

ENVIRONMENTAL PROTECTION
AGENCY

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**SUMMARY OF
FIELD OVERSIGHT ACTIVITIES
JUNE 1992**

**TUTU WELL FIELD SITE
ST. THOMAS, U.S. VIRGIN ISLANDS**

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460**

EPA Work Assignment No.	: C02048
EPA Region	: II
Site No.	: 2P1D
Contract No.	: 68-W9-0002
CDM FEDERAL PROGRAMS CORPORATION Document No.	: TESV-C02048-LR-CNMT
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Date Prepared	: July 23, 1992

TUT 006 0232

CDM FEDERAL PROGRAMS CORPORATION

July 23, 1992

Ms. Caroline Kwan
U.S. Environmental Protection Agency
26 Federal Plaza
New York, New York 10278

PROJECT: TES V, EPA CONTRACT NO: 68-W9-0002
Work Assignment C02048
Tutu Well Field Site
St. Thomas, U.S. Virgin Islands

DOC. NO. TESV-C02048-LR-CNMT

SUBJECT: Summary of Field Oversight Activities
June 1992

Dear Ms. Kwan:

The attached Letter Report describes field activities performed by Geraghty and Miller at the Tutu Wells Site, St. Thomas, U.S. Virgin Islands during the period from June 2 through June 30, 1992. All activities were overseen by CDM FEDERAL PROGRAMS CORPORATION (CDM FPC). A copy of CDM FPC's field logbook notes is attached.

If you have any questions concerning this report, please contact me at (212) 393-9634.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION


Sally O'Neil
Work Assignment Manager

TUT 006 0233

SUMMARY OF FIELD ACTIVITIES

SITE NAME: Tutu Service Station Investigation
PREPARED BY: CDM FEDERAL PROGRAMS CORPORATION (CDM FPC)
DATE: July 23, 1992
REPORTING PERIOD: June 2 - 30, 1992

Progress Made This Reporting Period

CDM FPC began oversight of field activities performed by the Tutu Environmental Investigation Committee's (TEIC's) contractor, Geraghty and Miller (G&M) at the Tutu Wells Site in St. Thomas, U.S. Virgin Islands, on June 2, 1992. G&M initiated a drilling program to install shallow and deep monitoring wells and subsurface borings. Subsurface soil samples were collected for analysis from the unconsolidated interval of each boring. Groundwater sampling, surface soil sampling and aquifer pump tests will occur in later months. CDM FPC will provide continual oversight through the end of field activities in the fall, 1992.

During this reporting period, G&M completed drilling at locations MW-1, MW-3, MW-4, MW-4D, and B-4 and began drilling at locations MW-1D, MW-11D, and MW-13D. MW-1D, MW-11D, and MW-13D are scheduled to be completed as deep monitoring wells. MW-1, MW-3 and MW-4 have been completed as intermediate depth bedrock monitoring wells. An investigative boring was drilled at location B-4.

Brief Overview of Field Activity

MW-1 activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 2 feet at this location. The material from the split spoon was field screened with an HNu. Samples were also analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from this 0 to 2 foot interval was collected for more extensive off-site laboratory analysis.

Coring in the bedrock was not performed at this location. A down-the-hole air hammer was used to drill to a depth of approximately 46 feet. A stainless steel monitoring well was installed at this location and was screened from 23.3 to 43.3 feet.

MW-1D activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 2.5 feet at this location. The material from the split spoon was field screened with an HNu. Samples were analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from the 1.0 to 2.5 foot interval was collected for

more extensive off-site laboratory analysis.

Continuous coring of the bedrock proceeded from 2.5 feet to a depth of approximately 89 feet, using a five-foot core barrel. All core samples are being archived by G&M. All fractures encountered in the bedrock core samples were recorded in field notes along with other information concerning the coring operations.

Upon coring to a depth of 89 feet, geophysical measurements of the hole were made to confirm visual observations of possible fracture zones in the bedrock. A three arm caliper instrument and a full wave form sonic instrument were used to create geophysical logs of the holes.

This well is to be completed as an open hole from 69 to 89 feet. Due to formation instability in the upper depths of the hole, G&M was unable to install the well casing during this reporting period. In an attempt to stabilize the upper formations of the hole, G&M grouted the hole to the surface. After the grout had hardened, G&M then reamed through it to a depth of 69 feet. Upon completion of this exercise, an obstruction, noted at approximately 17 feet, prevented the placement of the stainless steel casing. G&M then repeated the entire exercise in an effort to place the casing. The completion of this activity was scheduled outside of this reporting period.

MW-3 activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 3 feet at this location. The material from a split spoon was checked in the field with an HNu PID instrument and a sample was analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from the 0.5 to 2.5 foot interval was collected for more extensive off-site laboratory analysis.

Coring in the bedrock was not performed at this location. A down-the-hole air hammer was used to drill to a depth of approximately 34 feet. A stainless steel monitoring well was installed at this location and was screened from 10.5 to 30.5 feet.

MW-4 activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 9.7 feet at this location. The material from each split spoon was field screened with an HNu. Samples were also analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from the 2.7 to 4.7 foot interval was collected for more extensive off-site laboratory analysis.

Coring in the bedrock was not performed at this location. A down-the-hole air hammer was used to drill the hole to a depth of about 28 feet. A stainless steel monitoring well was installed at this location and was screened from 7 to 27 feet.

MW-4D activities:

Continuous split spoon sampling was performed through the overburden to spoon refusal at 11.7 feet. Weathered bedrock was encountered at 9.5 feet. The material from each split spoon was field screened with an HNu PID (HNu) instrument. Samples were also analyzed at the Geraghty and Miller (G&M) field office with a portable gas chromatograph. In addition, a sample from the 8.7 to 10.7 foot interval was collected for more extensive off-site laboratory analysis. Augering continued through weathered rock to a depth of approximately 25 feet, and the hole was temporarily cased with PVC casing before coring to depth.

Continuous coring in the competent bedrock was performed from a depth of approximately 25 feet to a total depth of 68 feet using a 5-foot core barrel. All core samples are being archived by G&M. All fractures encountered in the bedrock core samples were recorded in field notes along with other information concerning the coring operations.

Upon completion of coring to a depth of 68 feet, geophysical measurements of the hole were made to confirm visual observations of possible fracture zones in the bedrock. A three arm caliper instrument and a full wave form sonic instrument were used to create geophysical logs of the holes. A preliminary analysis of the results of these measurements showed good correlation with core intervals where fractures were observed.

After performing all geophysical measurements, the hole was reamed with a down-the-hole air hammer to a depth of 47 feet. Stainless steel casing was installed to this depth and was allowed to set for a minimum of 24 hours. After the casing had set, the remainder of the hole was reamed. The well was completed as an open hole in bedrock from 47 to 67 feet.

B-4 activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 12 feet at this location. The material from each split spoon was checked in the field with an HNu PID instrument and samples were analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from the 8.0 to 10.0 foot interval was collected for more extensive off-site laboratory analysis.

Coring in the bedrock was not performed at this location. This boring was performed for investigative purposes and was not developed as a monitoring well. The hole was filled with cuttings and grouted closed.

MW-11D activities:

Augering and continuous split spoon sampling were performed in the overburden to bedrock, at about 11.7. The material from each split spoon was checked in the field with an HNu PID instrument a sample was analyzed at the Geraghty and Miller (G&M) field office with a portable gas chromatograph. Because insufficient sample material was recovered from 9.7 to 11.7 feet, G&M decided to drill a new borehole adjacent to the original one. The original hole was filled with cuttings and grouted. The new hole was augered to a depth of about 8.6 feet. A split spoon sample was collected from about 8.6 to 10.6 feet for more extensive off-site

laboratory analysis.

Continuous coring was performed from 10.6 feet to about 50 feet, using a five-foot core barrel. All core samples are being archived by G&M. All fractures encountered in the bedrock core samples were recorded in field notes along with other information concerning the coring operations. Coring operations were continuing at this location at the end of this reporting period.

MW-13D activities:

Augering and continuous split spoon sampling were performed in the overburden to a depth of approximately 7 feet at this location. The material from each split spoon was field screened with an HNu. Samples were also analyzed at the G&M field office with a portable gas chromatograph. In addition, a sample from the 5 to 7 foot interval was collected for more extensive off-site laboratory analysis.

Continuous coring in the bedrock began at approximately 7 feet and continued to a depth of approximately 120 feet, using a five-foot core barrel. All fractures encountered in the bedrock core samples are recorded in field notes along with other information concerning the coring operations.

