

**LONGHORN ARMY
AMMUNITION PLANT**

KARNACK, TEXAS

**ADMINISTRATIVE
RECORD**

VOLUME 5 of 5

Jan. - Apr. 2005

**Bate Stamp Numbers
038503 - 038809**

Prepared for:

**Department of the Army
Longhorn Army Ammunition Plant**

**LONGHORN ARMY AMMUNITION PLANT
KARNACK, TEXAS
ADMINISTRATIVE RECORD - CHRONOLOGICAL INDEX**

VOLUME 5 of 5

Year - 2005

A: Title: Report (continued) – Final Plant-Wide Perchlorate Investigation for the Longhorn
 Army Ammunition Plant (LHAAP), Karnack, Texas
 Author: Solutions To Environmental Problems, Inc. (STEP), Oak Ridge, TN
 Recipient: U.S. Army Corps of Engineers (USACE), Tulsa District
 Date: April 2005
 Bate Stamp: 038503 – 038809

Appendix B

Copies of Field Log Books

242026

038504

ELMER RAP

BRACK, TX

LONG PERCHLORATE

INVESTIGATION

STATIONARY UNIT

STATIONARY UNIT

STATIONARY UNIT

NATIONAL

408

TRAINING TRANSIT BOOK

JEFF CARTER

Property of STEP INC

1006 FLOYD CULLER CT

Address OAK RIDGE TN 37830

Telephone (865) 481-7837

F.O.R

USACE, TULSA DISTRICT

CONTRACT # DACA 56-01-C-2008

LHAAP ADDRESS

LYNN MUCKELRATH

LONGHOEN A.A.P.

HWY 134 @ SPUR 449

KARNACK, TX 75661

This Book is manufactured of a High Grade
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INDEX

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679-2047

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CHARLESTON, SC 29407

028505

SIGN
HERE

(Tue)

DT

CT

TION

GRUS

RAY

038506

AN

(1)

DRILLING CO.
(DIRECT ADV)
ETIK DRILLING
JAMES FARR
(903) 595-4421
TYLER, TX

② Jeff Carter

3/5/02

0830 STEVE BRUNTON CONDUCTS
SAFETY MEETING

0900 SEPARATED INTO TEAMS

TEAM 1
STEVE B. ROBERT S.
DAVE C. RALPH R.

TEAM 2
ROBERT S.
DAVE B.

TEAM 1 TO BEGIN PUTTING TUBING
IN WELLS

TEAM 2 BEGIN DRIVING PORE POINTS
@ SITE 18/24

TEAM 3 SET UP GRID @ SITE 17
BEGIN SOIL SAMPLING

0915 DRIVE TO SITES
TEAM 1 DRIVING TO TOWN TO
GET STAINLESS STEEL WEIGHTS
FOR TUBING.

1130 TO START BUY DRINKS / ICE
\$16.95

12:00 RETURN TO POST

Jeff Carter ③

3/5/02

1210 TEAM 2 COMPLETE INSTALLATION
OF PORE POINTS @ SITE 18/24

1230 BREAK FOR LUNCH

~~1230~~ RETURN TO SITE

1330 TEAM 3 CONTINUING TO LAY OUT
SOIL GRID

TEAM 2 CONTINUING DRIVING PORE
POINTS @ SITE 47

TEAM 1 BACK FROM TOWN PUTTING
TOGETHER WEIGHTS FOR TUBING
USING 1/4" PVC W/ CAPS / SAND FILLING

~~1400~~ SPOTTING LOCATIONS FOR DPT
GW SAMPLERS

1600 CHECK W/ TEAMS TEAM 1 STILL
HAVING TROUBLE GETTING TUBING
WELLS

TEAM NEEDS CHEST WADERS TO REACH
SOME OF THE SAMPLE POINTS

TEAM 3 SLOW GOING SETTING UP GRID
THROUGH HEAVY BRUSH

38507

USACE
QA LAB

ENVIRONMENTAL

TESTING & CONSULTING INC.

2924 WALNUT GROVE RD

MEMPHIS, TN

3811

TEL: (800) 494-2750

(901) 327-2750

FAX: (901) 327-6334

POC JOHN NEVELS

EMAIL

nevels.j@etc-memphis.com

RECORDED BY: JEFF CARTER 3/5/02 (TWO)

LEAVE HOTEL 0715 (ALL TIMES EASTERN DT)

LA QUINTA INN - SHREVEPORT AIRPORT

6700 FINANCIAL CIRCLE

SHREVEPORT, LA 71129

TEL:

FAX: (318) 671-1600

0800

ARRIVE LHAAP 0800

MET STEVE BRUNTON & DAVE CIKA

(GLOBAL ENG. SERVICES)

@ FRONT GATE

PICKED UP COOLER DELIVERED FROM

GUARD STATION.

SIGNED IN W/ TYRON @ GUARD STATION

ON SITE: JEFF CARTER ROB SHERLES

BURKE FURTHUR RALPH RAY

DAVE BLANK (STOP)

STEVE BRUNTON (GES)

DAVE CIKA

0815 DROVE TO FIRE STATION

MET W/ LYNN MUCKEL RATH

0830 UNLOADING SUPPLIES AND REORGANIZATION

TEAM ORGANIZATION

038508

Jeff Carter (1)

(7)

JH/Carter

3/5/02

1700 STOPPING FOR THE DAY

TEAM 1 GOT TUBING IN 4 WELLS

TEAM 2 FINISHED SITE 18 POINT

POINT INSTALLATION; GOT

9 POINTS INSTALLED @ SITE 47

THEY ALSO MANAGED TO MAKE

THE POINTS FOR INSTALLATION

TOMORROW.

TEAM 3 COMPLETED LAYING OUT

SOIL GRID @ SITE 17; WILL

BEGIN SAMPLING TOMORROW

1706

TEAM 2 & TEAM 3 LEAVING

SITE. I ALSO LEFT SITE

TO GO SHOP FOR SUPPLIES

FOR TOMORROW

TEAM 1 CONTINUING TO ATTEMPT

TUBING INSTALLATION

NOTE: TEAM LEFT SITE @ APPROXIMATELY

1900. STEVE WAS ABLE TO GET

WELL DEPTHS FROM THE REPORTS IN

THE CORPS TRAILER.

JH/Carter

(WED) 3/6/02

0750 ON POST

(ALL TEAMS)

JEFF CARTER

ROB SHERLES

RALPH RAY

BUCKE ARTHUR

DAVE BLANK

STEVE BRUNTON

DAVE CIKA

0800

ALL TEAMS MET AT FIRE STATION

JEFF CARTER CONDUCTS

"TOOL BOX" TALK ON TODAY'S WORK

TEAM 1 - CONTINUE TO INSTALL

TUBING IN WELLS @ SITE 18

TEAM 2 - TO FINISH INSTALLING PORE

POINTS THEN BEGIN INSTALLING

TUBING IN WELLS

TEAM 3 - BEGIN SOIL SAMPLING

@ SITE 17

DISCUSSED HAZARDS TO BE ENCOUNTERED

MENTIONED TO CHECK FOR TICKS

0815 ALL TEAMS LOADED AND LEFT

FOR SITES

0830

LEFT FOR MARSHAL TO GET

WELL SUPPLIES

1100

RETURN TO SITE

1115

MET W/ TOM ERNY (FENCE)

PAUL BRUCKWICK

@ SITE 17

(FW)

038509

16 JH [initials]

(3/6/02)

1130 MGT W/ STEVE & DAVE @ SITE

50 [LHS MW 40 DEY
COB (1447)
18 MW 13 (1632)]

TUBING INSTALLATION GOING
MUCH BETTER

COMPLETED SITE 46 & SITE 50
PLANT BEGAN INSTALLING TUBING @
SITE 47

ROY HOEKSTRA ON SITE
1200 TO LUNCH

1315 RETURN TO SITE

BURKE REPORTS THAT THE 41
FEET POINTS AT SITE 47 DID
NOT COVER THE MAPPED AREA.
ROY TALKED TO CLIFF MURRAY (COE)
DECIDES TO ADD SOME POINTS &
SPREADS SPACING TO 100'.

3/6/02 JH [initials]

1400 ROY AND I STARTING DPT GW
POINTS @ SITE 46 7 POINTS
STAKES & FLAGGED

1500 MGT W/ BURKE @ SITE 18
HE STA THE REGISTRATION
PUMP WORKS ON THE DEEP
WELL BUT THE FLOW THRU
CELL LEAKS.

DROPPED OFF ROY @ FIRE
STATION W/ BURK & RALPH TO
WORK ON CELL
DISCOVERED THAT A LARGE
OUTLET PORT WOULD SOLVE IT.

1600 CHECK V/TEAMS
TEAM 1 - INSTALLED 24 WELLS
TUBING IN

TEAM 2 - DROPT ALL AVAILABLE
P-RG POINTS. ORDINATE MORG DRIVE
POINTS

TEAM 3 - COMPLETES SAMPLING
OF 12 LOCATIONS

1700 - PACKING UP FOR THE DAY
TEAM 3 DISPOSING OF DECON WATER
AT WATER TREATMENT PLANT & PACKING
SAMPLES
1845 LEAVING SITE

038510

(8)

INTERIORALLY
BLANK

Jeff Calk

3/7/02

Jeff Calk (9)

FOR TODAY:

TEAM 1 - CONTINUE POTTING
TUBING IN WELLS

TEAM 2 - COMENCE WATER
SAMPLING

TEAM 3 - COMPLETE SITE 17
SOIL SAMPLING

TEAM 4 - (ROY, JEFF) MARK

SOIL SAMPLING LOCATIONS

A - SITE ~~5~~ 18, ~~AND~~ SITE 50

SITE 29 & SITE 47. ALSO MARK

① DRAINAGEWAY SAMPLE LOCATIONS @
SITE 17

0730 WENT TO LOWES FOR SHOVELS;

TUBING & WELL CAPS FOR FOREPANTS

0815 ARRIVED @ POST

TEAM 3 @ SITE 17 CONTINUING

SOIL SAMPLING

TEAM 2 BEGIN WATER SAMPLING

@ SITE 18 WELL COB

TEAM 1 - CONTINUING TO PUT TUBING

IN. NEED MORE 1/2" PVC

STEVE WILL GET @ LUNCH

TEAM 4 (JEFF, ROY) STAKING SOIL

& DOT GW LOCATIONS

038511

(10)

Jeff Cuts

3/7/02

1130 COMPLETED STAKING SITE 17
DPT 3 EXTRA SAMPLES @ SITE 18
DRAINAGE SAMPLES & DPT
LOCATIONS

TEAM 2 COMPLETING
C04
SAMPLING
WELL

TEAM 4 STAKING SOIL LOCATIONS
@ SITE 18/24
DPT ON LOCATIONS @ SITE 16

1920 LEAVING POST

TEAM 2 - WELLS SAMPLED: 8 (TEAM 2)

TEAM 3 - SOIL SAMPLES: 21 LOCATIONS

TEAM 1 WELLS TUBES: 25 WELLS

LMS MW 40 @ SITE 47 HADA

WL @ 35 FT BGS DID NOT TUBE

BECAUSE PERISTALTIC WILL NOT PULL
FROM THIS DEPTH (W/NO HYDRO HEAD)
WILL USE GRUNDFOSS FOR THIS WELL

Jeff Cuts

(FRI)

3/8/02 (11)

0850 ON POST
OVERCAST, 63°F
EXPECTING SCATTERED SHOWERS

FOR TODAY
TEAM 1 - TUBING WELLS @
SITES 17, 16, 12, 29
HAVE COMPLETED TUBING
SITE 04, 18, 46, 47, 50

TEAM 2 - @ SITE 47 SAMPLING

TEAM 3 - COMPLETING SITE 17
THEY MOVING TO SITE 18 THEN

0900 MEET W/ROY @ FIRE STATION
PUTTING CAPS ON WELL POINTS

1000 COMPLETED PUTTING ON CAPS
STAKING LOCATIONS ~~FROM~~ @
SITE 50

1100 COMPLETED STAKING SITE 50
DRIVE TO MARSHALL FOR GLOVES
& LUNCH

1300 RETURN STAKE SITE 29
47 (ONLY HALF OF 47 STAKES)

38512

(12) Jeff Cox 3/8/02

1430 STAKE SITE 04

LAYED OUT GRID.

COULDN'T FIND PREVIOUS

LOCATIONS FOR SOIL BORINGS

045802 & 045804 SO LOCATED

NEW SAMPLE LOCATIONS AS CLOSE

AS POSSIBLE TO THE PREVIOUS ONES

BASED ON THE LOCATIONS SHOWN ON

THE SITE MAPS

1545 COMPLETED STAKING SITE

04. COULD NOT ONLY IDENTIFY

3 DRAINAGE SAMPLE LOCATIONS

STAKED 4 DPT GW LOCATIONS

1615 SAMPLE TEAM 3 ARRIVES

@ FIRE STATION TO PACK SAMPLES

FOR SHIPMENT FEB EX CLOSE

EARLY ON FRI.

1741 TEAM 2 ARRIVES @ FIRE

STATION TO PACK SAMPLES

7/8/02 Jeff Cox (13)

NOTE: CONTACTED SARAH BASHAW (1700 HOURS)

@ GEL TO CONFIRM SATURDAY

DELIVERY OF SAMPLES. SHE

SAID, "ALL SET! THEY DO NOT

TAKE SUNDAY DELIVERY SO

WILL NOT SHIP SAT COLLECTS

SAMPLES UNTIL SUNDAY.

(P) RECEIVED PICKED UP FedEx

DELIVERY @ GATE, RECEIVED

2 CASES OF GLOVES AND 1 CASE

(24) MINI-BAILERS

1750 BURKE, RALPH & DAVE B.

LEAVE SITE

1800 ROY LEAVES W/ SAMPLES

FOR FedEx & RETURN TO

KNOXVILLE

1843 GOING TO FIND STEVE'S DAVG.

1900 MEET STEVE & DAVE @ SITE 12

HAD COMPLETED SITE 12 TRING

ALL BUT B @ SITE 16 AND ALL

BUT 3 @ SITE 12

038513

(24)

Jeff Carls

3/8/02

COMPLETED

TEAM 1 - TUBED 40 WELLS

TEAM 2 - SAMPLED 8 WELLS

TEAM 3 - SAMPLED 13 LOCATIONS
COMPLETED SOIL SAMPLING @
SITE 17

32 WELLS REMAIN TO BE TUBED

1910 LEAVING SITE

~~Handwritten signature and date 3/8/02~~

(SAT) 3/9/02 Jeff Carls (15)

FOR TODAY:

TEAM 1 - FINISH TUBING. BEGIN SITE
COLLECTING POOR WATER SAMPLES

TEAM 2 - SITE 47 (8 WELLS)

SITE 18 (11 WELLS)

TEAM 3 - SITE 18 (5 LOCATIONS)

SITE 50 (5 LOCATIONS)

SITE 29 (15 LOCATIONS)

ONSITE 0800

SLIGHTLY CLOUDY COOL (44°F)
BREEZY

MEET @ FIRE STATION - REPLACEMENT
P/W PROBE HAD COME TO
HOTEL! NOW HAVE 2 WORKING
HORIBAS.

TEAM 1 - WILL BEGIN WELL
SAMPLING @ SITE 18

TEAM 2 - CONTINUE WELL SAMPLING
@ SITE 47

TEAM 3 - SOIL SAMPLING @ SITE 18
THEN MOVING TO SITE 50

038514

76 Jeff Carter 3/2/02

0830 TEAM 3 - LAUNCHED TO SAMPLE SITE 18 SOILS (6 LOTS)

0855 TEAM 2 - ~~GET~~ HEADING TO SITE 47 (11 HOURS)

TEAM 1 - WILL ACCOMPANY TEAM 2 TO FIRST WELL TO OBSERVE SET UP AND SAMPLING PROCEDURE THEN START SAMPLING SITE 18 (11 HOURS)

0930 LEAVE FOR MARSHALL TO GET BRUSH CUTTER & CHAIN SAW

1015 RETURN BEGIN CLEARING ROUTES TO SITE 18 DPT GW LOCATIONS

18DWO1 - LOCATED 40 FT OFF PERIMETER ROAD @ NW SIDE OF SITE DOWNGRADIENT BETWEEN SITE & HARRISON BAYOU

3/9/02 Jeff Carter (17)

18DWO2 - LOCATED ~100 FT FROM PERIMETER ROAD @ NORTHERN CORNER OF THE SITE

18DWO3 - LOCATED NNE of MONITORING WELLS 18W017 & 18W018. DPT LOCATION

IS OUTSIDE of CURRENT WELL NETWORK NEAR WELLS WHICH HAVE HAD RECHARGE ~~CON~~ CONFIRMATION

1045 MOVE TO SITE 17. DPT POINT 17 DWO1 LOCATED ~100 FT WNW OF EAST NW POINT OF SOIL SAMPLING GRID

1200 BREAK FOR LUNCH

1300 BEGIN CLEARING PATHS @ SITE 50 FOR DPT GW POINTS

50DWO1 - IMMEDIATELY SOUTH OF THE JUNCTION OF S. CROCKET AVE & GOOSE PRAIRIE CREEK. EAST OF CROCKET

50DWO2 - SOUTHEAST OF 50DWO1 ALONG S. CROCKET AVE. ON THE EAST SIDE

038515

(18)

Dell Carter

3/9/02

SODW03 - East ~150ft from
SODW02

SODW04 - Southeast of
SODW02 along S. Creek trail.

SODW05 - ~150 East of
SODW03 along power
line right-of-way

SODW06 - Southeast of
SODW04 along S. Creek
Ave

1540 MET w/ TEAM 3 @ FIRE
STATION GOT ROY & DAVE B.
BADGE PICTURES MADE
* NOTES HAVE ROY & DAVE B. PICKUP
BADGES TOMORROW. ALSO MET
BURKE AND RALPH TO GO SIGN
THEIR BADGES SO SECURITY CAN
COMPLETE THEM.

1630 TOOK TEAM 3 TO SITE 29

3/9/02 Dell Carter (19)

1700 WENT TO MEET w/ STEVE B & DAVE
@ SITE 18. THEY WILL COMPLETE

SAMPLING OF SWEEPS TODAY

18WW19, 18WW20, 18WW07,

18WW08, 18WW09

1720 WENT TO STAKE LOCATIONS

@ SITE 47 ALSO 42H

AREA SOUTH OF THE BLDG IS

A WETLAND - DECIDED TO

PLACE SOIL SAMPLES

LOCATIONS AROUND WETLAND

PERIMETER

475506 - ~50ft west of ROAD @

EAST SIDE OF SITE. ~300'

SOUTH EAST OF BLDG

475507 - ~100 WEST OF 475506

ALONG WETLAND PERIMETER

475508 - ~100 WNW FROM 475507

475509 - ~150 NNW FROM 475508

475510 - ~100 N OF 475509

1745 - COMPLETED STAKING

038516

(20)

Jeff Cate

3/9/02

1800 - ~~HGAS~~ TO FREE GO TO
FIND SAMPLING TEAMS.

1820 TEAM 3 LEFT SITE
COMPLETED
6 LOC @ SITE 18
5 LOC @ SITE 50
7 LOC @ SITE 29
18 LOC (36 samples)

1840 TEAM 1 ARRIVE
SAMPLED 5 WELLS
@ SITE 18

1850 TEAM 2 ARRIVED
SAMPLED 7 WELLS

A NOTE: 46 WWD 3 IS THE WELL
THAT HAS A WL OF 35'
NOT 47

1920 ALL PERSONNEL
LEAVING SITE

Jeff Cate

3/9/02

(21)

SUPPLIES NEEDED:

- * ALUMINUM FOIL
- * LARGE BAGGIES
- * WATERLESS HAND CLEANER
- * ROLL PLASTIC
- * AA BATTERIES 2 PACKS
- * 9VOLT BATTERIES (3)
- * NYLON STRING ROLL

038517

(22)

Jeff Cant

2/9/02

PAGE

INTENTIONALLY

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TOTAL REMAINING
SAMPLES
WELLS: 86
BORE: 72
GEOPROBES: 29
SOIL: 48 POINTS
(95 samples)

(SUN) 3/10/02 (23)

0755 ON POST

REMAINING ACTIVITIES

SITE 12 - WELL SAMPLING (5)

SITE 16 - WELL SAMPLING (17)

(5) GEOPROBE SAMPLING

SITE 17 - WELL SAMPLING (17)

(1) GEOPROBE POINT

SITE 18 - WELL SAMPLING (6)

(3) GEOPROBE SAMPLING

~~SITE 29 - (2) PORE WATER POINTS~~

SITE 29 -

WELL SAMPLING (20)

GEOPROBE (2)

SOIL (8)

SITE 46 -

WELL SAMPLING (10)

GEOPROBE (7)

SOIL (15)

SITE 47 -

WELL SAMPLING (8)

PURE WATER (51)

X NEED TO INSTALL
SOIL (10) (10)

SITE 50 -

WELL SAMPLING (3)

GEOPROBE (6)

SITE 4

~~WELL SAMPLING~~
WELL SAMPLING (3)

GEOPROBE (4)

SOIL (15)

038518

(24)

J/Cat

3/10/02

08:05 TEAM 3 - TO SITE 29
CONTINUE SOIL SAMPLING

08:10 TEAM 2 - PROCEEDING TO
SITE 47 CONTINUE WELL
SAMPLING

08:35 TEAM/LAUNCHES TO FINISH
TUBING WELLS @ SITE 16, SITE 12
& SITE 29 (20)
THIS WILL FINISH TUBING ALL
WELLS

08:36 Im going to SITE 46 to
STAKE FINAL LOCATIONS &
CLEAR PATHS TO GEOPROBE

11:30 BREAK FOR LUNCH

13:00 BEGIN STAKING SOIL SAMPLE
LOCATIONS @ SITE 46
465501 - 465505 IN DRAINAGE
DITCH BEHIND BLDGS ON WEST
SIDE OF SITE

SIGN
HERE

3/10/02

J/Cat

(25)

SOIL SAMPLE LOCATIONS

465506, 07 IN CULVERT ON

EAST SIDE OF SITE @
HUFFMAN AVE

465508, 09, 10, 11 ARE IN
DRAINAGE DITCHES BEHIND BLDGS

465512, 13 ARE IN DRAINAGE
NEAR TUNKER 212-51 @ SE
CORNER OF SITE

465514, 15 ARE IN DRAINAGE
DITCH BETWEEN BUNKER 212-51
AND 212-37 @ SE of SITE

1530 COMPLETING CLEARING OF
ACCESS TO GEOPROBE POINTS

1730 TEAM 2
BEGINNING TO PACK FOR
THE DAY

1745 TEAM 3 PACKING FOR THE
DAY
TEAM 1 SAMPLING
04W 002

038519

(26)

Jeff Cuts

3/10/02

1815 TEAM 2 LEAVING SITE

TEAM 1 LEAVING SITE

18

1925 TEAM 3 LEAVING SITE

COMPLETED ON THE DAY:

TEAM 1 - SAMPLED WELL
COMPLETED TUBING
ARE WELLS. 2 WELLS @
SITE 29 TOO DEEP FOR
PERISTALTIC. WILL USE
GIRUNDFOS

GEOPROBE MODEL #

MOUNTED ON A FORD F250
FOUR WHEEL DRIVE TRUCK

INSTALLING 1" - O.D. SCHED 40
PVC SCREEN & SCHED 40
RISER (1" DIAMETER)

Jeff Cuts

3/11/02

(27)

WEATHER: CLOUDY
TO MISTY RAIN, 43°F

ON POST 0915

TOM COOK > EITL

BILL RAGON

ON POST

TEAM 1 SAMPLING LHS MWOL

0944 EITL SET UP TO PROBE IN

04DW01 - BY STICKUP; 1.5" TD:

WATER LEVELS @ 2-3 FT

BLOW GRADE IN SURROUNDING

WELLS. PROBING TO 10 FT &

WILL INSTALL 5' PVC SCREEN

EITL NOW SAYS THEY HAVE

ONLY 10' PVC SCREENS

1004 MET EITL MOVE TO 04DW02

STICKUP: 1.7" TD: 13.4'

1025 MOVING TO 04DW03

TOM COOK (EITL) STATES THAT

RODS ARE DEEP AND ASKED IF

THEY COULD PROBE DEEPER ON

04DW03. I AGREE TO PROBE

TO 15' AGS & INSTALL WELL

5' SCREEN TO RISE

STICKUP

038520

(28)

Jeff Cate

3/11/02

STEVE B EXPRESSED CONCERN ABOUT THE LOW FLOW METHOD BEING USED. HE WANTED TO KNOW IF FILLING THE TUBING AND FLOW CELL COUNTS AS DRAWDOWN FOR THE WELL. WE GOT THE TWO SAMPLING TRANSLOGS.

