Field pH, s.u. = 6.30	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Heml hydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	6.34	-0.17	-0.81	-0.68	-0.83	+1.90	-0.43
2	B	80	2,500.0	6.30	+0.01	-0.84	-0.71	-0.73	+1.78	-0.43
3	C	100	2,500.0	6.27	+0.20	-0.87	-0.72	-0.84	+1.67	-0.41
4	D	120	2,500.0	6.25	+0.40	-0.89	-0.73	-0.54	+1.57	-0.40
5	E	130	2,500.0	6.24	+0.50	-0.70	-0.73	-0.49	+1.53	-0.39
6	F	135	2,500.0	6.23	+0.55	-0.71	-0.73	-0.47	+1.50	-0.38
7	G	140	2,500.0	6.23	+0.60	-0.71	-0.73	-0.44	+1.46	-0.37
8	H	144	2,500.0	6.23	+0.64	-0.72	-0.72	-0.42	+1.47	-0.37
9	I	150	2,500.0	6.22	+0.71	-0.72	-0.72	-0.39	+1.44	-0.36
1	Max formation temp	144	100.0	6.29	+0.82	-0.55	-0.58	-0.34	+1.59	-0.27
2	Max formation temp	144	500.0	6.28	+0.79	-0.81	-0.58	-0.35	+1.57	-0.29
3	Max formation temp	144	1,000.0	6.27	+0.76	-0.84	-0.82	-0.37	+1.54	-0.31
4	Max formation temp	144	1,200.0	6.26	+0.74	-0.65	-0.85	-0.38	+1.53	-0.32
5	Max formation temp	144	1,400.0	6.25	+0.73	-0.66	-0.85	-0.39	+1.52	-0.32
6	Max formation temp	144	1,600.0	6.25	+0.71	-0.67	-0.85	-0.39	+1.51	-0.33
7	Max formation temp	144	1,800.0	6.24	+0.70	-0.68	-0.88	-0.40	+1.50	-0.34
8	Max formation temp	144	2,000.0	6.24	+0.68	-0.69	-0.89	-0.41	+1.49	-0.35
9	Max formation temp	144	2,100.0	6.24	+0.67	-0.70	-0.70	-0.41	+1.49	-0.35
10	Max formation temp	144	2,200.0	6.23	+0.67	-0.70	-0.70	-0.41	+1.48	-0.36
11	Max formation temp	144	2,300.0	6.23	+0.65	-0.71	-0.71	-0.42	+1.48	-0.36
12	Max formation temp	144	2,400.0	6.23	+0.65	-0.71	-0.72	-0.42	+1.47	-0.37
13	Max formation temp	144	2,500.0	6.23	+0.64	-0.72	-0.72	-0.42	+1.47	-0.37

[1] A:90% / B:10%

CATIONS			ANIONS			Mole% CO2 = 44.34 %	
	mg/L	meq/L		mg/L	meq/L		
Sodium Na+	30,924.2	1,345.12	Chloride Cl-	47,051.8	1,327.16	Sample PSI =	12.60 psi
Potassium K+	228.6	5.85	Bromide Br-	0.0	0.000	FIELD CO2 =	0.0 mg/L
Calcium Ca++	985.8	47.69	Sulfate SO4=	2,925.2	60.90	Calc CO2 aq=	393.1 mg/L
Magnesium Mg++	199.6	16.42	Bicarbonate HCO3-	1,595.0	26.15	TDS (calc'd)=	83,947 mg/l
Barium Ba++	5.4	0.08	Carbonate CO3=	42.0	1.40	Specific Gravity=	1.0592
Srortium Sr++	18.9	0.43	Organic Acids as Acetate	0.0	0.00	Sigma :	0.00
Iron Fe++	0.3	0.01	Hydroxide OH-	0.0	0.00	Surface Temp	70 °F
SUM+	32,332.7	1,415.60	SUM-	51,614.0	1,415.61	Ionic Strength	1.606 μ

Field pH, s.u. = 6.54	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Heml hydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	6.45	-0.00	-0.67	-0.75	-0.93	+1.81	-0.51
2	B	80	2,500.0	6.41	+0.15	-0.70	-0.77	-0.83	+1.70	-0.50
3	C	100	2,500.0	6.39	+0.37	-0.73	-0.78	-0.73	+1.69	-0.49
4	D	120	2,500.0	6.36	+0.57	-0.75	-0.79	-0.62	+1.49	-0.47
5	E	130	2,500.0	6.35	+0.67	-0.76	-0.76	-0.57	+1.45	-0.46
6	F	135	2,500.0	6.35	+0.72	-0.76	-0.79	-0.55	+1.42	-0.45
7	G	140	2,500.0	6.35	+0.76	-0.77	-0.78	-0.52	+1.40	-0.44
8	H	144	2,500.0	6.34	+0.82	-0.77	-0.78	-0.50	+1.39	-0.44
9	I	150	2,500.0	6.34	+0.86	-0.77	-0.78	-0.47	+1.36	-0.43
1	Max formation temp	144	100.0	6.41	+1.00	-0.60	-0.61	-0.42	+1.51	-0.34
2	Max formation temp	144	500.0	6.40	+0.97	-0.66	-0.64	-0.44	+1.49	-0.36
3	Max formation temp	144	1,000.0	6.38	+0.93	-0.69	-0.68	-0.45	+1.46	-0.36
4	Max formation temp	144	1,200.0	6.38	+0.91	-0.70	-0.69	-0.46	+1.45	-0.38
5	Max formation temp	144	1,400.0	6.37	+0.90	-0.71	-0.71	-0.47	+1.44	-0.39
6	Max formation temp	144	1,600.0	6.37	+0.88	-0.72	-0.72	-0.47	+1.43	-0.40
7	Max formation temp	144	1,800.0	6.36	+0.87	-0.73	-0.73	-0.48	+1.42	-0.41
8	Max formation temp	144	2,000.0	6.36	+0.85	-0.74	-0.75	-0.49	+1.41	-0.42
9	Max formation temp	144	2,100.0	6.36	+0.85	-0.75	-0.75	-0.49	+1.41	-0.42
10	Max formation temp	144	2,200.0	6.35	+0.84	-0.75	-0.76	-0.49	+1.40	-0.43
11	Max formation temp	144	2,300.0	6.35	+0.83	-0.76	-0.77	-0.50	+1.40	-0.43
12	Max formation temp	144	2,400.0	6.35	+0.82	-0.76	-0.78	-0.50	+1.39	-0.43
13	Max formation temp	144	2,500.0	6.34	+0.82	-0.77	-0.78	-0.50	+1.39	-0.44

[2] A:80% / B:20%

CATIONS			ANIONS			Mole% CO2 = 39.49 %	
	mg/L	meq/L		mg/L	meq/L		
Sodium Na+	27,858.5	1,211.77	Chloride Cl-	42,103.6	1,187.59	Sample PSI =	12.60 psi
Potassium K+	210.2	5.38	Bromide Br-	0.0	0.000	FIELD CO2 =	0.0 mg/L
Calcium Ca++	851.5	42.49	Sulfate SO4=	2,600.3	54.14	Calc CO2 aq=	350.3 mg/L
Magnesium Mg++	179.2	14.74	Bicarbonate HCO3-	1,850.0	30.33	TDS (calc'd)=	75,759 mg/l
Barium Ba++	4.8	0.07	Carbonate CO3=	84.0	2.80	Specific Gravity=	1.0534
Srortium Sr++	16.8	0.38	Organic Acids as Acetate	0.0	0.00	Sigma :	0.00
Iron Fe++	0.5	0.02	Hydroxide OH-	0.0	0.00	Surface Temp	70 °F
SUM+	29,121.4	1,274.85	SUM-	46,637.9	1,274.86	Ionic Strength	1.435 μ

Field pH, s.u. = 6.78	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Heml hydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	6.55	+0.15	-0.74	-0.81	-1.04	+1.71	-0.50
2	B	80	2,500.0	6.52	+0.33	-0.76	-0.83	-0.93	+1.60	-0.50
3	C	100	2,500.0	6.49	+0.52	-0.79	-0.85	-0.82	+1.50	-0.50
4	D	120	2,500.0	6.47	+0.72	-0.81	-0.85	-0.72	+1.40	-0.54
5	E	130	2,500.0	6.46	+0.82	-0.82	-0.85	-0.66	+1.35	-0.53
6	F	135	2,500.0	6.46	+0.87	-0.82	-0.85	-0.64	+1.34	-0.52
7	G	140	2,500.0	6.46	+0.93	-0.82	-0.85	-0.61	+1.32	-0.52
8	H	144	2,500.0	6.46	+0.97	-0.82	-0.84	-0.59	+1.30	-0.51
9	I	150	2,500.0	6.45	+1.03	-0.83	-0.84	-0.58	+1.28	-0.50
1	Max formation temp	144	100.0	6.52	+1.16	-0.65	-0.68	-0.51	+1.43	-0.41
2	Max formation temp	144	500.0	6.51	+1.12	-0.72	-0.70	-0.52	+1.41	-0.43
3	Max formation temp	144	1,000.0	6.49	+1.08	-0.74	-0.74	-0.54	+1.38	-0.45
4	Max formation temp	144	1,200.0	6.49	+1.06	-0.75	-0.75	-0.55	+1.37	-0.46
5	Max formation temp	144	1,400.0	6.48	+1.05	-0.76	-0.77	-0.55	+1.36	-0.46
6	Max formation temp	144	1,600.0	6.48	+1.04	-0.78	-0.78	-0.56	+1.35	-0.47
7	Max formation temp	144	1,800.0	6.47	+1.02	-0.79	-0.80	-0.57	+1.34	-0.48
8	Max formation temp	144	2,000.0	6.47	+1.01	-0.80	-0.81	-0.57	+1.33	-0.49
9	Max formation temp	144	2,100.0	6.47	+1.00	-0.80	-0.82	-0.58	+1.32	-0.49
10	Max formation temp	144	2,200.0	6.46	+0.99	-0.81	-0.82	-0.59	+1.32	-0.50
11	Max formation temp	144	2,300.0	6.46	+0.98	-0.81	-0.83	-0.59	+1.31	-0.50
12	Max formation temp	144	2,400.0	6.46	+0.98	-0.82	-0.84	-0.59	+1.31	-0.51
13	Max formation temp	144	2,500.0	6.46	+0.97	-0.83	-0.84	-0.59	+1.30	-0.51

[3] A:70% / B:30%

Table #2

CATIONS			ANIONS			Mole% CO ₂ = 34.63 %	
	mg/L	meq/L		mg/L	meq/L	Sample PSI = 12.60 psi	
Sodium Na+	24,792.7	1,078.41	Chloride Cl-	37,155.4	1,048.02	FIELD CO ₂ = 0.0 mg/L	
Potassium K+	191.8	4.91	Bromide Br-	0.0	0.000	Calc CO ₂ aq = 307.6 mg/L	
Calcium Ca++	747.3	37.29	Sulfate SO ₄ =	2,275.5	47.38	TDS (calc'd) = 67,572 mg/l	
Magnesium Mg++	158.7	13.06	Bicarbonate HCO ₃ -	2,105.0	34.51	Specific Gravity = 1.0476	
Barium Ba++	4.2	0.06	Carbonate CO ₃ =	126.0	4.20	Sigma : 0.00	
Strontium Sr++	14.7	0.34	Organic Acids as Acetate	0.0	0.00	Surface Temp 70 °F	
Iron Fe++	0.8	0.03	Hydroxide OH-	0.0	0.00	Ionic Strength 1.267 μ	
SUM+	25,910.2	1,134.09	SUM-	41,661.9	1,134.10		

Field pH, s.u. = 7.02	Pressure psia	pH calculated	SI CaCO ₃	CaSO ₄ · 2H ₂ O Gypsum	CaSO ₄ · 2H ₂ O Hemihydrate	CaSO ₄ Anhydrite	SI BaSO ₄	SI SrSO ₄	
1 A	60	2,500.0	6.65	+0.29	-0.82	-0.89	-1.15	+1.61	-0.69
2 B	80	2,500.0	6.62	+0.47	-0.84	-0.91	-1.04	+1.50	-0.67
3 C	100	2,500.0	6.60	+0.66	-0.86	-0.92	-0.93	+1.40	-0.65
4 D	120	2,500.0	6.58	+0.86	-0.87	-0.92	-0.82	+1.31	-0.62
5 E	130	2,500.0	6.57	+0.96	-0.88	-0.92	-0.76	+1.26	-0.61
6 F	135	2,500.0	6.57	+1.01	-0.89	-0.92	-0.73	+1.24	-0.60
7 G	140	2,500.0	6.57	+1.07	-0.89	-0.92	-0.71	+1.22	-0.59
8 H	144	2,500.0	6.57	+1.11	-0.89	-0.91	-0.68	+1.21	-0.58
9 I	150	2,500.0	6.56	+1.17	-0.89	-0.91	-0.65	+1.18	-0.58
1 Max formation temp	144	100.0	6.63	+1.29	-0.72	-0.75	-0.80	+1.33	-0.48
2 Max formation temp	144	500.0	6.62	+1.26	-0.78	-0.77	-0.82	+1.31	-0.51
3 Max formation temp	144	1,000.0	6.60	+1.22	-0.81	-0.81	-0.83	+1.29	-0.53
4 Max formation temp	144	1,200.0	6.60	+1.20	-0.82	-0.82	-0.84	+1.28	-0.53
5 Max formation temp	144	1,400.0	6.59	+1.19	-0.83	-0.84	-0.85	+1.28	-0.54
6 Max formation temp	144	1,600.0	6.59	+1.17	-0.84	-0.85	-0.85	+1.25	-0.55
7 Max formation temp	144	1,800.0	6.58	+1.15	-0.85	-0.87	-0.86	+1.24	-0.56
8 Max formation temp	144	2,000.0	6.58	+1.14	-0.86	-0.88	-0.87	+1.23	-0.57
9 Max formation temp	144	2,100.0	6.58	+1.14	-0.87	-0.89	-0.87	+1.23	-0.57
10 Max formation temp	144	2,200.0	6.57	+1.13	-0.87	-0.89	-0.87	+1.22	-0.58
11 Max formation temp	144	2,300.0	6.57	+1.12	-0.88	-0.90	-0.88	+1.22	-0.58
12 Max formation temp	144	2,400.0	6.57	+1.12	-0.88	-0.91	-0.88	+1.21	-0.58
13 Max formation temp	144	2,500.0	6.57	+1.11	-0.89	-0.91	-0.88	+1.21	-0.59

[4] A:60% / B:40%

CATIONS			ANIONS			Mole% CO ₂ = 29.78 %	
	mg/L	meq/L		mg/L	meq/L	Sample PSI = 12.60 psi	
Sodium Na+	21,727.0	945.06	Chloride Cl-	32,207.2	908.45	FIELD CO ₂ = 0.0 mg/L	
Potassium K+	173.4	4.44	Bromide Br-	0.0	0.000	Calc CO ₂ aq = 264.8 mg/L	
Calcium Ca++	643.0	32.09	Sulfate SO ₄ =	1,950.6	40.61	TDS (calc'd) = 59,385 mg/l	
Magnesium Mg++	138.3	11.38	Bicarbonate HCO ₃ -	2,340.0	38.69	Specific Gravity = 1.0418	
Barium Ba++	1.6	0.05	Carbonate CO ₃ =	168.0	5.60	Sigma : 0.00	
Strontium Sr++	12.6	0.29	Organic Acids as Acetate	0.0	0.00	Surface Temp 70 °F	
Iron Fe++	1.0	0.04	Hydroxide OH-	0.0	0.00	Ionic Strength 1.101 μ	
SUM+	22,698.9	993.34	SUM-	36,685.8	993.35		

Field pH, s.u. = 7.26	Pressure psia	pH calculated	SI CaCO ₃	CaSO ₄ · 2H ₂ O Gypsum	CaSO ₄ · 2H ₂ O Hemihydrate	CaSO ₄ Anhydrite	SI BaSO ₄	SI SrSO ₄	
1 A	60	2,500.0	6.76	+0.42	-0.90	-0.97	-1.27	+1.50	-0.78
2 B	80	2,500.0	6.73	+0.60	-0.92	-0.99	-1.16	+1.39	-0.76
3 C	100	2,500.0	6.71	+0.79	-0.94	-1.00	-1.04	+1.29	-0.74
4 D	120	2,500.0	6.69	+0.99	-0.95	-1.00	-0.92	+1.20	-0.71
5 E	130	2,500.0	6.69	+1.10	-0.96	-1.00	-0.87	+1.16	-0.70
6 F	135	2,500.0	6.68	+1.16	-0.96	-1.00	-0.84	+1.14	-0.69
7 G	140	2,500.0	6.68	+1.20	-0.96	-1.00	-0.81	+1.12	-0.68
8 H	144	2,500.0	6.68	+1.24	-0.96	-0.99	-0.79	+1.11	-0.67
9 I	150	2,500.0	6.68	+1.30	-0.96	-0.99	-0.75	+1.08	-0.66
1 Max formation temp	144	100.0	6.74	+1.42	-0.79	-0.83	-0.71	+1.23	-0.58
2 Max formation temp	144	500.0	6.73	+1.39	-0.85	-0.85	-0.72	+1.21	-0.59
3 Max formation temp	144	1,000.0	6.72	+1.35	-0.88	-0.89	-0.74	+1.18	-0.61
4 Max formation temp	144	1,200.0	6.71	+1.34	-0.89	-0.90	-0.74	+1.17	-0.62
5 Max formation temp	144	1,400.0	6.71	+1.32	-0.90	-0.92	-0.75	+1.16	-0.63
6 Max formation temp	144	1,600.0	6.70	+1.31	-0.92	-0.93	-0.76	+1.15	-0.64
7 Max formation temp	144	1,800.0	6.70	+1.29	-0.93	-0.94	-0.76	+1.14	-0.65
8 Max formation temp	144	2,000.0	6.69	+1.28	-0.94	-0.96	-0.77	+1.13	-0.65
9 Max formation temp	144	2,100.0	6.69	+1.27	-0.94	-0.97	-0.77	+1.13	-0.66
10 Max formation temp	144	2,200.0	6.69	+1.26	-0.95	-0.97	-0.78	+1.12	-0.66
11 Max formation temp	144	2,300.0	6.68	+1.25	-0.95	-0.98	-0.78	+1.12	-0.67
12 Max formation temp	144	2,400.0	6.68	+1.25	-0.96	-0.99	-0.78	+1.11	-0.67
13 Max formation temp	144	2,500.0	6.68	+1.24	-0.97	-0.99	-0.79	+1.11	-0.67

[5] A:50% / B:50%

CATIONS			ANIONS			Mole% CO ₂ = 24.93 %	
	mg/L	meq/L		mg/L	meq/L	Sample PSI = 12.60 psi	
Sodium Na+	18,661.2	811.71	Chloride Cl-	27,259.0	768.88	FIELD CO ₂ = 0.0 mg/L	
Potassium K+	155.0	3.96	Bromide Br-	0.0	0.000	Calc CO ₂ aq = 222.0 mg/L	
Calcium Ca++	538.8	26.88	Sulfate SO ₄ =	1,825.8	33.85	TDS (calc'd) = 51,198 mg/l	
Magnesium Mg++	117.9	9.70	Bicarbonate HCO ₃ -	2,615.0	42.87	Specific Gravity = 1.036	
Barium Ba++	3.0	0.04	Carbonate CO ₃ =	210.0	7.00	Sigma : 0.00	
Strontium Sr++	10.5	0.24	Organic Acids as Acetate	0.0	0.00	Surface Temp 70 °F	
Iron Fe++	1.3	0.04	Hydroxide OH-	0.0	0.00	Ionic Strength 0.938 μ	
SUM+	19,487.6	852.59	SUM-	31,709.8	852.60		