Upon completion of coring, G&M attempted to perform geophysical logging of the hole. Due to an obstruction at approximately 70 feet, G&M was unable to lower the logging equipment. G&M plans to ream the hole with the air hammer and then will again attempt to perform the geophysical logging.

Problems Encountered/Resolved

Drilling operations were slightly delayed as a result of the importation of the drill rigs from Puerto Rico through U.S. Customs. Preparatory activities were conducted while awaiting clearance through customs. Equipment that had cleared was steam cleaned while awaiting the drill rigs.

Drilling in the bedrock was initially difficult. While coring MW-4D drilling fluid circulation problems occurred. These problems were alleviated by flushing the hole to remove some of the silt from the overburden.

Due to a local holiday on June 15, G&M was unable to obtain water from the approved WAPA water source. Water was eventually obtained from the same source via a different distribution point. A sample from the new distribution point was collected by G&M and submitted for laboratory analysis.

G&M was unable to tremmie grout down MW-4D due to the limited space between the wall of the hole and the casing. The drillers were instructed to pump the grout down the hole. At CDM FPC's request the amount of grout required to fill the annular space was calculated. The amount of grout added to the hole was monitored to ensure that a proper seal for the well had been achieved. At CDM FPC's request, G&M arranged for a smaller diameter tremie pipe to be delivered to the site.

Unstable bedrock has been encountered at the shallower depths in many deep drill

holes, resulting in partial collapse and problems setting casing. After repeatedly reaming MW-1D and MW-4D, G&M resorted to grouting the holes to stabilize them, then reaming through the grout to set casing, regrouting the casing, and finally drilling through the casing to the intake interval.

Personnel Protective Equipment Used

All activities were performed in modified level D. Air purifying respirators were carried as a contingency. Drilling operations were observed from an upwind location. Both G&M and CDM FPC personnel conducted continuous air monitoring in the breathin zone with HNu photoionization detectors.

Field Staff

Mark Greany, Pam Philip and Andrew Scano of CDM FPC provided field oversight of all activities. Clinton Moffet and Tom Danahy were the site managers for G&M. Personnel from Soil Tech Inc. performed the drilling and well installation.

ATTACHMENT

SUMMARY TABLE OF WELLS AND BORINGS DRILLED
TUTU WELLS SITE INVESTIGATION
JUNE 2 - 30, 1992

<u>Number</u>	<u>Total Depth (ft)</u>	<u>Cored Interval (ft)</u>	<u>Analytical Sample (ft)</u>	<u>Intake Interval (ft)</u>	<u>Screen Construction</u>
MW-1	46	None	0 - 2.0	23.3 - 43.3	Stainless Steel
MW-1D	89	2.5 - 89	1.0 - 2.5	Incomplete	
MW-3	34	None	0.5 - 2.5	10.5 - 30.5	Stainless Steel
MW-4	28	None	2.7 - 4.7	7 - 27	Stainless Steel
MW-4D	68	25 - 68	8.7 - 10.7	47 - 67	Open Hole
MW-11D	?	10.6 - 50+	8.6 - 10.6	Incomplete	
MW-13D	120	7 - 120	5 - 7	Incomplete	
B-4	12	None	8 - 10	None	None

[illegible]

0730 On-Site at Texaco
(at junction of Rt. 38 & Rt. 384.
Spoke w/ Mr. ~~Morgan~~^{NO} (MARVIN)
in Service St. Office to confirm
that he expects Geraghty &
Miller & drillers today.

Clear & warm & humid
The ground is wet - from
last night's rain.
breeze variable 0-5 k

G & M still not on site
 still calling G & M field trailer -
 received fax signal
 still calling G & M apt. - no answer.
 phone FPC NY - calling not in yet.

TUT 006 0240

② 6/2/92 (cont) Mark Greany

0845 cont. MARVIN no
spoke w/ Mark Greany again
he definitely expects G4M
today or tomorrow?

0900

Clinton Moffet arrived on site
following Clinton to 3 PM
field office for kick-off
Health & Safety meeting

0930

Met project managers Tom Danahy G4M
project manager Jose Aguilar Sail Tech
Bilingual His meeting conducted
all drill crew personnel attend

1130

Health & Safety meeting is complete
break for lunch
will steam clean rig
and de-con spill soon after
this afternoon after rig
clear customs approx 2 pm?

1500 NO

Back on site have not yet

6/2/92 (cont) Mark Greany ③

1500

Site history/wells discussed if Tom D.
NO decon will take place today
NO site activities conducted
finished for the day

④ Mark Greany 6/3/92

0800 On site at TEXACO

Same soil with truck

cleared cartons but

Rigs have not yet cleared

HNU is not functioning

power source problem

0900

going to call office

weather today

hot & cloudy

occasional light showers

of rain - clouds

breaking up intermittently

Sun shined breeze - light

variable & sporadic

gulf to a steady

breeze later in the day

0945

spoke of Sally re HNU

and back to Texas

on the highway

Route 130 Bldg 112

Unit N-1 08561 Shiny

0920 08562 08563

08564 08565 08566

6/3/92 Mark Greany ⑤

Note: Clinton informed me

that WAPA (Water & Power Authority)

Supply water was sampled

February '92

analytical results are

presented in

5th Sampling Report

This water comes from a

pipeline from a sea water

desalination plant

1200

breakfast lunch

1300

return from lunch

rig on site at Texas

Trailer being filled at WAPA

1500

Steam cleaning

small trailer tank 550 gal

large metal tank 1200 gal

drill rods

3000 spoons

to be used

Area has been roped off

for operations

⑥ 6/3/92 Mark Greeny

- 1700
- 1) still steam cleaning
 - 2) drill rods & other equipment
 - 3) Preparing for de-con split spools
 - 4) Decon procedure 8 step:
 - 5) 1) soap & water scrub
 - 6) 2) tap water rinse
 - 7) 3) 10% nitric acid
 - 8) 4) tap water rinse
 - 9) 5) methanol
 - 10) 6) decont
 - 11) 7) decont
 - 12) 8) final wipe / alcohol

1800

finish Decon of spools

breaking for day

Mark Greeny 6/4/92 ⑦

- 0700
- At 6 AM field office
 - M. Tom Doherty
 - Christon Moffet (GFM)
 - Rubino Ponciano
 - Wendell Morales

Drilling scheduled to begin today

Rubino Ponciano will lead the drilling at MW-1D

Wendell Morales will lead the drilling at MW-4D

see location map last page of this book

Weather: warm, clear, light breeze

looks like it will be strong sun all day today

- 0800
- On site at Texas
 - now steam cleaning large rig
 - GFM monitoring instruments
 - 2 HMA photorizers #101363/A01052
 - W/TC 2 cl probe
 - 2 TMA detectors, explosive gas meters
 - #506539/15045HS

TUT 006 0243

⑧ 6/11/92 (cont) Amant Greening

0930 Drilling begins at 0050

2nd M. Well 4D at Mt. A

Augering to bed rock and after

Continued split spoon samples

Split spoon #1

depth 0.7 - 2.7

blows 2 - 3 - 3

recovery 1.3 Silty Clay

HNA borehole back grid (0.0m)

HNA sample back grid

Split spoon #2

depth 2.7 - 4.7

blows 3 - 4 - 4

recovery 1.5 Silty Clay

HNA back grid (borehole)

HNA back grid (sample)

SS #3

depth 6.7 - 6.7

blows 1 - 2 - 2

recovery 0.9 Silty Clay

HNA borehole back grid

HNA sample back grid

⑨

SS #4

depth 6.7 - 8.7

blows 7 - 11 - 11

recovery 1.3 Silty Clay

HNA borehole back grid

HNA sample back grid

SS #5

depth 8.7 - 10.7

blows 19 - 34 - 38

recovery 1.7 Silty Clay

HNA borehole back grid

HNA sample back grid

SS #6

depth 10.7 - 11.7

blows 50 - 60 spoon refusal 11.7

recovery 1.75 Silty clay to weathered rock

HNA borehole back grid

HNA sample back grid

SS #7

depth 12.7 - 13.7

blows 6 - 11 - 11

recovery 1.7 Silty Clay

HNA borehole back grid

HNA sample back grid

⑩ 6/4/72 Mark Greaney

SS #7 (cont.)