1036 CLIFF MURRAY &

BRIAN JOHNSON ARRIVED ON SITE

TD: 13.5'
STICKUP: 1.5'

1038 SETUP ON 4" DWO3

PROBING TO 15' SETTING 10' WELL SCREEN 5' SCREEN RISER

TOGETHER AND DISCUSSED/CLARIFIED THE PROCEDURE. THE SET PROCEDURE IS TO:

- 1) MEASURE INITIAL WATER LEVEL
- 2) FILL TUBING & FLOW CELL UNTIL CONTINUING TO MEASURE WATER LEVEL
- 3) WHEN RISING FLOW CELL IS FULL MEASURE PARAMETERS

SIGN HERE

Jeff Cate 3/11/02

(29)

AND CONTINUOUSLY MONITOR WATER LEVELS DRAWDOWN MUST BE NO GREATER THAN 0.1m

4) A VOLUME OF AT LEAST 2 TIMES THE VOLUME OF TUBING AND FLOW CELL SYSTEM WILL BE REMOVED

5) ONCE PUMP RATE IS ESTABLISHED PARAMETERS WILL BE MEASURED EVERY 5 MIN. IF THE PARAMETERS ARE STABLE (WITHIN APPROVED PARAMETERS) FOR 3 CONSECUTIVE READINGS THE WELL CAN BE SAMPLED

I ALSO ASKED STEVE TO CALCULATE WELL VOLUMES IN CASE THE WELL DOES NOT PRODUCE ENOUGH WATER FOR LOW-FLOW SAMPLING. BURKE HAS BEEN DOING THIS SO WE WILL KNOW HOW MUCH WATER WOULD BE REQUIRED TO PURGE THE WELL DRY.

1107 - DPT CREW COMPLETES 04DWO4 MOVING TO 4th

38521

STICKUP: 1.5 TD: 13.5' SITE

30

Jeff Carls 3/11/02

1120 SETUP ON 46DW01
ASKED BURKS ABOUT
WATER LEVELS. HE SAID
LHS MW 13 HAD A WATER
LEVEL OF 11.93 FT BELOW
TGC. DIRECTED DPT CROW
TO PROBE TO 20' & SET
10' SCREEN 10' RISK
[STICKUP: 1'3" = 1.25'
TD = 18.75 FT]

1220 SET UP ON 46DW02
SETTING 10' SCREEN & 10'
RISK
[STICKUP: 3' 1"
TD: 16.9]

1249 MOVE BACK TO SITE
4 TO COLLECT 2 SOIL
SAMPLES FROM 4-5 FT
IN 045503 & 045509

SET UP ON 045509 PUSH
SAMPLER TO 5' SAMPLE
INTERVAL 4-5' RGS

SIGN
HERE

3/11/02 Jeff Carls 31

1258 SET UP ON 045503
DRIVE SAMPLER TO 5'
SAMPLE INTERVAL 4-5'

1315 COMPLETED SOIL SAMPLING
WILL DECON THEN BREAK
FOR LUNCH

1400 SETUP ON 46DW07
SET 10' SCREEN & 10' RISK
[STICKUP: 8'
TD: 19.3']

PUSH TO 20 FT. BROKE SCREEN
TRYING TO PUSH IN WELL.
OFFSET & RE-PUSH
HAD TO USE SOIL SAMPLER
BARRELS TO OPEN HOLE ENOUGH
TO TAKE WELL SCREEN

1500 COMPLETED 46DW07
DECON EQUIPMENT

1541 SET UP ON 146DW03
DRAWING W/ DISCRETE POINT. SOIL
SAMPLER TO CREATE LARGER
DIAMETER HOLE.

1604 COMPLETED INSTALLING 46DW03
DECON EQUIPMENT. 10' SCREEN
[STICKUP: 11'
TD: 19.08']

038522

(32)

Jeff. Carter

3/11/02

1620 SET UP ON 46DW04
PUSH TO 20' USE 10' SCREEN
10' RISER

1635 COMPLETE INSTALLATION
OF 46DW04 • EQUIPMENT
DECON.

STACKUP: 10" = 0.83
TD: 19.17

1706 SET UP ON 46DW05
PUSH TO 20' USE 10' SCREEN
10' RISER

~~1720~~ COMPLETE INSTALLATION
46DW05
STACKUP: 2.5'
TD: 17.5'

1740 SET UP ON 46DW06
PUSH TO 20' USE 10' SCREEN
10' RISER

1749 COMPLETE INSTALLATION &
46DW06
STACKUP: 1.5
TD: 18.5
DECON EQUIPMENT

SIGN
HERE

3/11/02 Jeff. Carter

(33)

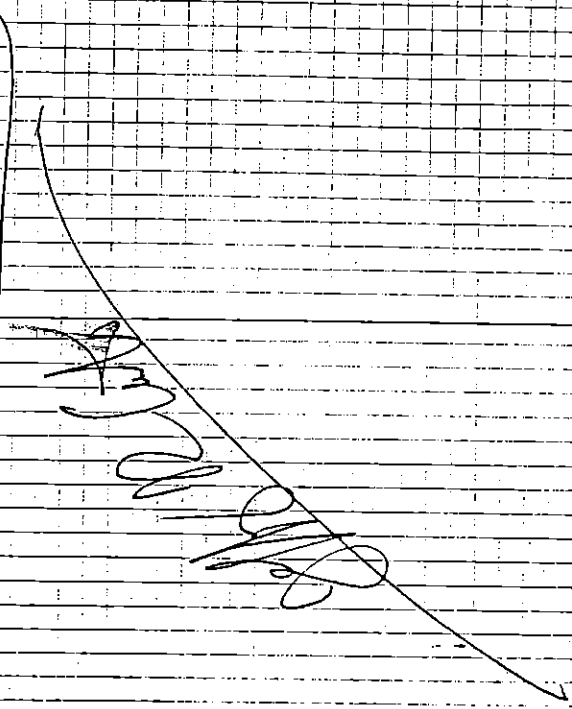
1800 RETURN TO FIRE STATION

1838 TEAM 1 LEAVING SITE & ETL
LEAVING SITE

1845 TEAM 2 LEAVING SITE

1850 ALL PERSONNEL LEAVING
SITE

FOR
TOMBROW NETS
SMALL COOLERS



638523

37

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INTENTIONALLY
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(TUE) 3/12/02 JWC (35)

0800

ON POST

TEMP 46°F

CLOUDY EXPECT LIGHT RAIN

Team 1 - SAMPLING @ SITE 18

Team 2 - SAMPLING @ SITE 50

Team 3 - SAMPLING @ SITE 46

GEORGE TEAM IN SITE
DRIVE AROUND TO STAKED
LOCATIONS. MANY ARE
INACCESSIBLE DUE TO STANDING
WATER FROM HEAVY RAINS OVER-
NIGHT. WILL SET UP AND
DRIVE THE LOCATIONS THAT
CAN BE REACHED.

TALK TO DOUG HAWN ABOUT SAMPLES

1755/1(1-2) - WAS IN COOLER BUT
NOT ON CHAIN OF

CUSTODY

FIELD

TEAMS HAVE TO INDICATE WAITING

THE QC SAMPLE IS A DUPLICATE
OR MATRIX SPIKE
DUPLICATE ON CHAIN OF CUSTODY
IN COMMENT SECTION

038524

OROGES 3/4" BALLETS

SIGN
HERE

(36)

Jeff Calk

3/12/02

0928 GEOPROBE SETUP ON 16DW01 TOLD DRILLER TO GO TO 28' & SET 10' SCREEN W/ 20' OF RISER

0955 COMPLETED 16DW01

30' OF RISE
4' CUTOFF
26
PUSHED PROBE TO 28'
ONLY ABLE TO GET SCREEN TO 24'
DECONNING EQUIPMENT

1015 SETUP ON 16DW03

30' OF RISE
6' OF CUTOFF
24
SET 10' SCREEN 20' RISER
STACKUP: 2'
TD: 22'

PUSHED PROBE TO 28'
COULD ONLY GET PIPE TO 22'
1040 MOVING OF 16DW03
DECONNING EQUIPMENT

1115 TOM COOK (ETTL) ASKED IF

THERE WAS A WELDER ON SITE TO ATTACH DRIVE POINT TO PUSH ROB. HE WENT TO LOOK FOR ONE. GEORGE DOWN

SIGN
HERE

3/12/02 Jeff Calk (37)

1145 TOM RETURNS W/ WELDED PIPE
CANNOT GET TO LOCATION
SELECTED BR 16DW02, AGREED
TO MOVE POINT CLOSER TO ROAD.
RIG STUCK / THEN FREED UNABLY
TO GET TO NEW LOCATION

1220 BREAK FOR LUNCH

1410 MOVE TO SITE 50 SET
UP ~~ON~~ ON 50DW06
DRIVE TO 28' SET 10' SCREEN
1440 COMPLETED SET 2-10' RISERS
50DW06
30' OF RISE
3.25
26.75
TD: 26.75

RIG STUCK BUT ABLE TO PULL FREE
W/ SUPPORT TRUCK
DECONNING EQUIPMENT

1500 SETUP ON 50DW04
PROBE TO 28 FT SET 10' SCREEN
2-10' RISERS
1530 COMPLETED
50DW04
30' OF RISE
3.08
26.92
TD: 26.92

0385258

STACKUP: 3' 1/2 3.58
TD: 26.92

(38)

J/C 3/12/02

1550 SET UP ON SODWOL
RIG BROKEN DOWN, BATTERY
CHARGE CARRIED.

1600 RIG OPERATING. PUSHING
ON SODWOL SET: 10' SCREEN
PUSH TO 28' 2-10' RISERS

1637 COMPLETED SODWOL
STICKUP: 3'7" = 3.58
3.88
26.42

PULL OFF DECON EQUIPMENT

1700 SET UP ON SODWOL
PUSH TO 28' SET: 10' SCREEN
2-10' RISERS

1730 COMPLETED SODWOL
PUSH TO 28'
STICKUP = 3'
TD = 27'

1540 ETL PERSONNEL
LEAVING SITE

3/12/02 J/C 39

1550 PACKING SAMPLES
AND STAGING SUPPLIES
FOR TOMORROW

1940 ALL PERSONNEL
LEAVING SITE

038526

(40)

Jeff Cuts

3/13/02

(Wed)

0800 on Post
Decides to switch
duties of Team 1 & Team 2

Asks Steve Brunton to
accompany Rob & Dave to
their next sample location.
Team 3 will collect a sample
and teach Team 1 the procedure
Team 1 will then continue
sampling Geoprobe & pore points.
Team 3 will meet w/Team 2
Team 2 will perform low flow
sampling on a well and confirm
that Team 3 understands the
procedure. Team 3 will then
continue w/well sampling

THE DPT CREW HAS ARRANGED
TO USE THE BULLDOZER on-site
TO HELP MOVE DPT TRUCK IN & OUT
OF LOCATIONS
PREPARING TO SET UP on @
SITE 50

SIGN
HERE

Jeff Cuts (41)

3/13/02

46DWO7 - COULDN'T GET BAILER DOWN
WELL MAY HAVE COLLAPSED

0913 DPT SET UP ON
50DWO5

PUSH TO 28' SET 10' SCREEN 2-10' RISKS
SCOTT BESSINGER (NOZER OPERATOR)
ON SITE

0935 COMPLETES SETTING
30.83 50DWO5 STICKUP: 2' 10"
22.17 DECONNING EQUIPMENT TO 27.17

0940 DROVE TO SITE 29

ALL 3 SAMPLE TEAMS
PRESENT OBSERVING LOW
FLOW PROCEDURE CONDUCTED
BY TEAM 2 (BUCK, RALPH)
ON WELL 29W04

1015 DPT CREW ATTEMPTING TO
SET UP ON 50DWO5

1020 DPT TRUCK DOZER STUCK
IN MUD

038527

(72)

J/Cant

3/13/02

1030 Spoke w/ Roy Hottelstra
discuss problems w/
geoprobe. Decided to
redo the probe prints
as needed then forego
the remaining points to
a future date.

1140 checked in w/Team 2
@ 29W06 beginning
purging. Fluid coming
out is yellow brown but
gives no reading on the
PID.

1145 Team 3 @ Site 17
beginning fanger purging
first well. OASGARD
set-up, discussed
procedures. They seem
to have the procedure
and have setup and are
progressing properly

SIGN
HERE

3/13/02 J/Cant (43)

1210 Leaving Post to go
to KATHARU MARSHAL TO
GET GAS CANS & HAVE LUNCH
EITL PERSONNEL SAID A
RESOLVE DOZER SHOULD ARRIVE
BETWEEN 12:00 & 12:30 (WARM
TIME)

1310 BACK ON POST BPT RIG
AND DOZER OUT OF WOODS
DOZER w/ WINCH WILL BE
USED TO WINCH A TRUCK IN
OUT OF LOCATIONS

ATTEMPT SETTING UP ON 29DWO1

1335 SET UP ON 29DWO1
PROBE TO 28' SET 10' SCREEN

1403 COMPLETED 29DWO1
SCOTTING

CUTOFF: 5' 5" STICKUP: 2'
TD: 22.6

30-0 MOVING OFF LOCATION 538528
5.4 TO DECON EQUIPMENT 8

24.6
2.2
22.6

(44)

Jeff Canto

3/13/02

1430 SETTING UP ON
29 DW02 PUSH

1434 PUSHING TO 28'
SETTING 10' SCREEN
2-10' RISERS

1454 COMPLETED SETTING
STICKUP: 2'

30 RISE
- 4 CANT
26
MOVING OFF LOCATION
DECONNING EQUIPMENT

1525 SETTING UP ON
16 DW02 MOVED BACK
TO ORIGINAL LOCATION

1541 PUSHING TO 28' ON
16 DW02 SET 10' SCREEN
2-10' RISERS

1605 THREAD FAILED
POINT IN HOLE
ABLE TO THREAD NEW ROD
PUSHING AHEAD

1622 COMPLETED 16 DW02
STICKUP: 2'

30.00
7.67
37.67
TD: 22.33

SIGN
HERE

3/13/02 Jeff Canto (45)

1630 PULLING OFF LOCATION
DECONNING EQUIPMENT

1555 SETTING UP ON
16 DW04

PUSH TO 28'
SET 10' SCREEN
2-10' RISERS

1600 PUSHING 16 DW04
30 6'8"
6.67
23.33
STICKUP: 2'

TD: 23.33

1724 COMPLETED PUSHING
16 DW04

PULLING OFF TO DECON

1800 ETL LOADING DOZER
LEAVING SITE

1805 CHECK W/ TEAM 3 FINISHING
SAMPLING 4TH WELL @ SITE 17

1810 MET W/ TEAM 2 @ SITE 29

HAD FINISHED SAMPLING 6TH
WELL AND WERE CHECKING ACCESS
FOR FURTHER WORKS.

038559

(46)

Jeff Calks 3/13/02

1815 CLIFF MURRAY (COE) ASKED
IF GEOPROBE COULD PULL
2 SAMPLES @ SITE 16 AND
1 SAMPLE @ SITE 18

1904 ALL PERSONNEL
LEAVING SITE

(true) 3/14/02

Jeff Calks

(47)

ON POSSE 0748 TEMP 60°F
TEAM 1 - CONTINUING PORE WATER
1 DPT SAMPLING
TEAM 2 - CONTINUING WELL SAMPLING
TEAM 3 - CONTINUING WELL SAMPLING

0800 MOVING TO SITE 17

W/ EITL PERSONNEL (FROM COOK
BILL RAGON) (DPT CREW)
DAVIN MORSE, DIRECTOR EXCHANGING
(DOZIE)
SETTING UP ON 17DW01

0830 READY TO PUSH.

PUSHING TO 28"

SETTING 10' SCREEN 2-10' RISERS

NOTE: CLIFF MURRAY (COE)

SUGGESTED THAT THE ELECTRON
DELIVERABLE FROM THE LAB
CORRESPOND TO THE CORPS
DELIVERABLE

0850 - COMPLETES 17DW01

Cut off

stickup: 2'

TD: 23.33

30.07

4.67

25.33

038530

PULLING OFF 17DW01

COV. PM FWT

(48)

Jeff Carter

3/14/02

TEAM 3 REPORTS THAT THE DRAW
DOWN @ 17WV05 CANNOT BE MAIN-
TAINED WITHIN THE REQUIRED
PARAMETERS FOR LOW FLOW
SAMPLING. THEREFORE THE
WELL WILL NEED TO BE PULLED
OF 3 WELL VOLUMES OR UNTIL
DRY PRIOR TO SAMPLING
THEY ARE MOVING TO ANOTHER
WELL.

0930 SET UP ON
18DW01

0954 COMPLETED SETTING
18DW01
PUSHES TO 28' BUT
COULD ONLY GET BOTTOM
SCREEN TO 12'.

20'00
1.92
18.08
STICKUP: 1' 11"
TD: 18.08'

1010 PULL OFF & DECON
EQUIPMENT

SIGN
HERE

Jeff Carter (49)

3/14/02

1020 PUSHING ON
18DW02
1030 COMPLETED
SETTING
PUSH TO 28'
18DW02
30'00
3.13
26.87
STICKUP: 3' 1.5"
TD: 26.87

PULL OFF TO DECON
EQUIPMENT
1050 MOVING ON 18DW03
1055 SET UP READY TO PUSH
1115 BEGIN PUSHING ON 18DW03
PUSH TO 28' SET 10' SCREEN
2-10' RISERS
CUT OFF 7'
STICKUP: 2'
TD: 21'

1140 COMPLETE INSTALLATION
OF 18DW03
PULLING OFF TO
DECON EQUIPMENT

1200 MOVING TO REDD 46DW07
1215 PULLED PVC OUT OF HOLE
NO BREAK IN SCREEN PUSH LARGE
PROBE TO 20' PUT NEW SCREEN

FOLD RISER BACK IN HOLE

(50)

JH Calk

3/14/02

1235 COMPLETES RESETTLING
14" 46DW07

20.00
1.17
18.83

STICKUP: 14"
TD = 18.83

1330 BREAK FOR LUNCH
BARK ON POST
PHONE CALL TO ROY
DISCUSS PROGRESS

1410 @ SITE 18 BPT CREW
IS DOING SOIL SAMPLING
FOR CLIFF MURRAY (COT)
UNABLE TO COMPLETE SOIL
SAMPLING DUE TO BREAKDOWN
SAMPLING EQUIPMENT
1440 MOVING TO RE-DO
04DW01, DECONNING
EQUIPMENT

1515 SET UP ON 04DW01
PULLED SCREEN & RISER
RE-PUSHING TO 20' TO
SET 10' SCREEN & 10' RISER

1540
9.5"
~~20.00~~
1.23
18.77

1550

DECONNING EQUIPMENT
SET UP ON 04DW02 TO
TO RESET. PUSH TO 20'
SET 10' SCREEN (2-5' LENGTH)
10' RISER

1610
20.00
1.23
18.75

COMPLETES RESETTLING
04DW02 PUSH TO 20'
STICKUP: 1' 3"
TD: 18.75

PULL OFF & DECON

1625

SET UP ON 04DW03
PUSH TO 20'. SET 10' SCREEN
(25' LENGTH)
SET 10' RISER

1630

PUSH TO 19'
UNABLE TO PUSH DEEPER
SETTING DPT POINT

20.00
1.42
18.58

STICKUP: 1' 5"
TD: 18.58

3/14/02 JH Calk (51)

COMPLETES RESETTLING
04DW01 STICKUP: 0.75'
TD: 18.25

20.00
1.23
18.75

338532

(52)

Jeff Cuth

3/14/02

1650

GETTL PERSONNEL
LEAVING SITE

1715

TEAM 5 GATHER
TO PACK SAMPLES & PREP
FOR TOMORROW

1830

ALL PERSONNEL
LEAVING SITE

NOTE: TEAM 1 COMPLETED
INSTALLATION OF 10
ADDITIONAL PORE WATER
POINTS @ SITE 47

Jeff Cuth

Jeff Cuth

(FRI) 3/15/02

Jeff Cuth

(53)

750

ON POST

TEMP 73°F
PARTLY CLOUDY
SKIES

TEAM 1 - TO COLLECT PORE WATER
@ SITE 18 DPTS @ SITE 16, 29, 50
46 DWS

TEAM 2 - SETTING UP @ SITE 17
(17 WWS) TO SAMPLE WELLS

TEAM 3 - SETTING UP @ SITE 17
TO SAMPLE WELLS (17 WWS)

NOTE: BURKE POINTS OUT THAT IN JUNE
WATER LEVELS WILL BE MUCH
LOWER SO PERISTALTIC PUMPS
MAY NOT WORK

1231 TEAM 1 COMPLETED PORE WATER
SAMPLING (THE ONES ABOVE WATER)
@ SITE 18 WILL RETURN TO

TRAY AGAIN ON SLOW RECHARGING
POINTS @ SITE 18 & 47, ARG
BEGINNING DPT GW SAMPLING @
SITE 16, 29, 50

LEAVING POST TO GET 3/8 TRAILER
FOR GROUNDWATER PUMP AND LUNCH

038533

(54)

JH Carter

3/15/02

1430 ON POST SETTING
PUMP IN LH 17W005

1508 17W005

152.00
11.25
140.75

INITIAL WL

11.25' FROM

BLUE MARL
ON NNGR
CSG

TOTAL DEPTH AS SHOWN

ON SARGASSO SHEET 152'

PUMP SET @ 146' BELOW BLUE
MARL
1534 SET PUMP

1542 BEGIN PUMPING

@ 5 gal/2 min = 2.5 gpm

INCREASE PUMP RATE
TO 5 gpm

1552 WL 44 ft

1555 FLOW RATE 5 gpm

1605 FR = 56 gpm
WL = 129'

3/15/02 JH Carter

(55)

1610 CEASED PUMPING

1619 RESUME PUMPING. ~~WE~~ COULD
NOT PUMP ANY WATER
LOWER PUMP TO 150'
STILL NO WATER PUMPED

1630 CEASED PUMPING
PUMPED 100 GAL TOTAL

1640 ~~PULL PUMP FROM WELL~~
LEFT PUMP IN WELL TO
COLLECT SAMPLE

1745 ATTEMPT TO COLLECT SAMPLE
NO WATER TO SURFACE.
PULLED PUMP, TUBING HAD
COME OFF FITTING.

WILL COLLECT SAMPLE W/BAILER
WITHIN 24 HOURS.