Field pH, s.u. = 7.51	Pressure psia	pH calculated	SI CaCO ₃	CaSO ₄ · 2H ₂ O Gypsum	CaSO ₄ · 2H ₂ O Hemihydrate	CaSO ₄ Anhydrite	SI BaSO ₄	SI SrSO ₄	
1 A	60	2,500.0	6.87	+0.55	-1.01	-1.07	-1.41	+1.37	-0.90
2 B	80	2,500.0	6.84	+0.74	-1.03	-1.09	-1.29	+1.27	-0.87
3 C	100	2,500.0	6.82	+0.93	-1.04	-1.10	-1.17	+1.17	-0.85
4 D	120	2,500.0	6.81	+1.13	-1.05	-1.10	-1.05	+1.06	-0.82
5 E	130	2,500.0	6.81	+1.23	-1.05	-1.09	-0.99	+1.04	-0.80
6 F	135	2,500.0	6.80	+1.28	-1.06	-1.09	-0.96	+1.02	-0.79
7 G	140	2,500.0	6.80	+1.33	-1.06	-1.09	-0.93	+1.01	-0.78
8 H	144	2,500.0	6.80	+1.37	-1.06	-1.09	-0.90	+1.00	-0.77
9 I	150	2,500.0	6.80	+1.44	-1.05	-1.08	-0.87	+0.97	-0.76
1 Max formation temp	144	100.0	6.86	+1.58	-0.89	-0.92	-0.82	+1.12	-0.68
2 Max formation temp	144	500.0	6.85	+1.52	-0.95	-0.95	-0.84	+1.10	-0.69
3 Max formation temp	144	1,000.0	6.84	+1.49	-0.97	-0.98	-0.85	+1.07	-0.71
4 Max formation temp	144	1,200.0	6.84	+1.47	-0.99	-1.00	-0.86	+1.06	-0.72
5 Max formation temp	144	1,400.0	6.83	+1.46	-1.00	-1.01	-0.87	+1.05	-0.73
6 Max formation temp	144	1,600.0	6.83	+1.44	-1.01	-1.02	-0.87	+1.04	-0.74
7 Max formation temp	144	1,800.0	6.82	+1.43	-1.02	-1.04	-0.88	+1.03	-0.75
8 Max formation temp	144	2,000.0	6.82	+1.41	-1.03	-1.05	-0.89	+1.02	-0.75
9 Max formation temp	144	2,100.0	6.81	+1.40	-1.04	-1.06	-0.89	+1.01	-0.76
10 Max formation temp	144	2,200.0	6.81	+1.40	-1.04	-1.07	-0.89	+1.01	-0.76
11 Max formation temp	144	2,300.0	6.81	+1.39	-1.05	-1.07	-0.90	+1.00	-0.77
12 Max formation temp	144	2,400.0	6.80	+1.38	-1.05	-1.08	-0.90	+1.00	-0.77
13 Max formation temp	144	2,500.0	6.80	+1.37	-1.06	-1.09	-0.90	+0.99	-0.77

[6] A:40% / B:60%

Table #2

CATIONS			mg/L	meq/L	ANIONS			mg/L	meq/L	Mole% CO2 = 20.08 %
Sodium	Na+	15,595.4	678.36	Chloride	Cl-	22,310.8	629.31	Sample PSI = 12.60 psi		
Potassium	K +	136.6	3.49	Bromide	Br-	0.0	0.000	FIELD CO2 = 0.0 mg/L		
Calcium	Ca++	434.5	21.68	Sulfate	SO4=	1,301.0	27.09	Calc CO2 aq= 179.2 mg/L		
Magnesium	Mg++	97.5	8.02	Bicarbonate	HCO3-	2,870.0	47.05	TDS (calc'd)= 43,010 mg/l		
Barium	Ba++	2.4	0.03	Carbonate	CO3=	252.0	8.49	Specific Gravity= 1.0302		
Strontium	Sr++	8.4	0.19	Organic Acids as Acetate		0.0	0.00	Sigma : 0.00		
Iron	Fe++	1.5	0.05	Hydroxide	OH-	0.0	0.00	Surface Temp 70 °F		
SUM++		16,276.3	711.83	SUM-		26,733.8	711.84	Ionic Strength 0.777 μ		

Field pH, s.u. = 7.75	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Hemihydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	7.00	+0.59	-1.14	-1.19	-1.57	+1.22	-1.03
2	B	80	2,500.0	6.97	+0.87	-1.15	-1.21	-1.44	+1.12	-1.01
3	C	100	2,500.0	6.96	+1.06	-1.17	-1.22	-1.32	+1.03	-0.98
4	D	120	2,500.0	6.95	+1.26	-1.17	-1.22	-1.19	+0.95	-0.94
5	E	130	2,500.0	6.94	+1.37	-1.17	-1.21	-1.13	+0.91	-0.92
6	F	135	2,500.0	6.94	+1.42	-1.18	-1.21	-1.10	+0.89	-0.91
7	G	140	2,500.0	6.94	+1.47	-1.17	-1.21	-1.07	+0.87	-0.90
8	H	144	2,500.0	6.94	+1.51	-1.17	-1.20	-1.04	+0.86	-0.90
9	I	150	2,500.0	6.94	+1.56	-1.17	-1.20	-1.00	+0.84	-0.89
1	Max formation temp	144	100.0	7.00	+1.09	-1.00	-1.04	-0.98	+0.98	-0.90
2	Max formation temp	144	500.0	6.99	+1.06	-1.08	-1.08	-0.97	+0.98	-0.81
3	Max formation temp	144	1,000.0	6.98	+1.02	-1.09	-1.10	-0.99	+0.94	-0.83
4	Max formation temp	144	1,200.0	6.97	+1.01	-1.10	-1.11	-1.00	+0.93	-0.84
5	Max formation temp	144	1,400.0	6.97	+1.00	-1.11	-1.13	-1.00	+0.92	-0.85
6	Max formation temp	144	1,600.0	6.96	+1.00	-1.13	-1.14	-1.01	+0.91	-0.86
7	Max formation temp	144	1,800.0	6.96	+1.00	-1.14	-1.15	-1.02	+0.90	-0.87
8	Max formation temp	144	2,000.0	6.95	+1.00	-1.15	-1.17	-1.02	+0.89	-0.88
9	Max formation temp	144	2,100.0	6.95	+1.00	-1.15	-1.18	-1.03	+0.88	-0.88
10	Max formation temp	144	2,200.0	6.95	+1.00	-1.16	-1.18	-1.03	+0.87	-0.88
11	Max formation temp	144	2,300.0	6.95	+1.00	-1.16	-1.19	-1.03	+0.87	-0.89
12	Max formation temp	144	2,400.0	6.94	+1.00	-1.17	-1.20	-1.04	+0.86	-0.89
13	Max formation temp	144	2,500.0	6.94	+1.00	-1.17	-1.20	-1.04	+0.86	-0.90

[7] A:30% / B:70%

CATIONS			mg/L	meq/L	ANIONS			mg/L	meq/L	Mole% CO2 = 15.23 %
Sodium	Na+	12,526.7	545.81	Chloride	Cl-	17,362.6	489.74	Sample PSI = 12.60 psi		
Potassium	K +	118.2	3.02	Bromide	Br-	0.0	0.000	FIELD CO2 = 0.0 mg/L		
Calcium	Ca++	330.3	16.48	Sulfate	SO4=	976.1	20.32	Calc CO2 aq= 136.4 mg/L		
Magnesium	Mg++	77.1	6.34	Bicarbonate	HCO3-	3,125.0	51.23	TDS (calc'd)= 34,823 mg/l		
Barium	Ba++	1.8	0.03	Carbonate	CO3=	294.0	9.80	Specific Gravity= 1.0244		
Strontium	Sr++	6.3	0.14	Organic Acids as Acetate		0.0	0.00	Sigma : 0.00		
Iron	Fe++	1.8	0.06	Hydroxide	OH-	0.0	0.00	Surface Temp 70 °F		
SUM++		13,065.0	571.08	SUM-		21,757.7	571.09	Ionic Strength 0.619 μ		

Field pH, s.u. = 7.99	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Hemihydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	7.15	+0.83	-1.32	-1.35	-1.77	+1.05	-1.20
2	B	80	2,500.0	7.13	+1.02	-1.33	-1.37	-1.64	+0.95	-1.18
3	C	100	2,500.0	7.12	+1.21	-1.33	-1.37	-1.60	+0.88	-1.14
4	D	120	2,500.0	7.11	+1.41	-1.34	-1.37	-1.37	+0.78	-1.10
5	E	130	2,500.0	7.11	+1.51	-1.34	-1.37	-1.31	+0.74	-1.08
6	F	135	2,500.0	7.11	+1.57	-1.34	-1.37	-1.27	+0.73	-1.07
7	G	140	2,500.0	7.11	+1.62	-1.34	-1.36	-1.24	+0.71	-1.08
8	H	144	2,500.0	7.11	+1.66	-1.33	-1.36	-1.21	+0.70	-1.05
9	I	150	2,500.0	7.11	+1.72	-1.33	-1.35	-1.18	+0.68	-1.04
1	Max formation temp	144	100.0	7.17	+1.84	-1.16	-1.19	-1.13	+0.82	-0.96
2	Max formation temp	144	500.0	7.16	+1.81	-1.22	-1.22	-1.15	+0.80	-0.97
3	Max formation temp	144	1,000.0	7.15	+1.77	-1.25	-1.25	-1.16	+0.77	-0.98
4	Max formation temp	144	1,200.0	7.14	+1.75	-1.26	-1.27	-1.17	+0.76	-1.00
5	Max formation temp	144	1,400.0	7.14	+1.74	-1.27	-1.28	-1.18	+0.75	-1.01
6	Max formation temp	144	1,600.0	7.13	+1.73	-1.28	-1.30	-1.18	+0.74	-1.02
7	Max formation temp	144	1,800.0	7.13	+1.71	-1.30	-1.31	-1.19	+0.73	-1.03
8	Max formation temp	144	2,000.0	7.12	+1.70	-1.31	-1.32	-1.20	+0.72	-1.03
9	Max formation temp	144	2,100.0	7.12	+1.69	-1.31	-1.33	-1.20	+0.72	-1.04
10	Max formation temp	144	2,200.0	7.12	+1.68	-1.32	-1.34	-1.20	+0.71	-1.04
11	Max formation temp	144	2,300.0	7.11	+1.68	-1.32	-1.34	-1.21	+0.71	-1.05
12	Max formation temp	144	2,400.0	7.11	+1.67	-1.33	-1.35	-1.21	+0.70	-1.05
13	Max formation temp	144	2,500.0	7.11	+1.66	-1.33	-1.36	-1.21	+0.70	-1.05

[8] A:20% / B:80%

CATIONS			mg/L	meq/L	ANIONS			mg/L	meq/L	Mole% CO2 = 10.37 %
Sodium	Na+	9,463.9	411.65	Chloride	Cl-	12,414.4	350.17	Sample PSI = 12.60 psi		
Potassium	K +	99.8	2.55	Bromide	Br-	0.0	0.000	FIELD CO2 = 0.0 mg/L		
Calcium	Ca++	226.0	11.28	Sulfate	SO4=	651.3	13.56	Calc CO2 aq= 93.7 mg/L		
Magnesium	Mg++	56.6	4.66	Bicarbonate	HCO3-	3,380.0	55.41	TDS (calc'd)= 26,636 mg/l		
Barium	Ba++	1.2	0.02	Carbonate	CO3=	336.0	11.20	Specific Gravity= 1.0186		
Strontium	Sr++	4.2	0.10	Organic Acids as Acetate		0.0	0.00	Sigma : 0.00		
Iron	Fe++	2.0	0.07	Hydroxide	OH-	0.0	0.00	Surface Temp 70 °F		
SUM++		9,853.8	430.33	SUM-		16,781.7	430.33	Ionic Strength 0.463 μ		

Field pH, s.u. = 8.23	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 . 2H2O Gypsum	CaSO4 . 2H2O Hemihydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	7.36	+1.00	-1.58	-1.58	-2.04	+0.80	-1.46
2	B	80	2,500.0	7.34	+1.19	-1.58	-1.60	-1.90	+0.71	-1.42
3	C	100	2,500.0	7.33	+1.38	-1.58	-1.61	-1.76	+0.63	-1.38
4	D	120	2,500.0	7.32	+1.58	-1.58	-1.60	-1.62	+0.55	-1.34
5	E	130	2,500.0	7.32	+1.68	-1.58	-1.60	-1.65	+0.52	-1.32
6	F	135	2,500.0	7.32	+1.73	-1.58	-1.60	-1.62	+0.50	-1.31
7	G	140	2,500.0	7.32	+1.78	-1.58	-1.59	-1.49	+0.48	-1.30
8	H	144	2,500.0	7.33	+1.83	-1.57	-1.60	-1.46	+0.47	-1.29
9	I	150	2,500.0	7.33	+1.88	-1.57	-1.58	-1.42	+0.45	-1.27
1	Max formation temp	144	100.0	7.39	+2.01	-1.40	-1.42	-1.38	+0.60	-1.19
2	Max formation temp	144	500.0	7.38	+1.99	-1.48	-1.45	-1.39	+0.58	-1.21
3	Max formation temp	144	1,000.0	7.36	+1.94	-1.49	-1.48	-1.41	+0.55	-1.23
4	Max formation temp	144	1,200.0	7.36	+1.92	-1.50	-1.50	-1.41	+0.54	-1.23
5	Max formation temp	144	1,400.0	7.35	+1.91	-1.51	-1.51	-1.42	+0.53	-1.24
6	Max formation temp	144	1,600.0	7.35	+1.89	-1.53	-1.53	-1.43	+0.52	-1.25
7	Max formation temp	144	1,800.0	7.34	+1.88	-1.54	-1.54	-1.43	+0.51	-1.26
8	Max formation temp	144	2,000.0	7.34	+1.86	-1.55	-1.55	-1.44	+0.50	-1.27
9	Max formation temp	144	2,100.0	7.34	+1.85	-1.55	-1.55	-1.44	+0.49	-1.27
10	Max formation temp	144	2,200.0	7.33	+1.83	-1.56	-1.57	-1.45	+0.48	-1.28
11	Max formation temp	144	2,300.0	7.33	+1.84	-1.56	-1.57	-1.45	+0.48	-1.28
12	Max formation temp	144	2,400.0	7.33	+1.83	-1.57	-1.57	-1.45	+0.48	-1.28
13	Max formation temp	144	2,500.0	7.33	+1.83	-1.58	-1.59	-1.46	+0.47	-1.29

[9] A:10% / B:90%

Table #2

CATIONS			mg/L	meq/L	ANIONS			mg/L	meq/L	Mole% CO2 =	5.52 %
Sodium	Na+	6,398.2	278.30	Chloride	Cl-	7,466.2	210.99			Sample PSI =	12.60 psi
Potassium	K +	81.4	2.08	Bromide	Br-	0.0	0.000			FIELD CO2 =	0.0 mg/L
Calcium	Ca++	121.8	6.08	Sulfate	SO4=	326.4	6.80			Calc CO2 aq=	50.9 mg/L
Magnesium	Mg++	36.2	2.90	Bicarbonate	HCO3-	3,635.0	99.59			TDS (calc'd)=	18,448 mg/l
Barium	Ba++	0.6	0.01	Carbonate	CO3=	378.0	12.60			Specific Gravity=	1.0128
Strontium	Sr++	2.1	0.05	Organic Acids as Acetate		0.0	0.00			Sigma :	0.00
Iron	Fe++	2.3	0.08	Hydroxide	OH-	0.0	0.00			Surface Temp	70 °F
SUM+		6,642.5	289.58	SUM-		11,805.6	289.58			Ionic Strength	0.310 µ

Field pH, s.u. = 8.47	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 · 2H2O Gypsum	CaSO4 · 2H2O Hemi hydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	7.67	+1.20	-2.04	-2.01	-2.51	+0.38	-1.91
2	B	80	2,500.0	7.66	+1.39	-2.04	-2.03	-2.38	+0.29	-1.88
3	C	100	2,500.0	7.65	+1.58	-2.04	-2.03	-2.21	+0.21	-1.83
4	D	120	2,500.0	7.65	+1.78	-2.03	-2.03	-2.08	+0.14	-1.79
5	E	130	2,500.0	7.65	+1.88	-2.03	-2.02	-1.99	+0.11	-1.78
6	F	135	2,500.0	7.66	+1.93	-2.02	-2.02	-1.98	+0.09	-1.78
7	G	140	2,500.0	7.66	+1.99	-2.02	-2.02	-1.92	+0.08	-1.74
8	H	144	2,500.0	7.66	+2.03	-2.02	-2.01	-1.89	+0.06	-1.73
9	I	150	2,500.0	7.66	+2.09	-2.01	-2.00	-1.84	+0.05	-1.71
1	Max formation temp	144	100.0	7.72	+2.21	-1.85	-1.84	-1.81	+0.19	-1.83
2	Max formation temp	144	500.0	7.71	+2.18	-1.91	-1.87	-1.82	+0.17	-1.84
3	Max formation temp	144	1,000.0	7.70	+2.14	-1.93	-1.90	-1.84	+0.14	-1.80
4	Max formation temp	144	1,200.0	7.69	+2.13	-1.95	-1.92	-1.84	+0.13	-1.87
5	Max formation temp	144	1,400.0	7.69	+2.11	-1.96	-1.93	-1.85	+0.12	-1.88
6	Max formation temp	144	1,600.0	7.68	+2.10	-1.97	-1.95	-1.88	+0.11	-1.89
7	Max formation temp	144	1,800.0	7.68	+2.08	-1.98	-1.96	-1.88	+0.10	-1.70
8	Max formation temp	144	2,000.0	7.67	+2.07	-1.99	-1.97	-1.87	+0.09	-1.71
9	Max formation temp	144	2,100.0	7.67	+2.06	-2.00	-1.98	-1.87	+0.08	-1.71
10	Max formation temp	144	2,200.0	7.67	+2.05	-2.00	-1.99	-1.88	+0.08	-1.71
11	Max formation temp	144	2,300.0	7.66	+2.04	-2.01	-2.00	-1.88	+0.07	-1.72
12	Max formation temp	144	2,400.0	7.66	+2.04	-2.01	-2.00	-1.88	+0.07	-1.72
13	Max formation temp	144	2,500.0	7.66	+2.03	-2.02	-2.01	-1.89	+0.06	-1.73

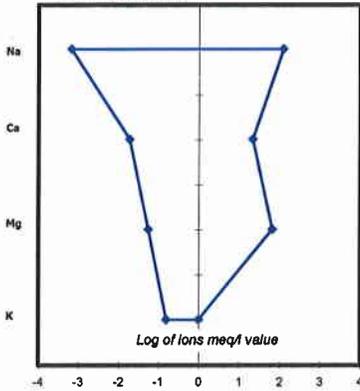
WATER 'B' 100% INJECTION

CATIONS			mg/L	meq/L	ANIONS			mg/L	meq/L	Mole% CO2 =	0.67 %
Sodium	Na+	3,332.4	144.95	Chloride	Cl-	2,518.0	71.02			Sample PSI =	12.60 psi
Potassium	K +	63.0	1.61	Bromide	Br-	0.0	0.000			FIELD CO2 =	0.0 mg/L
Calcium	Ca++	17.5	0.87	Sulfate	SO4=	1.6	0.03			Calc CO2 aq=	8.1 mg/L
Magnesium	Mg++	15.8	1.30	Bicarbonate	HCO3-	3,890.0	63.77			TDS (calc'd)=	10,261 mg/l
Barium	Ba++	0.0	0.00	Carbonate	CO3=	420.0	14.00			Specific Gravity=	1.007
Strontium	Sr++	0.0	0.00	Organic Acids as Acetate		0.0	0.00			Sigma :	0.00
Iron	Fe++	2.5	0.09	Hydroxide	OH-	0.0	0.00			Surface Temp	70 °F
SUM+		3,431.2	148.82	SUM-		6,829.6	148.83			Ionic Strength	0.159 µ