Weathered rock

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #8

SS #8 cont. 14.0 ft

SS #8 cont. 0.9 ft recovery

Weathered rock

HNa borehole Bkgrnd (0.2 ft)

HNa sample Bkgrnd

SS #9

SS #9 cont. 14.9 ft

SS #9 cont. 0.5 ft recovery

Weathered rock

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #10

SS #10 cont. 15.7 ft

SS #10 cont. 0.1 ft recovery

Weathered rock

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #11

SS #11 cont. 16.7 ft

SS #11 cont. 0.9 ft recovery

Mark Greaney 6/4/72 ⑪

SS #10 cont.

recovery 0.6 ft

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #11

SS #11 cont. 16.7 ft

SS #11 cont. 0.9 ft recovery

Weathered rock

HNa borehole Bkgrnd (0.2 ft)

HNa sample Bkgrnd

SS #12

SS #12 cont. 18.7 ft

SS #12 cont. 0.1 ft recovery

Weathered rock

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #13

SS #13 cont. 18.7 ft

SS #13 cont. 0.1 ft recovery

Weathered rock

HNa borehole Bkgrnd

HNa sample Bkgrnd

SS #14

SS #14 cont. 18.7 ft

SS #14 cont. 0.1 ft recovery

⑫ 6/4/92 Muck Creek

Auger down to 20.7 ft

SSI # 13 20.7 - 20.8

SO flows 0 ft

NO recovery

hard augering down to 24.7 ft

SSI # 14 20.7 ft - 22.8

SO flows 0 ft

NO recovery

Augering down to 24.7 feet

pulling augers to install

temporary casing

8 ft section inst 11.3

and grout approximately

1 ft section of casing above

grout surface

1830 breaking down decompression

equipment for this day

Muck Creek 6/4/92 ⑬

Test hole installed in the area of MW-1D but no actual work done on MW-1D today

Test hole performed to check out air percussion hammer system with manufacturer representative on site. M. Le Hanson - Soil Tech. Bel. (weather) at MW-1D area at depth of about a few feet. Well - best to be closed today in MW-1D will begin tomorrow. Done for the day.

~~6/4/92 Muck Creek~~

(14) 6/5/92 North Greening

0730 On site. Drilling tool
cuttings collapsed MW-4D
to depth of approx 15 feet
leaving bottom cuttings
in hole. Hole will be lost
pushed up recovering
water this morning
morning to remove cuttings

At MW-4D site
Test hole is being sealed
with cement.

Rig will be repositioned 15 ft.
to new site. Soil is
poor. Will be

collected from this site
(approx 1/4 in. diameter)

Soil sample will be
to collect soil for lab
analysis. Test hole is
about 1 ft. deep.

This area is covered with
approx 6 inches of
loose soil. The soil is
very soft.

North Greening 6/5/92

(15)

before driving split spoon
1000 ft.

At MW-4D
first core being removed
interval 24.0 to 25.0 feet

broken stones on top 8 inches
solid piece of core last 4 inches
solid piece of core has
artificial fracture in it

along top of bottom axis
(fracture has slight oxide
staining - natural fracture)

045
core removed since bit
was plugged (water not
circulating) 2 foot core

25.0 - 27.0
broken stone at top 1 1/2 feet
the rest of core was 1.6 ft

cuttings from above that fell
down hole. The
core is 1.6 ft long

compacted rock
at 25.4 and
26.1 feet

(16) 6/5/92 Main Oreary

MW-4D cont.

core from 25-27 cont
fracture at 25.4

is along calcite fracture
appears to be artificial

drillers fracture not
fracture at 26. appears

to be natural fracture
some weathering and

iron oxide staining
core from 27-30

no recovery
Returning to MW-4D

11:30
Angered down 1/4 ft through

asphalt & gravel
then advanced spoon from

1.0 to 2.5
2.49-26.50 flows

sample collected from this
interval MW-4D (10-20)

2nd spoon from 50 ft below
main oreary

11:30
At G.M. field office

Dan & Brigham sub to Sol. Tech
running portable gas chromatograph
but detected no samples
taken from MW-4D
see next page

Main Oreary 6/5/92 (17)

Core Drill cont.

Returning to MW-4D

Summary of coring

interval time

25-27 9:37 - 9:42

27-30 10:30 - 10:38

30-35 10:54 - 11:02

35-40 11:20 - 11:26

difficult to retrieve core

12:30

At G.M. field office

Dan & Brigham sub to Sol. Tech

running portable gas chromatograph
but detected no samples
taken from MW-4D
see next page

TUT 006 0243

⑧ 6/7/92 Mark Green

Summary 1st G.P. (port 10) 2nd 1st
 2nd 1st 2nd 1st 2nd 1st

Interval

0.7-2.0

2.7-4.7

4.7-6.7

6.7-8.7

8.7-10.7

10.7-12.7

12.7-14.7

14.7-16.7

16.7-18.7

18.7-20.7

20.7-22.7

22.7-24.7

24.7-26.7

26.7-28.7

28.7-30.7

30.7-32.7

32.7-34.7

34.7-36.7

36.7-38.7

38.7-40.7

40.7-42.7

42.7-44.7

44.7-46.7

46.7-48.7

6/7/92 Mark Green

⑨

Finishing up for day
 MW-40 drilled to depth of 38.4
 Summary 1st MW-40

Interval

SS #

core run

inter

val

0.7-2.7

4

1

1

1

2.7-4.7

5

2

1

1

4.7-6.7

3

1

1

1

6.7-8.7

4

1

1

1

8.7-10.7

5

1

1

1

10.7-12.7

6

1

1

1

12.7-14.7

7

1

1

1

14.7-16.7

8

1

1

1

16.7-18.7

9

1

1

1

18.7-20.7

10

1

1

1

20.7-22.7

11

1

1

1

22.7-24.7

12

1

1

1

24.7-26.7

13

1

1

1

26.7-28.7

14

1

1

1

28.7-30.7

15

1

1

1

30.7-32.7

16

1

1

1

32.7-34.7

17

1

1

1

34.7-36.7

18

1

1

1

36.7-38.7

19

1

1

1

38.7-40.7

20

1

1

1

40.7-42.7

21

1

1

1

42.7-44.7

22

1

1

1

44.7-46.7

23

1

1

1

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THE UNIVERSITY OF CHICAGO

(22)

6/8/92

12

Mach Green

CORING NOTES

MW=4D

Run	Interval	Time	Rate	Recovery
1	24.0-25.0	5	0.2	0.65
2	25.0-27.0	8	0.25	1.7
3	27.0-30.0	8	0.375	0
4	30.0-32.0	26	0.9	0
5A	32.0-34.0			

6/8/92

12

Mach Green

(23)

Ripping out rods to

change diamond bits at 37.1 ft

hole will then be flushed

Steam cleaning large r/c

location B-4 1/2 Mo. for

work on MW (D. A. 1/2)

rig capable of sufficient

to core in rock will

sent from Puerto Rico

Should arrive approximately

2 weeks from today, considering

customs delay time

Coring resumes at MW 4D

after changing bit & flushing hole

also delayed by small rain storm

run interval time rate recovery

8 37.1-40.0 20 0.14 2.35

9 40.0-45.0 30 0.16 5.0

10 45.0-50.0 20 0.14 2.35

11 50.0-55.0 20 0.14 2.35

12 55.0-60.0 20 0.14 2.35

13 60.0-65.0 20 0.14 2.35

14 65.0-70.0 20 0.14 2.35

15 70.0-75.0 20 0.14 2.35

TUT 006 0251

(24) 6/9/92 Marsh Greening

0800	On site at Terasco				
Boring	1/2" dia	split	spoon		
Sample	1/2" dia	Bar	4		
SS#	1/2" dia	blows	1/2" dia	material	
0.5	0.5	0.5	0.5	0.5	0.5
1.0	1.0	1.0	1.0	1.0	1.0
2.0	2.0	2.0	2.0	2.0	2.0
3.0	3.0	3.0	3.0	3.0	3.0
4.0	4.0	4.0	4.0	4.0	4.0
5.0	5.0	5.0	5.0	5.0	5.0

1/2" dia 0.5

0.5

0.5

0.5

0.5

0.5

0.5

0.5

Marsh Greening 6/9/92 (25)

spole	1	1	1	1	1
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
12	12	12	12	12	12
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14	14	14	14	14	14
15	15	15	15	15	15
16	16	16	16	16	16
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99	99	99	99	99	99
100	100	100	100	100	100

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(26) 5/9/92 Mack Brewery

raw (cont)
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1400
drilling
stop
pressure
pulling
plug
Soil
Super. visor

Jose says
rock
at
B-4
will
3
no

Mack Brewery 6/9/92 (27)