1810 AT FIRE STATION PACKING
SAMPLES

NEED: 2 WASATUBS

AA BATTERIES 1 HOST REEL

FITTINGS / CLAMPS

STRAPPING TAPE
CABLE TIES

038534

(56)

3/15/02
29WW13 - SITE 18G PURGED
DRY (or 3 WELL VOLUMES)
1 WELL VOLUME = 18 GAL
2 WELLS @ SITE 17 NEED TO BE
PURGED/SAMPLED
1833 ALL PERSONNEL LEAVING
SITE

(SAT) 3/16/02 Jeff Carter (57)
0800 ON POST
TEAM 1 - COMPLETE PORE WATER
AND SPT GW SAMPLING
TEAM 2 - WELL SAMPLING @
SITE 12
TEAM 3 - WELL SAMPLING @
SITE 16
0845 DECONNING GROUND FOR
PUMP & TUBE
0947 @ SITE 29 - 29WW13
INITIAL WATER LEVEL - 31'
BELOW BLUE MARK ON INNER
CASING
CASING DEPTH = 57'
WATER COLUMN = 26'
WELL VOLUME = 17 GAL
1027 PUMP IN WELL
WL = 30.7'
1030 START PUMPING
5 gal in 2 min
1045 PUMPED 20 GM
STOP PUMPING

038535

(58)

JW Card 3/16/02

1125 RESUME PUMPING
PUMPING @ 5 GAL/MIN
1130 CEASE PUMPING
PUMPED 20 GAL

WL = 41.4'
TAKE PURGE WATER TO
TREATMENT PLANT

1157 RESUME PUMPING @
FR = 5 GAL IN 1.5 MIN

1202 CEASE PUMPING
PUMPED 20 GAL

TOTAL VOLUME PUMPED
60 GAL
FINAL WL = 51.1'

1220 MOVE TO FIRE STATION
TO DECON EQUIPMENT THEN
LUNCH BREAK

3/16/02 JW Card (59)

1320 DECON PUMP LINES
1430 MOVE TO SITE 17
TO PURGE MW 18 & MW 19
(CAN'T MAINTAIN FOR LOW FLOW)

1515 SET UP @ MW-18
WL = 5.7' STICKUP = 1.1'
TD = 31.8' 4.6 RGS

$\frac{31.8}{4.6} = 27.2$
 $\pi (3/2)^2 \times 27.2 = 2.3743$
2.48 GPM 17.8

SAW STEVE B WHILE GOING TO
GET LINE HE SAID HE'S DABEC.
WOULD TAKE CARE OF MW 18 &
MW 19 @ SITE 17

1540 MOVE TO SITE 16
16 MW 37 COULD NOT BE SAMPLED
WITH LOW FLOW CSG DEPTH
45.5'

1550 SET UP ON STICKUP = 2.5'
16 MW 37 WL = 25.6

45.5
 $\frac{23.1}{23.14}$
1 well Volume = 14.6 gal
3 well Volume = 43.9 gal

038536

60

Jill Carter

3/16/07

1600 PUT PUMP IN 16WN 37

1612 READY TO PUMP

1613 START PUMP

PUMP @ 5 GPM

1617 WATER STOPPED

WL = 40.3

PUMPED 20 GAL

1620

STOPPED PUMP

1647 RESTORE PUMP

1649

PUMPED

10 GAL

WATER

STOPPED

WL = 44.5' (BGS)

47' FROM CSG MARK

1655 COMPLETED PURGING WELL

PULL PUMP & DECON EQUIPMENT

1744

COLLECTED SAMPLE BY

BAILER (500 ML) FROM

16WN 37

1830 TEAM 1

LEAVING POST

3/16/02 Jill Carter 61

2010 LEAVING SITE

REMAINING

SITE 4 - 2 WELLS

SITE 16 - 6 WELLS

SITE 17 - 2 WELLS

(62)

Jeff Calk

3/17/02

0800 ON REST
OVERCAST, 46°F
RAIN, 51°F

Team 1 - COMPLETING DPT
SAMPLING & PORFLOW
SAMPLING

Team 2 - WELL SAMPLING @
SITE 16

Team 3 - WELL SAMPLING @
SITE 16

Decon Pump & TUBING

1208 PREPARING TO PUT
PUMP IN 16W ~~28~~ ²⁸ ~~6~~ ⁶ ~~8~~ ⁸
Purge

BOTTOM CSG WL = 3.3' BELOW MARK
29' ON CSG

1325 COMMENCED PUMPING

1515 PUMPS 20 gal

1433 PUMPS 35 gal STOPPED
GENERATOR RAN OUT OF GAS PUMP

3/17/02 Jeff Calk (63)

1445 RESUMED PUMPING
1530 WATER STOPPED WORK
DAY PUMPS 52 gal

1632 COMPLETES DECON PUMP
GOING TO 16W 25 TO SET
PUMP & PURGE

1714 WL = 13.9 BELOW MARK
11.2 BELOW GROUND

49 TO BOTTOM OF CSG

1 well volume = 25 gal
3 well vol = 74 gal

1757 START PUMP
PUMP @ 5 gpm

1817 PUMPS 90 gal

COLLECTED SAMPLE
WL = 22.3'

1830 TAKE PURGE WATER TO
WASTE TREATMENT PLANT

ROB & DAVE PULLING PUMP

1900 LEAVING SITE 16
FOR FIRE STATION

038538

BTL

Jeff Carter 3/17/02

(64)

1940 ALL PERSONNEL

LEAVING SITE

END OF FIELD EFFORT

Jeff Carter

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(divider page)***

038541

PERN AHP
STUCK TV

PERCHLORATE
TIGATION

EMERGENCY EVENT

1

BOOK

NATIONAL

408

MINING TRANSIT BOOK

LHAAP

Perchlorate Investigation

STEP

Property of _____

Address _____

Telephone _____

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This Book is manufactured of a High Grade
50% Rag Paper having a Water Resisting Surface,
and is sewed with Nylon Waterproof Thread.

038542

①

3/5/62 Steve Brunton
Dave Liker
Weather Clear Cold 32° AM
Low 60° PM

7:00 Kick off Meeting and
unpacking of equipment
and supplies.

9:30 Marshall for supplies to weight
tubing

12:30 Construct weights with
4" length, 1/2" D.b. CPV
filled with sand. Sealed
with 50ppcps. Allowed
cement to cure prior to
use.

Weights were deaerated with
Aquaqua water. Rinsed with
DI.

1:30 Begin setting tubing in
Site 18 wells.

②

14:10 C-DB PIP 60 sec at
well 0.0 ppm

WL 21.72 ft TORC
from
top product count = TORC

Depth 32.5 ft

Slope indicator not giving reading

changed out Dipper-T

~ 25 ft of Tube in well
at 14:47

15:13

18 W W 17

WL 25.94 ft TORC

Depth 37.90 TORC

Tubing set ~ 33 ft

0.1 ppm 60 sec at
well head

038543

③

18WN18

0.0 ppm PID
top of well head

WL 25.01 TOC

Depth 63.95 TOC

Tubing set to top of screens

@ 16:32

Note: Difficulty getting tubing to depth

C4

16:40

0.0 ppm PID 60 sec
top of well head

WL 22.90 Ft TOPC

Tubing set to @ 49'
at 16:51

17:00

18WN19

WL 7.77 TOC 0.0 ppm PID 60 sec
top of Well Head

Est. Depth 33.5

④

0.0 ppm PID
60 sec top of
well head

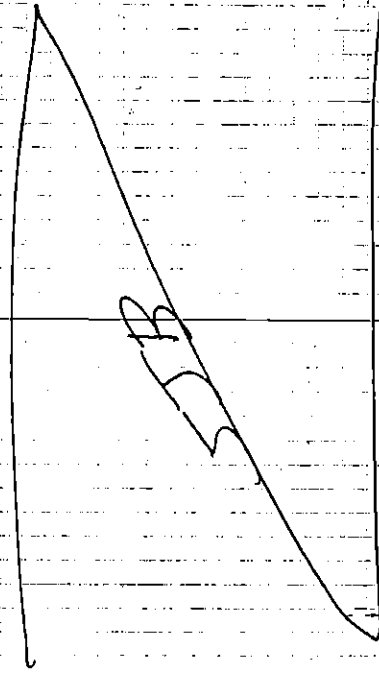
18WN20

WL 8.64 Ft TOC

Est. Depth 18.5 ft

Set tubing to ~ 14 ft
at 17:25

Could not get tubing past
second joint on 18WN19.
Tubing not set.



038544

(5)

3/16/02 Steve Brunton/Dave Cika
Cloudy Cool, 40% Chance Rain

Beginning in Site 47 due to
depths and difficulties encounter
with installation of tubing in
wells at Site 16.

7:58 LHS MW 42

60 Sec PID at Top of well head
0.0 ppm

Depth of Well 20 Ft BGS

WL 16.83 TOC

Tubing ~~set~~ set ~ 18.5 Ft below
TOC at 08:10

0818 LHS MW 40

60 Sec PID at Top Open well head
0.0 ppm

Depth of Well 16.8' TOC

WL 16.49 Ft TOC

No Tubing installed, water in well
is in sump (end cap of well)

3/16/02 (6)

0829 LHS MW 43

60 Sec PID at Top of open well head
High 11.2 ppm 0.0 ppm Breathing Zone

Depth of Well 19.5 Ft BGS (21.6 TOC)

WL 15.82 Ft TOC

Set tubing to ~ 18.5 Ft Below TOC
at 08:43

0847 LHS MW 47

60 Sec PID at Top of Open Casing
0.0 ppm

Depth of Well 16 Ft BGS ~ 18.5 TOC

WL 14.29 Ft TOC

Set tubing to ~ 16.5 feet Below TOC
at 08:56

0901 LHS MW 46

60 Sec PID at top of open casing
0.0 ppm

038545

⑦ 3/6/02

LHS MW 46 Cont

Depth of Well 19.8 ft TOC

WL 16.03 ft TOC

Set tubing to ~ 18 ft below TOC
at 09:08

09:19 47WW11

60 Sec PID at TOP of Open Casing

0.0 ppm

Depth of Well 19 BGS (~21.54 ft)

WL 15.19 ft TOC

Set tubing to ~ 18 Knot below TOC
at 09:30

09:33 LHS MW 57

60 Sec PID at Top of Open Casing

0.0 ppm

Depth of Well 14.5 BGS (~16.9 ft)

WL 5.22 ft TOC

3/6/02 ⑧

Set tubing to ~ 11 ft below TOC
at 09:43

09:50 Nested Set 47WW18, 47WW19,

47WW20.

47WW18

60 Sec PID at top of Open Casing
0.7 ppm high 0.0 ppm Breathing zone

Depth Well 21 BGS (~23.75 ft TOC)

WL 14.78 ft TOC

Set tubing to ~ 19.5 ft below TOC
at 10:04

47WW19

60 Sec PID at Top of Open Casing
0.0 ppm

Depth of Well 62 BGS (~64.3 ft TOC)

WL 14.11 ft TOC

Set tubing to ~ 59.5 ft below TOC
at 10:11

Used steel Drive point for weight

038546

④ 3/6/02

47WV20

60 sec PID at Top of open casing
0.0 ppm

Depth of Well 96 ft BGGS (~98.5 ft)

WL 16.31 ft TOC

Set tubing to ~93 ft at 10:28

10:34 LHSMW56

60 sec PID at Top of open casing
7.5 ppm High 0.0 ppm Breathing zone

Depth of Well 20 BGGS (~22.5 ft TOC)

WL 13.58 ft TOC

Set tubing to ~17.5 ft BGGS TOC
at 10:41

Changed out decon ~~to~~ water for
cleaning water level probe

Had permeate badge made

3/6/02 ⑩

11:28 LHSMW55

60 sec PID at Top of open casing
0.0 ppm

Depth of Well 17.5 ft BGGS (20.25 ft TOC)

WL 14.46 ft TOC

Set tubing to 17.5 ft at 11:38

11:43 47WV26

60 sec PID at Top of open casing
0.0 ppm

Depth of well 20 BGGS (~23 ft TOC)

WL 16.47 ft TOC

Set tubing to ~18.25 ft ~~47WV26~~ 53B
at 11:46

12:30 47WV27

60 sec PID at Top of open casing
0.0 ppm

Depth of well 20 ft (~23 ft TOC)

WL 11.92 ft TOC

038547

⑪ 3/6/02

Set tubing to 18 ft below TOC
at 12:44

1251 LHS MW 60

60 Sec PID at Top of open casing
0.0 ppm

Depth of Well 27 ft BGGS

WL 11.66 ft TOCP (~29.9 ft TOCP)

Set tubing ~25 Below TOC at

13:01

1306

LHS MW 53

60 Sec PID at top of open casing
0.0 ppm

Depth of Well 14 (~16.25 TOC)

WL 11.59 ft TOC

Set tubing to ~14 ft Below TOC
at 13:15

3/6/02 ⑫

1321 LHS MW 54

60 Sec PID at Top of open casing
7 ppm High 0.0 ppm Breathing Zone

Depth of Well 44 BGGS (~46 ft TOC)

WL 8.12 ft TOC

Set tubing to 41 ft below TOC at
13:31

1337 47 MW 23

60 Sec PID at Top of open casing
0.0 ppm

Depth of Well 34 BGGS (~36.5 ft TOC)

WL 14.19 ft TOC

Set tubing to 31.5 Below TOC at
13:50

1358 50 MW 01

60 Sec PID at top of open casing
0.0 ppm

038548

(13) 3/6/02

50WW01, Cont.

Depth of well 20 bgs (~22.5 TOC)

WL 10.75 ft TOC

Set tubing to ~17.5 ft below TOC
at 14:05

1416 50WW02

60 Sec PD at top of open casing
69 ppm High Dropped to 3 ppm after

60 sec 0.9 ppm Breathing zone

Depth of well 19 BGS 141.7 TOC

WL 13.48-55B ft TOC

Set tubing to a depth of ~18 below
TOC at 14:27

1434 50WW03

60 Sec PD at top of open casing 0.9 ppm

Depth of well 20 ft BGS (~22.5 ft TOC)

WL 14.87 ft TOC

Set tubing to ~18.5 ft below
TOC at 14:44

3/6/02 (14)

1525 50WW04

60 Sec PID at top of open

casing 0.0 ppm

Depth of well 20 bgs 122.4 ft TOC

WL 17.24 ft TOC

Set tubing to 20 ft below TOC
at 15:35

1551 145MW17

60 Sec PID at top of open casing

0.0 ppm

Depth of well 24 bgs (26.25 TOC)

WL 12.86 ft TOC

Set tubing to ~21 ft @ 15:58

16106 145MW18

60 Sec PID at top of open

casing 0.4 ppm High 0.9 ppm
in breathing zone.

038549

(15) 3/6/02

LHS MW18 Cont.

Depth of well 25 Bgs (~27.4 TOC)

WL 25-53B 16.27 Ft TOC

Set tubing to ~21.5 ft below

top of casing at 16.15.

16:21 LHS MW19

60 Sec PID at top of casing

0.5 ppm High 0.0 ppm Breathing zone

Depth of well 27 bgs (~29.3 TOC)

WL 14.73 Ft TOC

Set tubing to ~24 ft below TOC
at 16:34.

Starting with 50 MW04 began
weighting tubing with a
1-2 section of 1/2" B

PVC secured with a zip tie. PVC
slipped over top tubing

3/7/02 (16)

Thursday 3/7/02 Steve Benton / Dave Calk
Site 46 14/47129

Mild, Mostly Cloudy High Low 70's
Windy

0845 46 MW01

60 PID at top of open casing 0.0 ppm

Depth of well 24 BGS (~26.75 TOC)

WL 16.34 Ft TOC

Set tubing to ~21.5 ft Below TOC
at 0856.

0859 46 MW02

60 Sec PID at top of open casing
0.0 ppm

Depth of well 46 BGS (~48.25 TOC)

WL 26.08 Ft TOC

Set tubing to ~43.5 below TOC
at 0905

0906 46 MW03

60 Sec PID at top of open
casing 0.0 ppm

038550

①

3/7/62

46WW03 - Cont.

Depth of Well 100.5 BGS (~TO 2.9 TOC)

WL 30.31 ft TOC

Tubing not set due to depth to water and limitations of

~~Geo~~ Geopump. see also page 52 for 46WW03

0920 46WW04

60 Sec. PID at top of open casing 0.0 ppm

Depth of Well 24 BGS (~26.5 TOC)

WL 14.53 ft TOC

Below TOC

Set tubing to ~ 21.5 at 09:30

0938 LHS MW23

60 Sec PID at top of open casing 0.0 ppm

Depth of Well 40 BGS (~42.4 TOC)

WL 26.30 ft TOC

Set tubing to ~ 37.5 ft Below TOC at 0945.

3/7/62

②

0950 LHS MW22

60 Sec. PID at TOP of open

Casing 0.0 ppm

Depth of Well 26 BGS (~28.75 TOC)

WL 18.39 ft TOC

Tubing set to ~ 24 ft below TOC at 0957.

1002 LHS MW13

60 Sec. PID at top of open well

Casing 0.0 ppm

Depth of Well 15.4 BGS (TOC ~ 18 ft)

WL 10.04 ft TOC

Set tubing to ~ 14 ft below TOC at 10:04. No weight attached.

1037 04WW01

60 Sec. PID at TOP of open

Casing 0.0 ppm

Depth of Well 23 BGS (26 TOC)

038551

(19)

3/7/62

04WW01 Cont

WL 7.36 ft TOC

Set tubing to ~ 21 ft Below TOC
at 10:45

1057 LHS MW01

60 sec PID at top of open

Casing 0.0 ppm

Depth of Well 17.85 TOC

WL 5.55 ft TOC

Set tubing to ~ 12.5 ft below
TOC at 10:57. No weight attached

1101 04WW02

60 sec PID at top of open

Casing 0.0 ppm

Depth of Well 23.6 ft (26.6 TOC)

WL 7.87 ft TOC

3/7/62 (20)

46WW02 Cont.

Set tubing to 21.5 ft below
TOC at 11:10.

1116 LHS MW02

WL 6.78 ft TOCP

1121 46WW03

WL 7.96 ft TOC

Went marshal for more PVC to
make weights. Made weights
and transferred over to ATN

1350 47WW21

60 sec PID at top of open

Casing 0.0 ppm

Depth of Well 22.6 ft (24.5 TOC)

WL 6.54 ft TOC

Set tubing to ~ 19.5 ft below TOC
at 14:00.

038552

(2) 3/7/02
 1430 18WW19
 See page 3 for WL
 Set tubing to ~27.5 ft Below
 TOC at 14:35.

1438 18WW07
 60 Sec PID at top of open
 casing 0.0 ppm
 Depth of well 27.865 (~29.6 TOC)
 WL 11.85 ft TOC
 Set tubing to ~24.5 ft Below TOC
 at 14:48.

1454 18WW08
 60 Sec PID at top of open
 casing 0.0 ppm
 Depth of Well 20 (~22.8 TOC)
 WL 5.87 ft TOC
 Set tubing to ~17.5 feet below
 TOC at 14:58.

3/7/02 W
 15:03 18WW09
 60 Sec PID at open casing 0.0 ppm
 Depth of well 59.695 (~61.5 TOC)
 WL 5.53 ft TOC
 Set tubing to ~56.5 ft Below TOC
 at 15:20

15:31 18W11
 60 Sec PID at top of open
 casing 0.0 ppm
 Depth of Well 24.4 ft
 WL 3.50 ft TOC
 Set tubing to ~24 below TOC at
 15:45

15:55 18WW11
 60 Sec. PID at TOP of casing 0.0 ppm
 Depth of Well 64.5865 (~67.3 TOC)
 WL 9.83 ft TOC
 Set tubing to ~63.5 Below TOC
 at 16:30.

038553

(23) 3/7/02

18 WU11 Cont.

Had difficult getting tube to depth with only PWC. Add steel drive point for add weight. Tagged bottom then raised tubing ~ 4 ft.

1835 18WU10

60 Sec. PID at TOP of open

Casing 0.0 ppm.

Depth of Well 36 bgs (38.8 TOC)

WL 9.24 Ft TOC

1645 MW17

60 Sec PID at TOP of open

Casing 0.4 ppm High Breathing zone

Zone 0.0 ppm

Depth of Well 26.8 BGS (28.4 TOC)

WL 6.24 Ft TOC

Set tubing to ~ 23 ft below TOC at 18:52

3/7/02 24

1658 MW18

60 Sec PID at Top of open well casing

0.7 ppm High, 0.0 ppm Breathing zone

Depth of Well 32 BGS (33.4 TOC)

WL 15.77 Ft TOC

Set tubing to ~ 28 ft at 17:07

17:12 MW20

60 Sec. PID at Top of open well

Casing 0.0 ppm

Depth of Well 16 bgs (~18 TOC)

WL 9.26 Ft TOC

Set tubing to ~ 14 ft below TOC

@ 17:21

038554

553

(25)

3/8/02

Friday 3/8/02 Steve Brunton/Dave Clark
Cloudy mild High upper 60's Chance
of Rain. Continue setting tubing
for GW Sampling

0800 MW18

60 Sec PID at top of open
casing 0.4 ppm 0.0 ppm Brushing
zone

Depth of Well 31.8 BGS (33.1 TOC)

WL 5.84 ft TOC

Set tubing to ~28 ft below TOC
at 0810.

0815 MW19

60 Sec PID at TOP of open
well casing 0.0 ppm

Depth of Well (31.6 BGS) (33.2 TOC)

WL 5.79 ft TOC

Set tubing to ~26 ft Below TOC
at 0825. Unable to advance tubing
beyond that point.

3/8/02 (26)

0829 MW11

60 Sec. PID at top of open well
casing 0.0 ppm

Depth of well 15 BGS (17.8 TOC)

Water level 7.22 ft TOC

Set tubing to ~12 ft below TOC
at 0837.

0838 MW12

60 Sec. PID at top of open well
casing 0.0 ppm

Depth of well 46 BGS (48.5 TOC)

WL 7.34 ft TOC

Tubing set to ~38.5 below TOC
at 0845.

Tubing is set at the top of the
screen. Unable to get tubing
past the casing/screen joint.

038555

(27)

3/8/02

0903 17WUW10

60 Sec. PID at top of open well casing 0.0ppm.

Depth of Well 31 bgs (33.5 TOC)

WL 7.53 ft TOC

Set tubing to ~ 207.5 feet below TOC at 0912.

0914 17WUW09

60 Sec. PID at top of open casing

Depth of Well 62 bgs (64.4 TOC)
WL 8.32 ft TOC

Set tubing to ~ 54 TOC at 0925.

Tubing is set at top of well screen. Unable to advance tubing past the casing/screen joint. Used 1.5 ft PVC weight with zip tie on both sides.

3/8/02 (28)

0933 17WUW14

60 Sec. PID Reading at top of open well casing 0.0ppm

Depth of Well 24 bgs (~26.6 TOC)

WL 7.96 ft TOC

Set tubing to ~ 21 ft below TOC at 0940.

0945 17WUW06

60 Sec. PID reading top of open well casing 6.1ppm High, 0.0ppm Breathing zone

Depth of Well 22 bgs (~24.2 TOC)

WL 5.48 ft TOC

Set tubing to ~ 19 ft below TOC at 0952.

Out of gloves went to site to pump house to borrow 2 open boxes of Nitril gloves

038556

(29)

3/8/02

1010 17WU05

60 sec. PID reading at top of open well casing 0.0 ppm

Depth of Well 152 BGs (~153.2 TOC)
WL 9.48 Ft TOC

Set tubing to ~150 Ft below TOC at 1020. Add steel drive point for extra weight.

1024 17WU04

Returned 1145

60 sec. PID reading at top of open well casing 0.0 ppm

Depth of Well 37 Ft BGs (39.2 TOC)
WL 6.64 Ft TOC

Large wasp nest in well removed and will go back to well later

Set tubing to ~35 Ft below TOC at 11:53.

3/8/02 (30)

1018 17WU02

60 sec. PID reading at top of open well casing 0.2 ppm High

0.0 ppm Breathing Zone
Depth of Well 24 BGs (26.5 TOC)

WL 3.68 Ft TOC

Set tubing to ~21 Ft below TOC at 10:36

1042 130

60 sec. PID reading at top of open well casing 0.0 ppm

Depth of Well 23 BGs (25.2 TOC)
WL ~~3.38~~ 4.35 Ft TOC P

Set tubing to ~19 Ft below top of casing at 10:50

Borrowed 2 unopened boxes of Nitrite gloves from Complete. Stopped using opened box from site 16. Gave second box to soil crew.

038557

(31)

3/8/02

1055 17WW13

60 sec PID Reading at top of open well casing 0.0 ppm.

Depth of well 32 BGS (~34.5)

WL 5.99 Ft TOC

Set tubing to ~29 ft below TOC at 1110

Switching to Walgreen disposable latex gloves Roy and Jeff Brought

1118 17WW08

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 34 BGS (36.4 TOC)

WL 6.43 Ft TOC

Set tubing to ~31 ft below TOC at 1128

1130 17WW07

60 sec PID reading at the top of Open well casing 0.0 ppm

3/8/02 (32)

17WW07 Cont

Depth of Well 52 BGS (~54.2 TOC)

WL 6.81 Ft TOC

Set tubing to ~44 ft below TOC at 1140. Tubing set at top of screen. Unable to advance tubing past casing/screen joints

1145 17WW04

Returned see page 29 for Data

1203 17WW03

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 32 BGS (~34.3 TOC)

WL 5.79 Ft TOC

Set tubing to ~29 ft below TOC at 1210

1213 17WW01

Wasp in protective cover

038558

(33)

3/8/62

17WU01 Cont.

60 sec PID reading at top of open well casing 17 ppm High.

0.0 ppm in breathing zone

Depth of Well 30.18 bgs (~33.2 TOC)

WL 5.42 ft TOC

Set tubing to ~28 ft below TOC at 1337

1350 16WU37

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 45.5 BGS (~48 ft TOC)

WL 25.16

Set tubing to ~43 ft below TOC at 14:00

1403 16WU38

60 sec PID reading at top of open casing, 5.5 ppm High. 0.0 ppm in Breathing Zone

Depth of Well 29 BGS (31.6 TOC)

WL 24.98 ft TOC

3/8/62

(34)

16WU38 Cont.

Set tubing to ~28 ft below TOC at 1411.

1419 16WU24

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 16 BGS (~18.5 TOC)

WL 3.56 ft TOC

Set tubing to ~13.5 ft below TOC at 1429

1431 16WU23 (Miss added in WP)

60 sec PID reading at top of open well casing 0.0 ppm

WL 3.57 ft TOC

Depth (measured) 37.05 ft TOC

Set tubing to ~32 ft below TOC at 1438

1445 16WU27

60 sec PID Reading at top of open well casing 0.0 ppm

038559

(35)

3/8/02

16WW27 Cont

Depth of Well 36 BGS (~38.4 TOC)

WL 3.59 ft TOC

Set tubing to ~ 33 ft below TOC at 1450.