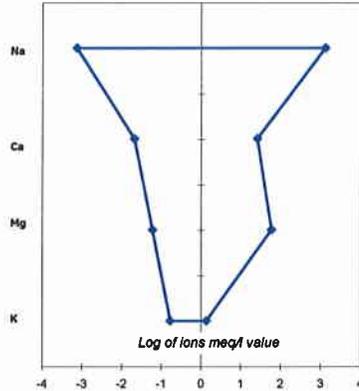
Field pH, s.u. = 8.71	Location	°F	Pressure psia	pH calculated	SI CaCO3	CaSO4 · 2H2O Gypsum	CaSO4 · 2H2O Hemi hydrate	CaSO4 Anhydrite	SI BaSO4	SI SrSO4
1	A	60	2,500.0	8.65	+1.53	-5.04	-4.95	-5.47	-8.40	-12.32
2	B	80	2,500.0	8.64	+1.72	-5.03	-4.96	-5.31	-8.48	-12.27
3	C	100	2,500.0	8.64	+1.91	-5.02	-4.96	-5.15	-8.55	-12.22
4	D	120	2,500.0	8.64	+2.11	-5.01	-4.96	-4.99	-8.62	-12.17
5	E	130	2,500.0	8.65	+2.21	-5.00	-4.95	-4.91	-8.64	-12.14
6	F	135	2,500.0	8.65	+2.27	-4.98	-4.94	-4.87	-8.68	-12.12
7	G	140	2,500.0	8.65	+2.32	-4.99	-4.94	-4.83	-8.67	-12.11
8	H	144	2,500.0	8.65	+2.36	-4.98	-4.93	-4.80	-8.68	-12.10
9	I	150	2,500.0	8.66	+2.43	-4.97	-4.93	-4.75	-8.69	-12.08
1	Max formation temp	144	100.0	8.72	+2.54	-4.81	-4.78	-4.72	-8.55	-12.00
2	Max formation temp	144	500.0	8.71	+2.51	-4.87	-4.79	-4.73	-8.57	-12.01
3	Max formation temp	144	1,000.0	8.69	+2.47	-4.90	-4.83	-4.75	-8.60	-12.03
4	Max formation temp	144	1,200.0	8.69	+2.46	-4.91	-4.84	-4.75	-8.61	-12.04
5	Max formation temp	144	1,400.0	8.68	+2.44	-4.92	-4.86	-4.76	-8.62	-12.05
6	Max formation temp	144	1,600.0	8.68	+2.43	-4.93	-4.87	-4.77	-8.63	-12.06
7	Max formation temp	144	1,800.0	8.67	+2.41	-4.94	-4.88	-4.77	-8.64	-12.07
8	Max formation temp	144	2,000.0	8.67	+2.40	-4.96	-4.90	-4.78	-8.65	-12.08
9	Max formation temp	144	2,100.0	8.67	+2.39	-4.96	-4.91	-4.78	-8.66	-12.08
10	Max formation temp	144	2,200.0	8.66	+2.38	-4.97	-4.91	-4.79	-8.66	-12.08
11	Max formation temp	144	2,300.0	8.66	+2.38	-4.97	-4.92	-4.79	-8.67	-12.06
12	Max formation temp	144	2,400.0	8.66	+2.37	-4.98	-4.93	-4.80	-8.67	-12.09
13	Max formation temp	144	2,500.0	8.65	+2.36	-4.98	-4.93	-4.80	-8.68	-12.10



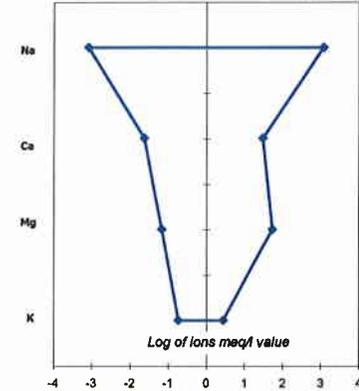
WATER 'A' 100%



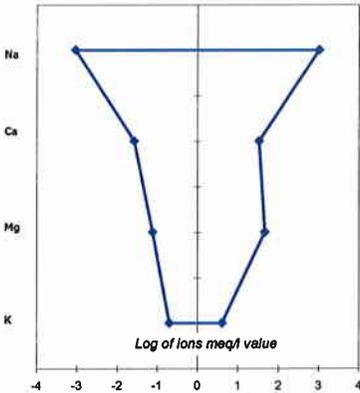
[1] A:90% / B:10%



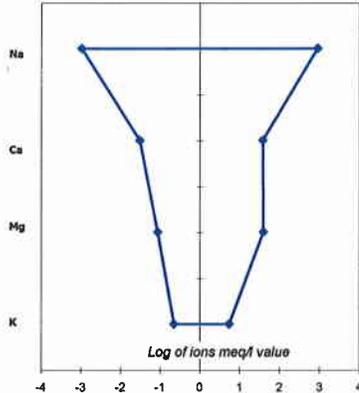
[2] A:80% / B:20%



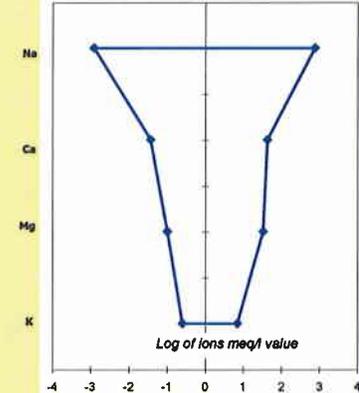
[3] A:70% / B:30%



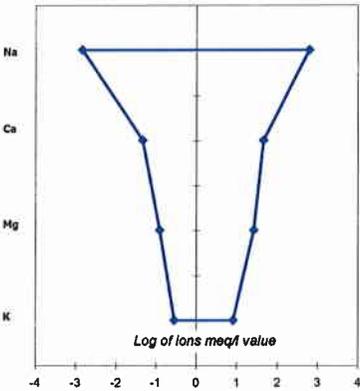
[4] A:60% / B:40%



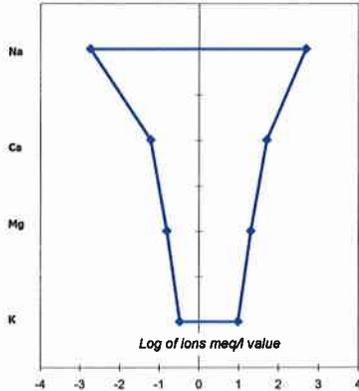
[5] A:50% / B:50%



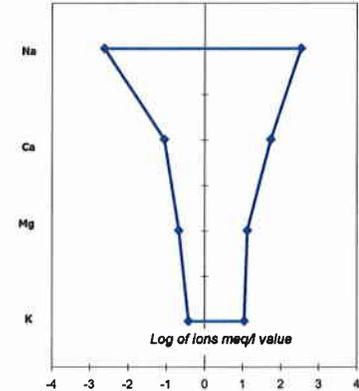
[6] A:40% / B:60%



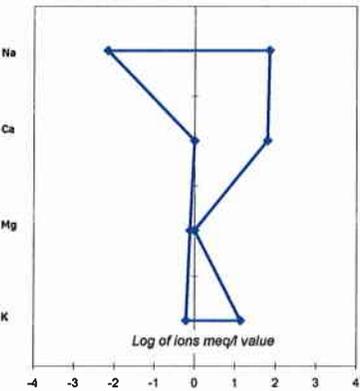
[7] A:30% / B:70%



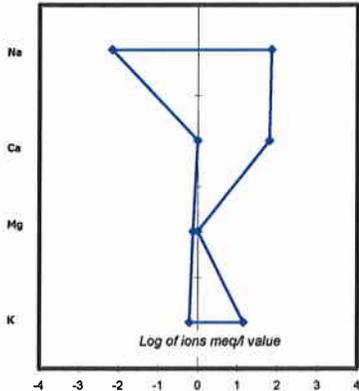
[8] A:20% / B:80%



[9] A:10% / B:90%



WATER 'B' 100%



15-Jun-00



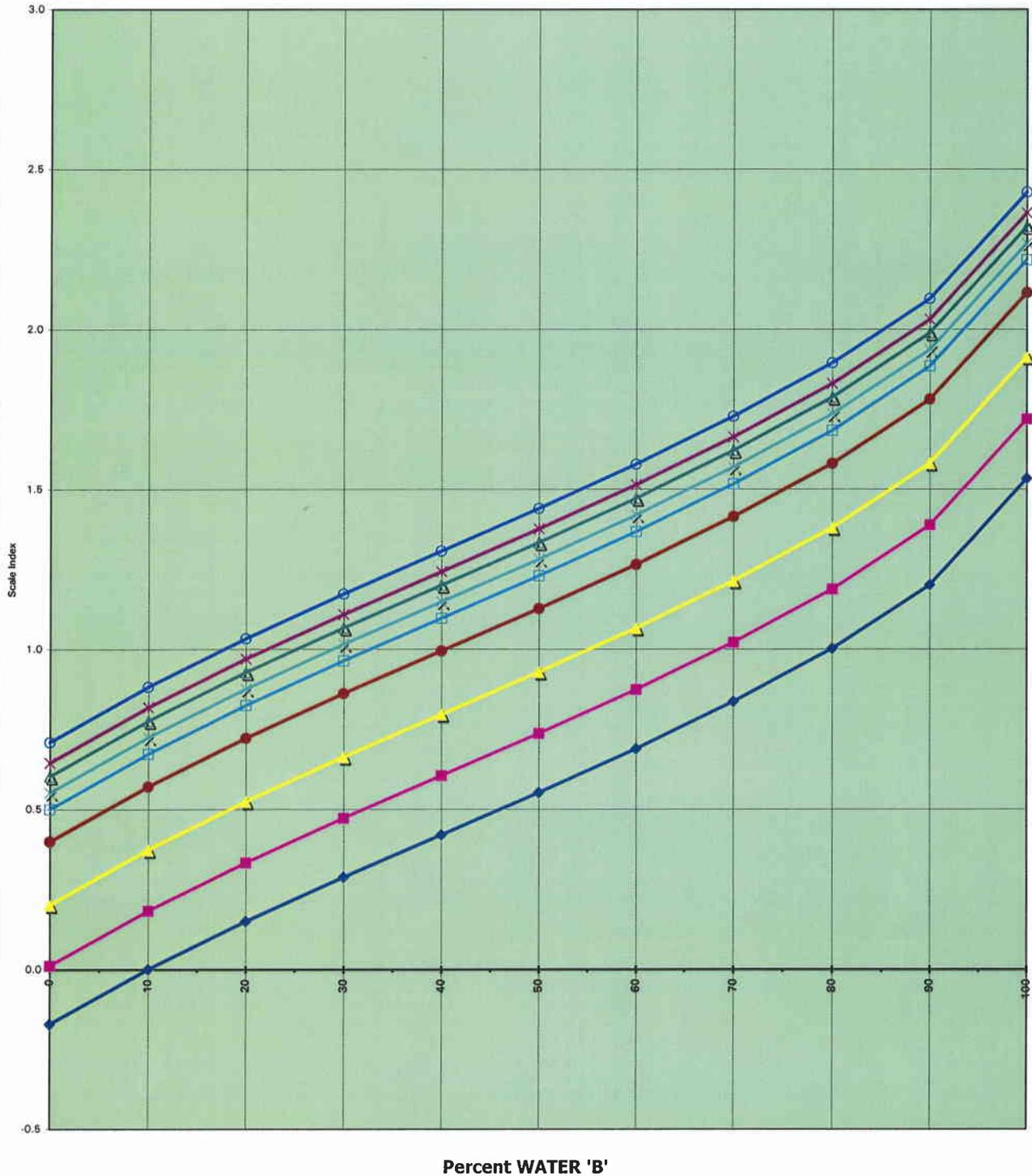
**Marathon
Oil Company**

**Commingled Water Scaling Tendency Report
DRUNKARDS WASH GRAPH #1
Mix of: (A) SITLA SWDW#1 and (B) INJECTION
Injection Water Calculations**

WATER 'A' 100% SITLA SWDW#1

WATER 'B' 100% INJECTION

Oddo Scale Calculations - CALCIUM CARBONATE



◆ 60 °F ■ 80 °F ▲ 100 °F ● 120 °F ◻ 130 °F ✕ 135 °F ▲ 140 °F ✕ 144 °F ○ 150 °F

15-Jun-00

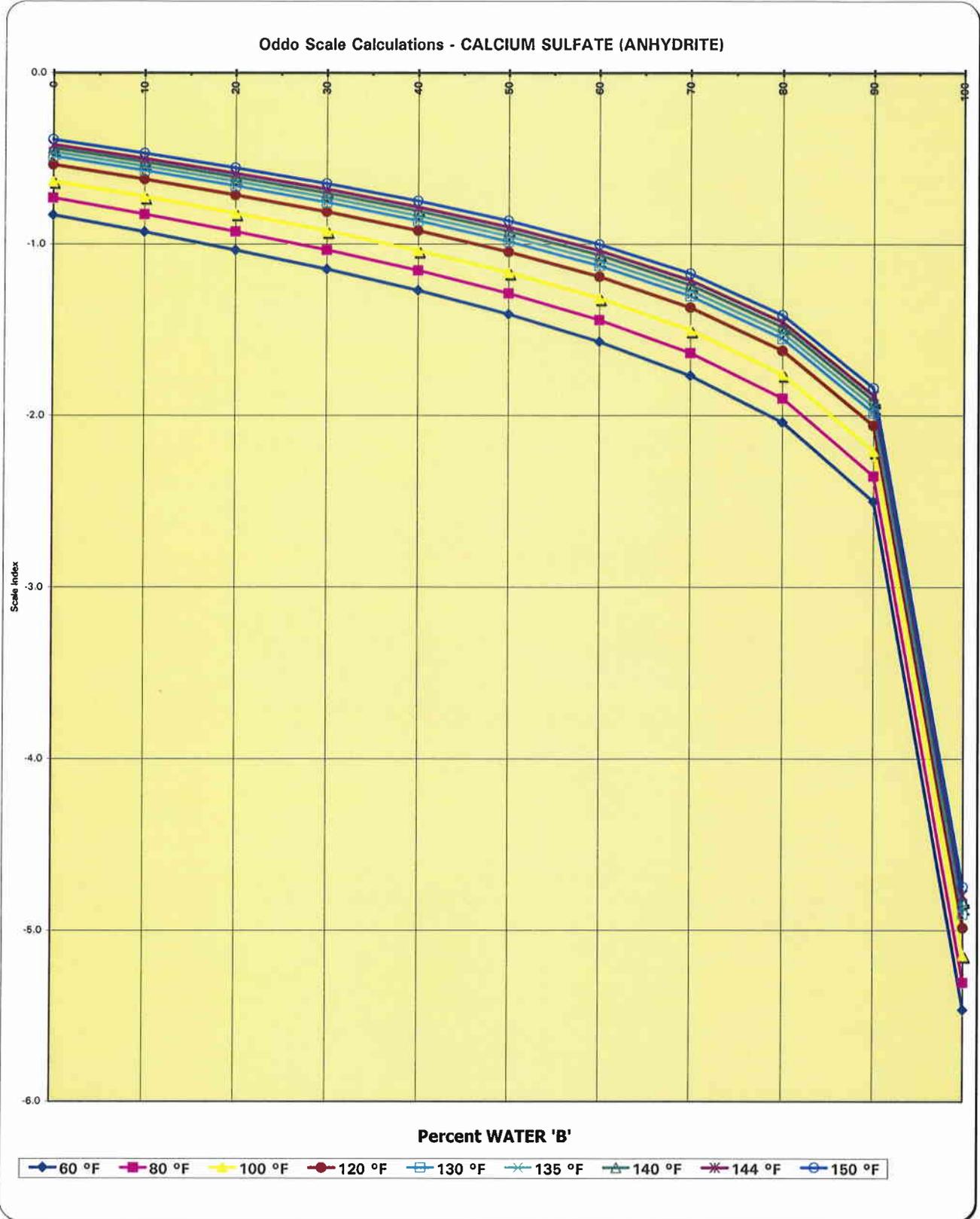


**Marathon
Oil Company**

**Commingled Water Scaling Tendency Report
DRUNKARDS WASH GRAPH #2
Mix of: (A) SITLA SWDW#1 and (B) INJECTION**

WATER 'A' 100% SITLA SWDW#1

WATER 'B' 100% INJECTION



Calculations based upon Oddo Tomson Equations, v1.04.17.98

6/15/2000 v502MDCarney

15-Jun-00



**Marathon
Oil Company**

Commingled Water Scaling Tendency Report

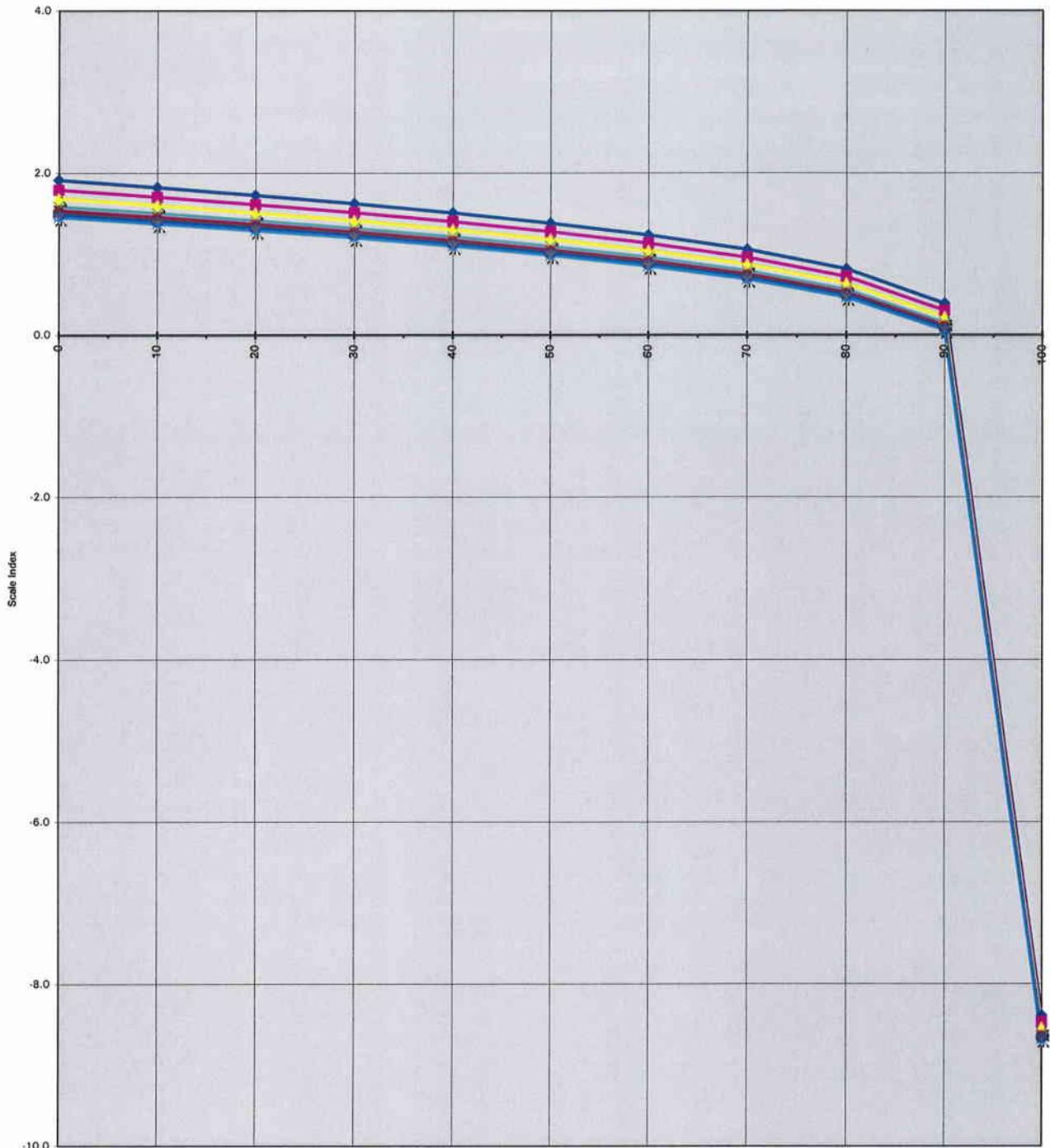
DRUNKARDS WASH GRAPH #3

Mix of: (A) SITLA SWDW#1 and (B) INJECTION

WATER 'A' 100% SITLA SWDW#1

WATER 'B' 100% INJECTION

Oddo Scale Calculations - BARIUM SULFATE



◆ 60 °F ■ 80 °F ▲ 100 °F ✦ 120 °F ✧ 130 °F ● 135 °F ✦ 140 °F ○ 144 °F ✦ 150 °F

15-Jun-00



**Marathon
Oil Company**

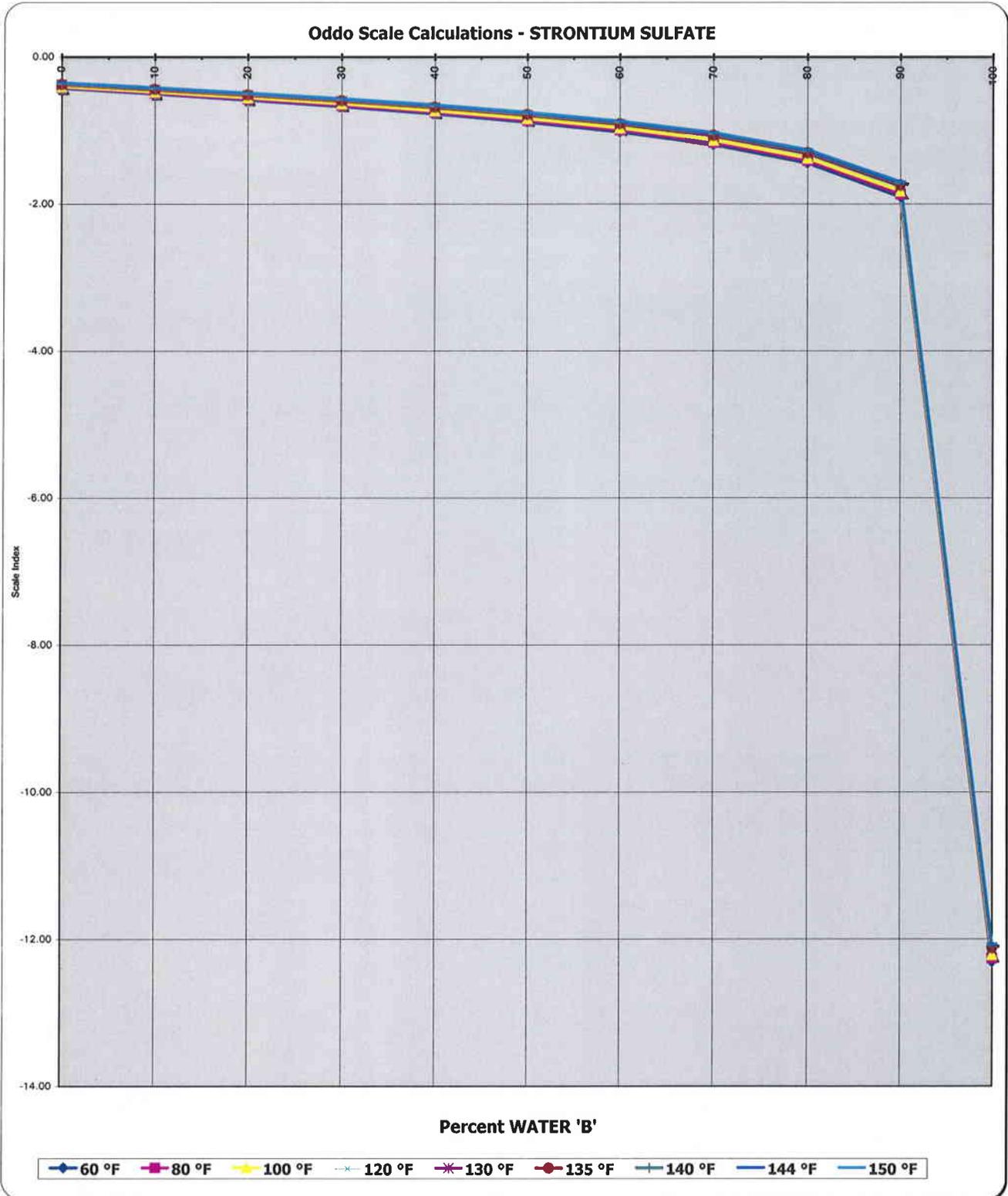
Commingled Water Scaling Tendency Report