1430
still tripping out rods to
try to solve idrilling
pressure problem
can't run 55 ft on haul
not been retrieved
435 Core is retrieved
from outer rod after
tripping out all
full recovery all rods
1445
can't run previous pipe
bit doesn't appear
to be stuck through
the zone and
no clay here in this
section core
this core is pretty well
centered up by the
two retrievals
two sections are
still in fractures
one fracture contains
the other 1460
a drillers

(23) 6/9/92 Amund Gering

Core #12

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

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55.0 - 58.3

55.0 - 58.3

55.0 - 58.3

Amund Gering 6/9/92 (29)

Split Spoon Interval MW-3

0.5 - 2.0

spoon: refusal

blow: 24 48 50

new auger

auger refusal 24

sample

1.5 ft from MW-3

0.4 - 2.0

1.5 ft from MW-3

1.5 ft from MW-3

1.5 ft from MW-3

1.5 ft from MW-3

TUE 006 0254

(30)

6/9/92
1900+ lat core at this
Vole retrieved

Core run	Time	Interval	Recovery
113	58.3	60.0	1.32
119	60.0	65.0	4.50
121	65.0	68.0	3.50

123 58.3 - 60.0

58.5 - 60.0

60.0 - 60.3

60.3 - 60.4

60.4 - 60.5

60.5 - 60.6

60.6 - 60.7

60.7 - 60.8

60.8 - 60.9

6/9/92 Marsh Creek (30)

1900+ lat core at this
Vole retrieved

Core run	Time	Interval	Recovery
113	58.3	60.0	1.32
119	60.0	65.0	4.50
121	65.0	68.0	3.50

123 58.3 - 60.0

58.5 - 60.0

60.0 - 60.3

60.3 - 60.4

60.4 - 60.5

60.5 - 60.6

60.6 - 60.7

60.7 - 60.8

60.8 - 60.9

TUE 006 0255

6/10/92 Mark Greeng

0730 on site at Texas
Weather - same as before
short rain due to rain overnight
slight breeze from West clouds

Preparing to dig MW-4D

the heavy rain MW-3
hammered to depth of 30-35 ft
hammering stopped to install
proper pump and pump

0930. While the pump is running
and down 1/2 ft
the hammer still hammering
is approximately 10 ft below

155 ft depth to water at MW-3

300 ft MW-3 and hammering
to depth of 30 ft
hammering stopped to install
proper pump and pump

6/10/92 Mark Greeng

MW-3 will be screened
from 10.5 to 30.5 ft
10.002 ft. Screened

MW-4D
remaining hammering hole
at 2 5/16 ft. Tricone
cut should not
affect sides of the hole
stone is long of soil red
assured me that tricone
bit will not affect
sides of the hole prior
to logging w/ calipers
and sonic log instrument.

1530
Camp oral review of
the logging at MW-4D
and preparation for run

(34) 6/10/92 Mark Gueary

1700

still running some core log
Drillers have all left the site
for the day.

1900

making adjustments to some core
centralizers - some core
instrument is ~~not~~ going down
hole very ~~slowly~~ slowly.

Centralizers are thought to be
impeding descent.

~~Mark Gueary~~
6/10/92

6/11/92 Mark Gueary (35)

0800

On site at Trepaco
just completed a review of
my drilling notes.

MW-4D will be reamed today
setting up for that now
MW-1D will be cored today
decommissioning coring rig now

B-4D is complete & grouted shut
MW-3 is ready to be screened
and flush mount installed.
Flush mount now complete
(screened yesterday)

1000 light rain falling intermittently
steam cleaning of small rig
(coring rig) now complete
mobilizing to MW-1D location

1100

augering through surface to rock
at same spot where prior
augering performed and sample
taken. (MW-1D)

1200

breaking for lunch

Mark Gueary

(36) 6/11/92 Mark Gueary

MW-ID

core	interval	time	rate	recovery
1	2.5-5.0	14	0.18	1.3 ft
2	5.0-10.0	15	0.31	2.3 ft
3	10.0-15.0	19	0.26	1.8 ft
4	15.0-19.5	36	0.13	4.4 ft
4A	19.5-20.0	4	0.13	0.45 ft
5A	20.0-21.2	7	0.17	0.85 ft
5A	21.2-25.0	22		3.8

6/11/92 Mark Gueary (37)

MW-ID core run #1

broken pieces at top of core 3"
solid piece of blue/grey rock 1 ft
fractured rock remaining 4"
2.5 - broken pieces
2.6-3.5 solid blue/grey rock
3.5-3.8 - weathered verticle
fracture

1300 drilling core run #2

2.3 ft recovery

rig proceeded quickly
from 6-8 ft

possible unconsolidated
zone 6-8 ft.

recovered core:

top solid piece 1.2 ft

broken pieces 2 1.2-1.5

broken piece 1.5-1.8

chipped piece 1.8-1.9

solid piece 1.9-2.3

pieces all appear weathered
may be effect of rig

Mark Gueary

(38) 6/11/92 Mank Gueary

1320 Inal. Coring Run #3
losing water down hole
rig run fast
through 12-13-14 ft interval
14-15 proceeding slowly
recovered 1.6 feet
~~0.0-0.2~~
fractures at
0.0 - eroded by rock
0.2 - drillers break
0.6 - slight weathered
10.9 - light break slight weathering
1.6 - very weathered

1330 back down hill to MW 4D
augering w/ large diameter 8 1/4" ID
auger complete to 20 feet
auger refusal at this depth
now preparing to hook up
compressor & hammer to
ream hole
casing will be installed
to approx 24 ft to

6/11/92 Mank Gueary (39)

Return to MW 4D
retrieved core run #4
~~2.8 ft recovery~~
~~0.0 - stopped small piece~~
~~1.4 - drillers break~~
~~2.4-2.5 weathered fracture~~
~~2.7 - another MGS~~
~~2.6-2.8 weathered fracture~~
~~different orientation from above~~

core #4

4.4 ft recovery

0.0 - weathered fracture
1.3 - drillers break slight weathering
1.6 - weathered fracture
3.0 - drillers break
4.1 - weathered fracture
4.3 - weathered fracture
different orientation
from fracture at 4.1

(40) - 6/11/92 Mark Greany

1445 beginning run #5
beginning run #4A

to obtain 1/2 ft
interval from 19.5 to 20.0 ft
Stopping due to lack of water

Notes on 4D

major fractures at
33 - 37.15 ft
and 63.7 - 64.5 - 167.0 ft

1500

air hammering begins at MW-4D

1600

Surge of air forces water/mud
up from hole and soaked
drillers, cleaning up now.

1600 at MW-4D

run #4A received 1 piece

weathered fracture along top 3"
weathered fracture on bottom

9/11/92 Mark Greany (40)

run #5A - 1 piece
weathered on top & bottom

Water encountered at the
location at ~ 15 feet.

Run 5A from 21.2 - 25.0

last run for the day.

Approximately 1000 gallons
used up (down hole) today.

1730

At MW-4D

water is still periodically
issuing from hole
with a lot of pressure.
Hammers down to ~ 50 feet.

1830 Air hammer is down to
48 ft at MW-4D. Rods tripped out.
stopping for day

Mark Greany

Mark Greany 5/11/92

④2 6/12/92, Manh Gueary

0800

preparing to set 6" casing
in MW-4D to 48 feet.

The remainder of the
hole will be open.

Open section will be
air hammer reamed out
after casing sets over
the weekend.

Air for drilling supplied by
Atlas Copco PTMS-900
100% Oil Free Air

Having problem installing casing
pvc threaded section was
to be used to lower sections
but threads are wrong size



BAR for hook

PVC section

Manh Gueary

6/12/92 Manh Gueary ④3

MW 1-D

21.2-25

0.0 - weathered on top
1.8 - weathered fracture
above 1/4 inch thick
calcite deposit on
top of next piece

1.8 - 2.9 vertical fracture
runs the length
of this piece
2.9 from 3.1 down
3.5 weathered fracture
weathered fracture

25-30

0.0 - slight weathered
1.5 - drillers
2.2 - 3.2 slight weathered/drillers
3.2 - slight weathered
4.1 - 4.4 - friable material
4.9 - weathered
above another thick (1/4")
calcite deposit.