1455 16WW28

60 Sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 21 BGS (~23.2 TOC)

WL 3.84 ft TOC

Set tubing to a depth of ~ 18 ft below TOC at 1458

1506 16WW33

60 Sec PID reading at top of open well casing 0.0 ppm

Depth of Well 49 BGS (~51.1 TOC)

WL 27.78 ft TOC

Set tubing to 46 ft below TOC at 1512

3/8/02 (36)

1515 16WW34

60 Sec PID reading at top of open casing 0.0 ppm

Depth of Well 32 BGS (~34 TOC)

WL 27.86 ft TOC

Set tubing to 30 ft below TOC at 1518

1524 16WW31

60 Sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 49 BGS (~51.1 TOC)

WL 27.88 TOC

Set tubing to ~ 46 Below TOC at 1531.

1534 16WW32

60 Sec PID Reading at top of open well casing 0.0 ppm

Depth of well 32 BGS (~34.2 TOC)

038560

(37)

3/8/62

16WU32 Cont.

WL 28.07 Ft TOC

Set tubing to ~31 Ft Below TOC at 1539.

1545 16WU22

60 Sec. PID reading at top of open well casing 0.0 ppm

Depth of 31 BGS (~33.5 TOC)

WL 25.79 Ft TOC

Set tubing to a depth of 29.5 Ft below TOC at 1549

1554 16WU12

60 Sec. PID reading at top of open well casing 0.9 ppm High. 0.0 ppm in Breathing Zone

Depth of well 26.75 BGS (~29.25 TOC)

WL 15.18 Ft TOC

Set tubing to a depth of ~24 Ft below TOC at 1559.

3/8/62 (38)

1653 16WU29

60 Sec. PID Reading at top of open well casing 0.0 ppm

Depth of well 42 BGS (~44.2 TOC)

WL 4.24 Ft TOC

Set tubing to ~39 below TOC at 1610

1613 16WU30

60 Sec. PID reading at top of

open well casing 0.0 ppm

Depth of well 30 BGS (~32.4 TOC)

WL 4.63 Ft TOC

Set tubing to ~27 Ft below

TOC at 1618

1650 12WU18

60 Sec PID reading at top of open

well casing 0.0 ppm

Depth of well measured 30.35 Ft

038561

3/8/02 (40)

(39) 12WV18 Cont. 3/8/02
 WL 21.42 Ft TOC
 Set tubing to ~ 26 Ft below TOC at 16:158

17:01 12WV19
 60 sec PID Reading at top of well casing 0.0 ppm
 Depth of well measured 65.9 Ft TOC

WL 21.82 Ft TOC
 Set tubing to ~ 61 Ft below TOC at 17:08

17:13 12WV01
 60 sec PID reading at top of open well casing 0.0 ppm
 WL 21.32 Ft TOC
 Depth of well measured 29.9 Ft TOC
 Set tubing to a depth of ~ 25.5 Ft below TOC at 17:17

17:25 12WV10
 60 sec PID reading at top of open well casing 0.0 ppm

WL 19.93 Ft TOC

Depth of well ~ 31 Ft

Set tubing to a depth of 26 Ft below TOC at 17:33

17:42 12WV05

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of well ~ 37 Ft TOC

WL 5.54 Ft TOC

Set tubing to ~ 33 Ft below

TOC at 17:48

~~3XB~~

(41) 3/9/02

3/9/02 Saturday

Steve Brunton
Dave Coker

Weather - Rain on drive to site clearing cold front. Clear, cool breezy temp 50's

Went with Burke and Ralph to see how to set up and collect GW samples. Then load equipment and head to site 18.

0940 Arrive at ^{Duc} ~~18W19~~ and begin setting up

PID at top of open casing 0.0 ppm WL 7.70 ft TOL

Initial slug of water had some rust discoloration which cleared immediately.

Pumping at ~ 100 ml/min

Drawing down column 125 ft

Began pumping at 1000

1023 Flow rate @ ~ 95 ml/min.

(42)

3/9/02

Drawdown approx. 0.25 ft.

Since pump start/on

purge water clear/sl. brown tint (ration)

Weather - Sunny. Northwesterly wind No clouds

Pump rate → ~ 95 ml/min

v.s. clear purge water

Purge Volume by bucket scale markings is 2.1.

Pump rate → ~ 95 ml/min

Drawdown → ~ 0.28 ft.

slowed Pump rate / decreased rate controller on pump

Pump rate → ~ 75 ml/min.

Drawdown → ~ 0.27 ft.

Pump rate → ~ 75 ml/min

Drawdown → ~ 0.25 ft.

pH = 6.7

Cond. = 0.16 mS/cm

Turb. = 0 NTU

Temp = 16°C

Pump rate → ~ 75 ml/min (from 7.70)

Drawdown → ~ 0.25 ft. (from 7.70 static)

Pump rate → ~ 75 ml/min

Drawdown → ~ 0.25 ft.

pH = 6.7

Cond. = 0.16 mS/cm

Turb. = 0 NTU

Temp = 17°C

038563

(43)

3/9/02

Sample collected 11:00
18WW20-19Fina / water level 7.94 ft TOC
Total tubing 30.5 ft (3 ft beyond TOC)

18WW20 Begin Set-up at 11:20

PID at open casing 0.0 ppm

WL 8.62 ft TOC

Began pumping at 11:33

Flow rate 125 ml / Drawdown 0.22 ft.
and increasing

1146 Reduced Rate.

Pump Rate $\rightarrow$ 100 ml/min.
Drawdown $\rightarrow$ 0.2 ft.1157 Pump Rate $\rightarrow$ 100 ml/min.Drawdown $\rightarrow$ 0.2 ft (steady!)1206 Pump Rate $\rightarrow$ 100 ml/min.

Drawdown "constant/steady" @ 0.2 ft.

1215 pH = 7.4

Cond. = 0.12 ms/cm

Turb. = 0 NTU's

Temp = 15°C

(44)

3/9/02

1218 Pump Rate $\rightarrow$ 100 ml/minDrawdown $\rightarrow$ 0.2 ft.

1220 pH = 7.4

Cond. = 0.13 ms/cm

Turb. = 0 NTU's

Temp. = 15°C

1225 Pump Rate $\rightarrow$ 100 ml/min.Drawdown $\rightarrow$ 0.2 ft.

1226 pH = 7.4

Cond. = 0.13 ms/cm

Turb. = 0 NTU's

Temp. = 15°C

1227 Purge Vol. ~ 5 l

1230 18WW20 $\rightarrow$ pulled sample!

Water Level @ 8.84 BTOC

Priority pump shut down

Sample collected 1230

18WW20 (clear sample)

1240 Demob. from 18WW20

18WW20

Total tubing 18 ft. 1 in.

(3 ft. 4 1/2 in. beyond TOC)

1255 mobil to 18WW07

038564

(45)

3/9/02

1325 18WU07

Begin setting up

PID Reading at top of Open

Casing 0.0 ppm

WL 12.08 Ft TOC

Begin pumping at 1333

Pumping Rate 75 mL/min @ 1345

~80 mL/min @ 1352

~80 mL/min @ 1408

~80 mL/min @ 1430

Time	Ph	Con $\mu\text{S/cm}$	Tub (WU)	Temp $^{\circ}\text{C}$
1413	8.0	0.35	9	18
1418	8.0	0.35	9	18
1423	8.0	0.35	8	18
1429	8.0	0.36	8	18 17
1434	8.0	0.36	8	17

Water has had a cloudy tint since
pumping began.

18WU07. Collected sample

@ 1438

Final WL at sampling 12.35 Ft TOC

(46)

3/9/02

Purged total of 5L of water
prior to samplingTotal tube length was 26'11"
with 2'4" extending beyond
TOC. In well length of 24'7"

1503 Begin setting up for 18WU08

PID reading at top of open casing
0.0 ppm

Initial WL 6.21 Ft TOC @ 1509

Began pumping at 1513

Time	Pumping Rate	Vol/min
1521		150 ml
1529		125 ml
1546		125 ml

Water clear
Draw down 15 ft 5 in

(47)

18WU08 cont.

3/9/02

TIME	Parameters			Temp °C
	Ph S.U.	Cond. µS/cm	Turb NTU	
1545	6.1	2.4	0	16
1548	6.1	2.4	0	16
1552	6.2	2.4	0	16
1558	6.3	2.4	0	16

Flow/
Rate
125 ml/min
" 125 ml/min
"

WL at time of sampling
6.38 ft TOC.
16:03 Sample 18WU08 was
collected

Purged 6.5 liters

Total tubing length 20' 10"

2' Extending beyond TOC

Total length in well 18' 10"

Begin Setting up on 18WU08
(2) 1608

Bat. Low on PID no reading
well was uncapped (No well cap
Present)

WL 1612 5.56 ft TOC

038566

3/9/02 (48)

Begin pumping at 1618

Flow Rates

Time	Vol/min
1622	140 mL
1631	140 ml/min.
1644	140 "
1650	"
1656	140 ml/min.

Parameters

Time Ph Con µS/cm Turb NTU Temp °C

1643	7.5	0.42	2	16
1650	7.5	0.42	2	16
1656	7.5	0.42	2	16
1700	7.5	0.42	2	16

Water level @ 1701 before

sample 5.61 ft

1705 Collected 18WU09

@ 1705

49

3/9/02

Purged 6 Liters of water
prior to sampling

Total length of tubing 51' 11"
less 2' 11" extending beyond TOC
for a total of 49' inside
well.

0.0 ppm

50

3/10/02 Sunday

Steve Crutcher

Dave Gaska

Weather - cool, North wind, 30's
in morning

0751 Moved to 29WU1 to
continue inserting poly tubing
into Site 29 wells for sampling

0756 PID Reading TOC 29WU1 =

0.0 ppm / Ambient zone 0.0 ppm

29WU1 W.L. = 20.34 ft TOC

Depth of Well 27 Bgs (~29.7 TOC)

Setting tubing to ~25 ft below

TOC at 08:06

0811 29WU13

6050c PID at Top of open casing

0.0 ppm

Depth of Well 57 Bgs (~59.4 TOC)

W.L. 31.30 ft TOC

Set tubing to 55 ft below TOC at

0825.

038567

(57) 3/10/02

0827 29WW12

60 sec PID reading at top of open casing 0.0 ppm

Depth of Well 29 Bgs (~31.8 TOC)

WL 21.96 Ft TOC

Set tubing to ~ 27 Ft below

TOC at 0834

0841 H6 2" PVC

60 sec. PID Reading at top of open casing 0.0 ppm

Depth of Well 37 Bgs (~39.2 TOC)

WL 19.64 Ft TOC

Set tubing to ~ 34 Ft below

TOC at 0848. No PVC weight added.

0855 29WW05

60 sec PID Reading at top of open well casing 0.0 ppm

Depth of Well 22 Bgs (24.4 TOC)

3/10/02

52

WL 16.32 Ft TOC

Set tubing to ~ 20.5 Ft below TOC at 0902

0910 29WW09

60 sec. PID Reading at top of open casing

Depth of Well 27 Bgs (~29.9 TOC)

WL 22.72 Ft TOC

Set tubing to ~ 26.5 Feet below

TOC at 0917

0930 46WW03

Page 17 for more

46WW03

Set tubing to ~ 99 Ft below TOC at 0942.

1002 29WW10

60 sec. PID Reading Top open casing 0.0 ppm

Depth of well ~ 29 Bgs (~31.3 TOC)

WL 11.91 Ft TOC

Set tubing to ~ 26 Ft below TOC at 1007

038568

(53)

3/10/02

1020 117
60 sec. PID reading at top of open casing 0.0 ppm
Depth of well 37 BGS (~39.2 TOC)
WL 21.03 Ft. TOC
Set tubing to ~34 Ft below TOC at 1032. No PVC weight added.

1043 29WW06
60 sec. PID reading at top of open casing 0.0 ppm
Depth of well 37 BGS (~39.6 TOC)
WL 24.62 Ft TOC
Set tubing to ~35 Ft below TOC at 1049

1106 29WW17
60 sec. PID reading at top of open well casing 0.0 ppm
Depth of well 29 BGS, (~31.5 TOC)
WL 19.69 Ft TOC
Set tubing to ~26.5 Ft below TOC at 1114.

3/10/02 (54)

1120 29WW18
60 sec. PID reading at top of open casing 0.0 ppm
Depth of well 29 BGS (~31.5 TOC)
WL 17.40 Ft TOC
Set tubing to ~26.5 Ft Below TOC at 1125

1130 29WW16
60 sec. PID reading at top of open casing 15.1 ppm High, 0.0 ppm Breathing zone
Depth of well 38 BGS (~90.1 TOC)
WL 39.67 Ft
Set tubing to ~55 Ft
Tubing not set due to depth to water

11 29WW15
60 sec. PID reading at top of open casing 1.5 ppm High, 0.0 ppm in breathing zone.
Depth of well 30 BGS (~32.8 TOC)
WL 23.73 Ft TOC
Set tubing to a depth of 29.5 at 1147.

038569

3/10/02 (56)

1218 29WW19
60 Sec. PID reading at TOC 0.0 ppm
Depth of well 32.5 BGS (~34.8 TOC)
WL 20.50 ft TOC
Set tubing to ~30 ft below
TOC at 1235

1213 29WW08
60 Sec. PID reading TOC 0.0 ppm
Depth of well (140 BGS (~141.8 ft))
WL 31.02 ft TOC
Set tubing to ~144 ft at 1225.
Add steel Drive Point for weight

1230 29WW14
60 Sec. PID reading TOC 0.0 ppm
Depth of well 85 BGS (~87.5 TOC)
WL 27.37 ft TOC
Set tubing to ~82 ft below TOC
at 1335

038570

(55) 3/10/02

1155 29WW20
60 Sec. PID reading at top of
open casing 0.0 ppm
Depth of well 24.6 BGS (~32.4 TOC)
WL 23.04 ft TOC
Set tubing to ~27.5 ft below
TOC at 1200

1207 29WW21
60 Sec. PID reading at top of
open well casing 0.0 ppm
Depth of well 75 BGS (~77.3 TOC)
WL 43.41 ft TOC
No tubing set due to depth to
water

1214 29WW22
60 Sec. PID at TOC 0.0 ppm
Depth of well 32.6 BGS (~35.3 TOC)
WL 23.63 ft TOC
Set tubing to ~30 ft below TOC at
1223.

(57)

3/10/02

1340 29WN07

60 Sec. PID reading at top of open casing 0.0 ppm

Depth of Well 38 bgs (~40.3 TOC)

WL 20.56 Ft TOC

Set tubing to ~35 Ft below TOC at 1344.

1405

12WN11

60 sec. PID at TOC 0.0 ppm

Depth of well ~ 71 Ft

Water level 21.12 Ft TOC

Set tubing to ~68 Ft below Add steel drive TOC at 1409. point for weight.

1421

12WN13

60 sec. PID reading at top of open well casing

Depth of Well ~ 67.00

WL 20.45 Ft TOC

Set tubing to ~63 Ft below TOC at 1426. Add steel drive point for weight.

58

3/10/02

1425

12WN12

60 sec PID reading at top of open well casing 0.0 ppm

Depth of well ~ 30 Ft

WL 20.11 Ft.

Set tubing to ~ 26 Ft below TOC at 1440

16EN08

Set tubing ~ 35 Ft below TOC at 1512

16EN01

Set tubing to ~ 30 Ft below TOC at 1520

16EN05

Set tubing to ~ 50 Ft below TOC at 1535

038571

(59)

3/10/02

04WU03 04WU02

Begin setup at 1620

PID reading at TOC 0.0 ppm

WL 7.65 ft TOC

Begin Pumping 1633

Flow Rate

Time	Vol/min
1642	110 ml
1645	70 ml
1650	75 ml

Total tubing 23' 6" Tubing extending beyond stick up 1' 10" Total length in well 21' 8"

Parameters

Time	pH	Con mg/cm	Turb NTU	Temp °C
1652	8.4	1.5	0	18
1700	8.3	1.5	0	18
1704	8.3	1.5	0	18

Final WL 7.96 ft TOC

Sample 04WU02 collected at 1705

n₂ water purged.

3/11/02 (60)

Monday 3/11/01

Rain cold 703 chance today

803 chance tonight

0750 LHS MW01

Begin set up to sample

1015 5.30 FT TOC

Begin Pumping 0806

Flow Rates

Time	Vol/min
0822	75 ml
0844	75 ml

Parameters

Time	pH	Con mg/cm	Turb NTU	Temp °C
------	----	-----------	----------	---------

Unable to complete

Low flow purge of

LHS MW01

038572

(61)

3/11/10

0833 stop pumping to allow recovery

0843 Resume pumping after 0.15' ft

recovery

0849 stop pumping to allow recovery

Stopped low flow purging could not maintain drawdown.

STB

04WV11 1000

PID = 0.0 ppm

WL = 7.47

WL after cell and tube = 7.75 F1 TOL

10:11 Begin pumping

Pumping Rate

10:13

10:15

10:19

30 ml/min

100 ml/min

100 ml/min

1.25 draw down

(62)

3/10/02

Time 10:16

10:21

10:21

PH 8.1

8.0

Temp 15.0

15.0

Turn 0

0

Exceed draw down of .35 ft at 10:22 well needs to be purged and samples.

11:25 Mobil to 18WV11 for micro-purge sampling

* Met Cliff Murray and Brian @ David Tolberts

Trailer

11:28 Commenced set up @ 18WV11

18WV11 - 60 sec. PID = 0.0 ppm

11:32 S.W.L. 18WV11 = 9.97' STOC

Set up sample equipment

11:40 Commenced purging (M cor)

18WV11 (Pump on filling vessel)

11:48 Pump on @ 140 ml/min.

Flowing thru vessel into

catch/holding bucket

038573

(63)

Total length of tubing in well 18W11 (TTC) (18W11 (Cont'd)) was 61 ft + 5 in.

Time	(S.V.) pH	(mS/cm) Cond.	(WTUS) Turb.	(°C) Temp.
1158	8.3	0.64	0	15
Volume of flow thru vessel!				
1204	8.3	0.54	0	15
→ Pump Rate = 140 ml/min.				
→ Drawdown = 0 / None measurable				
1212	8.3	0.54	0	15
→ Pump Rate ~ 140 ml/min.				
→ Drawdown = Not measurable				
18WW11 Collected sample				
@ 1215 / W.L. 9.99 BTOC				
Decon and moved to adjacent well				
18WW10				
18WW10 Sampling				
1234	18WW10 1 min PID Reading = 0.9 ppm			
1235	Set up Sample Equipment			
18WW10 S.W.L. = 9.30 BTOC				
1256	Pump on and Filling			
Flow thru Vessel & Purge water				
(using 4x4 Battery / 12 volt amps too low)				

*

(64)

3-11-02 18W10 Cont'd

Steve took Battery for Recharge

18W10 → W.L. probe set in '01 position @ 9.50 BTOC

1200 Vessel about half full

Some red-brown silt in Bottom of Flow thru Vessel

1301 W.L. in 18W10 @ 9.48 BTOC

(0.18 ft. of Drawdown in 18W10)

1307 Vessel full (1.2) and discharging into holding bucket

1309 FLOW Rate @ ~ 75 ml/min

Vol.	Time	(S.V.) pH	(mS/cm) Cond.	(WTUS) Turb.	(°C) Temp.
	1311	8.3	0.83	1	14
	1312	DRAWDOWN = ~ 0.05 FT. W.L. ~ 9.53 BTOC			
	1315	8.3	0.83	0	15
	1315	Flow Rate @ ~ 75 ml/min.			
~ 2.8	1317	8.3	0.83	0	15
	1321	8.3	0.83	0	15

Total tubing length in well 18W11 (TTC) was 31.7 ft. (next page over)

038574

(65)

3-11-02

(18W10 Sampling cont'd)

* 1325 18W10 sample collected with W.L. @ 9.53' BTOC

1335 a.m. down sample equipment @ 18W10 and decan/load up groundwater and trailer

1359 Mobil to MW17 for Sampling

1409 Set up for sampling MW17

- PIP reading for 1 min after uncapping well was 0.0 ppm

1415 18W10 S.W.L. @ 6.32' BTOC

1417 Pump on and filling flow thru vessel @ 18W10

1421 Vessel $\sim 1/3$ full (very slow purge - minimal for Geoprobe)

peristaltic pump Flow thru vessel full and discharge purge water flowing into holding bucket

1429

3-11-02

(18W17)

(66)

1432 Flow Rate @ MW-17 @ ~ 75 ml/min.

* Draw down = 0.23 ft. and steady in MW-17

* Purge Vol @ 1 & 2 pps

Vol.	Time	pH	Cond. (mS/cm)	Turb. (NTUs)	Temp. (°C)
~1.5 L	1435	8.3	0.82	0	15°C
	1437				(Flow Rate @ ~ 75 ml/min.)
	1438	8.3	0.82	0	15°C
~2 L	1440	8.3	0.82	0	15°C
	1441				(Flow Rate @ ~ 75 ml/min.)
					(Drawdown @ 0.24 ft.)

1445 Collected MW-17

1445 Sample W.L. while pumping

1520 after sampling = 6.49' BTOC

Repaired site after Tear down of sample equip and Perob.

Mobil to MW-20

Total length of tubing in well was 22.25 ft (TOC)

038575

(67)

3-11-02

1527 Setting up on MW 8
1530 * 10.7 ppm PID reading
after removing veil cap
* Ambient zone is 0.0 ppm

1537 S.W.L. = 15.71 BTDC

@ MW 8 prior to
co-purge / sample

1539 Using New flow

thru vessel - Less

Vol. than prior

(Vol. approx. 2.10 ml -
faster / quicker fill
at low flow)

Vol.	Time	Flow Temp	Flow Rate	Cond. $\frac{mS/cm}{Turb.}$	pH (e)
	1545	17	17	1.5	0
	1546	Flow @ 17	75 ml/min.	1.5	8.0
	1546	17	1.5	0	8.0
	1548	Flow @ 17	110 ml/min.	1.5	7.9
	1549	17	1.5	0	
	1549				

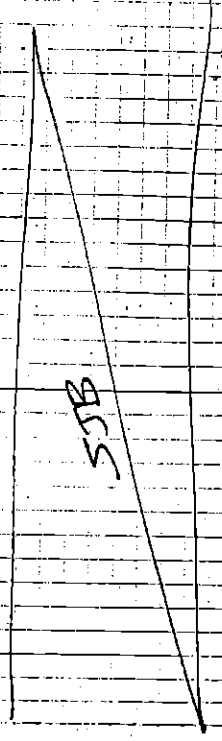
* MW 8 collected sample.
1555 (Sample is
NOTE Primary / QA / QA / ms - MSD
SAMPLE)

(68)

3-11-02

1601 - Begin clean-up / Decan
Densab from MW 8
(Water level @ 16.0 prior
to MW 8 pump shut-off)

Total length of tubing in
MW 8 was 28.5 ft (TDC)



Tuesday 3/12/02
Steve Brunton and Dave
Cika Weather: Clear and
cool in morning Highs 60's
Resume low flow sampling
at site 18.

038576

(69)

3/12/02

MW-20

Begin set up 8:05

PID at TOC = 0.0 ppm

WL = 8.00 ft TOC

Begin pumping 0825

8:28 150 mL/min

8:30 125 mL/min

8:32 75 mL/min

Unable to maintain 100 mL/min without drawing down water column. Will Purge well.

Depth of Well 18.5 ft TOC

Vol. Water in well 6.86 gal

Begin purging with Geo Pump at max pump rate at 0842

Pumping rate 4.40 min/gal

920 8 gal purged

0925 WL = 13.7 ft

0941 12 gal purged

(70)

3-12-02

0947 WL 15.57 ft

1001 16 gal purged

1019 Well purged dry

Total Volume purged

18.75 gal

Will allow well to recover prior to sampling

1041 Mdd to C O2

PID Reading @ TOC = 0.0 ppm

Begin setting up at 082

WL = 3.41 ft TOCP

Begin Pumping 1052

1054 190 mL/min

1056 140 mL/min

1058 110 mL/min

Unable to maintain ~100 mL/min without inducing draw down ~.35 ft.

038577

②

3-12-02

TD of Well 24.2

25.8 ft of water

1 Well vol = 16.85 gal

3 Well Vols = 50.55 gal

1115 commenced pumping CO2

1132 Purged 4 gal, total

1149 Purge Vol. total 8 gal

1151 W.L. @ 8.43' BTOC @ CO2

1210 12 gal. Total purged @ CO2

1230 16 gal. " "

1248 20 gal. Purged

1304 24 gal. Purged

1305 W.L. @ 8.45' BTOC @ CO2

1321 28 gal. Purged (Pump)

1325 Commenced bailing CO2 while

continuing purging & Gasprobe

peristaltic pump to speed up

purge somewhat

1330 32 gal. purged / Bailed

1337 36 gal. "

1354 40 gal. purged / Bailed

1401 44 gal. purged / Bailed @ CO2

1413 48 gal. " "

Total length of tubing in well (TOC) = 25.8

3-12-02

②

1415 CO2 purged / switched to pure only!

Time pH Cond Turb Temp

1416 7.4 0.69 0 17

1418 7.6 0.69 0 17

(Pump rate 350 ml/min)

1419 7.5 0.69 0 17

(Water Level = 10.78' @ TOC)

1422 7.4 0.69 0 17

1423 7.4 0.69 0 17

1425 Collected CO2

Sample!