DRUNKARDS WASH GRAPH #4

Mix of: (A) SITLA SWDW#1 and (B) INJECTION

WATER 'A' 100% SITLA SWDW#1

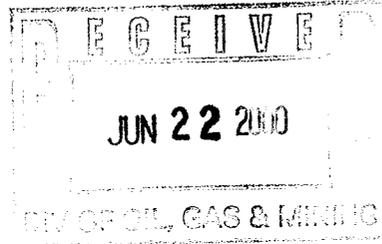
WATER 'B' 100% INJECTION



Calculations based upon Oddo Tomson Equations, v1.04.17.98
6/15/2000 v502MDCarney

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR Marathon Oil Company
ADDRESS 1501 Stampede Avenue
Cody, Wyoming 82414
ATT: R.P. Meabon



Well name and number: SITLA SWD #1
Field or Unit name: Drunkard's Wash Lease no. ML-45691
Well location: QQ NWNW section 23 township 15S range 9E county Carbon

Is this application for expansion of an existing project? Yes No
Will the proposed well be used for: Enhanced Recovery? Yes No
Disposal? Yes No
Storage? Yes No
Is this application for a new well to be drilled? Yes No
If this application is for an existing well,
has a casing test been performed on the well? Yes No
Date of test: June 14, 2000
API number: 43-007-30656

*Amended interval
See Woody Sandlin FAX
of 8/8/2000 @ 14:44 hours*

Proposed injection interval: from ~~6110'~~ 6183' to ~~6953'~~ 7032'
Proposed maximum injection: rate 14,400 pressure 1350 psig

Proposed injection zone contains oil, gas, and/or fresh water within 1/2 miles of the well.

IMPORTANT: Additional information as required by R615-5-2 should accompany this form.

List of Attachments: Additional information as required by R615-5-2

I certify that this report is true and complete to the best of my knowledge.
Name Randal P. Meabon Signature *Randal P. Meabon*
Title Regulatory Coordinator Date June 19, 2000
Phone No. (307) 527-2211

(State use only)
Application approved by _____ Title _____
Approval Date _____

Comments: Statewide Bond
\$80,000
as per Dawny Gallien
(538-5154)@SITLA

Minor 5#1/20066/
100-250 moderate
250 Severe

(3/89)

Form 9

STATE OF UTAH
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF OIL, GAS AND MINING

SUNDRY NOTICES AND REPORTS ON WELLS
 Do not use this form for proposals, brand new wells, deepen existing wells, or to reactivate plugged and abandoned wells.
 Use APPLICATION FOR PERMIT - for such proposals.

6. Lease Designation and Serial Number ML-45691
7. Indian Allottee or Tribe Name NA
8. Unit or Communitization Agreement NA
9. Well Name and Number SITLA SWD #1
10. API Well Number 43-007-30656
11. Field and Pool, or Wildcat DRUNKARDS WASH

1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other (specify) <u>Water Disposal</u>	
2. Name of Operator Marathon Oil Company	
3. Address of Operator 1501 Stampede Ave., Cody, Wyoming 82414	4. Telephone Number 307-527-3003
5. Location of Well Footage : 300' FNL, 300' FWL County : CARBON QO, Sec. T., R., M : NW NW SECTION 23-15S-9E State : UTAH	

12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA																											
<p>NOTICE OF INTENT (Submit in Duplicate)</p> <table border="0"> <tr> <td><input type="checkbox"/> Abandonment</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Recompletion</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Multiple Completion</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table> <p>Approximate Date Work Will Start _____</p>	<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off	<input type="checkbox"/> Other _____		<p>SUBSEQUENT REPORT (Submit Original Form Only)</p> <table border="0"> <tr> <td><input type="checkbox"/> Abandonment</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input checked="" type="checkbox"/> Other <u>Commence Drilling Operations</u></td> <td></td> </tr> </table> <p>Date of Work Completion <u>04/30/00</u></p> <p><small>Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form * Must be accompanied by a cement verification report.</small></p>	<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off	<input checked="" type="checkbox"/> Other <u>Commence Drilling Operations</u>	
<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction																										
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing																										
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<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare																										
<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off																										
<input type="checkbox"/> Other _____																											
<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction																										
<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing																										
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<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare																										
<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off																										
<input checked="" type="checkbox"/> Other <u>Commence Drilling Operations</u>																											

13. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measure and true vertical depths for all markers and zones pertinent to this work.)

4/30/00
 Moved in and rigged up Cyclone #12 drilling rig to drill a 7108' water disposal well. Surface casing was pre-set @ 317'.

cc: RPM, WRF, DRILLING, WAMSUTTER OFFICE, TKS, KLM

14. I hereby certify that the foregoing is true and correct.
 Name & Signature R.P. Meabon Title Reg Coord Date 05/01/00

(State Use Only)

(8/90)

See Instructions on Reverse Side

RECEIVED

JUL 03 2000

DIVISION OF OIL, GAS AND MINING

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

---ooOoo---

IN THE MATTER OF THE	:	NOTICE OF AGENCY
APPLICATION OF FOR	:	ACTION
ADMINISTRATIVE APPROVAL OF	:	
THE SITLA SWD #1 WELL LOCATED	:	CAUSE NO. UIC-259.1
IN SECTION 23, TOWNSHIP 15	:	
SOUTH, RANGE 9 EAST, SALT LAKE	:	
MERIDIAN, CARBON COUNTY,	:	
UTAH, AS A CLASS II INJECTION	:	
WELL	:	

---ooOoo---

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

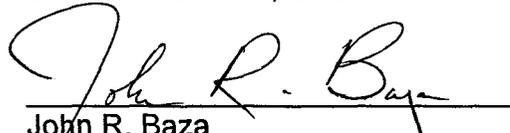
Notice is hereby given that the Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of MARATHON OIL for administrative approval of the SITLA SWD #1 well, located in Section 23, Township 15 SOUTH, Range 9 EAST, CARBON County, Utah, for a Class II injection well. The proceeding will be conducted in accordance with Utah Admin. R649-10, Administrative Procedures.

Selective zones in the Navajo, Kayenta and Winegate Formation will be used for water injection. The maximum requested injection pressure and rate will be determined on each individual well based on fracture gradient information submitted by MARATHON OIL.

Any person desiring to object to the application or otherwise intervene in the proceeding, must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. If such a protest or notice of intervention is received, a hearing will be scheduled before the Board of Oil, Gas and Mining. Protestants and/or interveners should be prepared to demonstrate at the hearing how this matter affects their interests.

Dated this 20th day of July, 2000.

STATE OF UTAH
DIVISION OF OIL, GAS & MINING



John R. Baza
Associate Director, Oil & Gas

**MARATHON OIL
SITLA SWD #1
Cause No. UIC-259.1**

Publication Notices were sent to the following:

MARATHON OIL
1501 Stampede Ave
Cody, WY 82414-4721

Sun Advocate
PO Box 870
Price, UT 84501

Salt Lake Tribune
PO Box 45838
Salt Lake City, UT 84111

Moab District Office
Bureau of Land Management
82 East Dogwood
Moab, UT 84532

CARBON County Assessor
102 East Main Street
Price, UT 84501

SITLA
675 East 500 South, Suite 500
Salt Lake City, UT 84102

Dan Jackson
US EPA Region VIII, Suite 5000
999 18th Street
Denver, CO 80202-2466



Earlene Russell
Secretary
July 20, 2000

From: "NAC Legals" <naclegal@nacorp.com>
To: "Earlene Russell" <nrogm.erussell@state.ut.us>
Date: 7/20/00 4:29PM
Subject: Re: UIC 259.1

Thank you for emailing the ad.
It is scheduled to print Tuesday, July 25 in SL Trib.
Lynn

-----Original Message-----

From: Earlene Russell <nrogm.erussell@state.ut.us>
To: naclegal@nacorp.com <naclegal@nacorp.com>
Date: Thursday, July 20, 2000 3:09 PM
Subject: UIC 259.1

Please confirm receipt of Notice.

TRANSACTION REPORT

P. 01

JUL-20-2000 THU 03:00 PM

FOR: OIL, GAS & MINING

801 359 3940

DATE START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
JUL-20 02:59 PM	2372776	41"	2	SEND	OK	260	
TOTAL :					41S	PAGES:	2



State of Utah
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
 Governor
 Kathleen Clarke
 Executive Director
 Lowell P. Braxton
 Division Director

1594 West North Temple, Suite 1210
 PO Box 145801
 Salt Lake City, Utah 84114-5801
 801-538-5340
 801-359-3940 (Fax)
 801-538-7223 (TDD)

July 20, 2000

SENT VIA E-MAIL AND FAX
 (801) 237-2776

Salt Lake Tribune
 PO Box 45838
 Salt Lake City, UT 84111

RE: Notice of Agency Action - Cause No. UIC-259.1

Gentlemen:

Enclosed is a copy of the referenced Notice of Agency Action. Please publish the Notice, once only, as soon as possible. Please send proof of publication and billing to the Division of Oil, Gas and Mining, Suite 1210, PO Box 145801, Salt Lake City, Utah 84114-5801.

Sincerely,

TRANSACTION REPORT

P. 01

JUL-20-2000 THU 03:01 PM

FOR: OIL, GAS & MINING

801 359 3940

DATE	START	RECEIVER	TX TIME	PAGES	TYPE	NOTE	M#	DP
JUL-20	03:01 PM	14356372716	46"	2	SEND	OK	261	
TOTAL :						46S PAGES:	2	



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Kathleen Clarke
Executive Director
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Division Director

1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

July 20, 2000

SENT VIA FAX
(435) 637-2716

Sun Advocate
PO Box 870
Price, UT 84501

RE: Notice of Agency Action - Cause No. UIC-259.1

Gentlemen:

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Sincerely,

---ooOoo---

IN THE MATTER OF THE APPLICATION
OF Marathon

NOTICE OF AGENCY
ACTION

(Operator)

FOR ADMINISTRATIVE APPROVAL OF
THE SITLA SWD #1

CAUSE NO. UIC-259.1

WELL(s)

LOCATED IN SECTION 23,

TOWNSHIP 15 (S) or N,

RANGE 9 (E) or W,

S.L.M. or _____,

_____ COUNTY, UTAH, AS

A CLASS II INJECTION WELL

*Please notice this
SWD well. I don't
know if this is the right
for anymore but the input
info should be similar.
C. Kierst*

---ooOoo---

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

Notice is hereby given that the Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of Marathon (Operator) for administrative approval of the SITLA SWD #1 well, located in Section 23, Township 15 (S) or N), Range 9 (E) or W), S.L.M. or _____, _____ County, Utah, for conversion to a Class II injection well. The proceeding will be conducted in accordance with Utah Admin. R.649-10, Administrative Procedures.

The interval from 6110 feet to 6953 feet (Navajo, Kayenta & Wingate Formation) will be selectively perforated for water injection. The maximum requested injection pressure will be limited to 1350 PSIG with a maximum rate of 14,400 BWPD.

Any person desiring to object to the application or otherwise intervene in the proceeding, must file a written protest or notice of intervention with the Division within fifteen days following publication of this notice. If such a protest or notice of intervention is received, a hearing will be scheduled before the Board of Oil, Gas and Mining. Protestants and/or intervenors should be prepared to demonstrate at the hearing how this matter affects their interests.

Dated this _____ th day of _____ 199__.

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

---ooOoo---

IN THE MATTER OF THE	:	NOTICE OF AGENCY
APPLICATION OF FOR	:	ACTION
ADMINISTRATIVE APPROVAL OF	:	
THE SITLA SWD #1 WELL LOCATED	:	CAUSE NO. UIC-259.1
IN SECTION 23, TOWNSHIP 15	:	
SOUTH, RANGE 9 EAST, SALT LAKE	:	
MERIDIAN, CARBON COUNTY,	:	
UTAH, AS A CLASS II INJECTION	:	
WELL	:	

---ooOoo---

THE STATE OF UTAH TO ALL PERSONS INTERESTED IN THE ABOVE ENTITLED MATTER.

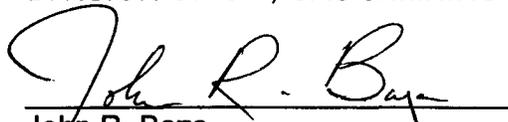
Notice is hereby given that the Division of Oil, Gas and Mining (the "Division") is commencing an informal adjudicative proceeding to consider the application of MARATHON OIL for administrative approval of the SITLA SWD #1 well, located in Section 23, Township 15 SOUTH, Range 9 EAST, CARBON County, Utah, for a Class II injection well. The proceeding will be conducted in accordance with Utah Admin. R649-10, Administrative Procedures.

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Dated this 20th day of July, 2000.

STATE OF UTAH
DIVISION OF OIL, GAS & MINING



John R. Baza
Associate Director, Oil & Gas

---ooOoo---

IN THE MATTER OF THE APPLICATION
OF Marathon

NOTICE OF AGENCY
ACTION

(Operator)

FOR ADMINISTRATIVE APPROVAL OF
THE SITLA SWD #1

CAUSE NO. UIC-259.1

WELL(s)

LOCATED IN SECTION 23,

TOWNSHIP 15 (S) or N,

RANGE 9 (E) or W,

S.L.M. or _____,

_____ COUNTY, UTAH, AS

A CLASS II INJECTION WELL

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SWD well. I don't
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Dated this _____ th day of _____ 199__.

AFFIDAVIT OF PUBLICATION

*Eric Ward
(307) 527-3282
Woody Sandlin
(307) 527-2207*

STATE OF UTAH)

ss.

County of Carbon,)

I, Kevin Ashby, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for 1 (One) consecutive issues, and that the first publication was on the 25th day of July 2000, and that the last publication of such notice was in the issue of such newspaper dated the 25th day of July, 2000.

Kevin Ashby
Kevin Ashby - Publisher

Subscribed and sworn to before me this 25th day of July, 2000.

Linda Thayne
Notary Public My commission expires January 10, 2003 Residing at Price, Utah

Publication fee, \$ 87.00

**NOTICE OF AGENCY ACTION
CAUSE NO. UIC-259.1**

**BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH**

IN THE MATTER OF THE APPLICATION OF FOR ADMINISTRATIVE APPROVAL OF THE SITLA SWD #1 WELL LOCATED IN SECTION 23, TOWNSHIP 15 SOUTH, RANGE 9 EAST, SALT LAKE MERIDIAN, CARBON COUNTY, UTAH, AS A CLASS 11 INJECTION WELL

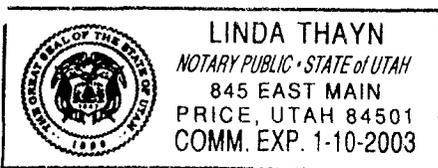
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Dated this 20th day of July, 2000.
Published in the Sun Advocate July 25, 2000.



RECEIVED
JUL 31 2000
DIVISION OF
OIL, GAS AND MINING

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	DATE
DIV OF OIL-GAS & MINING 1594 W NORTH TEMP #1210 P.O. BOX 145801 SALT LAKE CITY, UT 84114	D5385340L-07	07/25/00

RECEIVED

JUL 25 2000

DIVISION OF OIL GAS AND MINING

ACCOUNT NAME	
DIV OF OIL-GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL8200RRE21
SCHEDULE	
START 07/25/00 END 07/25/00	
CUST. REF. NO.	
CAPTION	
BEFORE THE DIVISION OF OIL, GA	
SIZE	
53 LINES 2.00 COLUMN	
TIMES	RATE
1	1.16
MISC. CHARGES	AD CHARGES
.00	122.96
TOTAL COST	
122.96	

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

—ooOoo—

IN THE MATTER OF THE APPLICATION OF FOR ADMINISTRATIVE APPROVAL OF THE SITLA SWD #1 WELL LOCATED IN SECTION 23, TOWNSHIP 15 SOUTH, RANGE 9 EAST, SALT LAKE MERIDIAN, CARBON COUNTY, UTAH, AS A CLASS II INJECTION WELL

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CAUSE NO. UIC-259.1

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STATE OF UTAH
DIVISION OF OIL, GAS & MINING

/s/ John R. Baza
Associate Director, Oil & Gas

8200RRE2

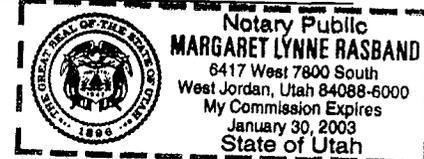
AFFIDAVIT OF PUBLICATION

AS NEWSPAPER AGENCY CORPORATION LEGAL BOOKKEEPER, I CERTIFY ADVERTISEMENT OF BEFORE THE DIVISION OF OIL, GA
DIV OF OIL-GAS & MINING WAS PUBLISHED BY THE CORPORATION, AGENT FOR THE SALT LAKE TRIBUNE AND DESERET NEWS PRINTED IN THE ENGLISH LANGUAGE WITH GENERAL CIRCULATION IN SALT LAKE CITY, SALT LAKE COUNTY IN THE STATE OF UTAH.