Mark Greaney

(46)

9/12/92 - Mark Greany

(200)

finished for week
preparing to return to NY

~~7/12/92~~

6/12/92

12. - I want Greasy
shed for week
to return to my

~~Greasy~~

6/12/92

6/15/92 Pan Philp (47)
9:30 MW-1D at PDP DSP
arrives on site - 6 AM installing
well MW-4D - PDP at MW-1D
where coring continues - currently
at a depth of 47' water level
at 29.2
1000 MW-4D - Currently installing
well - Open hole well 47-67'
Installing stainless steel casing
Water level in 1162' - MW-4D
10:15 Meet w/ Clinton Moffat
for site specific HNS
1043 Return to MW-4D
Coring in progress - This
well will be cased to $\approx 184'$ bgs
Having difficulty installing MW-1D
casing stuck at 30' - Remove
casing -reaming out hole again
and will try again to set casing
1125 @ 30' - Recovery - 100%
Solid core - No evidence of fracture
2011 too late
12:20 AT MW-4D - have reamed
out hole and in the process
of installing casing - Pushing
Pan Philp 6/15/92

(48)

Amela J. Riley 6/15/92

raising to depth
 6TM having difficulty
 obtain water from designated
 source due to local holiday
 6TM has found that
 water from the same source (WAPA)
 is available from another
 distribution point. This
 has been documented. 6TM
 will collect sample and
 will submit to field GC
 and analytical laboratory
 for metals SS to check
 quality from this distribution
 source

1340 @ 55' - Almost 100%
 recovery from 50-55'
 fracture zone at ~ 52'

Drilling here at MWID
 has stopped due to loss
 of water - Tank truck
 will be refilled - Construction
 of MW4D has also stopped
 due to lack of water

1500 6TM / 50.0 ft / 100 ft / 100 ft / 100 ft

Amela J. Riley 6/15/92

(49)

Amela J. Riley 6/15/92

unable to tremmie grout from
 surface - Tremmie pipe will not
 fit b/w casing / auger for 10' flight
 CDM & PC has questioned efficiency
 of this alternate method which
 was chosen - That is to
 pump grout from surface
 This is difficult to measure
 if grout is sealing properly
 w/o bridging or loss. 6TM
 has decided to measure grout
 as it is pumped and will
 monitor amount

1510 It has been calculated
 that 100 gals of cement grout
 bentonite mixture be added
 to fill in annular space

1533 At MWID - Casing
 has resumed - @ 56.5'
 At MWID - up to 60 gals pumped
 down

1635 At MWID - 2 100 gal
 pumped into annular space -
 Additional grout mixed - Upper
 26' Larger diameter hole 14"

Amela J. Riley 6/15/92

TUT 006 0265

50

6/15/92 San Philip

as opposed to 7" down below

Calculations based on 12"

12" as oppose to 14"

Additional grout required

on top of 108 estimated

At MWID - @ 59.5'

No apparent fracture

zones -

6M has lost plumb

6M

Recover plumb bob - Drilling

has stopped for day at

MWID

PSP leaves site Sunday

6/16/92 San Philip

51

7:45 PSP arrives on site

Weather - Sunny, very warm 85°

At MWID - conrg has get to

begin - @ 59.5'

MWID - grout is down 8 ft bgs

6M will be mix final batch

of grout - Drillers have stated

that tremmie pipe will be

obtained so this situation

can be avoided in the future

Upon completion of grouting,

hole will be reamed to

remaining depth after 24 hrs

then used by CMFPC

Hazco #1119

MWID - Water level @ 32' - down

from 29' from

6M sent from 1" sample

from New water source called

"Firehouse WAPA"

910 grouting complete at MWID

= 175 to full gals - 67 more

gals than previously figure (108)

This due to previous amount

derived on 12" hole as opposed

TUT 006 0266

(52)

4/10/12 Sun Philip

Drilling well in begin
 915 shallow well MW-4-1A
 after decon is completed
 MW ID - coring 151
 still in process @ 64V
 water is being lost in
 hole
 920 coring to 65' completes
 100% recovery
 weathered bedrock slight
 @ 64.5
 0051 begin coring 65-70'
 interval 5'
 1100 AT MW-4 begin drilling
 shallow well
 1125 collect 1st split spoon
 0-7-27 fill grey-greenish
 clay - some sand
 gravel
 0074 H.T. 4ppm HNU
 dark brown clay (clay)
 with some shales
 0046 3ppm and clay
 gravel to sand to gravel

On Philip

4/10/12 Sun Philip

4/10/12

(53)

1207-67 3ppm 1.2 recovery
 1220 AT MW ID
 65-70 interval - No apparent fracture
 RQD 96
 currently drilling 70-75
 1330 AT MW 4 11P
 6.7-8.7 NRAB
 Brown - dark gray clay
 with some gravel to sand
 8.7-10.7 - NRAB
 No recovery @ 8.7 - Drillers
 will go to 9.7 and try
 again
 heading 3 down hole 3ppm
 water flow in MW 4 @ 9' bgs today
 G.M. Soil Tech unable to
 split spoon any longer - weathered
 bedrock - Will now auger drill
 to depth of well which is @ 27'
 Screened interval from 7'-27'
 MW ID 70-75 interval
 No apparent fracture zone
 RQD - 79
 recovering 12.95
 1300 PM has prepared to drill MW ID

On Philip

(54)

Lum. Mili. 10/10/92

to 85' and down 122' with
 boring has open hole from
 65-85' in CDM FPC
 has pointed out that
 there have been no
 water fracture zones in
 the 75-85' zone and
 has asked b.m. how
 will this affect them
 couple hours their call
 A.M.W. drilling.
 hammer has begun a
 100' - 120' drill to
 total depth in 28' area
 1500' In the process of
 coring 75-80' interval
 @ MWID
 1515 @ MWID Air Refug in
 action down to 80' PIP
 1527' - 1530' - 1535' most
 1580' Commission @ MWID
 1600' Commission @ MWID

Lum. Mili. 10/10/92

(55)

1615 Complete 75-80' interval
 @ MWID - same rock as above
 - No apparent fracture zones
 RQD 291
 1630 Begin coring 80-85' interval
 1800 Fracture zone @ 82.5 slight
 weathering
 Fracture zone @ 83.5 slight
 weathering
 1830 PIP leaves site for day

Lum. Mili. 10/10/92

10/10/92

TUT 006 0268

(56)

6/17/92

Pan P. P. P.

730

PSP arrives

Weather today SUNNY

HOT 85°

AT MWID - Down to

84' - Water truck is

being filled

AT MW4 - The compressor

is still inoperational

It is projected that

compressor should be

fixed early this morning

800

AT MWID - Coring

begins at 84' - 89' interval

830

AT MW4 - Water level

10.4'

Sounded MW4 to depth

of 23.9'

900

AT MW4 - Installing

screen

Screen interval 47' - 7'

Casing 9' - 4'

SAND PACKING 3'

Screen 3'

Grate 1'

945

AT MWID - Coring

Pan P. P. P.

6/17/92

(57)

84' - 89' complete

Weathered fracture @ 88' - 87.6'

Well will be completed as open

hole w/ open hole interval

from 69' to 89' RQD =

104% AT MW4 - Bentonite added

to well - being hydrated - 2'

seal - will go out to surface

AT MWID rods being

pulled out - geophysical logging

scheduled next Fri.

1300 Some obstacles in

MWID borehole - hole must

be redrilled w/ 1 1/2" con bit

prior to logging - Drillers

now setting this up

AT MW40 - Drillers setting

up to reamers MW40 to depth

of 63' - well completed as

open hole from 47' - 63'

1320 Begin reaming MW40

1340 AT MWID - begin

reaming 47' - 89' interval

1400 AT MWID - reaming

47' - 89' interval

(38)

6/17/92 Jim Philip

1618 Drilling of MWID

complete - Drilled to

90' - after setting

it is anticipated

actual well depth will

be 60' - Well still

needs to be protected to

surface - surface MW

this will be done after

Bath is reported not

G.M. 50' having

problems - running

to facilitate

geophysical equipment

Bo. the well is - been

gravel to - Bath

need productive caps

1630 G.M. 50' MWID - total

depth 70' -

1640 G.M. 90' - 25' -

rods -

w/ tricon -

geophysical

then to -

1700 PSP

6/18

6/18/92 Pamela Philip

(59)

730 PSP arrives on site

AT MWID - G.M. 15' still running

out the hole so geophysical

equipment can be lowered down hole

AT MWID/4 - Curb boxes are

being completed

1000 AT MWID - Running w/ tricon

complete -

Weather today is

partly cloudy, humid, hot ~ 89°

1030 G.M. has reamed out and

cleared out hole to depth

Other rig has completed

decon and will be moving

to MWID to core PSP room

out hole to 69' and to

set casing

Coring rig will go

to decon and will later

set up on MW13D @ VHA

11:05 Begin geophysical logging

1st Run - caliper to 79'

2nd Run - caliper to 86'

1310 AT MWID - A.E. Rotary

main - preparing

6/19

6/10/92 Fri Phil

to ream out hole

to ~ 69'

CME (Coring Rig) is being

deconned

1420 Begin reaming w/ air hammer

@ MWID

1530 Still reaming MWID

@ ~ 35' to 20'

CME Coring Rig has been deconned and has

set up @ location MW 13D

and begin split spooning

tomorrow

1600 Still reaming MWID @ ~ 30'

- 35'

1630 PSP leaves - reaming complete for day

6/19/92 Fri Philip

61

7:30 PSP arrives on site

Weather today - Sunny

Hot ~ 85°

AT MWID Reaming continues to depth of ~ 50'

AT MW 13D - 1st split spoon sample collected - well is located near to tankers trailers and three to four drums of oil which are rusted &

0-2 Fill, gravel, silty clay - NRAB

2-4 Brown silty sand & some gravel - NRAB

4-6 NRAB - last spoon on bedrock - clay & silty clay some sand - To be analyzed

AT MW 13D - well now begin to core.