1453 Moved to MW-18

1453 Begin Set up

PID at TOC = 0.0 ppm

WL = 5.80 ft TOC

Begin Pumping 15.03

Flow 175 ml/min 1507

125 ml/min 1509 Drawdown

Again, Exceeding .35 ft drawdown

at 1 ml/min!

038578

(73)

3/12/02

Total Depth of well 33.5 ft
stopped low flow purge.

MW-20 was Purged at 3
volumes Prior to sampling.

MW-20 1549

WL 8.89

Collected MW-20 sample at
1553

14.5 ft of tubing
in well.

5JB

(74)

3/13/02

Wednesday 3/13/02
Clear and cool in the morning
with Highs in low to's, light
breeze. Dave Cika & Steve Brunton

Switched from low flow sampling
to sampling of DPTs and stream
bank piezometers

Went with Rob and Dave B. to
observe sample collection procedure.

Then went to where Burke and
Ralph were low flow sampling to
observe the procedure from start
to finish.

46DW04 09:50

Tagged bottom and stirred up sediment.
Allow to settle before sampling

Returned 1557 to complete sampling
Sample collected 1604. Water light pink
Attempted QA/QC but well point
bailing down.

038579

3/13/02

(75)

46 DWØ5 1005

collected ~200 ml at 1008 before sediment began filling bailer. Will allow to settle before collecting remainder of sample. Returned 1540. Less than 1 ft water in well point. Finished sampling 1551. Forced to go to bottom of well to fill bailer. Heavy sediment in sample (fine sand).
46 DWØ6 1040

Collected sample 46 DWØ6 at 1045. Tagged bottom, well free of sediment. First bailer $\frac{3}{8}$ full. Water clear. Water level dropped to less than $\frac{1}{4}$ bailer. No sediment and sample collection. Switched to 1516 test fishing line.

~~5DB~~

3/13/02

(76)

1200 47PWØ11

Collected sample at 12:10.

Water clear. Cap on pipe very

tight, hard to remove.

Goose Prairie water up and flowing.

123 47PWØ2

Caps are on so tight that we are pulling pipe out of ground.

Going to get wrenches to hold pipe in place while removing caps.

1222 Returned with pipe wrench to less than $\frac{1}{4}$ bailer. No sediment and small channel lock. Still could not remove cap.

1237 P 47PWØ3

Sample collected sample at 12:38. Water has some coloration.

038580

(77)

3/13/02

1243 47PWØ4
Sample collected at 1250.
Base of pipe submerged by
stream. Sediment in bottom
of pipe. Pipe bailed almost
dry filling sample container.
Water cloudy with some
sediment.

1253 47PWØ5
Sample collected 1258
Water has slight tint.

1300 47PWØ6
About 1 inch sediment in
bottom of pipe no water.
Unable to collect a sample.
Unable to advance pipe, reseat
Suggest pulling and offsetting
5 Ft down stream.

1307 47WWØ7
Collected sample at 1310.

3/13/02 (78)

Water clear, point makes
water.

Getting more bottles and bailers
updating logs

1332 47PWØ8 47PWØ8
Collected sample at 1335

Water clear, point bailing
down.

1338 47PWØ9

Sample collected at 1342.

Water tinted. Point bailing
down while sampling.

1346 47PWØ10

Point set 45° angle into bank
Sample collected at 1353.

Water cloudy.

038581

79 3/13/02

1352 47PW11

Point set at 45° angle into bank. < 6" water in point.

~~Collected 1/5 sample at~~
Started collecting sample at 1356. Collected 1/5 of bottle before point went dry. Allowing point to recover will return to continue sampling. Water clear.

1405 47PW12

Point set at 30° angle into bank. Not enough water in pipe for sample. Sediment at bottom. Suggest moving point ~ 20 ft up stream.

1412 47PW13

Point at 20° angle off vertical. Collected sample at 1420. Tried for QA/QC well point bailed dry after 1/5 of

3/13/02

(80)

Second sample bottle. Allowed Recover for 15 min. Little recovery after 15 min. Unable to complete QA/QC.

1438 47PW14

Well point at 30° angle into the bank.

Collected QA/QC and MS/MSD Sample at 1445

Well point made 1/2 gallon of water through out. Water tinted and cloudy.

1449 47PW15

1458 Sample collected. Water has brackish tint and organic odor.

1502 47PW16

Sample collected at 1509. A lot of sediment in well

038582

(81)

3/13/02

Point and sample. Had to send bailer to bottom of well point to collect sufficient water for sample.

1515 47 PW 18

Sample collected at 1521.

Water has reddish tint. Sediment in well point to bottom.

1630 47 PW 17

Collected QA/QC sample at

1640. Water has tint to it.

Well point produced water.

Well point on opposite bank from

16 and 18. Well point set 20° off vertical into bank.

1645 47 PW 19

Well point set 30° off vertical, in downstream direction.

Sample collected 1649.

Water tinted.

3/13/02

(82)

1655 47 PW 20

Well point set 30° off vertical in to bank. Well bailed out before full bottle. Bottle

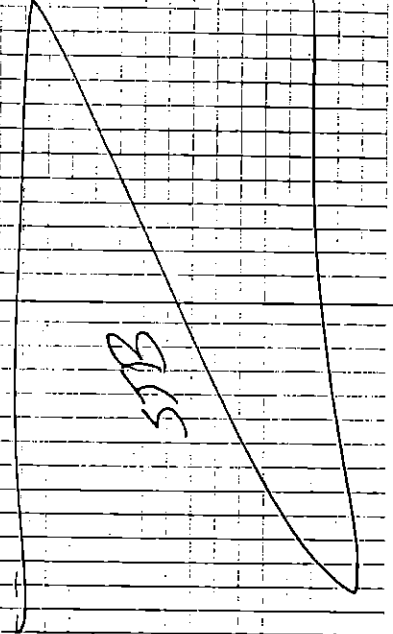
60% full. Collected at

1703. Sediment in bottom of well point.

1707 47 PW 21

Well point 70° off vertical into bank. Sample collected at 1713.

Water has reddish tint. Well point bailing down.



038583

(83)

3/14/02

Dave Cika, Steve Brunton
Weather mild and over
cast. Forecast: P. cloudy highs
in upper 70's

Resume For Water Sampling at
Site 417.

0800 47PW22

Well Point 10' off vertical in to
the bank. About 1 ft of water
in well point. Unable to fill sample
bottle fully, ~60% full. Had to
tag bottom to collect sample.
Some sediment in bottom. Sediment
in sample, water tinted.

0813 47PW23

About a 1 ft of water in well point,
1/2 of which was sediment. Unable to
collect a sample. Well point purged dry to
remove sediment. Well point was
~ 2 ft of stick up.

(84)

0823 47PW24

Sample collected at 0828.
About 1/2 bailer of water from
TOC at start, less than 1/4 at
end of sampling. Bottom not
tagged. Water cloudy.

0833 47PW25

Well point at 20° angle off vert.
into bank. Bailer 4/5 full at
start. Did not tag bottom.
Bailer 1/5 full at end of sample
collection. Sample collected 0838.
Water cloudy.

0842 47PW26

Well point at 30° angle off vert.
in to bank. Sample collected at
0850. First bailer 2/3 full. Water
level dropped rapidly. Tagged bottom
to complete full sample. Little sediment
in bottom. Water was cloudy from the
start.

038584

(85)

3/14/02

0855 47PW 27

Well point set 30° off vertical into the bank. ~8" of water in bottom of well point. Attempted to collect sample at 901. ~250 ml water collected. Sediment in bottom of well and in sample.

0904 47PW 28

Well point has 2+ ft of stick up. Well point 10° off vertical toward downstream. Well point has $\frac{1}{3}$ bailer of water at bottom. Did not collect sample due large amount of sediment in bottom. Bailed dry to remove sediment. Makes water. Will allow to settle and sample afternoon.

Returned 1321

Collected sample at 1325. Did not tag bottom. Sample cloudy.

3/14/02

(86)

0921 47PW 29

Well point ~~set~~ 10° off vert. into bank. Less than $\frac{1}{2}$ bailer of water to start. Water cloudy with reddish tint. Well point not recovering during sampling. Sample collected 0929. 802 Full. Tagged bottom, some sediment.

0935 47PW 30

~8" water in bottom of well point. Cloudy with reddish tint. Some sediment in bottom. Attempted to collect sample at 0940. Collected ~200 ml.

0943 47PW 31

Well point set at 20° angle off vert. into bank. Sample collected 0952. $\frac{1}{4}$ Bailer TOC to start. $\frac{1}{4}$ Bailer into casing at end. Water slightly cloudy with reddish tint. Did not tag bottom of well point.

038585

(87)

3/14/02

0956 47PW32

Well point with 1.5 ft stick
up. Water sample clear
slightly cloudy with reddish
faint 1/2 Bailer at TOC to start
water dropped through out sampling
less than 6" in bottom after
sampling completed. Tagged bottom
after sampling, sediment in
bottom.

1006 47PW33

Well point at 15° angle off vert
into bank. Less than ~.75 ft
water in well point. Went to
bottom to collect enough water
to sample. Collected sample
at 10:12. ~ ~~400~~ 208 ~~538~~
before well point went dry.
Water contains sediment, very cloudy.

1017 47PW34

Well point 30° off vertical into
bank. Well point had ~ 1 ft
of water. Collected sample

3/14/02

(88)

at 1024. Sample Cloudy with
reddish tint. ~ ~~300~~ 304
before well point went dry. Tagged
Bottom. Bottom has sediment.

1028 47PW35

Well point set at 20° angle off
vertical into bank. ~.125 ft
of water in well point. Sample
collected at 10:34. ~ ~~200~~ 530
collected before well point went
dry. Cloudy with reddish tint,
some sediment.

1038 47PW36

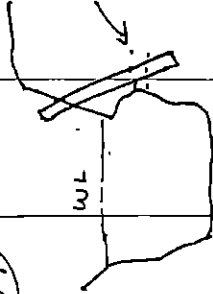
Well point at 40° angle off vert.
into bank. Samples collected at
10:47. QA/QC and MS/MSD.

Bailer 1/2 full from top of casing.
No drop in water level. Water clear.
Stream bank over hangs .5 ft. ~~60~~
Well point driven in to void
(gravel hole) below waterline.
See sketch on next page.

038586

(89)

3/14/02



1058 47PW37

Well point set at 30° angle into the bank. Bank undercut ~~by~~ about .5 ft at base of stream channel. Collected ~~also~~ sample 1105. Bailer 1/2 full from top of casing. Water level did not drop. Water cloudy.

1122 47PW38

Well point set at 20° angle off Vert. 1/2 Bailer of water at TOC to start. Water level dropping while sampling. Collected sample at 1125. Did not tag bottom. Sample water cloudy with reddish tint. Collected ~~bottom~~ 408 536.

1134 47PW39

Well point set 50° off vert. into bank.

3/14/02

(90)

Collected sample at 1138. Bailer 3/5 full TOC at start less than 1/4 full 4" in at end. Water ~~was~~ slightly cloudy. Lost Bailer in stream.

1146 47PW40

Collected QA/QC and MS/MSD at 1202. 1/3 of bailer TOC at start. 1/6 of bailer 4" in at end. Sample cloudy. Did not tag bottom of well point.

1300 47PW41

Well point 30° off vert into bank. Sample collected 1306. Bailer 1/4 full TOC. Maintained water level through out sampling. Sample already and tinted. Did not tag bottom.

1340 47PW42

Collected sample at 1349. Sample clear. 3/5 Bailer TOC start, 1/5 finished. Did not tag bottom.

038587

(91)

3-14-02

1607 - set 47WW42 (port
water sample point.)

1612 - set 47WW43

1615 " 47WW44

1618 " 47WW45

1621 " 47WW46

1631 " 47WW47

1635 " 47WW48

1648 " 47WW49

1650 " 47WW50

Had to erect 47WW50

approx. 30 ft. upstream from
staked (flagged) area

Due to Boulder Riprap (Bridge)

1657 setting 47WW51

Had to move 47WW51

approx. 30' downstream
due to rip rap boulders
adjacent to bridge

SJB

(92)

3/15/02

Paul Cika Steve Brandon

Weather mild to warm

partly cloudy with increasing

clouds. 70-80 showers this afternoon.

0750 18PW16.

Point set in bayou. TOC 2 inches

above water. Water in casing 2 inches

below bayou surface. Collected sample

at 0759. Casing did not immediately

recover.

0802 18PW15.

TOC 1 inch above

Water in casing 17 ft below

bayou surface. About 1/4 barrel

of water on first pull off bottom.

Reddish brown fine sand sediment

collected about 20% of sample.

Will return later.

0812 18PW14

Point near point.

25 ft above bayou surface. Water at

least 1 ft below bayou surface

038588

1350 Little recovery

(93)

3/15/62

Collected sample from 18PW14 at 0818. Water has blue to purple tint. No sediment. Also noticeable odor. Casing screen bent able to advance bailer 25 ft below TOC. Bailer more than $\frac{1}{2}$ full on first pull. less than $\frac{1}{4}$ full on sample completion.

0822 18PW13 is submerged. Unable to sample at this time.

0824 18PW12

TOC less than 1 ft above bayou surface. Initial bailer $\frac{4}{5}$ full. advanced 4" below TOC. Tagged bottom. Sediment. Sample collected at 0830. Sample bottle full.

0834 18PW11 is submerged. Unable to sample at this time.

0835 18PW10 is submerged. Unable to sample at this time.

3/15/62

(94)

0837 18PW09

TOC about 1 ft above bayou surface. Tagged bottom 75 ft. Water in casing. Brown fine sand sediment. Collected ~153 of sample vol. will return later. 1344 Some recovery. No sample collected.

0845 18PW08

TOC 12 ft above bayou surface. Bailer lowered to TOC $\frac{5}{8}$ full bailer on 1st pull. Sample collected at 0849. Grayish fine sand sediment. Did not tag bottom. Used $\frac{3}{4}$ in bailer. $\frac{7}{8}$ full bailer on completion. 0855 18PW07 is submerged. Unable to sample at this time.

0902 18PW06

TOC $\frac{1}{2}$ ft. Above bayou surface. About 5 ft in bottom of casing. Tagged bottom.

038589

(45)

03/15/02

Very little sediment. Filled ~20g of sample container.

Will return to complete.

1342 Very little recovery

0910 18PW05

TOC 1.5 ft above Bayou surface. Less than .5 ft water

in casing. Clear very little sediment

Tagged bottom. Collected ~25g

of sample volume. Will return

later. 1338 Very little recovery

0918 18PW04

TOC is .5 ft above Bayou surface.

Water in casing ~ ~~3/4~~ ^{3/8} below surface

of bayou. Used 3/4 inch bailer.

Water slightly clouded. Tagged bottom

Very little sediment. QA/QC sample

Collected 0930. Bottles ~ 70g full.

0937 18PW03

Pipe 5ft on bank out of bayou.

~1 ft stick up. 3/4 Full bailer on

First pull to TOC. Sample collected

at 0940. Sample clouded up through

3/15/02

(46)

Put Collect. Bailer never advanced beyond TOC

0943 18PW02

Pipe set in bank out of bayou.

with ~1 ft stick up. Used 3/4 in.

Bailer. First Pull 1/2 full advanced

to TOC. Sample collected at 0946.

Sample Cloudy with reddish brown

5 1/2 ft. Beginning to Rain.

0949 18PW01

TOC .5 ft above Bayou surface.

Used 3/4 inch bailer. Less than .5 ft

water in casing. Began collecting

sample. Tagged Bottom. Reddish

Brown silty fine sand sediment

Will return. 1330 Very little recovery.

1010 18PW17

TOC 1.5 ft above bayou surface. Water

in casing. ~~7.1~~ 7.1 ft below bayou surface

Used 3/4 in Bailer. Collected sample

at 1015.

038590

(97)

3/15/02
Sample cloudy.

1020 18PW18

TOC ~ 2 ft above bayou surface,
less than 3 in of water in bottom
of casing. Contains mostly brown
silty sand sediment. Not enough
water to attempt a sample.

1026 18PW19

TOC ~ 25 ft above bayou surface.
Water in casing same level as bayou
surface. Using 34 in. Bailor
Collect QA/QC and MS/MSD sample
at 1034. Water very cloudy with
grayish brown silty sand sediment.
Recovers in ~ 1 min to static WL.
Advanced bailer to TOC did not
tag bottom.

1040 18PW20 is submerged
to sample at this time.

1043 18PW21

TOC .1 ft above surface of Bayou.

(98)

3/15/02

Returned to Site 417 - Goose Prairie
Creek for Resample

1155 47PW23 NOT Adequate For Sample
(Too shallow!) Just mud.

1200 47PW27 Not Adequate - Not

enough water / No

Attempt to re-ranner

on bucket full

1203 @ 47PW30

attempting to resample
very little water in dip point

1208 @ 47PW33

attempting to resample
very little water in dip point
small 0.5" dia. bailer became
unlatched - will have to fish later

1250 @ 47PW38

attempting to resample

RESAMPLED 47PW58

(after confirmation from

Lab of 125m sample vol.

OK!)

Sup. Time
1220.

1350 Returned to 18PW21

Little recovery. Less than .5 ft
first time at point. ~ 2 ft now.

1413 16DW01

Sample collected at 1417.

First Bailor clear, second bailor

some turbid. by.

038591

(99)

3/15/02

1423 16 DW Ø3

No water in piezometer.

Some "Mud" at bottom.

Yellowish Brown clayey silt.

1433 16 DW Ø4

$\frac{2}{3}$ of a bailer of water
at bottom of casing. Sample
collected at 1436. Yellowish Brown
clayey silt sediment

1443 16 DW Ø2

Sample collected at 1447.

Yellowish Brown clayey
silt in suspension Very turbid.

1510 46 DW Ø5

Returned to resample.

Only ~1.5 ft water in bottom
of casing. First 5 ft of bailer
cloudy. Remaining very turbid.

Sample collected 1512. Heavy
Sediment.

3/15/02

(100)

1528 50 DW Ø2

Sample collected at 1533. Water
~13 ft. Sample clear.

1537 50 DW Ø5

Sample collected at 1540
Depth to water ~ 10 ft BGS

1543 50 DW Ø4

Sample collected at 1548
Depth to water ~ 10 ft BGS

1552 50 DW Ø6

Sample collected at 1555
Depth to water ~ 12 ft BGS

1620 50 DW Ø1

Sample collected at 1622
Depth to water ~ 8 ft BGS

038592

(107)

3/15/62

Returned to pore water points where sampling was not completed. Unable to obtain additional volume. Removed bailers and cap pipe.

51B

3/16/62

(102)

Saturday 3/16/62

Dave C. Ica and Steve Brunton
Weather overcast and cool. Highs in low 60s, chance of rain. Breezy.

0740 Returned to 4760W11. No recovery unable to complete sample P₅₀₀

0755 Returned to 4760W30. Recovered and collected ~ 25 mL P₅₃₈

0805 Returned to 4760W33 P₅₃₈

Recovered same. Collected ~ 20 mL.

0840 Installed tubing at 17W17. Missed due to error on field drawing. Lowered tubing to bottom, then raised ~ 4 ft off bottom.

0904 29 DWG 1 Depth to water ~ 18 ft BGS

038593

(103) 3/16/02

29DWØ1 Sample collected
At 0907. Full bailer, some
sediment in lower 6". D.D.
not tag bottom.

0918 ~~29DWØ2~~ 29DWØ2
Depth to water ~ 20 ft - bgs.
Sample clear no sediment.
D.D. not tag bottom
Sample collected at 0928.

0943 46DWØ7
Collected sample at 0948.
Water at ~ 9 ft BGS.
Top to 2ft bailer slightly
cloudy bottom of bailer
heavy sediment. Decanted
bailer to collect sample. Made
2 pulls with bailer. Did not tag
bottom. Sample still has sediment
in it.

3/16/02

(104)

1002 Ø4DWØ1
Water about 1 ft BGS. Collected
Sample 1007. Water clear
through out sample collection.

Collected QA/QC and MS/MSD.

1012 Ø4DWØ2
Water level ~ 10 ft BGS.
Sample collected at 1017.
Sample clear through out
sampling.

1023 Ø4DWØ2
Sample collected at 1026.
Water at ~ 6 ft BGS. Water
clear through out sample.

1055 water level on Harrison Bayou
has dropped 6". Sampling the
4 points that were in Harrison
Bayou.

038594

105 3/16/02

1118 18PW20

TOC 15 ft above bayou surface. Water in well point ~.4 ft below bayou surface. Sample collected at 11:23. Lowered bailer $\frac{2}{3}$ of the way in from TOC 3 times to collect sample. Water had tint to it.

1128 18PW13

TOC is ~.25 ft above bayou surface. Water level in well point is equal to bayou surface. Lowered bailer $\frac{3}{4}$ way in below TOC. Sample collected at 11:31. Water has tint to it.

1134 18PW10

TOC is ~.3 ft above bayou surface. About .75 ft of water in bottom of casing. Collected about $\frac{1}{3}$ sample volume. Sediment in sample.

3/16/02

(106)

1143 18PW11

TOC ~.4 ft above bayou surface. ~1 ft of water in bottom of casing. Sample collected at 11:46. Very little sediment in casing. Sample slightly cloudy.

1150 18PW07

TOC ~.3 ft above bayou surface. Water level in casing ~.2 ft below surface of bayou. Lowered bailer to TOC to collect sample. Sample collected at 11:53. Water has a tint, little sediment.

1140 47PW42

About 1 ft water in bottom of casing. Fine sandy silt sediment. Collected about $\frac{1}{3}$ of sample. Well had not recovered as of 1705.

38595

(107)

3/16/62

1248 47 PW 43

Water ~ 1 ft below TOC.
Water has some sediment.
Sample collected at 12:50

1256 47 PW 44

~ 1.5 ft water in bottom of casing. Lower 1/2 ft heavy sediment. Were able to fill 1/2 sample bottle before dry. Sample collected at 1303.
Reddish Brown fine sand and silt sediment.

1307 47 PW 45

Water visible. 5 ft below TOC.
Lowered bailer to TOC to collect sample. Sample collected at 1309.
Little sediment. Water has thin

1316 47 PW 46

Water visible ~ 1 ft below TOC.
Bailer 2/3 full when lowered to TOC. Sample collected at 1319

3/16/62 (108)

1322 47 PW 47

Water visible ~ 1.25 ft below TOC.
Started to collect QA/QC. Bailed dry sediment in samples.
Completed sample collection at 17:15.

1332 47 PW 48

Water level ~ 1.2 ft below TOC.
Sample collected at 1334. Low sediment. Water has thin silt.

1349 47 PW 49

~ 1.5 ft water in bottom of casing. Collected 1/4 sample.
Sediment: Reddish brown fine sand and silt. Well had not recovered as of 1725.

1359 47 PW 50

Water level at ~ 1.5 ft below TOC.
Sample collected at 1402. Sample contains sediment.

038596

(109)

3/16/02

1407 4/7 PW 51
Less than 5 ft water in bottom
of casing. Reddish Brown fine
sand and silt sediment.

1500-1830 Purg'd MW-19
of 55 gals. Using poly bailer.
Well never went dry

1700 Began Purg'ing MW-18
Bailed well dry at 18:30 after
~ 45 Gal.

Sunday 3/17/02

Dave Cika and Steve Branton

Weather: Overcast, 53° with
misty rain.

Resume sampling of PW and
DW locations. Will attempt
to collect additional volume
from PWs started 3/16/02.

3/17/02

(110)

0900 Returned to 47PW43.
Collected remainder of sample
volume at 0905. ~125 mL

Total Volume collected

0915 Returned to 47 PW 49
Collected ~ 25 mL of water.

Still have not collected mth.
of 125 mL.

Went to Site 16 to get bottles
from other team

0953 Returned to 18PW10
Collected ~ 10 mL of water.
Completed sampling at 0957.
~ 100 mL total water collected.

1006 18DW 01

Water ~ 5 ft BGS. QA/QC
sample collected at 10:10. Water
Clear no sediment. Did not tag bottom.

038597

(111)

3/17/02

1016 18DW02

Reizometer loose in bore hole. Open anulus. Depth to water greater than 25 ft BGS. Sample collected at 1025. Second bailer had more than 1 ft reddish Brown sandy silt sediment. Sample clear and very little sediment.

1034 18DW02

Dry hole. A little "mud" on tip of bailer after tagging bottom.