PUBLISHED ON START 07/25/00 END 07/25/00

SIGNATURE *Margaret Lynne Rasband*

DATE 07/25/00



THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

143 SOUTH MAIN ST.
P.O. BOX 45838
SALT LAKE CITY, UTAH 84145
FED. TAX I.D.# 87-0217663

Newspaper Agency Corporation

The Salt Lake Tribune DESERET NEWS

CUSTOMER'S COPY

PROOF OF PUBLICATION

CUSTOMER NAME AND ADDRESS	ACCOUNT NUMBER	DATE
DIV OF OIL-GAS & MINING 1594 W NORTH TEMP #1210 P.O. BOX 145801 SALT LAKE CITY, UT 84114	D5385340L-07	07/25/00

RECEIVED

JUL 21 2000

DIVISION OF OIL, GAS AND MINING

ACCOUNT NAME	
DIV OF OIL-GAS & MINING	
TELEPHONE	INVOICE NUMBER
801-538-5340	TL8200RRE21
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CAPTION	
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SIZE	
53 LINES	2.00 COLUMN
TIMES	RATE
1	1.16
MISC. CHARGES	AD CHARGES
.00	122.96
	TOTAL COST
	122.96

BEFORE THE DIVISION OF OIL, GAS AND MINING
DEPARTMENT OF NATURAL RESOURCES
STATE OF UTAH

—ooOoo—

IN THE MATTER OF THE APPLICATION OF FOR ADMINISTRATIVE APPROVAL OF THE S11LA SWD #1 WELL LOCATED IN SECTION 23, TOWNSHIP 15 SOUTH, RANGE 9 EAST, SALT LAKE MERIDIAN, CARBON COUNTY, UTAH, AS A CLASS II INJECTION WELL :

NOTICE OF AGENCY ACTION
CAUSE NO. UIC-259.1

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DIVISION OF OIL, GAS & MINING
/s/ John R. Baza
Associate Director, Oil & Gas

8200RRE2

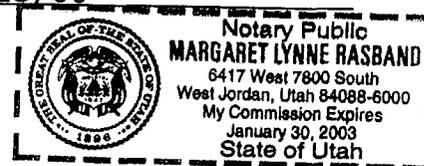
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PUBLISHED ON START 07/25/00 END 07/25/00

SIGNATURE Margaret Lynne Rasband

DATE 07/25/00



THIS IS NOT A STATEMENT BUT A "PROOF OF PUBLICATION"
PLEASE PAY FROM BILLING STATEMENT.

Marathon Oil Company

Fax

To: Chris Kierst From: F. W. Sandlin
 Fax: 801-359-3940 Pages: 5, including this cover sheet
 Phone: 801-538-5337 Date: 8/17/00
 Re: _____ CC: _____

Urgent For Review Please Comment Please Reply Please Recycle

Comments:

Chris

Let me know if you need anything else. I talked with our chemist and the scaling tendency report will not change.

Thanks

Woody

307-527-2207 OFFICE

307-272-0065 CEL

What is the source of this sample (Feron)?

What was the conclusion of the compatibility check in english?

From....
 Marathon Oil Company
 1501 Stampede Avenue
 Cody, WY 82414

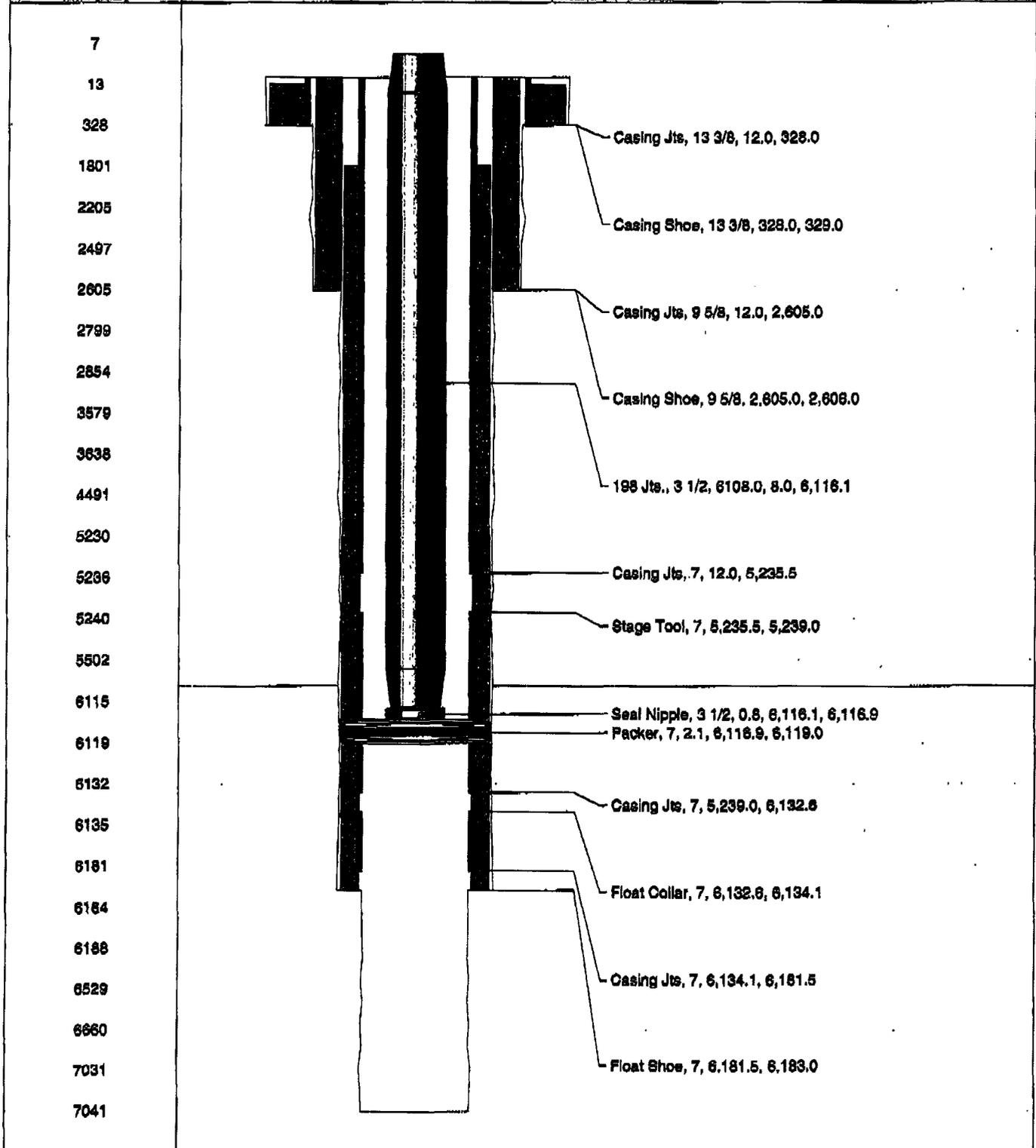
Phone: (307) 587-4961
 Fax: (307) 527-2209

SITLA SWDW 1

API 43-007-30656	Field Name DRUNKARDS WASH	Area	Operator Marathon Oil Company	County CARBON	State/Province UTAH
KB Elev (ft) 5891.00	Ground Elev (ft) 5879.00	Casing Flange Elev (ft) 5878.00	KB-Ground (ft) 12.00	KB-Casing Flange (ft) 13.00	Spud Date 4/30/00

KB (ft)

Schematic - Actual



Wellbore

Des	OD	Int (MD)
Hole Size	17 1/2	12.0-329.0
Hole Size	12 1/4	329.0-2,606.0
Hole Size	8 3/4	2,606.0-6,183.0
Hole Size	6 1/8	6,183.0-7,042.0

Surface Casing

Date	Des	OD	Top (MD)	Len	Com
4/22/00	Casing Jts	13 3/8	12.0	316.0	
4/22/00	Casing Shoe	13 3/8	328.0	1.0	

Intermediate Casing

Date	Des	OD	Top (MD)	Len	Com
5/8/00	Casing Jts	9 5/8	12.0	2593.0	
5/8/00	Casing Shoe	9 5/8	2,605.0	1.0	

Production Casing

Date	Des	OD	Top (MD)	Len	Com
5/26/00	Casing Jts	7	12.0	5223.5	
5/26/00	Stage Tool	7	5,235.5	3.5	
5/26/00	Casing Jts	7	5,239.0	893.8	
5/26/00	Float Collar	7	6,132.6	1.5	
5/26/00	Casing Jts	7	6,134.1	47.4	
5/26/00	Float Shoe	7	6,181.5	1.5	

Tools

Date	Des	Wt.	OD	ID	Top (MD)	Len	Btm (MD)
6/13/00	196 Jts.	9.30	3 1/2	2.992	8.0	6108.0	6,116.1
6/13/00	Seal Nipple		3 1/2		6,116.1	0.8	6,116.9
6/13/00	Packer	0.00	7	2.992	6,116.9	2.1	6,119.0

Concrete

Date	Des	Int (MD)
5/8/00	Intermediate	12.0-2,606.0
5/27/00	Stage 2	1,800.0-5,229.0
5/27/00	Stage 1	5,229.0-6,183.0

Zones

Des	Top (MD)
Mancos	12.0
Ferron SS	2,206.0
Tununk Sh	2,498.0
Dakota SS	2,800.0
Cedar MT. SS	2,853.0
Buckhorn SS	3,580.0
Morrison	3,640.0
Curtis SS	4,480.0
Carmel Sh	5,503.0
Navajo SS	6,188.0
Kayenta SS	6,529.0
Wingate SS	6,660.0
Chinle SS	7,032.0





Marathon Oil Company

Water Analysis Report

What is the source of this sample?
Stim lab test pit water
Sample used in D-3 and D-10

Field : DRUNKARDS WASH	Sample Date : 5/2/1996
County :	Formation : FERRON
Location : INJECTION	Rock Type : COAL
Lab ID : SL4377	Depth :
Comments :	

CATIONS	mg/l	meq/l	ANIONS	mg/l	meq/l
Potassium	63.0	1.61	Sulfate	1.6	0.03
Sodium	3,332.4	144.95 by Difference	Chloride	2,518.0	71.02
Calcium	17.5	0.87	Carbonate	420.0	14.00
Magnesium	15.8	1.30	Bicarbonate	3,890.0	63.77
Iron	2.5	0.09	Bromide	0.0	0.00
Barium	nd	nd	Organic Acids	0.0	0.00
Strontium	nd	nd	Hydroxide	0.0	0.00
SUM +	3,431.2	148.77	SUM -	6,829.6	141.82

Solids

Total Dissolved Solids @180°C	nd
Total Solids, Calc less CO ₂	7,675 mg/l
Total Solids, Calculated	10,261 mg/l
Total Solids, NaCl equivalents	4,010 mg/l
Chloride as NaCl	4,151 mg/l
NaCl% of Total Dissolved Solids	40.45 %
Accuracy	0.00 Sigma

Sample Conditions

pH, s.u. (Field)	8.71 s.u.
Sample Pressure	12.60 psia
Mole% CO ₂ Gas	0.67 %
pH, s.u. (from CO ₂)	8.71 s.u.
Surface Temp	70 °F
Downhole Temp	120 °F
Ionic Strength	0.159 μ

Dissolved Gases

Bisulfide Ion, HS ⁻	nd
Hydrogen Sulfide, H ₂ S	nd
Total Sulfide	nd

Dissolved O ₂ , aq	nd
Measured CO ₂ , aq	nd
Calculated CO ₂ , aq	8.1 mg/l

Other Properties

Calcium Hardness as CaCO ₃	43.7 mg/l
Magnesium Hardness as CaCO ₃	65.3 mg/l
Total Hardness as CaCO ₃	109.0 mg/l
Hardness, grains	6.35 grains/gallon

Specific Gravity	1.007 measured
Specific Gravity	1.007 calculated
Resistivity, 68°F	nd
Conductivity 25°C	nd

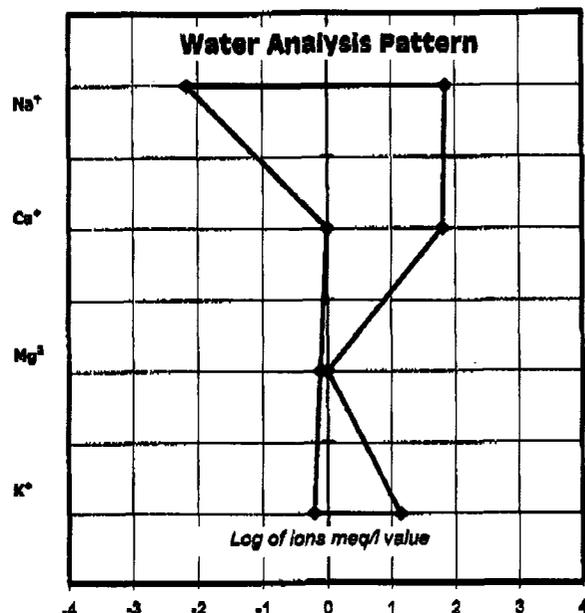
Microbiological

Sulfate Reducing	nd
Aerobic Bacteria	nd

Scaling Conditions

Calcium Carbonate	CaCO ₃ +
Calcium Sulfate	CaSO ₄ - - -
Barium Sulfate	BaSO ₄ -
Strontium Sulfate	SrSO ₄ -

(307) 272 0665



Probable Mineral Residue, Dry

Calculation error = 0 %

COMPOUND	mg/l
NaHCO ₃	5,085.7
NaCl	4,150.8
Mg(HCO ₃) ₂	95.1
Ca(HCO ₃) ₂	70.8
Na ₂ SO ₄	2.4

Notes: nd denotes 'Not Determined'
 Analyzed by: Energy Laboratories

Approved by: M.D. Carney
 v942MDCarney 5/31/2000

EXHIBIT D



Marathon Oil Company

Water Analysis Report

Field : DRUNKARDS WASH	Sample Date : 6/9/2000
County : CARBON	Formation : Navajo-Kayenta-Wingate
Location : SITLA SWDW#1 CONNATE	Rock Type : SANDSTONE
Lab ID : 001-99-54655	Depth :
Comments :	

CATIONS	mg/l	meq/l	ANIONS	mg/l	meq/l
Potassium	247.0	6.32	Sulfate	3,250.0	67.67
Sodium	33,990.5	1,478.49 by Difference	Chloride	52,000.0	1,466.73
Calcium	1,060.0	52.89	Carbonate	0.0	0.00
Magnesium	220.0	18.10	Bicarbonate	1,340.0	21.97
Iron	nd	nd	Bromide	0.0	0.00
Barium	6.0	0.09	Organic Acids	0.0	0.00
Strontium	21.0	0.48	Hydroxide	0.0	0.00
SUM +	35,544.5	1,556.87	SUM -	56,590.0	1,956.67

Solids

Total Dissolved Solids @180°C	nd
Total Solids, Calc less CO ₂	91,330 mg/l
Total Solids, Calculated	92,134 mg/l
Total Solids, NaCl equivalents	54,611 mg/l
Chloride as NaCl	85,720 mg/l
NaCl% of Total Dissolved Solids	93.04 %
Accuracy	0.00 Sigma

Sample Conditions

pH, s.u. (Field)	6.30 s.u.
Sample Pressure	12.60 psia
Mole% CO ₂ Gas	49.19 %
pH, s.u. (from CO ₂)	6.38 s.u.
Surface Temp	70 °F
Downhole Temp	115 °F
Ionic Strength	1.780 μ

Dissolved Gases

Bisulfide Ion, HS ⁻	nd	Dissolved O ₂ , aq	nd
Hydrogen Sulfide, H ₂ S	nd	Measured CO ₂ , aq	nd
Total Sulfide	nd	Calculated CO ₂ , aq	435.9 mg/l

Other Properties

Calcium Hardness as CaCO ₃	2,646.6 mg/l	Specific Gravity	1.065 measured
Magnesium Hardness as CaCO ₃	905.4 mg/l	Specific Gravity	1.064 calculated
Total Hardness as CaCO ₃	3,552.0 mg/l	Resistivity, 68°F	0.086 ohm-cm
Hardness, grains	206.84 grains/gallon	Conductivity 25°C	116,600 μmhos/cm

Microbiological

Sulfate Reducing	nd
Aerobic Bacteria	nd

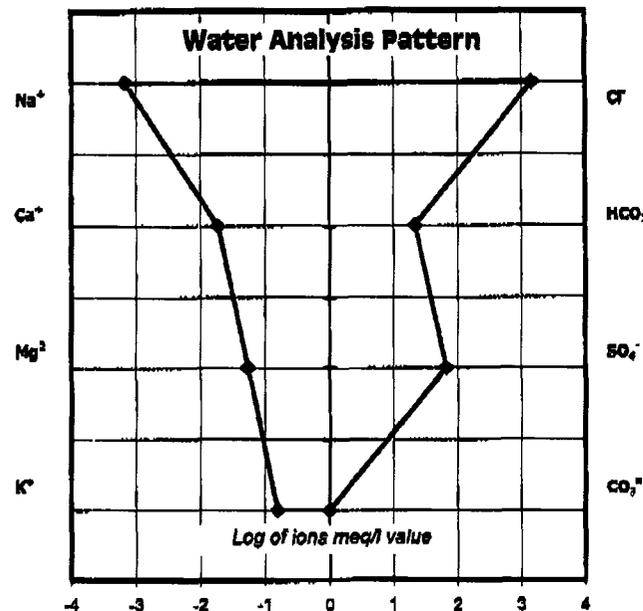
Scaling Conditions

Calcium Carbonate	CaCO ₃ +
Calcium Sulfate	CaSO ₄ - - -
Barium Sulfate	BaSO ₄ +
Strontium Sulfate	SrSO ₄ -

Probable Mineral Residue, Dry

Calculation error = 0 %

COMPOUND	mg/l
NaCl	85,372.4
CaSO ₄	2,129.7
Ca(HCO ₃) ₂	1,751.0
Na ₂ SO ₄	1,257.8
MgSO ₄	1,089.5
KCl	443.6
SrSO ₄	44.0
BaSO ₄	10.2



Note: nd denotes 'Not Determined'
Analyzed by: Energy Laboratories

Approved by: M.D. Carney
v942MDCarney 5/31/2000

EXHIBIT E

SITLA SWDW 1

Cement Summary

API	43-007-30656	Field Name	DRUNKARDS WASH	Area		Operator	Marathon Oil Company	County	CARBON	State/Province	UTAH
KB Elev (ft)	5891.00	Ground Elev (ft)	5879.00	Casing Flange Elev (ft)	5878.00	KB-Ground (ft)	12.00	KB-Casing Flange (ft)	19.00	Spud Date	4/30/00

Cement: Surface, casing, 4/22/00

String	Surface Casing, 4/22/00	Type	casing	Cement Objective		Start Date	4/22/00	End Date			
Cement Stage: 1, Cement											
Description	Cement	Stg No.	1	Q(start) (bbl/min)	3	P(start) (psi)	30.0	Q(end) (bbl/min)	1	P(end) (psi)	120.0
Rotated?		Pipe RPM (rpm)		Bump?		Plug Bump Pressure (psi)		Pressure Held (psi)		Cmnt Rtn (bbl)	26.5
Slurry Type	Surface Cement	Top (ftKB)	14.0	Bottom (ftKB)	329.0	Class	Prem-AG	Amount (sacks)	350	V (bbl)	74.0
Fluid Loss (gal)	0	Density (lb/gal)	15.8	Plastic Viscosity (cp)		Thickening Time (hrs)		Yield (lb/sack)	1.18	Mix Wat Ratio (gal/sack)	5.2

Cement: Intermediate, casing, 5/8/00

String	Intermediate Casing, 5/8/00	Type	casing	Cement Objective		Start Date	5/8/00	End Date			
Cement Stage: 1, Intermediate											
Description	Intermediate	Stg No.	1	Q(start) (bbl/min)		P(start) (psi)		Q(end) (bbl/min)		P(end) (psi)	
Rotated?		Pipe RPM (rpm)		Bump?		Plug Bump Pressure (psi)		Pressure Held (psi)		Cmnt Rtn (bbl)	27.0
Slurry Type	Intermediate Cement	Top (ftKB)	12.0	Bottom (ftKB)	2,606.0	Class	HLC & G	Amount (sacks)	715	V (bbl)	
Fluid Loss (gal)		Density (lb/gal)		Plastic Viscosity (cp)		Thickening Time (hrs)		Yield (lb/sack)		Mix Wat Ratio (gal/sack)	

Cement: Injection, casing, 5/27/00

String	Injection Casing, 5/29/00	Type	casing	Cement Objective		Start Date	5/27/00	End Date	5/27/00		
Cement Stage: 1, Stage 1											
Description	Stage 1	Stg No.	1	Q(start) (bbl/min)		P(start) (psi)		Q(end) (bbl/min)		P(end) (psi)	
Rotated?		Pipe RPM (rpm)		Bump?		Plug Bump Pressure (psi)		Pressure Held (psi)		Cmnt Rtn (bbl)	0.0
Slurry Type	Production Cement	Top (ftKB)	5,229.0	Bottom (ftKB)	6,189.0	Class	50/50 P&G	Amount (sacks)	155	V (bbl)	
Fluid Loss (gal)		Density (lb/gal)	14.4	Plastic Viscosity (cp)		Thickening Time (hrs)		Yield (lb/sack)		Mix Wat Ratio (gal/sack)	

Cement Stage: 2, Stage 2

Description	Stage 2	Stg No.	2	Q(start) (bbl/min)		P(start) (psi)		Q(end) (bbl/min)		P(end) (psi)	
Rotated?		Pipe RPM (rpm)		Bump?		Plug Bump Pressure (psi)		Pressure Held (psi)		Cmnt Rtn (bbl)	0.0
Slurry Type	Primary Cement	Top (ftKB)	1,800.0	Bottom (ftKB)	5,229.0	Class	HES-Lite	Amount (sacks)	450	V (bbl)	
Fluid Loss (gal)		Density (lb/gal)		Plastic Viscosity (cp)		Thickening Time (hrs)		Yield (lb/sack)		Mix Wat Ratio (gal/sack)	

Surface Casing : 350 sxs Glass G

Intermediate Casing: 375 sxs Halliburton Lite
340 sxs Glass G

Injection Casing : Stage 1 - 90 sxs 50-50 Pozmix
65 sxs Thixotropic
Stage 2 - 450 sxs Halliburton Lite

Marathon Oil Company

Fax

To: Chris Kierst From: F.W. Sandlin
Fax: 801-359-3940 Pages: 1, including this cover sheet
Phone: 801-538-5337 Date: 8/17/00
Re: _____ CC: _____

Urgent For Review Please Comment Please Reply Please Recycle

Comments:

Chris

Let me know if you need anything else. I talked with our chemist and the scaling tendency report will not change.