AT MWID - The hole has been reamed to ~ 60'

AT MW 13D - Driller has lost auger - cap down hole - attempting to recover it

6/19/92 Philip

(67) 6/19/92 Pan Pilep

1030 Drillers have still not recovered cased cap. If unsuccessful in further recovery attempts - a new hole will be drilled.

Drillers backing out hole - will start new hole - will cased to bedrock and begin recovering rock @ 46'.

At MW10 have cased to depth 67'.

At MW13D Drillers will core to 5' and then

will stop for week.

Will install drilling casing and then will quit for week.

Have cased to 7'.

Recovery is weathered bedrock similar to what was found @ MW10 - volcanic.

At MW10 - Compression

is down - No longer blowing air - will quit

for week.

6/19/92 Pan Pilep

depth - will set casing on Monday 6/22.

Drillers pulling rods and will quit for day.

At MW13D drillers also getting for day.

1200 PJF leaves site for day and week.

Pan Pilep

(64)

5/22/92

Sam P. P.

7:30

PSP arrives on site

No drillers yet

GEM arrives - to set

Drillers were to

be on site by this time

no overdrill are not

expected till later

Weather today

cloudy 75° - 85°

AF MW 13D coring

on site

AF MW 13D air compressor

shut down to be fixed

9:00

Drillers arrive on

site begin setting up

Drillers need to

be on both

before drilling begins

9:15

Drillers arrive @ MW 13D

9:30

Drillers arrive @ MW 13D

Drillers arrive @ MW 13D

Drillers arrive @ MW 13D

Drillers arrive @ MW 13D

(65)

5/22/92 Sam P. P.

before drilling can continue

11:15 Water truck filled

11:20 Coring resumes from 110'

NARS in BZ down hole

11:40 Coring interval 10-15'

complete

11:50 Gravel - weathered - Zone

of unconsolidated material

11:50 Coring interval 15-20'

completed

12:00 Unconsolidated

material packet continues - evidence

of clay - 2' of weathered bedrock

at end of clay

12:00 Drillers break for

lunch

1:00 PSP arrives back on site

Coring in progress

2:00 Coring interval complete

2:05 Coring interval complete

2:10 Coring interval complete

2:15 Coring interval complete

2:20 Coring interval complete

(66)

0121-92 10m. 11/11/92

Recovery = 6.5

1415

30-35 interval complete

30-35 interval complete

slight fracture @ 32 1/3'

Recovery = 8"

Recovery = 8"

1450

35-40 interval complete

35-40 interval complete

Bedrock as above

Fracture zone 32-35'

Weathered zone 35-40'

Recovery = 8"

Recovery = 8"

1500

Complete 40-45 interval

Complete 40-45 interval

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

40-45 interval complete

10m. 11/11/92

0121-92

(67)

Recovery = 9.5

Recovery = 9.5

1605

50-55 interval complete

50-55 interval complete

Recovery = 3.8

Fracture zone 50.9-53.5

50.9-53.5

Recovery = 6.3

1630

Complete 55-60 interval

Complete 55-60 interval

Weathered zone 57-59'

Fracture 59-60'

Recovery = 3.8

Recovery = 3.8

Hold 60-65'

Drill 65-70' for day

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

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PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

PSP. 10m. 11/11/92

TUT 006 0274

(68)

Ann Miller 6/23/92

7:45 Pip arc across on site @ MW 13

Drillers set this up to continue

Coring

Weather today Cloudy humid

2-350'

400-500' coring interval

Complete - bedrock w/ calcite veins

Recovery 4.3'

Fracture 60.5'

Weathered zone 100-103' RQD = 74

835

65-70' coring interval

Complete

Bedrock w/ calcite veins

65-80' weathered zone

67' Fracture zone

68-70' weathered zone

Recovery 4.1'

RQD = 41

905

70-85' coring interval

Complete

As above - calcite veins

Recovery 4.3' RQD = 41

Fracture 200.5'

6/23/92

Ann Miller

(69)

Water level taken this

morning @ MW 13 = 4'

No water in well as of yet

@ MW 12 - air compressor

is still down - Mechanic is

due in today to fix it

1015 75-80' coring interval complete

Fracture zone - slightly weathered 78.5'

Recovery 4.7' RQD = 83

80-85' coring interval

Complete

Recovery 4.8' RQD = 50

Weathered Moderate - Fracture zone

@ 91.6'

82-80' Fracture zone - moderately

weathered - Greenish gray bedrock

85-90'

Recovery 4.8' RQD = 83

Fracture zone 85-787.1, 87.8'

Greenish gray bedrock

90-95' coring interval complete

Same as above - Rock more competent

Fracture 43'

Recovery 4.4' RQD = 90

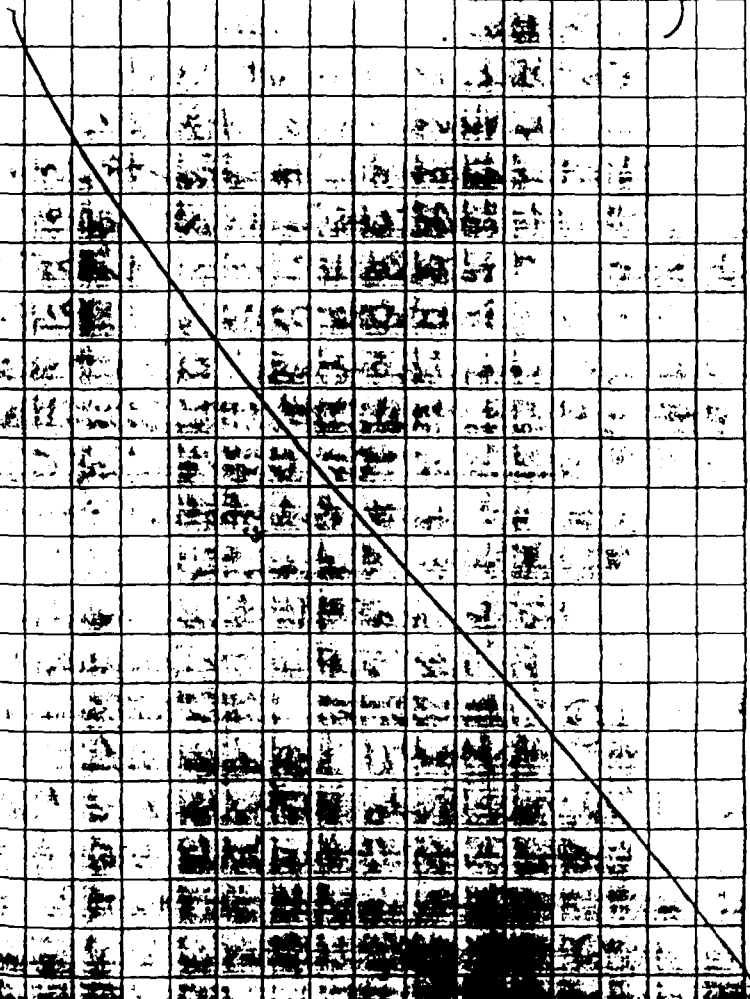
TUT 006 0275

(70) 6/23/92 Pam Philip

1355 95-100' Coring interval completed
Recovery 4.9' RQD = 80
Fracture zone @ 99.8' Bluish
Bedrock appears competent
1325 100-105' Coring interval completed
Recovery 5.1' RQD = 73
Fracture zone @ 102.8' Bluish
Bedrock appears competent
1310 Drillers' shift starts
1420 105-110' Coring interval completed
Fracture zone @ 107' Bluish
Recovery 4.1' RQD = 87
1315 110-115' Coring interval completed
Bedrock appears competent
Fracture zone @ 112' Bluish
Recovery 4.9' RQD = 89
1355 115-120' Coring interval completed
Fracture zone @ 115.5' Bluish
Recovery 4.9' RQD = 80
1400 Drillers' shift ends