1056 MW19

Well fully recovered. Depth to water ~ 5 ft TOC. Sample collected from top of water column at 1057.

1101 MW18

Well fully recovered. Depth to water ~ 5 ft TOC. Sample collected from top of water column at 1106.

3/17/02 (112)

1114 17DW01

Depth to water ~ 6 ft BGS. Sample collected at 1117. Sample clear. Did not tag bottom.

1700 16WW28

Water was recovered to within 4 ft of ground surface. Sample collected with bailer at 1705. Sample clear no sediment.

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

~~File 13-17~~

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038600

CHUBBEN AAP
WARRICK, TX
PERCHLORATE
INVESTIGATION
SAMPLING EVENT
STATION 2
BOOK

NATIONAL

408

MINING TRANSIT BOOK

26.3

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This Book is manufactured of a High Grade
50% Rag Paper having a Water Resisting Surface,
and is sewed with Nylon Waterproof Thread.

038601

①

5-MARCH-02

LONGHORN SITE 18

0700

ARRIVED AT LONGHORN
A.M. PLANT CREW OBTAINED
PASSES TO PLANT.

0710

ARRIVED AT FIRE STATION AND

UNLOADED MATERIALS

0730

STEVE BRANTON CONDUCTED A
SAFETY MEETING. ADDRESSED
BIO. HAZARD ON SITE.

0935

RALPH RAY, JEFF CHAPPEL,
B. HATHORN @ SITE 18
RALPH AND I WERE GOING TO
INSTALL PORE WATER PROBES.
J. CHAPPEL DESIGNATED LOCATION
OF PROBES.

1100

RALPH AND I COMPLETED
INSTALLATION OF 21
PORE WATER PROBES AT
SITE 18

1115

STOPPED FOR LUNCH

5-MARCH-02

LONGHORN SITE 47

1300

ARRIVED AT SITE 47
BEGAN PREPARATION FOR
INSTALLATION OF PORE WATER
PROBES

1420

INSTALLED 9 PROBES. THE
BANKS OF STREAM ARE
TO STEEP TO STAND ON AND
SAFELY INSTALL PROBES.

1600

THE WATER LEVEL IS TOO
DEEP TO FOR THE RUBBER
BOOTHES. STOPPED INSTALLING
PROBES UNTIL WE GET
WADERS. BEGAN MARKING
LOCATIONS OF PROBES.
STOPPED MARKING LOCATION
OF PROBES. RETURNED
TO SITE WHERE BOB
AND DAVID B. ARE
WORKING.

038502

③

1700

5-MARCH-02

OFF LOADED EQUIPMENT
AT STAGING AREA.
LEAVING SITE.
END OF ENTRY

LONGHORN (SITE 47)

(SITE 47)

LONGHORN

6-MARCH-02

0700

ARRIVED AT SITE
BEGAN LOADING EQUIPMENT
FOR TODAY'S ACTIVITIES.

J. CARTER CONDUCTED A

TAIL GATE SAFETY MEETING.

0730

ARRIVED AT SITE 47
TO CONTINUE INSTALLING
PROBES.

1100

COMPLETED PUTTING PROBES

ON SITE 47. THE 41

PROBES ON 50' SPACING ONLY

REACHED TO THE RENTAL AT
51ST STREET. CONTRACTED JEFF

CARTER. ROY HOESMAN ON SITE

ROY SAID TO ORDER MORE

PROBES AND PLACE THEM ON

100' SPACING. FARM PASTURE

TO E.M.A. STOPPED FOR

LUNCH.

038503

(5)

6-MARCH-02 SITE 18/47 LONGHORN
ARRIVED AT SITE 47
TO GET REPLAC 3 BROKEN
PROBES AND TO INSTALL
REMAINING PROBES NORTH
OF RESERVE OF 5105 ST.
1430 Completed Replacing Location
21, 28, AND 41. TA Measured
GOT 7 MORE PORE WATER
PROBE LOCATIONS ALONG
THE BANK. RETURNING TO
STAGING AREA.
1520 LOADING MATERIALS TO
CONDUIT WHEN SAMPLING
AT SITE 18 well
18WW18.
1545 Arrived AT Well
18WW18. BEGAN SETTING
UP SITE.
1600 OPEN WELL
PID Reading 2.1 ppm
Total Depth of Well
From Work PLAN. 63'.
DEPTH TO 420 26.35' TOC

(6)

6-MARCH-02 SITE 47 LONGHORN
1700 ATTEMPTED TO PUMP WELL
18WW18. THE WELL COULD
BE PUMPED W/ PERISTALTIC
PUMP. HOWEVER THE
FLOW THROUGH CELL LEAKED.
THE LEAK WAS SUFFICIENT
ENOUGH THAT NO WATER
WAS DISCHARGED THROUGH
THE TUBING. PACKING
UP THE EQUIPMENT AND
RETURNING TO THE STAGING
AREA
1700 ROY AND I TESTED THE
FLOW CELL AND CHANGED
THE CONFIGURATION WHICH
SEEMED TO WORK. LEAVING
SITE. END OF ENTRY
R. ARTHUR

038604

②

0700

7-MARCH-02
ARRIVED AT THE STAGING
AREA RALPH AND I BEGAN
LOADING EQUIPMENT FOR
GROUND WATER SAMPLING
ACTIVITIES.

(SITE 47)
LONGHORN

0800

ARRIVED AT SITE 18.
SET UP ON WELL COB
DECON INTERFACE PROBE
w/ ALCONOX WASH AND
TRIETHYLENE w/ ORGANIC
FREE WATER.

0815

PID READING @ TOC
0.0 ppm.
DTW - 23.0' FROM
BLUE MARK ON PROTECTIVE
CASING.

0830

PURGING 100 mL/MIN
H₂O LEVEL 22.5'
TOTAL DEPTH OF WELL
NOT IN WORK PLAN.

(SITE 47)
LONGHORN

③

7-MARCH-02

PH	COND	TURB	TEMP
6.9	7.5	0	17°C
6.9	7.6	0	17.0
6.9	7.6	0	17.0

0700 COLLECTED SAMPLE FROM

WELL COB

SAMPLE # 18 WWC08

18 WWC08 QC

18 WWC08 QA

18 WWC08 MSMD

0910 H₂O LEVEL AFTER SAMPLING

22.5' FROM MEASUREMENT POINT

0930 AT WELL 44 BEGAN SET UP

ON WELL

NOTE - NO EQUIPMENT RENEWAL

WAS COLLECTED DUE TO

USING DISPOSABLE TUBING

FOR EACH WELL

MEASURED TUBING 26.5' 28.5'

038605

(9)

7-MARCH-02 SITE 48) LONGHORN

0915 60 PID READING 0.0 ppm
DECON H₂O INDICATOR w/
ALCONOX WASH AND TRIPLE
RINSE.
23.9'
26.65'
H₂O LEVEL - 24.5' FROM
MARK ON PROTECTIVE CASING

0945 BEGAN POROSITY WELL. PULSING
RATE 100 ml/min
TOTAL DEPTH OF WELL
55.5' FROM WORK PLAN
DTW 23.0'
POROSITY VOL.

7.4805 ($.33^2 \pi / 4$) (55.5 - 26.65)
7.4805 (0.087) 28.85
2.4805 (2.5)
18.7 GAL / FE
18.7 GAL = 1 WELL VOL
56.1 GAL = 3 WELL VOL.

(10)

7-MARCH-02 SITE 48) LONGHORN

1005 PURGED 1.5 GAL. BEGAN
COLLECTING KUNOSJUS
PH COND TUP. TEMP
1005 6.3 .27 1 18°C
1010 6.3 .27 1 18°C
1015 6.3 .27 1 19°C

1016 COLLECTED SAMPLE 18 WJCH
LENGTH OF TUBES 57.9"
POST DTW 23.0'

1025 DECON H₂O INDICATOR w/
ALCONOX WASH AND TRIPLE
RINSE w/ OXALIC ACID WASTE
BREAKING DOWN SITE
1035 SET UP AT WELL 18.

1044 PID READING 0.0 ppm
DTW 26.2' FROM MARK
ON 18°C

038606

(11)

1050

7-MARCH-02 (SITE #8)
LONG (HORN)

PURGE RATE: 150 mL/MIN
DTW 26.5'
T.D. WELL 63.0' FROM WELLS
PLAN

7.48 (0.087) (63.0-26.2')
7.48 (0.087) (36.8)
23.9 GAL = 1 VOL
71 GAL = 3 VOL

PURGE 1.5 GAL BEGAN CIRCULATING
FLOWS.

	PH	COND	TURB	TEMP
1109	6.2	.68	1	19°C
1110	6.2	.68	1	19°C
1115	6.2	.68	1	19°C

1125 COLLECTED SAMPLE
18W/18. DEPTH TO WATER
26.2' TO C
DECON H₂O INDICATOR OR
w/ ALCONOX WASH AND TAPPE
RANGE w/ ORGANIC FOR H₂O

(12)

(SITE 18)
LONG (HORN)

7-MARCH-02

LENGTH OF TUBING FROM
WELL 18 67.7'
PURGED APPROX 3 GAL

1130 @ well 18w/17 PTO READING
0.0 ppm. DTW 27.2' FROM
MARK ON TOC
PURGE RATE 100 mL/MIN H₂O
LEVEL 22.3

7.4805 (0.087) (37.0-27.2)
0.65 (2.8)

6.37 GAL = 1 well VOL
19.0 GAL = 3 well VOL

	PH	COND	TURB	TEMP
1203	6.6	8.1	7	19.0°C
1205	6.6	8.2	7	19.0°C
1210	6.6	8.2	6	19.0°C

(13)

7-MARCH-02

(SITE 181)
LONGGLOEM

1217

Collected Sample
18W 17.5'
POC LENGTH OF TUBING
36.6". Break in 6 Down
SITE. Decon H₂O INDICATOR
w/ ALCONOX WASH AND TRIPLE
RINSE w/ ORGANIC FREE WATER
ARRIVED AT SITE 47 SETTING
UP ON WJELL LHSW42
PID READING 0.0 ppm

1250

1255

DTW 46 17.5' FROM MONSIEUR
POINT ON CASING.

1300

Purge Rate 175
375 mL/min
H₂O Level @ 17.6'

~~74005 (4" I/H)~~
UNKNOWN TOTAL DEPTH.

(SITE 47)
LONGGLOEM

7-MARCH-02

(14)

1315 PURGED APPROX 1 GAL.
PH COND TURB TEMP
5.6 3.9 2 18°C
1315 5.5 3.8 2 18°C
1320 5.5 3.8 2 18°C
1325 5.5 3.8 2 18°C
1330 COLLECTED SAMPLE 47W 42
POST DTW 17.9'
LENGTH OF TUBING 25.4'

1335 DECON H₂O LEVEL w/ ALCONOX
WASH AND TRIPLE RINSE w/
ORGANIC FREE WATER.

NOTE PURGE WATER FROM LHSW42
HAD SUSPENDED SOLIDS SIMILAR
TO ZEPHON OR RUST. CASING
MADE OF PVC.

WE BROKE THE PH PROBE REPLACING
THE UNIT IN TWO CASES. ROTATING
TO STAGING AREA TO GET NEW
PROBE

38608

(15)

7-MARCH-02

CSTE 472
LONGHOEN

1410

Arrived @ well 472 MW 43
 DTW 16.75'
 PID - 0.0 ppm
 Purge Rate 150 ml/min
 H₂O Level 17.2'
 No Total Depth of Well
 in the work plan
 No calculation on well
 Vol.

1445

Purged Approx 1.5 GAL
 pH COND TURB TEMP
 5.8 2.8 1 18°C
 5.8 2.8 1 18°C
 5.8 2.8 1 18°C

1445

1450

1455

1500

Collected Sample 472 MW 43
 Post DTW 17.5'

Length of Tubing
 24.0'

1515

DECON H₂O Padlock w/ALCONOX
 WASH AND Triple Rinse w/ORGANIC
 Free Water

(16)

7-MARCH-02

CSTE 471
LONGHOEN

1520 Setting up on well 471 MW 47

PID Reading 0.0 ppm

DTW 15.55'

Purge Rate 200 ml/min

H₂O Level 15.8'

No Total Depth of Well
 in the work plan. No
 calculation on well Vol.

1540

Purged Approx 2 GAL

	pH	COND	TURB	TEMP
1540	6.3	2.5	0	17°C
1545	6.3	2.5	0	17°C
1550	6.3	2.5	0	17°C

45552 Collected Sample 471 MW 47

DECON H₂O INDICATOR
 w/ALCONOX WASH AND
 Triple Rinse w/ORGANIC
 Free Water

038609

(17)

7-MARCH-02 (SITE 47) LONG HORN
LENGTH OF TUBING FOR
WELL LHSW 47 24.0'
POST DTW 16.8'

1610 SETUP ON WELL LHSW 46
PID Reading 0.0 ppm
DTW - 17.1' FROM MARK
TOC
PURGE RATE 150 ml/min
H₂O LEVEL 18.4
NO T.D. OF WELL IN WORK PLAN
NO CALCULATION OF WELL VOL.
1630 FORGED APPEX 2 GAL. BEGAN
TAKING READINGS.

	P.H	COND	TORB	TEMP
1630	6.3	.31	1	18°C
1635	6.3	.31	1	18°C
1640	6.3	.31	1	18°C

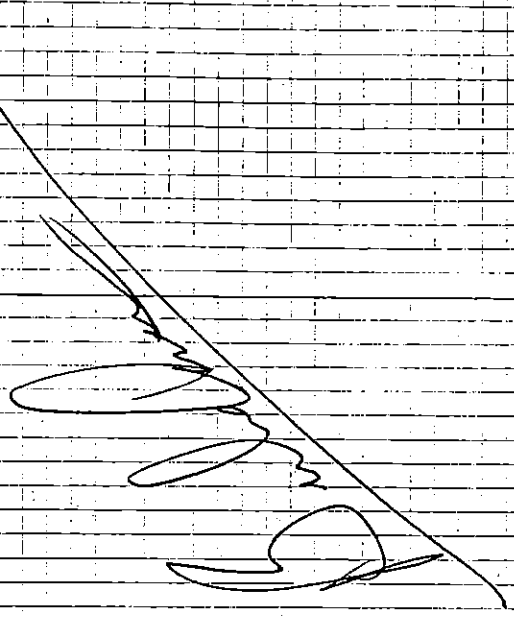
1645 COLLECTED SAMPLE 47W 46
POST DTW 18.0'
LENGTH OF TUBING 23'

(18)

7-MARCH-02 (SITE 47) LONG HORN

DECON H₂O INDICATOR W/
ALCONOX WASH AND TRIPLE RINSE
W/ ORGANIC FREE WATER

1700 RETURNISH TO STAGING AREA
1715 PACK IN SAMPLES
1800 LEAVING SITE END OF
ENTRY



038610

(19)

8-MARCH-02

ARRIVED AT THE STAGING AREA

(SITE 47)

LONGHORN

0705

CONDUCTED CAL CHECK ON THE HORIBA
PH 4.0; CON. 452
AT TUB. 0.0

0730

ARRIVED @ well 47W well
LEGUM SET UP ON LOCATION
PID READING 0.0 ppm
DTW 16.1' from MARK TOC
FLOW RATE 150 ml/min
H₂O LEVEL 16.1'
T.D. WELL 15.0'

7.4005 (.33) 4 (19.0-16.1)

0.65 (2.9)

1.89 = 1 well VOL
5.6 = 3 well VOL

0800

PURGED PH APPRX 2 GAL
COND TUB

6.5 5.9 18°C

0800

6.5 5.9 18°C

0805

6.5 5.9 18°C

0810

6.5 5.9 18°C

(SITE 47)

LONGHORN

8-MARCH-02

0812 COLLECTED SAMPLE 47W well

DTW POST 16.1'

LENGTH OF TUBING IN 47W well

24.3'

0825 SETTING UP ON LOCATION LHS MWS7
DECON H₂O INACTIVATION w/ALCOHOL
WASH AND TRIPLE RINSE w/DEIONIZED
FREE WATER

0830 PID READING 0.0 ppm

DTW - 5.3'

0835 FLOW RATE 150 ml/min
H₂O Level @ 5.4'

0.65 (14.5-5.9')

5.98 = 1 VOL

17.94 = 3 VOL

0850 PURGED APPRX 2 GAL

PH COND TUB Temp

5.0 0.9 14°C

5.1 0.9 14°C

5.3 0.9 14°C

038611

(21)

8-MARCH-02 (SITE 42) LONGHORN

0910 Collected Sample 47WWS7
Post DTW 5.4'
Length of Tube in MWS7
24.0'. Decon H₂O Indicator
w/ALCONOX WASH AND TRIPLE
RINSE w/ ORGANIC FREE WATER
Purged 4 GAL.
0925 SETBACK UPON 47WWS18
PID Reading 0.0 ppm
DTW 14.7' FROM MEASURING
POINT TOC
Flow Rate 150 mL/MIN H₂O
Level 14.9'
21.0
0.65 (14.0-14.7)
4.1 GAL = 1 well VOL
12.2 GAL = 3 well VOL
0954 Purged Approx 2 GAL BEGAIN
TAKING READINGS
PH CON TUBS TEMP

(22)

8-MARCH-02 (SITE 47) LONGHORN

0955 6.9 3.9 18°C
1000 6.9 3.9 18°C
1005 6.9 3.9 18°C
1012 COLLECTED SAMPLE 47WWS18;
47WWS18 QC; 47WWS18 QA.
Post DTW 14.9'
DECON H₂O INDICATOR w/
ALCONOX AND TRIPLE RINSE w/
ORGANIC FREE WATER.
TUBING LENGTH 22.7'
Purged 4 GAL.
1015 SETBACK UP ON well 47WWS17
PID - 0.0 ppm
DTW - 15.3 FROM MEASURING
POINT TOC
1030 THE PURGE WATER WAS A LOT
OF SEDIMENT AND SAND. STOPPED
PURGING TO EMPTY FLOW
CELL.

038612

23

8-MARCH-02 (SITE 47) LONGHORN

THE FLOW CELL HAD WAS APPRX 1/2 FULL OF SAND. WE CLEANED THE FLOW CELL AND CONTINUED TO PUMP. WE RAISED THE TUBING APPRX 2'. THE PUMP WATER CLEANED UP. STOPPED PUMPING CLEANED OUT FLOW CELL AGAIN.

PURGING CLEAR WATER @ 200 mL H₂O LEVEL 15.4 T.D. WELL FROM WORK PLAN 62'.

1045

0.65 (62 - 15.3)
 16.3 = 1 WELL VOL
 49.0 = 3 WELL VOL

PURGED	APPX	26ML	PH	CON	TOLB	TEMP
1102	6.2	3.0	1	19		
1105	6.2	3.0	1	19		
1110	6.2	3.0	1	19		

1102
 1105
 1110
 1115

24

8-MARCH-02 (SITE 47) LONGHORN

1117 COLLECTED SAMPLE 47WU19 POST DTW 15.45'

DECON H₂O INDICATOR w/ ALCONOX WASH AND TRIPLE RINSE w/ ORGANIC FREE WATER. PURGED 4 GALS. LENGTH OF TUBING 66.7'

1120 SETTING UP ON WELL 47WU20 PID READING 0.0 ppm DTW - 17.6 FROM MARK ON LOC.

PURGING RATE 250 mL/min H₂O LEVEL 17.7' T.D. WELL FROM WORK PLAN 22.0'.

0.65 (17.6 - 22 - 17.6)
 2.86 = 1 WELL VOL
 8.58 = 3 WELL VOL

BA.
 INCREASE T.D.

038613

(25)

8-MARCH-02 (SITE 47)
LONGHORN

1143 FUELED 2 GAL. DECON TAKEN 4
READINGS.

PH	COND	TURN	TEMP
7.8	1.1	2	19°C
7.8	1.1	2	19°C
7.8	1.1	2	19°C

1200 Collected Sample 47 WWS2D
Post DTW 17.7'
Purged approx 4 GAL.
Decon H₂O INJECTOR w/
ALCONOX WASH AND TRIPLE
RINSE w/ ORGANIC FREE WATER.
NEW WELL VOL CAL.
0.65 (100-17.6)
53.56 = 1 WELL VOL
160.6 GAL = 3 WELL VOL
STOPPED FOR LUNCH
SETTING UP ON WELL LHS MUST
PID READING 0.0 APP-
DTW 13.5 FROM MARK
TOC

1335

(26)

8-MARCH-02 (SITE 47)
LONGHORN

1345 PURGING @ 250 ml/min
H₂O LEVEL @ 13.75'
0.65 (20-13.5)
4.2 GAL = 1 WELL VOL
12.6 GAL = 3 WELL VOL
WATER LEVEL FALLING SLOWLY
PUMPING RATE TO 100 ml/min
H₂O LEVEL RETURNED TO
13.75'

PH	COND	TUBE	TEMP
7.0	0.9	1	18°C
7.0	0.9	1	18°C
7.0	0.9	0	19°C

1425 Collected Sample 47 WWS56
Post DTW - 13.8'
LENGTH OF TUBE 22'
Purged approx 3.5 GAL
Decon H₂O DECON/ALCONOX
WASH AND TRIPLE RINSE
ORGANIC FREE WATER.

038614

27

(SITE 42)
LONGHORN

8-MARCH-02

1436

Arrived AT well 475 MW 55
PID 0.0 PPM
H₂O Level 15.65' From MARK
TDC
Purge Rate 250 ml/min
H₂O Level 15.65'
TD WELL 17.5' from Waterline
(0.65)(17.5 - 15.65)
1.26 GAL = 1 well VOL
3.6 GAL = 3 well VOL

1500

Purged Approx 1.5 GAL
pH COND TUBS TEMP
6.8 .39 7 17°C
6.8 .39 6 17°C
6.9 .39 6 17°C
6.9 .39 6 17°C

1515

Collected Sample 475 MW 55
Post DTW 15.65'
Purged Approx 3 GAL
LENGTH 22.4'
Deco w H₂O probe w ALCONOX
WASH AND TRIPLE RINSE w ORGANIC
Free w ater

28

(SITE 47)
LONGHORN

8-MARCH-02

038615

527 Arrived AT well 475 MW 26
SETTING up SITE
PID Reading 0.0
DTW From MARK TOC
17.8
Purge Rate 100 ml/min
H₂O Level 17.9'
No TOTAL DEPTH OF WELL
IN WORK PLAN NO CAL ON
WELL VOL

Purged Approx 1.5 GAL
pH COND TUBS TEMP
6.6 .54 0 18°C
6.6 .54 0 18°C
6.6 .54 0 18°C

1620 Collected Sample 475 MW 26
Purged 23 GAL
Tubing Length 23.0'

Breaking Down SITE RETURN
TO THE STABLE AREA

29

8-MARCH-02

(SITE 47)

LONGHORN

COMPLETE TRANSFERING
SAMPLES AT THE STAGING
AREA. LEAVING SITE
END OF ENTRY

1700

9-MARCH-02

LONGHORN

0802 ARRIVED @ WELL 47WW27
PID READER 0.0ppm
H₂O LEVEL 12.3' FROM TOC

Flowrate 100ml/min

DTW 12.4' TOC

0.65C 12.3'

NO T.D. IN WORK PLAC/NO
WELL VOL EVAL.

0840 PULSED APPRX 1.5 GAL

	PH	COND	TURB	TEMP
0840	5.4	.26	0	16°
0845	5.4	.26	0	16°
0850	5.4	.26	0	16°

0855 COLLECTED SAMPLE # 47WW27

POST DTW 12.45'
PURGED APPRX 2.5 GAL
LENGTH OF TUBING 22.0'
DECON H₂O probe w/ALCONRX
WASH AND TRIPLE RINSE w/
ORGANIC FREE WATER

038616

(31)

9-MARCH-82

(SITE 47)
LONGHORN

ARRIVED AT WELL LHSWWS53
PID READ 0.0 ppm
DTW 11.55' FROM MARK
ON TOC.
PURGE RATE 4.8' 100 ml/min
H₂O level 11.8'
T.D. well 14.0' FROM MARK
PLAN

0.65' (14 - 11.55')
1.6 GAL = 1 WELL VOL
4.8 GAL = 3 WELL VOL

0945

H₂O level @ 12.1 CAN NOT
MAINTAIN H₂O level WE WILL
TRY TO PURGE 3 WELL VOL,
PURGED WELL DRY, PURGED
APPROX 5 GAL. H₂O level
AT 15'. RAISE RAISED PROBE
TO 14' AND ALLOWING
H₂O TO RECHARGE.

1030

WELL RECHARGED TO 12.9'
PH 5.4; COND. 34; TDS 2;
TEMP 14. COLLECTED SAMPLE
47 WWS3

11:00

(32)

9-MARCH-82

(SITE 47)
LONGHORN

1105 DECOM H₂O PROBE w/ ALCONOX
WASH AND TRIPLE RINSE w/
ORGANIC FREE WATER.
LENGTH TUBING 16.10"
1300 SETBACK UP ON WELL LHSWWS4
PID 0.0 ppm
H₂O level 8.9' FROM MARK
ON TOC.