Thanks

Woody

307-527-2207

From...
Marathon Oil Company
1501 Stampede Avenue
Cody, WY 82414

Phone: (307) 587-4961
Fax: (307) 527-2209

Marathon Oil Company

Fax

To: Chris Kierst From: F.W. Sandlin
 Fax: 801-359-3940 Pages: 2, including this cover sheet
 Phone: 801-538-5337 Date: 8/19/00
 Re: _____ CC: _____

- Urgent For Review Please Comment Please Reply Please Recycle

Comments:

~~Chris
 Let me know if you need anything else. I talked
 with our chemist and the scaling tendency report
 will not change.~~

Thanks
 Woody
 307-527-2207

From....
 Marathon Oil Company
 1501 Stampede Avenue
 Cody, WY 82414

Phone: (307) 587-4961
 Fax: (307) 527-2209

Table 1
SL 4377
River Gas Corporation
D-3 Connate and Injection Water Analysis
Analyzed 5/1-5/2/86

	<u>Injection</u>	<u>Connate</u>
pH	8.71	6.14
Carbonate	420 mg/L	0 mg/L
Bicarbonate	3890 mg/L	705 mg/L
Chlorides	2518 mg/L	116163 mg/L
TDS	8402 mg/L	217264 mg/L
Sulfate	<1.6 mg/L	3390 mg/L
Calcium	17.5 mg/L	1390 mg/L
Magnesium	15.8 mg/L	465 mg/L
Iron	<2.5 mg/L	10.9 mg/L
Aluminum	<5.0 mg/L	<5.0 mg/L
Sodium	2600 mg/L	78500 mg/L
Potassium	83 mg/L	1500 mg/L
Hardness	109 mg/L	5386 mg/L

Examination of Injection and
Connate Water Compatibility

Mixing Ratio Connate/Injection	FeCO ₃ /CaCO ₃ (mg/L)	Final pH
75/25	95	6.88
50/50	127	7
25/75	85	7.38
Mixing Ratio Connate & DI		
75/25	24	6.88
50/50	1	6.78
25/75	0	6.97

7/26/86
402
1859

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

APPLICATION FOR INJECTION WELL - UIC FORM 1

OPERATOR Marathon Oil Company
ADDRESS 1501 Stampede Avenue
Cody, Wyoming 82414
ATT: R.P. Meabon

Well name and number: SITLA SWD #1
Field or Unit name: Drunkard's Wash Lease no. ML-45691
Well location: QQ NWNW section 23 township 15S range 9E county Carbon

Is this application for expansion of an existing project? Yes No
Will the proposed well be used for: Enhanced Recovery? Yes No
Disposal? Yes No
Storage? Yes No
Is this application for a new well to be drilled? Yes No
If this application is for an existing well,
has a casing test been performed on the well? Yes No
Date of test: June 14, 2000
API number: 43-007-30656

Proposed injection interval: from 6183' to 7032'
Proposed maximum injection: rate 14,400 pressure 1350 psig
Proposed injection zone contains oil, gas, and/or fresh water within 1/2 miles of the well.

IMPORTANT: Additional information as required by R615-5-2 should accompany this form.

List of Attachments: Additional information as required by R615-5-2

I certify that this report is true and complete to the best of my knowledge.

Name Randal P. Meabon
Title Regulatory Coordinator
Phone No. (307) 527-2211

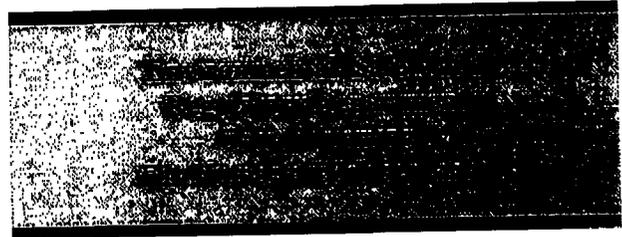
Signature R.P. Meabon by FMK
Date June 19, 2000

(State use only)
Application approved by _____ Title _____
Approval Date _____

Comments:



**Marathon
Oil Company**



Date: August 18, 2000

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: Mr Chris Klerst

COMPANY: UDOGM

CITY & STATE: State of Utah

TELEFAX NUMBER: (801) 359- 3940

OFFICE NUMBER: _____

FROM:

NAME: Woody Sandlin

OFFICE NUMBER (307) 527 - 2207

TELEFAX NUMBER (307) 527-2213

**WE ARE TRANSMITTING
2 PAGES
(INCLUDING THIS COVER PAGE)**

**If Transmission Is Not
Complete Call (307) 527- 2207**

RECEIVED

STATE OF UTAH
DIVISION OF OIL, GAS AND MINING

SEP 19 2000

5. LEASE DESIGNATION AND SERIAL NO. ML-45691
6. IF INDIAN, ALLOTTEE OR TRIBE NAME NA
7. UNIT AGREEMENT NAME NA
8. FARM OR LEASE NAME SITLA
9. WELL NO. SWD #1
10. FIELD AND POOL, OR WILDCAT DRUNKARD'S WASH
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA 23-15S-9E

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. TYPE OF WELL: OIL WELL [] GAS WELL [] DRY [] Other Water Disposal
b. TYPE OF COMPLETION: NEW WELL [X] WORK OVER [] DEEPEN [] PLUG BACK [] DIFF. RESVR. [] Other []

2. NAME OF OPERATOR MARATHON OIL COMPANY

3. ADDRESS OF OPERATOR 1501 STAMPEDE AVENUE, CODY, WYOMING 82414

4. LOCATION OF WELL (Report locations clearly and in accordance with any State requirements.*)
At surface 300' FNL, 300' FWL NWNW
At top prod. interval reported below
At total depth

14. API NO. 43-007-30656 DATE ISSUED 3/23/2000

12. COUNTY CARBON 13. STATE UTAH

15. DATE SPUDDED 4/30/2000 16. DATE T.D. REACHED 6/4/2000 17. DATE COMPL. 8/30/2000 18. ELEVATIONS (DF, RKB, RT, GR, ETC.) 5879' GR, 5891' RKB 19. ELEV. CASINGHEAD 5879'

20. TOTAL DEPTH, MD & TVD 7033' KB MD 7033' KB MD 7033' KB MD 7033' KB MD 21. PLUG BACK T.D., MD & TVD 22. IF MULTIPLE COMPL., HOW MANY* 23. INTERVALS DRILLED BY Cyclone Rig #12 23. INTERVALS ROTARY TOOLS 23. INTERVALS CABLE TOOLS NA

24. PRODUCING INTERVAL(S), OF THIS COMPLETION---TOP, BOTTOM, NAME (MD AND TVD) 6173' - 7033' KB (MD&TVD) OPEN-HOLE, NAVAJO, KAYENTA, WINGATE 25. WAS DIRECTIONAL SURVEY MADE NA

26. TYPE ELECTRIC AND OTHER LOGS RUN PEX-AIT-GR, DSI, CNL-LD-MLT-GR, CBL-CCL-GR 27. WAS WELL CORED? YES [] NO [X] DRILL STEM TEST? YES [] NO [X]

Table with 6 columns: CASING SIZE, WEIGHT, LB./FT., DEPTH SET (MD), HOLE SIZE, CEMENTING RECORD, AMOUNT PULLED. Rows include 13-3/8", 9-5/8", and 7" casing sizes.

Table with 8 columns: SIZE, TOP (MD), BOTTOM (MD), SACKS CEMENT, SCREEN (MD), SIZE, DEPTH SET (MD), PACKER SET (MD). Rows include 3-1/2" tubing and 6117' KB packer.

Table with 4 columns: INTERVAL, SIZE, NUMBER, AMOUNT AND KIND OF MATERIAL USED. Row includes 6173' - 7033' KB, OPEN-HOLE, OH, OH, 1500 gallons 15% HCL acid wash.

Table with 8 columns: DATE FIRST DISPOSAL, PRODUCTION METHOD, WELL STATUS, DATE OF TEST, HOURS TESTED, CHOKER SIZE, PROD'N. FOR TEST PERIOD, OIL-BBL.S., GAS-MCF., WATER-BBL., GAS-OIL RATIO. Includes production data for 8/30/2000.

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.) NA TEST WITNESSED BY Field Supervisor

35. LIST OF ATTACHMENTS

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records. SIGNED [Signature] TITLE REGULATORY COORDINATOR DATE 9/15/00

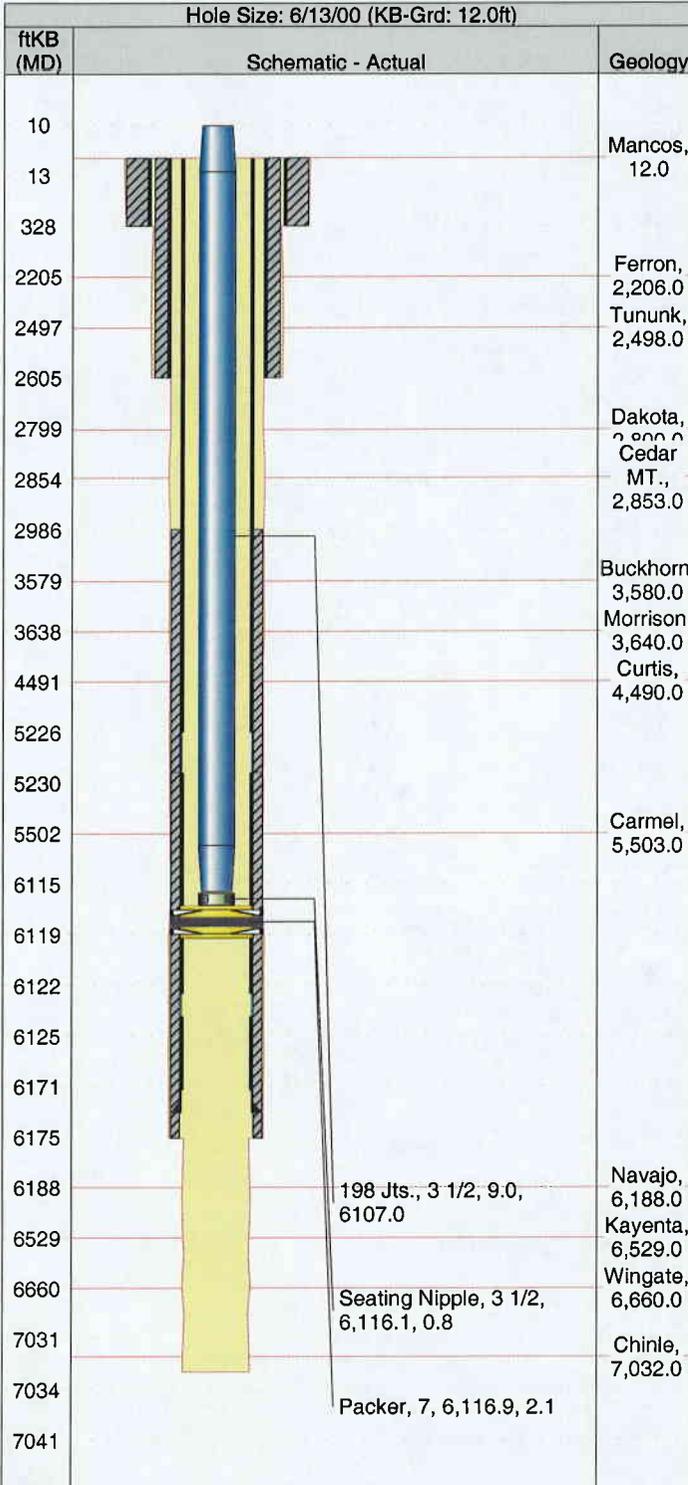
See Spaces for Additional Data on Reverse Side

SITLA SWDW 1

Location

East-West Distance (ft)	From E or W Line	NS Dist. (ft)	From N or S Line
300.0	W	300.0	N
Latitude (DMS)		Longitude (DMS)	
Legal Survey Type		Surface Legal Location	
Congressional		NW NW SEC. 23-T15S-R9E	

API	Field Name	Area	Operator	County	State/Province
43-007-30656	DRUNKARDS WASH		Marathon Oil Company	CARBON	UTAH
KB Elev (ft)	Ground Elev (ft)	Casing Flange Elev (ft)	KB-Ground (ft)	KB-Casing Flange (ft)	Spud Date
5891.00	5879.00		12.00	12.00	4/30/00



Group List - Actual

Wellbore

Date	Des	OD	Int (MD)
4/20/00	Hole Size	17 1/2	12.0-329.0
4/30/00	Hole Size	12 1/4	329.0-2,606.0
5/9/00	Hole Size	8 3/4	2,606.0-6,175.0
5/27/00	Hole Size	6 1/8	6,175.0-7,033.0

Surface Casing

Date	Des	OD	ID	Top (MD)	Len	Btm (MD)
4/22/00	Casing Jts	13 3/8	12.715	12.0	316.0	328.0
4/22/00	Casing Shoe	13 3/8		328.0	1.0	329.0

Intermediate Casing

Date	Des	OD	ID	Top (MD)	Len	Btm (MD)
5/8/00	Casing Jts	9 5/8	8.921	12.0	2593.0	2,605.0
5/8/00	Casing Shoe	9 5/8		2,605.0	1.0	2,606.0

Injection Casing

Date	Des	OD	ID	Top (MD)	Len	Btm (MD)
5/26/00	Casing Jts	7	6.276	12.0	5213.5	5,225.5
5/26/00	Stage Tool	7		5,225.5	3.5	5,229.0
5/26/00	Casing Jts	7	6.276	5,229.0	893.6	6,122.6
5/26/00	Float Collar	7		6,122.6	1.5	6,124.1
5/26/00	Casing Jts	7	6.276	6,124.1	47.4	6,171.5
5/26/00	Float Shoe	7		6,171.5	1.5	6,173.0

Injection Tubing

Date	Des	OD	ID	Len	Top (MD)	Btm (MD)
6/13/00	198 Jts.	3 1/2	2.992	6107.0	9.0	6,116.1
6/13/00	Seating Nipple	3 1/2		0.8	6,116.1	6,116.9
6/13/00	Packer	7	2.992	2.1	6,116.9	6,119.0

Cement

Date	Des	Int (MD)	Com
5/8/00	Intermediate	12.0-2,606.0	
5/27/00	Injection casing, Stage 2	2,985.0-5,229.0	
5/27/00	Injection casing, Stage 1	5,229.0-6,175.0	

Formations

Des	Top (MD)
Mancos	12.0
Ferron	2,206.0
Tununk	2,498.0
Dakota	2,818.0
Cedar MT.	2,852.0
Morrison	3,658.0
Curtis	4,630.0
Carmel	5,503.0
Navajo	6,188.0
Kayenta	6,529.0
Wingate	6,660.0
Chinle	7,032.0

Depth Annotations

Date	Des	Top (MD)
6/2/00	Drillers TD & PBTD	7,033.0
6/3/00	Loggers TD & PBTD	7,042.0

MOC MORNING REPORT
WELL HISTORY REPORT FOR SITLA SWDW 1
FROM 30-APR-2000 TO 06-SEP-2000
FIELD: DRUNKARDS WASH

Page: 1
REGION: RMR

WELL NO: SITLA SWDW 1
STATE: UT COUNTY: CARBON
FIELD: DRUNKARDS WASH

NW NW Sec 23 T15S R9E
300' FNL & 300' FWL
OPR PROP: DRUNKARD'S WASH

KB Elev : 5891
Grd. Elev.: 5879
DTD : 7033
LTD : 7042
PBSD : 7042

Prep by: *WRH*
Route 1 to Regulatory
WRF

PRESENT STATUS

CLASS: WATER DISPOSAL WELL STATUS: ACTIVE
FORMATION: NAVAJO, KAYENTA, WINGATE TYPE: SINGLE

AFE#: 3-615-00 INTENT: DRILL & COMPLETE

30-APR-2000 PRESENT DEPTH: 317' PRESENT OPERATION: NIPPLE UP BOP. SUMMARY OF OPERATIONS: MIRU CYCLONE #12 TO DRILL A 7,108' SWD WELL. 13-3/8", 48#, H-40, ST&C SURFACE CASING WAS PRE-SET AT 317' GL & CEMENTED TO SURFACE WITH 350 SXS OF PREM AG-300 ON 4/22/00. ACCEPTED RIG ON DAYWORK @ 0100 HRS, 4/30/00. INSTALL WELLHEAD. NIPPLE UP BOPE.

SHUT-IN/RIG DATA		
MIRU DATE	RIG NAME	RIG#
30-APR-2000	DRILLING RIG - CYCLONE	12

01-MAY-2000 PRESENT DEPTH: 375' FOOTAGE LAST 24 HRS: 59' FORMATION: SHALE
PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: FINISH NIPPLE UP AND TEST BOPE. TIH. DRILLED 317'-375'. MW-8.4; VIS-35; WL-12; PH-9.0; PV-5; YP-7. DIRECTIONAL SURVEY:
MD ANGLE
291' 3/4

02-MAY-2000 PRESENT DEPTH: 738' FOOTAGE LAST 24 HRS: 363' FORMATION: SHALE
PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: SHUT DOWN 10-1/2 HRS FOR RIG REPAIR - PUMP MOTOR. DRILL 375'-738'. MW-8.5; VIS-35; WL-12; PH-8.5; PV-6; YP-6. DIRECTIONAL SURVEYS:
MD ANGLE
448' 1
686' 3/4

03-MAY-2000 PRESENT DEPTH: 1,202' FOOTAGE LAST 24 HRS: 464' FORMATION: SHALE
PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 738'-1,202'. MW-8.4; VIS-35; WL-11; PH-10; PV-6; YP-5.
MD ANGLE
939 1-3/4
1149 1-3/4

04-MAY-2000 PRESENT DEPTH: 1,851' FOOTAGE LAST 24 HRS: 649' FORMATION: SHALE
PRESENT OPERATION: DRILLING SUMMARY OF OPERATIONS: DRILL 1,202'-1,851'. MW-8.7; VIS-36; WL-8; PH-10; PV-6; YP-5. DIRECTIONAL SURVEYS:
MD ANGLE
1400 1
1648 1

WRH/wh (WRF-999)

Xc: Wamsutter Field Office, CCC, PAT, EWS, TKS, PSO, RHS, WRH

- 05-MAY-2000 PRESENT DEPTH: 2,212' FOOTAGE LAST 24 HRS: 361' FORMATION: SHALE
PRESENT OPERATION: TRIP. SUMMARY OF OPERATIONS: DRILL 1,851'-2,212'.
MADE A BIT TRIP. MW-8.8; VIS-37; WL-9; PH-9.0; PV-5; YP-9. DIRECTIONAL
SURVEYS:
MD ANGLE
1897' 1-3/4
2115' 2
- 06-MAY-2000 PRESENT DEPTH: 2,450' FOOTAGE LAST 24 HRS: 238' FORMATION: FERRON
PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: FINISH BIT TRIP.
DRILL 2,212'-2,450'. MW-8.9; VIS-44; WL-6; PH-9.5; PV-11; YP-13.
- 07-MAY-2000 PRESENT OPERATION: 2,612' FOOTAGE LAST 24 HRS: 162' FORMATION:
TUNUCK. PRESENT OPERATION: WIPER TRIP. SUMMARY OF OPERATIONS: DRILL
2,450'-2,612'. MADE A SHORT TRIP TO PREPARE FOR OH LOGS. MW-9.4; VIS-48;
WL-6; PH-9.5; PV-12; YP-14. DIRECTIONAL SURVEYS:
MD ANGLE
2429' 2-1/2
- 08-MAY-2000 PRESENT DEPTH: 2,612' FOOTAGE LAST 24 HRS: 0' FORMATION: TUNUCK
PRESENT OPERATION: NIPPLE DOWN BOP'S. SUMMARY OF OPERATIONS: MADE A
CONDITIONING TRIP. TOOH, RU AND RUN OH LOGS. TIH, CTCH, TOOH. RU & RUN
56 JTS, 9-5/8", 36#, K-55 INTERMEDIATE CASING AND LANDED AT 2606' KB.
CEMENT CASING WITH 375 SXS LITE + 340 SXS 'G'. CEMENT CIRC TO SURFACE. ND,
SET SLIPS. MW-9.1; VIS-44; WL-6; PH-10; PV-10; YP-16.
DIRECTIONAL SURVEYS:
MD ANGLE
2584' MISRUN
2584' 2.5
- 09-MAY-2000 PRESENT DEPTH: 2,612' FORMATION: TUNUCK PRESENT OPERATION:
PRESSURE TEST BOP. SUMMARY OF OPERATIONS: ND BOP, SET SLIPS, CUT OFF
CASING, WELD ON WELLHEAD. NU BOP & PRESSURE TEST. PIPE RAMS FAILED
TEST. WAIT ON REPAIR PARTS.
- 10-MAY-2000 PRESENT DEPTH: 2,889' FOOTAGE LAST 24 HRS: 277' FORMATION: CEDAR
MTN. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: FINISH
PRESSURE TESTING BOP'S. TIH WITH 8-3/4" BIT & BHA, DRILL OUT SHOE JOINT
AND FORMATION TO 2,625'. CONDUCT FIT TO 13# EMW. DRILL 2625'-2889'.
MW-8.6; VIS-35; WL-12; PH-9.0; PV-6; YP-6.
- 11-MAY-2000 PRESENT DEPTH: 3,462' FOOTAGE LAST 24 HRS: 573' FORMATION: CEDAR
MTN. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 2
889'-3,462'. MW-8.7; VIS-40; WL-20; PH-9.4; PV-12; YP-18. DIRECTIONAL
SURVEYS:
MD ANGLE
3354 1
- 12-MAY-2000 PRESENT DEPTH: 3,863' FOOTAGE LAST 24 HRS: 401' FORMATION:
MORRISON PRESENT OPERATION: DRILLING SUMMARY OF OPERATIONS: DRILL
3,462'-3,863'. MW-8.9; VIS-45; WL-12; PH-9.4; PV-16; YP-24.
- 13-MAY-2000 PRESENT DEPTH: 4,103'. FOOTAGE 24 HRS: 240' FORMATION: MORRISON
PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILLED
3863'-4040'. TRIP FOR BIT #4. DRILLED 4040'-4103'. MW-9.1; VIS-42;
WL-9.0; PH-9.1; PV-14; YP-20. DIRECTIONAL SURVEYS:
MD ANGLE
3852 3/4
4000 3/4

14-MAY-2000 PRESENT DEPTH: 4,350' FOOTAGE LAST 24 HRS: 247' FORMATION: MORRISON PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILLED 4103'-4350'. MW-9.0; VIS-49; WL-6.2; PH-9.0; PV-17; YP-15.