6/23/92 Pam Philip

(71)

1550 Drillers have reached depth - Clean up brush for day
1600 PSP leaves site for day


TUT 006 0276

(12)

6/24/92 Sun Philip

8:05

Drillers on site

Weather today cloudy +

hot 8:00

@ MW1D - air compressor

as usually working hole

is now cleaned out

Drillers down to 69'

will continue to clear

out hole before pulling

out rods

@ MW13D - Drillers

pulling rods

cleaning hole with water

temporarily drilling casing

to 40' to keep hole

open while 1 more

geophysical logging is

pulling out rods @ MW1D

9:50

@ MW13D - Pulled rods

out drill

down hole to 100'

Drillers 5 rods to 50'

Water level in MW1D

@ MW1D

Drillers on site

Weather

Sun Philip

6/24/92

(13)

geophysical MW1D

occurred

1000 @ MW1D - Rods have

been

been pulled out - blocking

at 13'

at 13'

1100 Drillers going back

into

into hole to clear blockage

1200

1200 hole has been cleared

Drillers

Drillers lower casing - unable

to

to push it past obstacle

Casing

Casing comes back up

310

After lunch - drillers have

gone

gone w/ 8" augers

attempt

attempt to clear hole -

Boulders

in hole have prevented augers

from

from going down

@ MW13D

@ MW13D have cleaned to 120'

in

in MW13D but -

1400

1400 Drillers removing rods

2

2 MW13D

1430

1430 Drillers pull up rods

Sand

hole - Apparent blockage @ 60'

Drillers

Drillers send down 10' of pipe

and

and remove blockage @ 60'

Drillers

will then remove blockage

Drillers

Sun Philip

(62) 6/24/92 Pam Pilgr

@ MWID - Augers will be arc
unable to remove bodge in
hole

GAM/Soil Tech has
proposed the following plan

to prevent hole from caving
in - Will add grout to
hole and let settle -

Tomorrow hole will be
reamed through grout - Casing
will then be set in grout -
and more grout will be
added to set casing

@ MWID - will try on
12-70' and see if blockage
moves

1600 Drilling have reamed out
MWID - Grouting continuing

@ MWID

1730 PSP has sister

6/25/92 Pam Pilgr (75)

800 PSP arrives on site

@ MWID - Drillers set to
begin drilling - looking
for a way to contain
grout dust

@ MWID - obstruction has
been cleared from hole - water
level has dropped to ~ 93'
Setting up to perform geophysical
logging

Water level now @ 546' PSP
6/29/92

Begin geophysical logging

@ MWID - Caliper sent down
hole

1000 Encountered obstacle @
540-70' w/ caliper - Drillers

send down tremmie pipe to
depth of 500' - No obstruction

Drillers suspect a ledge may be
interfering w/ lowering of
caliper

@ MWID - Rig has broken
down - Raising has stopped

1800

6/24/92

(70)

1029 1200 PM Philip

1030 1030 has been down @ MW1D

Remaining down from 20

1030 1030 has been down @ MW1D

Equipment down MW1D

Will run hole first then

run the rest casing then

run the rest remaining 20

run the rest remaining 20

run the rest remaining 20

run the rest remaining 20

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run the rest remaining 20

run the rest remaining 20

run the rest remaining 20

(71)

1031 1200 PM Philip

Drill has (casing rig) is still

being de-cased - will set

up @ MW1D and will

start sampling tomorrow

1545 Drillers attempt clear

obstructions w/ air hammer

1630 Unable to dislodge blockage

PSP leaves site for day

101 006 0279

(18)

6/26/92 Pam Phipps

800 8:00 AM

Driller's test log

against stream to hole

to clear obstruction

② 8:11 AM

Weather today sunny

8:20 PM

Driller's name and depth

② 8:30 AM

② 8:40 AM

② 8:50 AM

② 9:00 AM

② 9:10 AM

② 9:20 AM

② 9:30 AM

② 9:40 AM

② 9:50 AM

② 10:00 AM

② 10:10 AM

② 10:20 AM

② 10:30 AM

② 10:40 AM

② 10:50 AM

② 11:00 AM

② 11:10 AM

② 11:20 AM

② 11:30 AM

② 11:40 AM

② 11:50 AM

② 12:00 PM

6/26/92 Pam Phipps

(19)

Auger down to 8' w/out refusal

6-8' NRAB

SAME AS ABOVE

8-10 NRAB

SAME AS ABOVE

Have augered to 10' - Attempting

to drive split spoon 10-12'

10-11 - No recovery

Will Auger to 11 and attempt

to drive another spoon

10:20 Encounter bed rock @

11.7' - 6-M needs additional

sample volume - So rig will

be move 5' from original

location - Drillers will then

auger down to 9.7 and

will drive spoon from 9.7 - 11.7

10:30 Augering to 9'

(80)

6/29/92 Andrew Pano

0845 Andrew Pano of CDM FPC onsite @
MW-1D. Soil Tech + G+M scheduled
to arrive @ 0900. Weather hot, sunny, humid.

0847 AS meets Luther Ponciano

0852 AS meets Clinton Moffatt @ soil
Tech/G+M trailer.

Drillers will arrive in approx 1/2 hour.

AS receives H+S briefing.

Drill rig supervisor - Max.

@ CME-55 Coring rig MW-1D.

@ B-90 Air downhole hammer

Tenaco sk. - down area.

8" dia grout

B-90 reams hole.

MW-1D @ 12' coring bedrock.

Drilled through overburden.

Soil Tech - Mike Phanson - mechanic

Clinton needs latest 8-hour

refresher (Pam's too)

MW-1D @ MW-1D on site

waiting for new drill bit.

Will go to MW-1D.

0930 AS @ MW-1D.

Drillers tripping out rig + S.

Using time MW as 6/2/92

(81)

6/29/92 Andrew Pano

1000 HNU reads 6.2 ppm - possibly out
of calibration.

1017 Drillers preparing to core.

Gonna to core sheet then sample

Box, MW-1D, PRO 1301, 6/29/92

1025 Coring begins

expect to hit bedrock @ 10.

Drillers adding extension rod.

Depth to water - 10.6 ft

1030 Pano from soil tech informs me

that he is finding out about
apartment for rent on VI. He will
let me know. (Pichi)

1035 AS meets Max (Soil Tech) - geologist.

1145 AS meets Hector (Soil Tech)

Since @ PVC casing was not installed

prior to coring - used for recirculation

of water (cutting fluid) water

was coming out borehole + onto

dirt. Because of this, PVC casing

will be installed and grouted

now. Also, drill rods were vibrating

because they were using water.

Coring started 10.6 ft

Coring stopped @ 12.0 ft

(82)

6/29/92 Andrew Pano

Location of MW-11D adjacent to
 Church Level D - hard hat,
 jeans, work boots, safety glasses,
 shirt, windy.
 1145 Drillers quit temp & PIC casing in place.
 Ruben classifies bedrock
 10.6-12.0 ft. Run
 1/2 ft. recovery
 @ ROD-39
 Fractures 10.6, 10.8, 11.4
 approximate
 slightly to moderately altered
 bedrock
 zigzag penetration rate 1.4 ft/4.5 min - 0.34/min
 outside bluish gray
 penetration 1.4 feet
 Moderately strong
 inside bluish green f m felt par
 crystals
 1225 Drillers work lunch
 1225 AS calls Sally Oland - leaves message
 1245 AS calls @ MW-11D
 Drillers taping to down split spoons
 & preparing equipment for both drills
 MW-11D MW-11D

(83)

6/29/92 Andrew Pano

(83)

Drill bit not in yet for MW-11D
 Early start tomorrow
 1320 Areas roped off w/ Caution Tape
 1330 AS @ decom pac @ Texaco Sta
 Corner of 35A + 32A
 AS oversees drilling crew decoming
 Split spoons
 Procedure:
 1) Wash w/ tap water & detergent
 2) Tap water rinse
 3) 10% Nitric Acid
 4) Tap water rinse
 5) Methanol
 6) Hexane
 7) DI water
 8) Air dry
 1430 AS leaves decom area
 1445 AS calls Sally Oland
 Carlos arriving Thursday
 ASK where they get ser @
 Chemicals?
 DPNC (809) 774-3320
 Mr. Edward Reed
 Sec'd Collier
 Thursday

(84)

TUT 006 0282

(84)

6/30/92 Andrew Pano

Nisky Center

Suite 231

Number 45A

Estate Nisky

Charlotte Annalite.