1307 PURGE RATE 200 ml/L H₂O level
8.9'

1325 PURGED APPROX 2 GAL
PH COND TDS TEMP
1325 6.7 1.6 4 17°C
1330 6.7 1.6 3 17°C
1340 6.7 1.6 3 17°C

1340 COLLECTED SAMPLE #47 WWS4
POST H₂O level 8.9'
RECOM H₂O level w/ ALCONOX
WASH AND TRIPLE RINSE w/
ORGANIC FREE WATER.
LENGTH TUBING 46.3'

(33)

9-MARCH-02

(SITE 47)
LONGHORN

1357 SETTING UP ON WELL 47WU23
PITD 0.0 ppm
H₂O level 15.85' From
MARK ON CASING
Probe Rare 250 mL/min H₂O
level 16.0'

0.65 (32-15.85)
10.5 GAL = 1 well VOL
31.5 GAL = 3 well VOL

1420 PULSED APPRX 2 GAL
PH COND TUBE TEMP
6.9 1.0 1 20°C
1425 6.9 1.0 1 20°C
1430 6.9 1.0 1 20°C

1435 Collected Sample # 47WU23
PULSED APPRX 3 GAL
TUBING LENGTH 33.5'
PITD Reading 0.0 ppm
H₂O level 16.0

Decore H₂O probe w/ALCONAX
WASH AND Triple Rise w/ALCONAX
Free Water

(34)

9-MARCH-02

(SITE 47)
LONGHORN

1452 SETTING UP ON WELL
50 WU01
PITD Reading 0.0 ppm
H₂O level 11.1'
FLOW RATE 100 mL/min
H₂O level 11.5'

1530 PULSED APPRX 1.5 GAL
PH COND TUBE TEMP
7.1 .73 1 15°C
1535 7.1 .73 0 15°C
1540 7.1 .73 0 15°C
1543 7.1 .73 0 15°C
1552 Collected Samples

50 WU01 QC
50 WU01 QC
50 WU01 QC
50 WU01 QC (MS/MSD)

LENGTH TUBING 18.3
PULSED APPRX 3 GAL

Decore H₂O probe w/ALCONAX
WASH AND Triple Rise w/ALCONAX
Free Water

038618

(33)

1615

9-MARCH-02
AT well LHS MW 40. THE
WELL DID NOT HAVE TUBING
INSTALLED IN THE WELL.

(SITE 47)
LONGHORN

1630

Arrived at well 47 MW 21
PID Reading 0.0

PTW - 8.2 from TBC.

Flushed approx 2 gal. Reagent Water

PH COND TUBO TEMP

1650

4.8

.38

1

15°

1655

4.8

.38

1

15°

1700

.38

1

15°

1703

Collected Sample 47 MW 21
POST PTW 8.3

Decon H₂O probe w/ ALCONOX
AND Triple base w/ ORBICARE
free water.

106 inch level at 21.5

1715

Arrived at well LHS MW 60
PID Reading

H₂O level 13.1'

Flow Rate 200 ml/min

H₂O level 13.1'

9-MARCH-02

(36)

(SITE 47)
LONGHORN

1735 Picked 1.5 GAL

PH COND TUBO TEMP

1735

6.6

1.4

0

16°

1740

6.6

1.4

0

16°

1745

6.6

1.4

0

16°

1745 Collected Sample

47 MW 60

POST DTW 13.1'

LENGTH OF TUBING

Decon H₂O Probe w/ ALCONOX
WASH AND Triple base w/
ORBICARE Free Water

RETURNED TO STAG IN F&H
AREA

1800 LEAVING SITE END OF
ENTRY

B. Davis

038619

(37)

10-MARCH-02
ARRIVED AT well LOCATION
46WV03; OPEN well
PID READING 0.0 ppm.
NO TUBING IN well.
SETTING UP ONE well 46WV02
PID READING 0.0 ppm
DTW 26.8' FROM MARK ON
TOC.
FLOW RATE 200 ml/min H₂O level
~~28.8~~ 28.0

0.65 (46-26.8)
12.48 = 1 well VOL
37.44 = 3 well VOL

0820 Filled 1.5 GAL
PH COND TUBS Temp
4.5 .65 0 15°C
4.5 .66 0 15°C
4.5 .65 0 15°C

0835 COLLECTED Sample 46WV02
POST DTW 27.8' Filled 3 GAL
LENGTH OF TUBING 43'
DECON H₂O Meter w/ALCOHOL
WASH AND RINSE w/DECONATING
WATER

(SITE 46)

LONGHORN

(38)

(SITE 46)

LONGHORN

10-MARCH-02

0840 SETTING UP ONE well 46WV01
PID READING 0.0
DTW 17" TOC MARK
PURGE RATE 200 ml/min H₂O level
17.2'
TD well FROM WORK PLAN
34.0'

0.65 (24.0-17)
4.55 GAL = 1 well VOL
13.65 GAL = 3 well VOL

0910 FLOWED APPROX 1.5 GAL
PH COND TUBS Temp
5.7 .10 1 31.6°C
5.7 .09 1 17°C
5.7 .09 1 17°C
5.7 .08 1 17°C
0930 COLLECTED Sample 46WV01
POST DTW 7.4' Filled 3 GAL

LENGTH OF TUBING 21.7'
DECON H₂O Probe w/ALCOHOL
WASH AND RINSE w/DECONATING
WATER Filled 3 GAL

038620

39

0940

10-MARCH-82 SITE 46 LONG HORN
SETTLING UP ON well 46 WWSW 19
PID READING oppm
DTW - 16.6
Purge Rate 175 ml/min
H₂O level 17.0'
TD 27' From WORK PLANE

0.65 (27 - 16.6)
6.75 GAL = 1 well VOL
20.26 GAL = 3 well VOL

Purged APPROX 1.5 GAL
pH COND TURB TEMP
7.2 1.8 0 18°C
7.1 1.8 0 18°C
7.1 1.8 0 18°C

1034 Collected Samples 46 WWSW 19
46 WWSW 19 RA 46 WWSW 19 DE
POST DTW 17.2'
LENGTH OF Tube 26.6'
Decon H₂O meter w/
ALCONOX WASH AND RINSE
w/ ORG ANAL FREE WATER
Purged APPROX 3 GAL

40

SITE 46 LONG HORN

10-MARCH-82

1050 Arrived AT well 46 WWSW 04
PID READING 0.0
H₂O level 16.3'
Flow Rate 150 ml/min H₂O level
16.5'
.65 (24 - 16.3 + 6.3)

56 GAL = 1 well VOL
156 GAL = 3 well VOL

Purged APPROX 1.5 GAL

pH COND TURB TEMP
1125 7.0 1.7 1 18°C
1130 7.0 1.7 1 18°C
1135 7.0 1.7 1 18°C

1140 Collected Sample 46 WWSW 04
POST DTW 16.6'
LENGTH OF Tube 23.3'
Decon H₂O meter w/ ALCONOX
WASH AND TAP RINSE w/ ORGANIC
FREE WATER - Purged
APPROX 3.6 GAL

038621

(41)

10-MARCH-02

(SITE 46)
LONGHORN

1225

SETTING UP ON WELL LHS MW 13
 PID 0.0 ppm
 H₂O Level 11.9' MARKED ON TBC
 FLOW RATE 350 mL/min
 H₂O Level 12.2'
 T.D. FROM WORK PLAN 15.4'

0.65 (15.4 - 11.9)

2.2 GAL = 1 well VOL

6.8 GAL = 3 well VOL

PUBLISHED APPROX 2 GAL

1255

P.H.	COND	TURB	TEMP
6.3	.47	1	17°C
6.3	.47	1	17°C
6.3	.47	10 ^{1/4}	17°C

1255

1300

1305

1310

Collected sample 46 MW 13
 POST DTW 11.9'
 LENGTH TUBING 15.2'
 Decon H₂O meter w/ ALCONOX
 AND TAPPE RINSE w/ ORGANIC
 Free Water.

(42)

10-MARCH-02

(SITE 46)
LONGHORN

1330

SETTING UP ON WELL LHS MW 18
 PID Reading 0.0 ppm
 H₂O Level 18.0'
 FLOW RATE 100 mL/min H₂O
 Level 18.5'

0.65 (25.0 - 18.0)

4.5 GAL = 1 well VOL

13.6 GAL = 3 well VOL

420 FUELED 1.5 GAL

P.H.	COND	TURB	TEMP
5.8	3.13+	0	19°C
5.9	3.1	0	19°C
5.9	3.1	0	19°C

1420

1425

1430

1436

Collected Sample 46 MW 18
 POST DTW 18.7'
 LENGTH OF TUBING 23.6'
 Decon H₂O meter w/ ALCONOX
 AND RINSE w/ ORGANIC Free
 Water.

038622

(43)

1443

10-MARCH-62 (SITE 46)
LONGHORN

SETTLE UP ON SITE LHSW17
PIA Reading 0.0
H₂O Level 14.6'
FLOW RATE 150 ml/min
H₂O Level 14.9'

0.65 (24 - 14.6)

6.1 GAL = 1 WELL VOL
18.3 GAL = 3 WELL VOL

1517

Porep Apprx 1.5

pH	COND	TORP	Temp
5.4	.24	0	18°C
5.6	.24	0	18°C
5.7	.23	0	18°C
5.7	.23	0	18°C

Collected sample 46w17
POST DTW 14.9'
Tubing length 22.85'

Decom H₂O probe w/ alcohol
WASH AND RISE w/ ORGANIC
Free water.

19-MARCH-62 (SITE 46)
LONGHORN

543 SETTLE UP ON WELL LHSW23
PIA Reading 0.0 ppm
H₂O Level 21.7'

FLOW RATE 300 ml/min H₂O
Level 21.7' TP well from
WORK PLAT 40'

0.65 (40 - 21.7)

11.89 GAL = 1 WELL VOL
36.68 GAL = 3 WELL VOL

610 Porep 2 GAL

pH	COND	TORP	Temp
6.1	5.7	1	20°C
6.1	5.7	1	20°C
6.1	5.7	1	20°C

1625 Collected sample 46w23
POST DTW 21.7'
LENGTH OF TUBING 38.75'

Decom H₂O meter w/ alcohol
WASH AND RISE w/ ORGANIC
Free water.

038623

45

MARCH-10-02

(SITE 46)
LONGHORN

RETURNED TO STAGING
AREA AND UNLOADED
EQUIPMENT. RALPH AND
I PACKED SAMPLES IN
TWO COOLERS AND
THEN HELPED ROB AND
DAVID BLANK PACK COOLER.

1645

1730

RALPH AND I ARE LEAVING
THE SITE. END OF
ENTRY

[Signature]
3-10-02

46

(SITE 46)
LONGHORN

11-MARCH-02

1040 SETTING UP IN WELL
46W03
DTW 0.0
DTW 31.6' FROM TOC
Pump rate 200 ml/min
H₂O level 31.6'
TOTAL DEPTH OF WELL FROM
WORK PLAN 101
0.65 (101-31.6)
45.1 GAL = 1 WELL VOL
135.3 GAL = 3 WELL VOL
1115 Packed Apex 1.5 GAL
PH CONO TUBS TEMP
1115 2.6 .71 0 18°C
1120 7.6 .71 0 18°C
1125 2.6 .71 0 18°C
1130 Collected sample 46W03
POST DTW 31.6'
Length of Tubing 96.5'
Decom H₂O probe w/ Alconox
WASH AND DISINFECT

038624

(47)

11-MARCH-02

SITE 461
LONGHORN

1145

SETTING UP ON WELL LHS MW22
PID READING 0.0 ppm
DTW 19.6'

FLOW RATE 200 mL/min H₂O
Level 19.6'

1215

Adjusted APPY 1.5 GAL

PIT	COND	TURB	TEMP
5.5	6.6	1	18°C
5.5	6.6	1	18°C
5.5	6.6	1	17°C

1215

1220

1225

1230

Collected Sample H6 MW22
POST DTW 26.0'

LENGTH OF TUBING
Decon H₂O probe w/ ALCONOX
WASH AND RINSE w/ ORGANIC
Free WATER

1445

INSTALLED GRONFOS PUMP
INTO MONITORING WELL 29 MW21

AT SITE
DTW 43.1
T.D. WELL 77.85'
Decon H₂O probe w/ ALCONOX
WASH AND RINSE w/ ORGANIC
Free WATER

038625

(48)

SITE 501
LONGHORN

11-MARCH-02

1455 SETTING UP ON MONITORING
WELL 50 MW2

PID READING 135 ppm SATKE
H₂O Level 13.6'

READINGS CONTINUED TO DROP
DOWN TO 0.0 ppm

H₂O Level 13.6'

1535 PULSED APPX 2 GAL

PH	COND	TURB	TEMP
6.6	2.1	0	15°C
6.6	2.1	0	15°C
6.7	2.0	0	15°C

1540 Collected Sample 50 MW2

POST DTW 13.6'
LENGTH OF TUBING
Decon H₂O probe w/ ALCONOX
WASH AND RINSE w/ ORGANIC
WATER

(4)

11-MARCH-02

RETURNED TO STAGING AREA
TO PREP SAMPLES FOR
SHIPMENT.
LEAVING SITE END OF
ENTRY

(SITE 50)
LONGHORN

1600

1800

(50)

12-MARCH-02

(SITE 50)
LONGHORN

0800 SET UP 6" WELLS
RIDEMAN 0.0 ppm
DTW 17.2' FROM MANICOM
TOC - TP OF WELL FROM
WORK PLAN 20.0'

0.65 (20.0 - 17.2)

1.8 GAL = 1 WELL VOL

5.5 GAL = 3 WELL VOL

Flow Rate 100 mL H₂O/Lead
17.4'

0845	Added 2 GAL		
0845	pH	COND	TEMP
0845	6.9	5.0	0
0850	6.9	5.0	16°C
0855	6.9	5.0	16°C

0900 Collected sample SOWW04

POST DTW 17.4'

LENGTH OF 22.0'

Decom H₂O probe w/ ALCOHOL WASH
RINSE w/ ORGANIC FREE WATER.

038626

[Handwritten signature and date 20-11-03]

(51)

0930

13-MARCH-02
SITE 50B
LONGHORN
SETUP UP ON WELL SOWW03
PID READINGS 130 ppm.
DTW - WE RACKED OF
WELL AND SURVEYED THE
PERIMETER W/ PID. READINGS
FLUCTUATED BETWEEN 35 AND 45 ppm
AREA SURROUNDING THE WELL.
STOPPED WORK. WE MOVED
BACK TO THE TRUCK.

0945

SURVEYED WORK AREA. W/ PID
0.0 ppm. CONTINUED TO
WORK ON WELL.

095

DTW 16.0
FLOW RATE 250 gpm H₂O LEVEL
16.0'. TD WELL FROM WORK PLAN
20.0.
0.65 (20-16)
0.65 (4)
2.4 GAL = 1 well VOL
7.8 GAL = 3 well VOL

(SITE 30/29)
LONGHORN

12-MARCH-02

1005 Packed 2.5 GAL
PH COND TUES Temp
1005 7.1 3.8 2 16°C
1010 7.1 3.8 2 16°C
1015 7.1 3.8 2 16°C

Packed APPRX 3 GAL
W/TS COLLECTED SAMPLE SOWW03
POST DTW 16.0'
LENGTH OF TUBING 23'
Decore H₂O probe w/ ALCOHOL
W/ASTE AND PZUS w/ ORGANIC
FREE WATER

1040 SETTING UP ON WELL 17
SITE 29

PID READINGS 0.0 ppm
DTW 21.75' MARK ON PNEUMATIC GAGES
FLOW RATE 300 gpm H₂O
21.9

1105 Packed APPRX 2 GAL

038627

(53)

12-MARCH-02

(SITE 29)

LONGHORN

	COND	TURB	TEMP
PH			
6.6	4.86	0	18°C
6.6	4.6	0	18°C
6.6	4.6	0	18°C

1105

1110

1115

1115

Collected Sample 29 w/wt
 Post DTW 21.9
 Length of Tubing 34.3
 Decon H₂O Probe w/ALCOHOL
 AND Rinsed w/DEIONIZED
 WATER. Purged approx
 3.5 GAL

.17 (35-21.75)

2.2 GAL = 1 well vol

4.4 GAL = 3 well vol

1330

Setting up on well 11b

AT SITE 29

PID Reading 0.0 ppm

DTW. 20 25' FROM MARK

ON YOC. T.D WELL FROM

TOC 37.0'

12-MARCH-02

(SITE 29)

LONGHORN

11

7.4805 (.1477/4) (37-20.25)

.15 (16.75)

2.5 GAL = 1 well vol

7.5 GAL = 3 well vol

1355

Purging @ 100 mL/min H₂O
 Level Falling. H₂O level
 Fell from 20.25 to 21.2'
 Began purging 3 well vol

1415

PURGED WELL DRY, PUGHED
 APPROX 3 GALS. ALLOWING WELL
 TO RECHARGE.

1435

Well recovered to 27'

PH 6.4; COND 1.9; TURB 0

Temp 18°C Collected Sample

29 w/wt 11b

Length of Tubing 34.3'

Purge 3 GAL

(54)

(55)

1447

12-MARCH-02 (SITE 25)
 LONGMOON
 SETTING UP ON LOCATION 29W005
 PIP - 0.0 ppm
 DTW - 17.2'
 FLOW RATE 350 ml/min DTW
 17.25'
 .65 (220 - 17.2')
 3.12 GAL = 1 well VOL
 9.36 GAL = 3 well VOL

Flowed	Appar	2 GAL.	Temp.
PH	COND	TURB	18°C
6.5	1.1	0	18°C
6.5	1.1	0	18°C
6.5	1.1	0	18°C

Collected Sample 29W005
 Post DTW 17.25'
 Purged Approx 3.5 GAL
 Length of Tubing 23.2'
 Decom H₂O probe w/
 ALCONOX AND RINSE w/
 ORGANIC FREE WATER.

1510

1510

1515

1520

1523

12-MARCH-02

(56)

 (SITE 25)
 LONGMOON

1600 SETTING UP ON well 29W021
 PIP Normalizing 0.0 ppm
 H₂O DTW 44.25'

FLOW RATE 100 ml/min H₂O level
 44.66'

0.65 (77.85 - 44.25)

21.84 GAL = 1 well VOL

65.5 GAL = 3 well VOL

GRUNFOS PUMP SET ON 144.6 Hz.

1640 Purged Approx 1 GAL.

PH COND TURB

8.2 .61 1

1645 8.2 .61 1

1650 8.2 .61 1

1700 Collected Samples 29W021

29W021AC, 29W021BA

POST DTW 44.7'

Length of Tubing

Purged Approx 2 GAL

Decom H₂O probe w/ALCONOX AND

RINSE w/ ORGANIC FREE WATER

Temp

18°C

18°C

18°C

(54)

12-MARCH-02 (SITE 25)
LONGHORN

1705

SETTLED UPON WELL 29W022
 PTD 0.0 ppm
 DTW 24.8'
 Purge RATE 400ml/min H₂O
 Level 24.8'
 TD of well from WORK PLAN
 34.0'

0.65 (34-24.8')
 5.9 GAL = 1 well VOL
 17.9 GAL = 3 well VOL

Purged Approx 26 GAL

PURGED	PH	COND	TURB	TEMP
1730	7.8	1.2	0	18°C
1735	7.8	1.2	0	18°C
1740	7.8	1.2	0	18°C

Collected Sample 29W022
 Post DTW 24.9'
 Purged 36 GAL
 Length of Purge
 Decon H₂O probe w/ ALCONOR
 WASH AND RINSE w/ ORGANIZ.
 Free WATER.

(58)

12-MARCH-02 (SITE 25)
LONGHORN

1800 RETURNED TO STAGING AREA
 TO PREP SAMPLES FOR SHIPMENT

1815 RALPH DECON TILE GRANULOS
 PUMP w/ ALCONOR WASH AND
 DISE w/ ORGANIZ FREE WATER.
 TILE TUBING USED FOR WELL
 29W022 WAS DISCARDED AND
 NEW TUBING WILL BE USED
 FOR PURGING TAKE NEW WELL

1940 SAMPLES PACKED FOR SHIPMENT
 DECON COMPLETE. LEAVING SITE.
 END OF ENTRY

Ralph

(59)

13-MARCH-02

(SITE 29)
LONGHORN

0750

AT LOCATION 29WW16
TO HALLG THE GROUNDWATER
PUMP IN THE WELL
DTW 39.6 39.7'
TD WELL 90.38'

0803

SET PUMP AT APPROX 85'
SECURE SITE.

0835

Decon H₂O probe w/ALCONOX
WASH AND RINSE w/ ORGANIC
FREE WATER.

SETTLE UP ON WELL 29WW
09.

PIN READING 90 ppm AT
~~DTW~~ DTW 29

well 3-6 ppm IN BENTONITE
ZONE BUT NOT SATURATED.

DTW 22.4' FROM MARK

ON TOP OF CASING

PURCHASE WELL FILL FLOW CELL

PUMPING RATE 100 ml/min

H₂O level 22.6'

(60)

13-MARCH-02

(SITE 29)
LONGHORN

0.65 (27 + 22.4)

0.65 (4.6)

2.99 = 1 WELL VOL

8.97 = 3 WELL VOL

PURGED APPROX 1 GAL.

0910

PH	CON	TURB	TEMP
6.7	5.3	0	18°
6.7	5.3	0	18°
6.7	5.3	0	18°

0910

0915

0920

0925

COLLECTED SAMPLE 29WW09

PURGED APPROX 2 GAL.

LENGTH OF TUBING 28.6

Decon H₂O probe w/ALCONOX

WASH AND RINSE w/ ORGANIC

FREE WATER.

0840

(61)

(SITE 25)
LONGHORN

13-MARCH-02

SETTING UP ONE WELL 29WUOL
PID - 0.0 ppm
DTW 25.3

0.65 (37-25.3)

7.6 GAL = 1 well VOL
22.8 GAL = 3 well VOL

PURGE RATE 100 ml/L H₂O
LEVEL 25.65
PURGE WATER DEEP YELLOW
COLOR SIMILAR TO COOKING
OFL

1100 PURGED APPROX 1.5 GAL

	PURGE	COND	TEMP
1100	6.4	4.5	0 19°C
1105	6.4	4.5	0 19°C
1110	6.4	4.5	0 19°C

POST DTW 25.8'

PURGED APPROX 2 GAL,
LENGTH OF TUBING 37.3'

DECON H₂O DECO w/ ALCOHOL
WASH AND RINSE w/ ORGANIC
FREE WATER.

11:15 Collected Sample 29WUOL

13-MARCH-02

(SITE 25)
LONGHORN

SETTING UP ONE WELL 29WUOL
PID READINGS 0.0 ppm
DTW 21.0'

PURGE WATER IS YELLOWISH
IN COLOR

PURGE RATE 250 ml/min
H₂O level 21.0'

0.65 (27-21)

0.65 (6)

3.90 GAL = 1 well VOL

10.8 GAL = 3 well VOL

1130 PURGED APPROX 1.5 GAL

	PURGE	COND	TEMP
1130	6.4	6.3	0 19°C
1135	6.4	6.3	0 19°C
1140	6.4	6.3	0 19°C

1135 Collected Sample # 29WUOL

POST DTW 21.2'

LENGTH OF TUBING 25.4'
DECON AND RINSE w/ ALCOHOL WASH
AND RINSE w/ ORGANIC FREE WATER.

038632

(63)	13-MARCH-02	SITE 2A1 LONGHORN	13-MARCH-02	SITE 2B1 LONGHORN
1410	SETTING UP ON SITE 29WWD PID Reading 0.0ppm DTW 20.3'		TD WELL FROM WORK PLAN 140'	
1420	FLOW RATE 200 ml/min H ₂ O level 20.6'		0.65 (140 - 30.9) 20.9 GAL = 1 well VOL 212.7 GAL = 3 well VOL	
1440	Packed APPRX 1.5 GAL		1537	WE ARE UNABLE TO MAINTAIN
1440	PH 6.9	CONC 1.9		FLOW FROM THE WELL DUE TO
1445	6.9	D 0		DEPTH TO WATER GREATER THAN
1450	6.9	D 0		30' BREAKING DOWN SITE
1454	Collected Sample # 29WWD10 POST DTW 20.6' LENGTH OF TUBING 28.0' Dacon H ₂ O probe w/ALCONOX WASH AND RINSE w/ORGANIC Free Water.		1540 SETTING UP ON WELL 29WWD14 PID Reading 1540 SETTING UP ON WELL 29WWD14 Dacon H ₂ O probe w/ALCONOX WASH AND RINSE w/ORGANIC FREE WATER. 29WWD14	
1510	SETTING UP ON LOCATION 29WWD8 PID Reading 0.0ppm DTW 30.9' FLOW RATE 310 ml/min H ₂ O 31.1'		PID Reading - 0.0ppm DTW - 28.2' FLOW RATE 250 ml/min H ₂ O Level 28.2	

(65)

13-MARCH-02 (SITE 24)
LONGHORN

0.65 (86-28.2)
37.5 GAL 11 well VOL
112.7 GAL 13 well VOL

Purged Approx 1.5 GAL

TIME	PH	COND	TUBING	TEMP
1600	7.0	.81	1	19°C
1605	7.0	.81	1	19°C
1610	7.1	.88	1	19°C

Collected Sample 29W014
Post DTW 28.2'
Length of Tubing 75.6'
Decon H₂O probe w/ ALCONOX
WASH AND RINSE w/ ORGANIC
FREE WATER.