15-MAY-2000 PRESENT DEPTH: 4,610' FOOTAGE LAST 24 HRS: 260' FORMATION: CURTIS. PRESENT OPERATION: DRILLING SUMMARY OF OPERATIONS: DRILL 4350'-4610'. MW-9.1; VIS-44; WL-5.2; PH-8.5; PV-17; YP-10. DIRECTIONAL SURVEYS:
MD ANGLE
4410 1

16-MAY-2000 PRESENT DEPTH: 4,877' FOOTAGE LAST 24 HRS: 267' FORMATION: ENTRADA. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 4610'-4877'. MW-9.0; VIS-44; WL-5.2; PH-9.0; PV-17; YP-11.

17-MAY-2000 PRESENT DEPTH: 5,042' FOOTAGE LAST 24 HRS: 165' FORMATION: ENTRADA. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 4877'-4963'. MADE A BIT TRIP, DRILL 4963'-5042'. MW-9.0; VIS-45; WL-5.4; PH-9.0; PV-19; YP-7. DIRECTIONAL SURVEYS:
MD ANGLE
4922' 1

18-MAY-2000 PRESENT DEPTH: 5195' FOOTAGE LAST 24 HRS: 153' FORMATION: ENTRADA PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 5042'-5067'. TRIP FOR HOLE IN DRILL PIPE AND PICK UP ONE 6-3/4" DC. DRILL 5067'-5195'. MW-9.0; VIS-45; WL-5.2; PH-9.5; PV-15; YP-12.

19-MAY-2000 PRESENT DEPTH: 5,229' FOOTAGE LAST 24 HRS: 34' FORMATION: ENTRADA PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILL 5195'-5214'. REPLACE DRILL COLLARS. DRILL 5214'-5229'.

20-MAY-2000 PRESENT DEPTH: 5,438' FOOTAGE LAST 24 HRS: 209' FORMATION: CARMEL PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILLED 5229'-5438'. MW-9.1; VIS-43; WL-5.0; PH-9.0; PV-16; YP-11. DIRECTIONAL SURVEYS: MD-5394' ANGLE-1.

21-MAY-2000 PRESENT DEPTH: 5615' FOOTAGE LAST 24 HRS: 177' FORMATION: CARMEL PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILLED 5438'-5615'. MADE TWO TRIPS FOR HOLES IN DRILL PIPE. MW-9.0; VIS-44; WL-5.0; PH-9.0; PV-16; YP-10.

22-MAY-2000 PRESENT DEPTH: 5,801' FOOTAGE LAST 24 HRS: 186' FORMATION: CARMEL PRESENT OPERATION: TRIP. SUMMARY OF OPERATIONS: DRILLED 5615'-5801'. TRIP FOR HOLE IN DRILL PIPE. MW-8.9; VIS-40; WL-5.2; PH-9.0; PV-14; YP-7.

23-MAY-2000 DEPTH: 5,875' FOOTAGE LAST 24 HRS: 74' FORMATION: CARMEL. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: TRIP FOR BIT. WASH AND REAM THRU BRIDGES AND TIGHT SPOTS TO BOTTOM. DRILL 5801'-5875'. MW-9.0; VIS-45; WL-4.6; PH-10.0; PV-18; YP-10.

24-MAY-2000 PRESENT DEPTH: 6,020' FOOTAGE LAST 24 HRS: 146' FORMATION: CARMEL PRESENT OPERATION: DRILLED 5875'-5966'. TRIP FOR HOLE IN DRILL PIPE. DRILLED 5966'-6020'. MW-9.0; VIS-45; WL-4.0; PH-10.0; PV-17; YP-11.

25-MAY-2000 PRESENT DEPTH: 6,102' FOOTAGE LAST 24 HRS: 82' FORMATION: NAVAJO PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: DRILLED 6020'-6074'. RAN GR OPEN HOLE LOG. DRILLED 6074'-6102'. MW-9.0; VIS-43; WL-4.0; PH-10.5; PV-17; YP-9. DIRECTIONAL SURVEYS:
MD = 6064'. ANGLE = 1.5.

26-MAY-2000 PRESENT DEPTH: 6,175' FOOTAGE LAST 24 HRS: 73' FORMATION: NAVAJO
PRESENT OPERATION: RUNNING 7" CASING. SUMMARY OF OPERATIONS: DRILLED
6102'-6175'. SHORT TRIP. CIRCULATE. TOH LAYING DOWN DRILL PIPE. RIG
UP AND RUN 7" CASING. MW-9.1; VIS-42; WL-4.3; PH-10.0; PV-17; YP-9.

27-MAY-2000 DEPTH; 6,175. FOOTAGE/24 HRS: 0. FORMATION: NAVAJO. PRESENT OPERATION:
WORKING ON PUMP. SUMMARY/OPERATIONS: RAN 7" CASING TO 6173'. CEMENTED
FIRST STAGE WITH 90 SACKS 50/50 POZ LEAD AND 65 SACKS THIXOTROPIC TAIL.
CEMENTED SECOND STAGE WITH 450 SACKS HALLIBURTON-LITE. SET CASING SLIPS
AND CUT CASING. NIPPLE UP BPOE. CHANGE OUT 4-1/2" TO 3-1/2". HANDLING
TOOLS. MW-9.1; VIS-42; WL-4.5; PH-10.0; PV-17; YP-11.
CASING & CEMENTING RECORD:

NO	JTS.	SIZE	WT.	THD.	GR.	CPLG.	RGE.	COND.	LENGTH	OVERALL LENGTH	EFFECT LENGTH	SETTING FROM	DEPTH TO
										0.0'		0.0'	0.0'
										15.0'		0.0'	15.0'
1	7	26	8	RD	K55	CUT OFF							
112	7	26	8	RD	K55	LTC	3	1	5210.49'	5210.49'		15.0'	5225.49'
	7					STAGE TOOL	LTC	1	1	3.50'	3.50'	5225.49'	5228.99'
19	7	26	8	RD	K55	LTC	3	1	893.56'	893.56'		5228.99'	6122.55'
	7					FLOAT COLLAR	LTC	1	1	1.50'	1.50'	6122.55'	6122.55'
1	7	26	8	RD	K55	LTC	3	1	47.42'	47.42'		6124.05'	6171.47'
	7					FLOAT SHOE	LTC	1	1	1.50'	1.50'	6171.47'	6172.97'
133	TOTAL									TOTAL		6157.97'	6172.97'

NO. CENTRALIZERS: 43 DEPTHS OR JTS.: MIDDLE OF SHOE JT, ONE PER JT. THRU
18, MIDDLE OF 19 & 21, THEN EVERY 3RD JT. TO SURFACE. STRING WT. ON HOOK
158; STRING WT. ON BOTTOM 158. LANDED TOP@ 32.00 (+) KB. LANDED SHOE @
6172.97'KB.

1ST STAGE: CEMENTED CASING WITH 90 SX OF 50/50 POZ WITH 1/4# FLOCELE, .3%
HALAD-344, 2% GEL, 2% MICROBOND, 2% ECONOLITE, 10% SALT AND 65 SX OF PREM
SG-300 WITH 1/4# FLOCELE, .3% VERSASET, .4% HALAD-322. USED 20% EXCESS
VOLUME. PUMPED 40 BBLs WATER AHEAD. SLURRY WT. 14.3PPG. 14.4 PPG.
DISPLACED CEMENT WITH 235 BBLs OF MUD WITH HOWCO PUMP. BUMPED PLUG WITH
1800 PSI. PLUG DOWN @11:17 HRS. ON 26-MAY-00. GOOD RETURNS WHILE
CEMENTING. CIRCULATED 0 BBLs. OR 0 SX CEMENT TO SURFACE.

2ND STAGE: CEMENTED CASING WITH 450 SX OF HALLIBURTON-LITE WITH 2%
ECONOLITE, 1/4# FIOCELE, 2% GEL, 2% MICORBOND, 3% SALT. USED 20% EXCELL
VOLUME. PUMPED 40 BBLs sf-100 AHEAD. SLURRY WT. 12.4 PPG. DISPLACED
CEMENT WITH 201 BBLs OF MUD WITH HOWCO PUMP. BUMPED BLUG WITH 900 PSI.
PLUG DOWN @ 16:54 HRS ON 26-MAY-00. GOOD RETURNS WHILE CEMENTING.
CIRCULATED 0 BBLs. OR 0 SX CEMENT TO SURFACE.

FLOAT EQUIPMENT CHECKED OK. LANDED CASING ON SLIPS W/156. ESTIMATED TOP
OF CEMENT IN ANNULUS: 1800 FT.
MUD PROPERTIES BEFORE CEMENTING: MW-9.; VIS-42; PV-17; YP-9; GELS-2/8;
WATER LOSS-4.3; PH-10.0; SOLIDS- 3-2/5; CHLORIDES 400 MUD REPORT, DAY &
TIME: 27-MAY-00
04:30 HRS. PIPE NOT RECIPROCATED DURING CEMENTING.

28-MAY-2000 DEPTH; 6175; FOOTAGE-0; FORMATION-NAVAJO; PRESENT OPERATION-P.U. 3-1/3 DP
SUMMARY OF OPERATIONS:OFFLOAD AND TALLY 3-1/2" DRILL PIPE. TEST BOPE
AND 3-1/2" SAFETY VALVES. TEST CASING TO 1000 PSIG. TIH PICKING UP DRILL
PIPE. DRILLED CEMENT AND DV TOOL. TEST CASING TO 1000 PSIG. TIH PICKING
UP DRILL PIPE. MW-8.5; VIS-45; WL-8.0; PH-17; YP-12

29-MAY-2000 DEPTH: 6375. FOOTAGE: 200' FORMATION: NAVAJO. PRESENT OPERATION:
DRILLING. SUMMARY OF OPERATIONS: DRILLED CEMENT AND FLOAT COLLAR.
TEST CASING TO 1000 PSIG. DRILLED CEMENT AND FLOAT SHOE TO 6175'.
DRILLED 6175'-6375'. MW: 8-7; VIS:5.1; WL: 3.2; PH: 9.0; PV: 23; YP: 16

30-MAY-2000 DEPTH: 6645'. FOOTAGE: 270' FORMATION: KAYENTA. PRESENT OPERATION: DRILLING. DRILL: 6375' - 6645'. MW: 8.6; VIS: 42; WL: 5.5; PH: 10; PV: 16; YP: 11

31-MAY-2000 DEPTH: 6789' FOOTAGE: 144' FORMATION: WINGATE. PRESENT OPERATION: W/O WELDER. SUMMARY OF OPERATIONS: DRILL 6645'-6778. MADE A BIT TRIP. DRILL TO 6789'-SHUT DOWN TO REPAIR PUMP DISCHARGE LINE. MW-8.6 VIS-42 WL-5.2, PH-10.0, PV-17, YP-8.

01-JUN-2000 DEPTH: 6943' FOOTAGE: 154' FORMATION: WINGATE. PRESENT OPERATION: DRILLING. SUMMARY OF OPERATIONS: REPAIR PUMP DISCHARGE LINE. TIH. DRILLED 689'-6943'. MW: 8.6, VIS: 1 WL: 5.2, PH: 10.0, PV: 15, YP: 5

02-JUN-2000 DEPTH: 7033'. FOOTAGE: 90 FORMATION: CHINLE. PRESENT OPERATION: LOGGING. SUMMARY OF OPERATIONS: DRILLED 6943'-7033'. SHORT TRIP AND CIRCULATE. TOH. RUN OPEN HOLE LOGS. MW: 8.6, VIS: 42, WL: 5.2, PH: 100, PV: 15, YP: 5. DIRECTIONAL SURVEYS: M.D.: 7026 ANGLE: 2-1/2

03-JUN-2000 DEPTH: 7033'. FOOTAGE: -0- FORMATION: CHINLE. PRESENT OPERATION: NIPPLE DOWN BOP. SUMMARY OF OPERATIONS: RUN OPEN HOLE LOGS. LTD AT 7042' TIH. CIRCULATE AND DISPLACE HOLE WITH FERRON PRODUCED WATER. TOH. TIH WITH PACKER AND SET SAME AT 6100'. TOH LAYING DOWN DRILL PIPE. NIPPLE DOWN BOPE.

04-JUN-2000 DEPTH: 7033. PRESENT OPERATION: RIGGING DOWN. SUMMARY OF OPERATIONS: FINISH NIPPLE DOWN. BOPE. CLEAN MUD TANKS. RELEASED RIG @ 10:00 HRS, 6-3-00.
****FINAL DRILLING REPORT**.**

SHUT-IN/RIG DATA

SI DATE	MIRU DATE	RIG NAME	RIG#
27-MAY-2000	30-APR-2000	DRILLING RIG - CYCLONE	12

06-JUN-2000 Spot rig on location. Set and tested anchors.

07-JUN-2000 MIRU Key #51. Hauled 231 joints (7187') of 2-7/8" tubing to location. NU BOP. RIH with retrieving head for 7" RBP while PU 2-7/8" tubing to 6069'. RU HES and PT lines to 1500 psi. Pumped 740 g of 15% HCl followed by 740 g of 2% Clayfix II water at 0.75 BPM. Reversed out acid with 80 bbl of Clafix II water. RD HES. Released RBP and pulled up to 2838'. SION.

SHUT-IN/RIG DATA

SI DATE	MIRU DATE	RIG NAME	RIG#
27-MAY-2000	07-JUN-2000	KEY ENERGY SERVICES	51

08-JUN-2000 POOH w 2-7/8" tbg. RU HES wireline and ran cement bond log. POOH. RIH w/ RTTS pkr, 1 jt, SN 195 jts of 2 7/8" tbg. Set RTTS @ 6102'. RD tbg equipment. RU swab equipment. IFL 200' FS. FFL 1100' FS. Rec'd 165 BW in 4 hrs and 20 runs. Avg'd 40 bph swab rate in last hr. Took water samples (2-1 gal sample jugs) after 100 bbls rec'd - volume to OH section was 38 bbls. Sent water samples on UPS overnight delivery to Energy Labs in Billings, MT. SDFN.

09-JUN-2000 Ran pump-in test of open hole disposal zone w/90 bbls 2% Clayfix II water.
 1st 30 bbls @ 3.5 bpm : surf inj psi=700 psig
 2nd 30 bbls @ 3.5 bpm : surf inj psi=800 psig
 3rd 30 bbls @ 3.5 bpm : surf inj psi=800 psig
 Avg'd 3.5 bpm and 770 psig surf inj psi.

Released RTTS and POOH w/tbg and pkr. RIH w/HES fluid control valve above hydro jet tool on 2 7/8" tbg. Landed at 6103' and SDFN.

- 12-JUN-2000 RU Halliburton. Held safety meeting and discussed job hazards. NU stripping head and power swivel. Test surface lines to 2500 psig. Test FCV with 2% ClayFix water (opening psi=4100, closing psi=3600). Spot 1500 gals 15% HCL with the following additives: FE-3A, Ferchek A, HAI-85M, LP-55, ClayFix II. SI backside. Acid washed open hole section to TD of 7017'KB (slm). Avg rate per jt was 0.8-1.25 bpm. Avg psi was 1900 psig (surface wellhead). RU sandline and fish FCV. Pick up tubing to 6166' KB. Couldn't circulate out jet tool. Reverse circulated hole with 196 bbls 2% ClayFix II water; rec'd only 50% returns. POOH with 37 jts laying down. EOT @ 4980'. Unloaded 3-1/2" int. coated tubing on second set of racks. SI TIW. Closed rams. SDFN. Daily load 337 bbls. Daily recovery 96 bbls.
- 13-JUN-2000 Open well up, no pressure on tubing or casing. Continue POOH with 161 jts 2-7/8" tubing laying down. LD jet tool and crossover tool. Tally 3-1/2" IPC tubing and pickup. RIH w/G-6 packer, SN, on 3-1/2" tbg (198 jts) and tbg hanger. Pumped 170 bbls packer fluid-corrosion inhibitor down csg (Nalco; 40 gals product #EC1385A and 5 gals product #EC1088A). Set pkr @ 6117' KB in 20 pts compression. Packed off hanger. Stabbed TIW valve in tbg (left open). Tested csg to 1500 psig. Bleed off 50 psig in 15 min (pkr fluid foamed up). Closed TIW valve. Closed well in. SDFN. 12'KB (hanger landed 4' above GL)
198 jts - 3-1/2", 9.3 ppf, J-55, 8rd, EUE, smls, internally plastic coated tubing (6107')
1 - 3-1/2" SN; mechanical type (0.85')
1 - G-6 packer w/22#-26# range cups, nickel coated (2.1')..(pkr is Uni-6 design-Guiberson) end of BHA @ 6119'KB
- **18 jts of 3-1/2" IPC tbg unused, transfer to stock.
- 14-JUN-2000 SITP=SICP=0 psig. ND BOPE. NU single master wellhead. Tested casing to 1518 psig for 60 minutes with electronic gauge. Pressure held (increased 13 psig in 60 minutes due to temperature expansion). Pumped 90 bbls 2% ClayFix II water down 3 1/2" tbg @ average rate of 3 bpm and 650 psig. (Pressure ranged from 600-700 psig; trend was flat). SD. RD equipment. Release 2 7/8" workstring, safety equipment, tool rentals, tank rental, pipe racks, and reverse unit. RDMO Key pulling unit. Left well SI w/o pressure on tbg or csg. Skimmed off reserve pit.
- | SI DATE | MIRU DATE | SHUT-IN/RIG DATA | RIG# |
|-------------|-------------|---------------------|------|
| 27-MAY-2000 | 07-JUN-2000 | KEY ENERGY SERVICES | 51 |
- 30-AUG-2000 SWD facility completed. Start up Sitla SWDW #1. Injection rate of 2900 BWPD with WHIP of 450 psi. Well put on injection during daylight hours, averaging 1300 BWPD injection.