2nd story center

People Vision center

2nd floor.* Small coolers + Vermiculite
shop for.

Telephone @ fire dept.

1500

End of day.

(84)

TUT 006 0283

(85)

6/30/92 Andrew Pano

0645 AS onsite @ MW-11D

Soil Tech + G+M onsite

Max (Soil Tech) + Ruben (G+M)

Drillers.

Weather - 80° sunny, humid - going
to be hot today, slight breezeUsing G+M HNU - Need to calibrate
COMPC HNU.

Drillers preparing to core.

4" pvc pipe w/ return line for water
recirculation.0657 ~~Core begins~~ Drillers clean hole to
12 ft.

0700 Clinton Moffatt onsite - Chemicals?

PCI Scientific Supply Co.

Garfield, NJ. (201) 478 6065

"One Stop Shopping" "Larry"

G+M HNU

Clinton sent you

LINC Quantum Analytics

363-D Vintage Park Drive

Foster City, CA 94404

800-992-4199

(R) S/N 506639 S/N 101363

Probe S/N 101363 10.2 cm

(85)

AP

(86) 6/30/92 Andrew Kump

0700 @ Clinton tells me Woodworth in town. sells small coolers
Negotiates for 6/30. per Clinton.
Drill bit was received in Puerto Rico
yesterday but is missing on plane
@ VI this morning. B-90 will
be decanned & moved to MW-1 shallow
well. @ approx 0930 will be ready
approx 2 ft overburden. GFM will take
Sample @ MW-1

0708 @ Coring begins @ 12-15 ft
mw-110 Box 1A 6/30/92 Run 1A

0720 Soil Tech worker shoveling mud/soil from
bottom of water pit onto ground in a
pile. AS informs Soil Tech / GFM to
put into drum now instead of later.

0727 Coring stopped - 16 min / 3 ft.
RQD = 0 - all less than 4 ft.
penetration rate = 0.18 ft/min
Recovery - approx. 3 ft.
Fracture zone - 13, 13.2, 14, 14.5 approx.
Description - same as above.
Down Pressure - 500 psi

6/30/92 Andrew Kump

(87)

0741 Coring begins Run #2 (15-20')
down pressure 50-100 psi

0800 Drillers arrive w/ 55 gal drum to contain
cuttings.

0805 Coring stopped.

Run #2 (15-20')

Recovery - approx 2 ft.

RQD = 0

% Recovery - 40%

penetration rate - 5 ft / 37 min = 0.13 ft/min

fracture zone - approx 20.7 ft to 21.8 ft.

highly - severe weathered - breaks easy.
very weak.

The ends of the sample recovery are
same as above w/ the middle as
described.

0840 Coring begins Run #3 (20-25')

0845 Ruben monitors breathing zone @ drill
rig. Lks @ Lkd. - approx. No readings.

0903 Coring ends - Run #3 (20-25') @

Recovery - approx 2 ft (100%) (80%)

penetration rate - 4 ft / 23 min = 0.17 ft/min

RQD = 0 Fract. zone throughout

Down hole - 50-100 psi

moderate to weak highly weathered

(88)

6/30/92 Audubon Park

0916

Run #4 Coring begins (25-30')

0920

AS leaves MW-11D

AS @ decon pad - Driller's stem cleaning rig.
STM preparing field blank

0932

AS returns to MW-11D - Decon/
Set-up will be another 1 1/2 hrs.

0956

Coring ends Run #4 (25-30')

Downhole - 50-100 psi

RAD - D

Recovery - approx 3 ft. (60%)

Penetration - 5 ft. 40 min = 0.13 ft/min

Rocking throughout

slightly to moderately altered.

Moderately strong.

Chinsh.

1005

Run #5 Coring begins - (30-35')

Downhole - 100 psi

1015

AS leaves MW-11D

AS @ MW-1

1040

Drilling begins

1050

Sample 0-2' No thru readings

Recovery - 18"

bc - 4' 70, 75, 5 1/4"

full; dk brown/silty clay some sand + gravel

(S)

6/30/92 Audubon Park

(89)

1055

Geraldine Miller collect sample.

0-2' MW-1 (0-2')

1100

AS leaves MW-1 returns to MW-11D.

Gordon onsite - AS leaves site - Gordon
shows AS apartment for rent -

\$600 + cable. plus maid x2 a week

Office 776-1111

house 776-7777

upstairs 777-7177

Gordon Coffelt -

Teffic view, small.

1145

AS @ MW-11D

Drillers went for lunch

1155

AS @ MW-1

Boxing @ approx 16 ft.

Reaming w/ 7 3/4" bit

1200

Drillers stop for lunch

1240

AS returns to MW-1

1255

Drillers @ 20' - will go to 45'

1300

AS calls office - speaks to Pam Phillips

Informs her of apartment. Sally Odland

@ meeting @ EPA

1320

@ MW-1 Wanda informs me that screen

interval slt approx 25-45' @ MW-11D

Open hole on TV approx 65-85'

(S)

(90)

6/30/72 Andrew Hano

1330

AS @ MW-110

Ruben informs me that they are currently
Coring 40-42' @ Run #8.

No COM. PPC oversight Run 5-8.

1339

Coring ends Run #8.

Recovery - approx 1.5 ft.

RQD - 0

Penetration rate - 2 ft / 33 min

Downhole pressure - 50-100 psi

fractured throughout

inside run, outside bluish

fractured approx 40.3; 41.0 ft

moderately strong, moderately altered

1346

Coring 42-45' - Run #8A

1400

Coring stopped 42-45'

Recovery - 3.2 ft

RQD - 0

penetration rate - 3.2 / 4 = 0.23 ft/min

Downhole pressure - 50-100 psi

weathered fracture zone

same as above

1413

Coring begins 45-50' Run #9

1436

Coring ended 45-50'

Recovery - 5'

RQD -

①

6/30/72 Andrew Hano

(91)

1436 Penetration Rate - @ 5/23

Fractures @ approx 45, 45.5, 46-47.2,
48, 49

46-47.2 - weathered fracture zone

bluish green. feldspar water rich.

moderately strong, slightly to moderately
altered. quartz, calcite streaks.

1500

AS leaves MW-110 arrives @ MW-1

Drillers end day @ MW-110 - crews ahead
of schedule. B-90 must catch up.

Drillers named to 46 ft @ MW-1.

1520

Drillers assemble 4" stainless steel
100 slot screen, 20 ft screen, 26 ft riser
pipe. 55 pipe was steam cleaned.
boring collapsed to 43.3 ft. (bot of
screen)

Depth to water 33.6' coming up

1600

Clinton O/Site Confirms screen interval
@ 23.3 - 43.3 ft.AS notes sand pack not installed w/
remix pipe as indicated by W.P.

top sand pack 21.1 ft

(14 bags @ 100 lbs ea.)

1610

bentonite pellets added to 19.1 ft

1/2 container.

①

(92)

6/30 PM Andrew Pano

1615 Will start tomorrow

1620 AS leaves site

1630 AS calls Sally Odland

What was sand set course?

DPR - call Thursday. may arrive on Monday.

Gout per diem \$93

1645 End of day

(AS)

(A)

6/30 PM Andrew Pano

(93)

0745 AS onsite @ MW-1

Weather - 80°, sunny, slight breeze

Soil Tech onsite - Drillers + Wanda.

Drillers will decom 8-90 rig while other drillers decom @ gout MW-1.

Drillers will then move to MW-14, located in same parking lot.

0815 Wanda measures static water level

(Depth to water from top of well casing) - 30.24 ft.

Note: Water level Indicator is electric type Micro + top water used to decom

Electromech tip is decomed. not tape.

0830 AS @ MW-11D.

Drillers @ 52.4' closed.

Depth to water - 18.6 ft from ground surface

Run #10 (50-52.4')

Recovery - approx 2 ft (83%)

Flow @ RAO - 21

penetration rate - 2.4/27 = 0.09 ft/min

pressure - 100 PSI

bluish gray slightly altered, moderately strong, feldspar; dull fine grain, quartz grain. weathered to chert.

Zone (PSI) approx + fault @ approx 52

(A)

TUT 006 0287