Division of Oil, Gas and Mining
PHONE CONVERSATION DOCUMENTATION FORM

Route original/copy to:

Well File SITLA SWD 1

Suspense

Other

(Loc.) Sec. 23 Twp 15S Rng. 9E
(API No.) 43-007-30656

(Return Date) _____
(To-Initials) _____

SWD 1
Pit File
Marathon Oil Co.

1. Date of Phone Call: 2/9/05 Time: 2:30

2. DOGM Employee (name) L. Cordova (Initiated Call)

Talked to:

Name Kurt Higgins (Initiated Call) - Phone No. () 538-5166
of (Company/Organization) SITLA

3. Topic of Conversation: Pit bonding & well bonding still valid?
No. 5553356 \$25,000 well
No. 5922542 \$80,000 Pit Row or Special Lease Bond
Both issued by Safeco Ins. Co. of America

4. Highlights of Conversation:

Both bonds valid, in addition there is a Special
Lease bond No. 6061010 (\$80,000) issued by
Safeco Ins. Co. of America

\$185,000 total SITLA bond for well & pit,
copies of bonds will be mailed per SITLA/Kurt Higgins.

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

<p>SUNDRY NOTICES AND REPORTS ON WELLS</p> <p><small>Do not use this form for proposals to drill new wells, deepen existing wells, or to reenter plugged and abandoned wells. Use APPLICATION FOR PERMIT for such proposals.</small></p>		6. Lease Designation and Serial Number ML-45691
		7. Indian Allottee or Tribe Name NA
		8. Unit or Communitization Agreement NA
		9. Well Name and Number SITLA SWD #1
1. Type of Well <input type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other (specify) Water Disposal		10. API Well Number 43-007-30656
2. Name of Operator Marathon Oil Company		11. Field and Pool, or Wildcat DRUNKARDS WASH
3. Address of Operator 1501 Stampede Ave., Cody, Wyoming 82414	4. Telephone Number 307-527-2133	
5. Location of Well Footage : 300' FNL, 300' FWL County : CARBON QQ, Sec, T., R., M : NW NW SECTION 23-15S-9E State : UTAH		
12. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		

<p align="center">NOTICE OF INTENT (Submit in Duplicate)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Abandonment</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Recompletion</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Multiple Completion</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input type="checkbox"/> Other _____</td> <td></td> </tr> </table> <p>Approximate Date Work Will Start _____</p>	<input type="checkbox"/> Abandonment	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Recompletion	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Multiple Completion	<input type="checkbox"/> Water Shut-Off	<input type="checkbox"/> Other _____		<p align="center">SUBSEQUENT REPORT (Submit Original Form Only)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Abandonment *</td> <td><input type="checkbox"/> New Construction</td> </tr> <tr> <td><input type="checkbox"/> Casing Repair</td> <td><input type="checkbox"/> Pull or Alter Casing</td> </tr> <tr> <td><input type="checkbox"/> Change of Plans</td> <td><input type="checkbox"/> Shoot or Acidize</td> </tr> <tr> <td><input type="checkbox"/> Conversion to Injection</td> <td><input type="checkbox"/> Vent or Flare</td> </tr> <tr> <td><input type="checkbox"/> Fracture Treat</td> <td><input type="checkbox"/> Water Shut-Off</td> </tr> <tr> <td><input checked="" type="checkbox"/> Other MECHANICAL INTEGRITY TEST</td> <td></td> </tr> </table> <p>Date of Work Completion 5/24/2005</p> <p><small>Report results of Multiple Completions and Recompletions to different reservoirs on WELL COMPLETION OR RECOMPLETION AND LOG form. * Must be accompanied by a cement verification report.</small></p>	<input type="checkbox"/> Abandonment *	<input type="checkbox"/> New Construction	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> Pull or Alter Casing	<input type="checkbox"/> Change of Plans	<input type="checkbox"/> Shoot or Acidize	<input type="checkbox"/> Conversion to Injection	<input type="checkbox"/> Vent or Flare	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Water Shut-Off	<input checked="" type="checkbox"/> Other MECHANICAL INTEGRITY TEST	
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<input checked="" type="checkbox"/> Other MECHANICAL INTEGRITY TEST																											

13. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

On 5/24/2005, the above named disposal well was pressure tested to 1000 psi for 30 minutes and witnessed by Mark Jones of the DOGM and Robert Lopez of Marathon Oil Company.

**Accepted by the
Utah Division of
Oil, Gas and Mining**

Date: 06-28-05
By: [Signature]

RECEIVED
JUN 03 2005
DIV. OF OIL, GAS & MINING

COPIES SENT TO OPERATOR
Date: 6-29-05
Initials: [Signature]

cc: RPM, WRF, WAMSUTTER OFFICE

14. I hereby certify that the foregoing is true and correct.

Name & Signature R.P. Meabon <u>[Signature]</u>	Title Reg. Coord.	Date 06/01/05
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(State Use Only)

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

SUNDRY NOTICES AND REPORTS ON WELLS		5. LEASE DESIGNATION AND SERIAL NUMBER: ML-45691
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		6. IF INDIAN, ALLOTTEE OR TRIBE NAME: NA
1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>WATER DISPOSAL</u>		7. UNIT or CA AGREEMENT NAME: NA
2. NAME OF OPERATOR: MARATHON OIL COMPANY		8. WELL NAME and NUMBER: SITLA SWD #1
3. ADDRESS OF OPERATOR: 1501 STAMPEDE AVENUE CITY <u>CODY</u> STATE <u>WY</u> ZIP <u>82414</u>		9. API NUMBER: 4300730656
		10. FIELD AND POOL, OR WILDCAT: DRUNKARDS WASH
4. LOCATION OF WELL FOOTAGES AT SURFACE: 300' FNL, 300' FWL		COUNTY: CARBON
QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 23 15S 9E		STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA			
TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: 	<input type="checkbox"/> ACIDIZE <input type="checkbox"/> ALTER CASING <input type="checkbox"/> CASING REPAIR <input type="checkbox"/> CHANGE TO PREVIOUS PLANS <input type="checkbox"/> CHANGE TUBING <input type="checkbox"/> CHANGE WELL NAME <input type="checkbox"/> CHANGE WELL STATUS <input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS <input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> DEEPEN <input type="checkbox"/> FRACTURE TREAT <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> OPERATOR CHANGE <input type="checkbox"/> PLUG AND ABANDON <input type="checkbox"/> PLUG BACK <input type="checkbox"/> PRODUCTION (START/RESUME) <input type="checkbox"/> RECLAMATION OF WELL SITE <input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	<input type="checkbox"/> REPERFORATE CURRENT FORMATION <input type="checkbox"/> SIDETRACK TO REPAIR WELL <input type="checkbox"/> TEMPORARILY ABANDON <input type="checkbox"/> TUBING REPAIR <input type="checkbox"/> VENT OR FLARE <input type="checkbox"/> WATER DISPOSAL <input type="checkbox"/> WATER SHUT-OFF <input checked="" type="checkbox"/> OTHER: <u>MECHANICAL INTEGRITY TEST</u>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

On 6/15/2011 the above named disposal well was pressure tested to 1000 psi for 30 minutes.

Attached is a pressure test chart displaying results in graph form.

RECEIVED
JUN 21 2011
DIV. OF OIL, GAS & MINING

NAME (PLEASE PRINT) <u>Tiffany Stebbins</u>	TITLE <u>Regulatory Compliance Representative</u>
SIGNATURE <u><i>Tiffany Stebbins</i></u>	DATE <u>6/16/2011</u>

(This space for State use only)

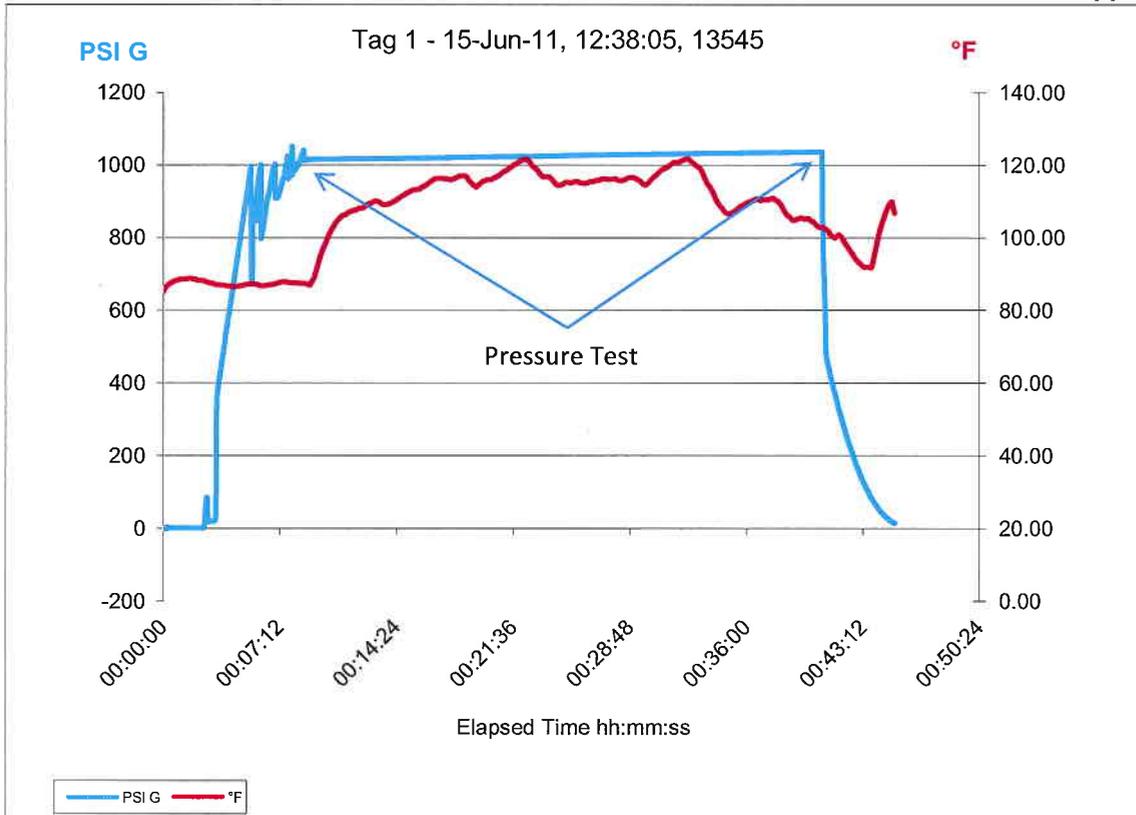
Data Collection Report

Marathon: Price, UT Disposal Well Pressure Test

	Chassis	Left Scale	Right Scale
Serial Number	154066	153210	153325
Datatype		Lower	Upper
Units		PSI G	°F

Lower

Upper



RECEIVED

JUN 21 2011

DIV. OF OIL, GAS & MINING

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

FORM 9

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1. TYPE OF WELL OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <u>WATER DISPOSAL</u>		7. UNIT or CA AGREEMENT NAME: N/A
2. NAME OF OPERATOR: MARATHON OIL COMPANY		8. WELL NAME and NUMBER: SITLA SWD #1
3. ADDRESS OF OPERATOR: 1501 STAMPEDE AVENUE CITY CODY STATE WY ZIP 82414		9. API NUMBER: 4300730656
4. LOCATION OF WELL FOOTAGES AT SURFACE: 300' FNL, 300' FWL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: NWNW 23 15S 9E		10. FIELD AND POOL, OR WILDCAT: DRUNKARDS WASH COUNTY: CARBON STATE: UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT (Submit in Duplicate) Approximate date work will start: _____	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> REPERFORATE CURRENT FORMATION
	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> CASING REPAIR	<input type="checkbox"/> NEW CONSTRUCTION	<input type="checkbox"/> TEMPORARILY ABANDON
	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> TUBING REPAIR
	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> VENT OR FLARE
<input checked="" type="checkbox"/> SUBSEQUENT REPORT (Submit Original Form Only) Date of work completion: 12/17/2013	<input type="checkbox"/> CHANGE WELL NAME	<input type="checkbox"/> PLUG BACK	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> PRODUCTION (START/RESUME)	<input type="checkbox"/> WATER SHUT-OFF
	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input checked="" type="checkbox"/> OTHER: <u>water analysis</u>
	<input type="checkbox"/> CONVERT WELL TYPE	<input type="checkbox"/> RECOMPLETE - DIFFERENT FORMATION	

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.
Attached for the well record is a water analysis conducted on a sample from subject disposal well on 12/17/2013.

**Accepted by the
Utah Division of
Oil, Gas and Mining
FOR RECORD ONLY**

NAME (PLEASE PRINT) <u>TIFFANY STEBBINS</u>	TITLE <u>REGULATORY COMPLIANCE REPRESENTATIVE</u>
SIGNATURE <u><i>Tiffany Stebbins</i></u>	DATE <u>1/7/2014</u>

(This space for State use only)

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NALCO Champion Water Analysis Report

An Ecolab Company

Attention: **Clay Lofley**

Customer: **Marathon Oil Co. (1500125)**

Location Code: **11868**

Region: **Southwest Wyoming**

Sample ID: **AB10971**

Location: **Drunkards Wash Lease**

Batch ID: **131218152150-21-CCSW**

System: **Water Disposal System**

Collection Date: **12/17/2013**

Equipment: **DW Salt Water Disposal Well # 1**

Receive Date: **12/18/2013**

Lab ID: **ABU-0021**

Report Date: **12/23/2013**

Sample Point: **prefilter**

Analyses	Result	Unit
Dissolved CO2	132	mg/L
Dissolved H2S	1.7	mg/L
pH	7	
Pressure	2300	psi
Temperature	85	° F

Analyses	Result	Unit
Ionic Strength	0.27	
Resistivity	0.375	ohms - m
Total Dissolved Solids	17054.89	mg/L
Conductivity	26647	µS - cm3
Specific Gravity	1.0136	
Bicarbonate	3904	mg/L
Carbonate	Not Detected	mg/L

Cations	Result	Unit
Iron	0.785	mg/L
Manganese	0.013	mg/L
Barium	29.45	mg/L
Strontium	9.93	mg/L
Calcium	28.12	mg/L
Magnesium	22.3	mg/L
Sodium	5971.01	mg/L

Anions	Result	Unit
Chloride	7066	mg/L
Sulfate	23.28	mg/L

Scale Type	Result
Anhydrite CaSO4 SI	-4.08
Barite BaSO4 PTB	12.9
Barite BaSO4 SI	1.08
Calcite CaCO3 SI	-0.35
Celestite SrSO4 SI	-2.25
Gypsum CaSO4 SI	-3.86
Hemihydrate CaSO4 SI	-3.74
Saturation Index Calculation (Tomson-Oddo Model)	

Comments:

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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

March 8, 2016

Marathon Oil Company
PO Box 21219, MS S1074
Tulsa, OK 74121

SUBJECT: Pressure Test for Mechanical Integrity on One Well, Carbon County, Utah:

Gentlemen:

The Underground Injection Control Program, which the Division of Oil, Gas and Mining (DOGM) administers in Utah, requires that all Class II injection wells demonstrate mechanical integrity. Rule R649-5-5.3 of the Oil and Gas Conservation General Rules requires that the casing-tubing annulus above the packer be pressure tested at a pressure equal to the maximum authorized injection pressure or 1,000 psi, whichever is lesser, provided that no test pressure is less than 300 psi. This test shall be performed at least every five-year period beginning October 1982. The following wells now require a current test:

SITLA SWD 1,

API 43-007-30656

23 15S 9E

Please make arrangements and ready wells for testing during the week of June, 27th, 2016, as outlined below:

1. Operator must furnish connections, and accurate pressure gauges, hot oil truck (or other means of pressuring annulus), along with personnel to assist in opening valves, etc.
2. The casing-tubing annulus shall be filled prior to the test date to expedite testing, as each well will be required to hold pressure for a minimum of 15 minutes.
3. If mechanical difficulties or workover operations make it impossible for the well(s) to be tested on this date the test(s) may be rescheduled.



Page 2

Marathon Oil Company
March 8, 2016

4. Company personnel should meet a DOGM representative(s) at the field office or other location as negotiated.
5. All bradenhead valves with exception of the tubing on the injection well(s) must be shut-in 24 hours prior to testing.

Please contact me at (435) 820-8504 to arrange a meeting time and place or to negotiate a different date, if the date(s) specified is unacceptable.

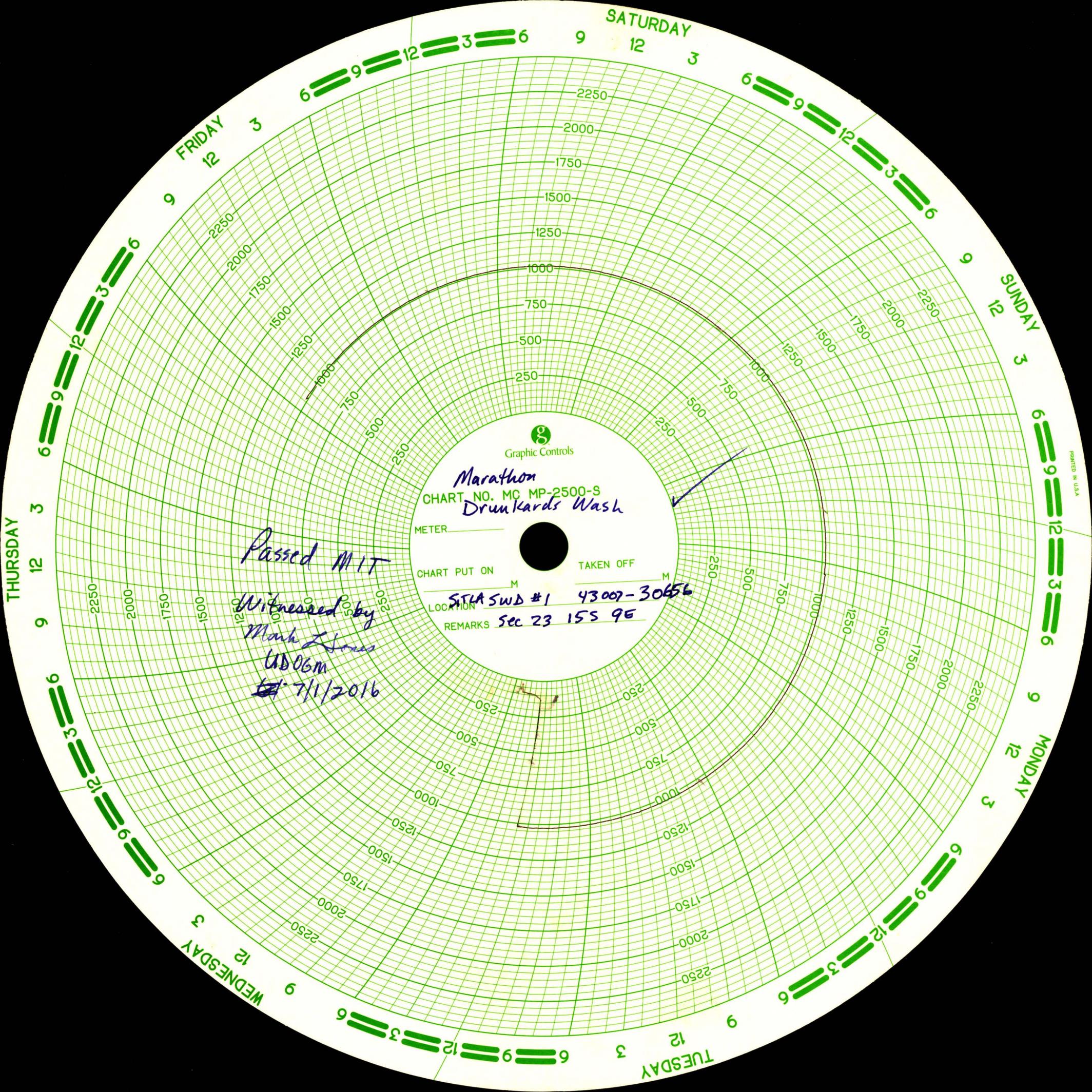
Sincerely,



Mark Jones
Environmental Scientist

mlj/dj/js

cc: Dan Jarvis, Operations Manager
Well File



Graphic Controls

Marathon
CHART NO. MC MP-2500-S
Drunkards Wash

METER

CHART PUT ON

TAKEN OFF

LOCATION

REMARKS

Passed MIT

Witnessed by
Mark Jones
UDOGM
7/1/2016

SITIA SWD #1 43007-30656
Sec 23 155 9E