1617 Setting up on well 29W007
PID Reading 0.0 APP
DTW 19.9' from TOC.
Flow Rate 150 mL/min DTW
20.4

1645 Purge Approx 2 GAL.

(66)

13-MARCH-02 (SITE 24)
LONGHORN

TIME	PH	COND	TUBING	TEMP
1645	6.5	4.2	0	19°C
1650	6.5	4.2	0	19°C
1655	6.5	4.2	0	19°C

Collected Sample 29W007
Post DTW 20.5'
Length of Tubing 26'
Decon H₂O probe w/ ALCONOX
WASH AND RINSE w/ ORGANIC
FREE WATER.

1730 AT STAGING AREA OFFLOADING
SAMPLING EQUIPMENT. PREP
SAMPLES FOR SHIPMENT

1800 END OF ENTRY

038634

[Signature]
13-MARCH-02

(67)

(SITE 25)

14-MARCH-02 LONGHORN
ARRIVED AT STAGBUSH AREA.
LOADING SAMPLES EXPEDITIOUSLY.
SETUP ONE WELL 25W16.
USING A GRANULATES PUMP FOR
LOW FLOW PURGING.
PTD READING.
DTW - 40.23'
PURGE RATE, 100ml/min
DTW 40.7'
PTD METER SHOWED HIGH
VOC CONCENTRATION IN
THE AIP 350ppm. EVERYONE
PACKED AWAY FROM WELL.
PROCEEDED BACK TO WELL 0.0ppm IN
25 BREATHER ZONE 80ppm IN
THE DISCHARGE BUCKET.
Purged approx 1 GAL.
PH COND TDS TEMP
7.1 1.2 1 17°C
7.1 1.2 1 17°C
7.1 1.2 1 17°C
COLLECTED SAMPLE 29W16;
29W16 QC (OPP); 29W16 QA (OP)
29W16 QC (MS/MSD)

0660

0645

0657

0745

0750

0755

0800

0810

(SITE 25)

14-MARCH-02 LONGHORN
0815 POST ATW - 40.9'
LENGTH OF TUBING - 40.9' 43.7'
DECON H₂O PROBE W/ALCONOX
WASH AND RINSE W/ ORGANIC
FREE WATER.
0817 SETTING UP ON WELL 29W16
ATW - 0.0ppm
DTW - 24.9' FROM ROC
PUMPING RATE 100ml/min
H₂O 25.2'
DECON GRANULATES PUMP W/ALCONOX
WASH AND RINSE W/ ORGANIC
FREE WATER. THE HOSE FOR USE
AT 29W16 WAS DISCARDED NEW
TUBING WITH NO USE IN THE
NEXT WELL. THE PUMP WAS TURNED
ON AND ALLOWED TO RUN IN
EACH OF THE WASH WATER AND
3 RINSE WATERS.
Purged approx 1.5 GAL

038635

69

(SITE 29)

14-MARCH-02
 LONGHORN
 PH COND TURB TEMP
 6.7 2.4 0 17°C
 6.7 2.4 0 17°C
 6.7 2.4 0 17°C

0900
 0905
 0910

COLLECTED SAMPLE 29W15
 DOT POST DTW 25.4'
 LENGTH OF TUBING 29.4'
 DECON H₂O PROBE W/ALCONOX
 WASH AND RINSE W/ORGANIC
 FREE WATER
 SET GRONFOS PUMP IN
 MONITORING WELL 29W08
 WE USED THE EXISTING TUBING.

0910

0945

SETTING UP ON WELL 29W18
 PTA - 0:00 PM
 H₂O Level 24.0' 20.
 PULSE RATE 100 ml/min
 20.7
 PURGED APPROX 16 GAL

0950

1015

70

(SITE 29)

14-MARCH-02
 LONGHORN
 PH COND TURB TEMP
 7.1 1.4 1 17°C
 7.1 1.4 1 17°C
 7.1 1.4 1 17°C

COLLECTED SAMPLE 29W18
 POST DTW 20.8'
 LENGTH OF TUBING 28.5'
 DECON H₂O PROBE W/ALCONOX
 WASH AND RINSE W/ORGANIC
 FREE WATER.

SETTING UP ON WELL 29W17

PTA 0:00 PM
 DTW 29.0 20.9
 PULSE RATE 100 ml/min H₂O
 Level 20.9 21.3
 0.65 (30 - 20.9)
 0.65 (9.1)
 3.9 GAL = 1 WELL VOL
 17.7 GAL = 3 WELLS VOL

038636

(71)

	14-MARCH-02	(SITE 25) LONGHORN
1140	Perched Appx 1.5 GAL	
1140	AH COND TURB TEMP	
1145	7.1 2.1 3 18°C	
1150	7.1 2.1 3 19°C	
1155	7.1 2.1 3 18°C	
1235	Collected Sample 29w12 POST DTW 21.5' LENGTH OF TUBING 25.8' Decom H ₂ O probe w/ ALCOHOL WASH AND RINSE w/ ORGANIC FREE WATER. SET UP ON WELL 29w12 PID READING 0.0ppm DTW 22.6' Purge Rate 100ml/min H ₂ O Level 23.3' 23.6' 0.65 (37-22.6) 9.3 GAL = 1 well VOL 28 GAL = 3 well VOL	

(72)

	14-MARCH-02	(SITE 29) LONGHORN
1300	Perched Appx 1.5 GAL	
1300	AH COND TURB TEMP	
1305	6.7 2.0 1 18°C	
1310	6.7 2.0 1 18°C	
1315	6.7 2.0 1 18°C	
1345	Collected Sample 29w12 POST DTW 23.75' LENGTH OF TUBING 23.75' 29.5' Decom H ₂ O probe SET UP ON WELL 29w13. PID READING 0.0ppm H ₂ O Level 31.4' Perched Appx 1 LITER. THE PUMP CAN NOT MAINTAIN AT 31.4' A STEADY A STEADY FLOW. WE WILL HAVE TO USE THE GRINDER PUMP ON THIS WELL	

73

14-MARCH-02

longshore (site 29)

5147

SETTLE W ORE WELL 29ww 19

$\frac{P_{TD}}{0.6 \Delta p_m}$

DTW 20.0

Flow rate 100 ml/min H_2O

15792 146137

Fueled APPAR	1.5 GAL
--------------	---------

7/11/2015

Tived

END

23

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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37.

37.

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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•

702

702

1505

COLLECTED SANDO GROWING

Post DT 3 7067

LENGTH of Tube

Draw HF

2016/06/10 07:11 N 00220

山 7
土 2

Free Water.

RETURNED TO JTAG FOR REPAIR

OFF-LOAD EQUIPMENT AND TRAILER

Decom Water TD +142

1530

LONGHORN
(575) 291

⑦

14-MAY-02

Samples for

147

54

END OF ENTRY
SITE
LEAVING
END

030

(15)

15-MARCH-02 (SITE 17)
LONGHORN

0600

ARRIVED AT STAGTUCK AREA.
LOADING EQUIPMENT FOR SAMPLING

0730

SETTING UP ON WELL 17W4W05
A.I.D. READING
DTW 10.0'+ FLOW RATE 100 ml/min H₂O LEVEL
10.6' H₂O LEVEL DROPPED TO
10.9' ~~was~~ SWITCHED H₂O
LEVEL METERS DTW 12.0'
H₂O LEVEL DROPPED TO
12.8' BREAKTUCK DOWN
SITE. MOVING TO SITE
29.

0830

SETTING UP ON WELL 29W4W20
P.I.D. - 0.0 ppm

0843

SETTING UP ON WELL 29W4W20
P.I.D. - 0.0 ppmH₂O DTW 20.8' 19.8

FLOW RATE 200 ml/min

H₂O LEVEL 19.8'

Porewater APPRX 1.5 GAL

0910

0915

(76)

(SITE 29)
LONGHORN

TUBE TEMP

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

0 18°C

(57)

1100 15-MARCH-02 LONGHORN
 Collected Sample 29W008
 POST DTW
 Length of Tubing 128.8'
 Purged Apex 3 GAL
 Decon Pump w/ALCONOX
 WASH AND TRIPLE RINSE w/
 ORGANIC FREE WATER.

1125 Collected Rinseate Sample
 29W008DS

1435 SETTING UP ON WELL
 12W018
 PID 0.0 APPM
 H₂O Level 23.7'
 Purge Rate 400ML/H₂O
 H₂O Level 23.7'
 Purged 2 GALS.

1455

PH	COND	TURB	TEMP
6.3	.48	3	18°C
6.3	.48	2	18°C
6.3	.48	2	18°C

1512 Collected Sample 12W018

(78)

15-MARCH-02 LONGHORN
 Length of Tubing 23.6'
 Purged Apex 2.4 GAL
 Decon H₂O Level w/ALCONOX WAS 4
 AND RINSE w/ ORGANIC FREE WATER
 POST DTW 23.7'

1520 SETTING UP ON WELL 12-D1
 AT SITE 12
 PID - 0.0 APPM
 DTW 22.5'
 Flow Rate 150ML/H₂O Level
 22.9'

1600 Purged Apex 1.5 GAL.

PH	COND	TURB	TEMP
5.6	4.1	0	20°C
5.6	4.1	0	20°C
5.6	4.2	0	20°C

1630 Collected Sample 12W001;
 12W010C (Duplicate);
 12W001QA (Duplicate);
 12W010C (MS/MSD)

(79)

15-MARCH-02 (SITE 12) LONGHORN
 POST DTW 23.1'
 Probe approx 2 GAL
 LENGTH OF TUBING - 26.3'
 DECON H₂O Probe w/ ALCOHOL
 WASH AND RINSE w/ ORGANIC
 FREE WATER.
 AT well 17W05
 DTW 76.7'. Frequently
 TO Sample well AFTER
 LEFT CARTON soaked 3 well
 VOL.

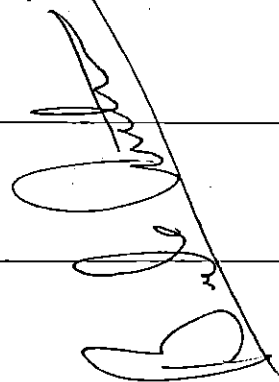
1655

NOT ABLE TO COLLECT SAMPLE
 RETURNING TO STAGLER
 AREA TO PACK SAMPLES.

1700

SAMPLE PACKED LEAVING
 SITE. END OF ENTRY —

1730



(80)

(SITE 17) (12) LONGHORN

16-MARCH-02

0740 AT well 17W05
 TO COLLECT SAMPLE w/
 BAILEY DTW - 84.8'
 0755 Collected Sample from
 17W05. Decon H₂O
 AROBE w/ ALCOHOL WASH
 AND RINSE w/ ORGANIC
 FREE WATER.

0815 SETTING UP ON WELL 12W011

P 30 0.04pm

DTW 22.3'

Flow RATE 100 ml/min H₂O
 Level 22.55'

0850 Packed approx 1.5 GAL

	pH	COND	Turb	TEMP
0850	6.1	3.3	1	16°C
0855	6.1	3.3	1	16°C
0900	6.1	3.3	1	16°C

(81)

16 MARCH - 02 (SITE 12)
LONGHORN

0910

Collected Sample 12W11
 Length of Tubing 64.0'
 Pooled Approx 36 GAL.
 Post DTW 22.8

0925

Settling up on 12W10
 PTD Approx 0.0 ppm
 DTW 21.45'
 Flow Rate 21.75 100 ml/min
 H₂O Level 21.75'

1000

Pooled Approx 1.5 GAL
 pH 6.4
 COND 2.2
 6.4
 6.4
 6.4

TUBES 0
 0
 0
 TEMP 16°C
 16°C
 16°C

1005

1010

1020

Collected Sample 12W10
 Post DTW 21.9'
 Pooled Approx 36 GAL
 Length of Tubing 27.0'
 Decide H₂O probe w/ ALCONOX
 AND RINSE w/ ORGANIC FREE
 WATER.

(82)

16 MARCH - 02 (SITE 12)
LONGHORN

1030 Settling up on well 12-05

PTD approx 0.1 ppm

DTW 5.6'

Purge Rate 250 ml/min H₂O Level
 5.75'

Pooled Approx 2 GAL.

pH COND TUBES TEMP

5.4 2.86 0 17°C

5.5 2.6 0 17°C

5.5 2.6 0 17°C

1115 Collected Sample 12W105

Post DTW 5.75'

Pooled Approx 36 GAL

Length of Tubing 34.6'

Decide H₂O probe w/ ALCONOX
 WASH AND RINSE w/ ORGANIC FREE
 WATER.

1155 AT well 29W113 TO SAMPLE

After purging well vol.

By Jeff CARTER

DTW 32.4

038642

(83)

16-MARCH-02 LONGHORN

1300 Collected Sample 29W13
Decon H₂O Probe w/ Alconox
WASH AND RINSE w/ ORGANIC
Free Water.

1315 SETTING UP ON WELL 12W13
PID 0.0ppm
DTW 21.55'
Flow Rate 150 mL/min H₂O
Level 218.5'

1350 Purge APPX 1.5 GAL
pH 6.2 CONA 2.7 TURB 0 TEMP 17°C
1355 6.2 2.7 0 17°C
1400 6.2 2.7 0 18°C

1405 Collected Sample 12W13
Post DTW 21.9'
Packed APPX 3 GAL
Length of Tubing 64.8'
Decon H₂O Probe w/ Alconox
WASH AND RINSE w/ ORGANIC
Free Water.

(84)

16-MARCH-02 LONGHORN

1410 SETTING UP ON WELL 12W12
PID 0.0ppm
DTW 20.0'
Flow Rate 125 mL H₂O Level
20.25'

1450 PURGED APPX 1.5 GAL
pH 5.4 CONA 1.2 TURB 0 TEMP 17°C
1455 5.4 1.2 0 17°C
1500 5.4 1.2 0 17°C

1515 Collected Sample 12W12
12W1200, 12W120A
LENGTH OF TUBING 28.7'
Packed APPX 3 GAL
Post DTW 20.4'
Decon H₂O Probe w/ Alconox
WASH AND RINSE w/ ORGANIC
Free Water.

(85)

16-MARCH-02

(Site 16)

LONGHORN

1604

SETTLE UP ONE WELL 16W29

PIT 0.0 pm

DTW 4.1'

Purge Rate 300 ml/min

H₂O level 4.1'

1620

Purged APPX 1.5 GAL.

PH

6.1

COND

1.4

TURB

1

TEMP

16°C

1623

PH

6.2

COND

1.4

TURB

1

TEMP

16°C

1626

PH

6.2

COND

1.4

TURB

1

TEMP

16°C

1635

Collected Sample 16W29

Purged APPX 3 GAL

Post DTW 4.1'

Length of Tubing 40.1'

Decon H₂O Probe w/ ALCONOX

WASH AND RINSE w/ ORGANIC

free water

(86)

(Site 16)

LONGHORN

16-MARCH-02

1640 SETTLE UP ONE WELL 16W30

PIT 0.0 pm

DTW 4.2'

Flow Rate 300 ml/min

H₂O level 4.2'

1655 Purged APPX 2 GAL

PH

5.8

COND

1.5

TURB

6

TEMP

16°C

1700

PH

5.8

COND

1.5

TURB

5

TEMP

16°C

1705

PH

5.8

COND

1.5

TURB

4

TEMP

16°C

1709

PH

5.8

COND

1.5

TURB

4

TEMP

16°C

1712

Collected Sample 16W30

Purged APPX 3 GAL

Post DTW 4.2'

Length of Tubing 40.1'

Decon H₂O Probe w/ ALCONOX

WASH AND RINSE w/ ORGANIC

free water

(87)

1730

16-MARCH-02

LONGHORN

UNLOADING EQUIPMENT AT THE
STAGING AREA. SAMPLES SECURE.
LEAVING SITE END OF ENTRY

(88)

17-MARCH-02

LONGHORN

0735 SETTING UP ON WELL 12WW17
PIT - 0.0 ppm
DTW - 21.0'

Flow Rate 200 ml/min H₂O and
21.3'

0800 PULSED WELL DEY 0.75 GAL

ALLOWING TO RECHARGE.

TD well 24.0'

0.65 (24-21)

0.65 (3)

1.95 GAL = 1 well vol

5.85 GAL = 3 well vol

0905 ~~12WW17~~ COLLECTED SAMPLES

12WW17, 12WW17QC (DUP)

12WW17QC (DUP), 12WW17QC (unfiltered)

Pumped 6 GAL.

POST DTW 23.0'

LENGTH OF TUBING 26.5'

DECON H₂O probe w/ ACCORDION WAS

AND RISE w/ ORGANIC FLUORIDE

038645

(89)

17-MARCH-02

(SITE 16)
LONGHORN

1010

SETTING UP ON EXTRACTION
WELL LHI6EW08.

DTW 4.45'

PID 0.0 ppm

Purge Rate 350 ml/min H₂O level

41.55'

Purge approx 156.4 L

pH

Conc

Time

Temp

1020

6.0

2.5

5

17°C

1025

6.0

2.5

4

16°C

1030

6.0

2.5

4

17°C

1035

COLLECT SAMPLE 1066EW08

POST DTW 4.6'

Purge approx 36 AL

LENGTH OF TUBING 42.8'

Recon H₂O probe w/

ALCONOX WASH AND RINSE

w/ ORGANIC free WATER

17-MARCH-02

(SITE 16)
LONGHORN

1100

SETTING UP ON 16WW12

PID 0.0 ppm

DTW 16.3'

Flow Rate 200 ml/min H₂O level

16.3'

1135 Purged approx 1.5 GAL WATER

COLOR IS GREEN.

pH

Conc

Time

Temp

1125

6.0

6.7

1

17°C

1130

6.0

6.7

1

17°C

1135

6.0

6.7

1

17°C

1135

6.0

6.7

1

17°C

1135

6.0

6.7

1

17°C

COLLECTED SAMPLE #16WW12

Purge approx 3 GAL

LENGTH OF TUBING 24.3'

POST DTW 16.3'

Recon H₂O probe w/ ALCONOX

AND RINSE w/ ORGANIC FREE

WATER

(93)

038647

(91)	17-MARCH-02	(SITE#) LONGHORN
1245	SETTING UP ON WELL PID 0.00ppm DTW 7.2 Flow H ₂ O Rate 100ml/min A ₂ O Level 9.0'	4WU01
1335	Flushed	2 GAL.
1335	PH 6.9	Temp 15°C
1340	CONC 2.29	TOAD 0
1345	6.9	15°C
1345	6.9	15°C
1400	COLLECTED Sample 4WU01 4WU01 OC (Duplicate) 4WU01 QA (Duplicate) Post DTW 9.0' Purged approx 36 hr Length of Tube 24.0' Decom H ₂ O probe w/ ALCONOR WASH AND RINSE w/ ORCHARD FRESH WATER.	

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(divider page)***

038649

CHERN AAP

KNACK, TX

WIND PERCUSSORATE

ESTIMATION

SAMPLING EVENT

3

BOOK

NATIONAL

408

TRANSIT BOOK

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J. J. J.

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and is sewed with Nylon Waterproof Thread.

ver

INDEX

LAQUINTA HOTEL AIRPORT
PINE ROAD INTERSTATE 20 (S. 1/4)
PHONE # 318-671-1100
FAX # 318-671-1600

038650

3-5-02

LHAAP

D

3/5/02

Longhorn

AAP

07:00 ON-SITE AT LHAAP TO BEGIN

PERMUTATION INVESTIGATION. J. CAZIER, B.

ARTHUR, D. BLANK, R. ZAY, S. BRANTON, DAVE

CAZIER, AND R. SHERIDAN ON-SITE.

07:58 HAD SAFETY MEETING TO DISCUSS PROJECT

HAZARDS. SIGNED OFF ON AHA.

08:14 BEGAN MOVING SUPPLIES/EQUIPMENT

AT

FIRE TAIL.

09:10 ON-SITE AT SITE 17 W/D. BLANK TO

LAY OUT 500 X 600' GRID SO SOIL SAMPLES

CAN BE COLLECTED. GRID WILL BE SET UP

IN 100' INTERVALS. AREA IS ²⁰³⁵¹⁰² GRASSY UP WITHTREES AND STRIPS WHICH WILL ~~NOT~~ MAKE

SETTING UP THE GRID DIFFICULT.

12:06 OFF-SITE FOR LUNCH.

13:14 ON-SITE AT SITE 17 TO COMPLETE SETUP

SAMPLE GRID.

14:00 1600 COMPLETED GRID SET UP. WILL BEGIN

SOIL SAMPLING TOMORROW.

17:04 OFF-SITE OF LHAAP FOR THE DAY.

John J. J. J.
3/5/02

038651

3/6/02 LHAAP

07:35 ON-SITE AT SITE 17 TO COLLECT SOIL SAMPLES. SAMPLES WILL BE COLLECTED AT DEPTHS OF (0-0.5') AND (1-2') AT EACH LOCATION. SAMPLES WILL BE COLLECTED USING SPONS AND HAND AUGERS.

07:45 SETUP DECONTAMINATION STATION FOR EQUIPMENT. COLLECTED FIELD BLANK FROM PREPARED DI WATER.

08:22 BEGAN COLLECTING SOIL SAMPLES AT NODE #1. CLAY MATERIAL

08:50 COLLECTED SOIL SAMPLES AT NODE #2

09:28 COLLECTED SAMPLES AT NODE #3

09:46 COLLECTED SAMPLES AT NODE #4

10:26 TOM CENY (TNAEC) AND PAUL BRUCKWICKY (USFWA) ON-SITE TO LOOK AT SITES.

10:35 DECONTAMINATE EQUIPMENT.

11:18 COLLECTED SAMPLES AT NODE #5

11:40 R. Y. HOEYRA ON-SITE.

11:45 OFF-SITE FOR LUNCH.

13:00 ON-SITE TO CONTINUE SAMPLING.

13:21 COLLECTED SAMPLES AT NODE #6

13:38 COLLECTED SAMPLES AT NODE #7

13:56 COLLECTED SAMPLES AT NODE #8

14:35 COLLECTED RINSEWATER (2) FROM DECONTAMINATORS.

3/6/02 LHAAP

FIELD BOOK

SAMPLE #	LOCATION	TIME	DATE
17FBD1	FILTERED H ₂ O	07:45	3/6/02
17SS01(0-0.5)	NODE #1	08:25	"
17SS01 DUP(0-0.5)	"	"	"
17SS01 MS(0-0.5)	"	"	"
17SS01(0-0.5)	"	"	"
17SS01(1-2)	"	"	"
17SS02(0-0.5)	NODE #2	08:47	"
17SS02(1-2)	"	"	"
17SS03(0-0.5)	NODE #3	09:25	"
17SS03(1-2)	"	09:44	"
17SS04(0-0.5)	NODE #4	"	"
17SS04(1-2)	"	11:17	"
17SS05(0-0.5)	NODE #5	"	"
17SS05(1-2)	"	13:21	"
17SS06(0-0.5)	NODE #6	"	"
17SS06(1-2)	"	"	"
17SS06(0-0.5) DUP	"	"	"
17SS06(0-0.5) QA	"	"	"
17SS06(1-2)	"	"	"
17SS07(0-0.5)	NODE #7	13:38	"
17SS07(1-2)	NODE #7	"	"
17SS08(0-0.5)	NODE #8	13:50	"
17SS08(1-2)	"	"	"
17R2501	RINSEWATER	14:35	"
17R2502	RINSEWATER	14:35	"
17SS09(0-0.5)	NODE #9	14:57	"
17SS09(1-2)	"	"	"
17SS10(0-0.5)	NODE #10	15:30	"
17SS10(1-2)	"	"	"

038652

⑤

3/6/02 LITAAP SITE 17

14:57 COLLECTED SAMPLES AT NODE #9
 15:30 COLLECTED SAMPLES AT NODE #10.
 15:35 COLLECTED SAMPLES AT NODE #11.
 15:35 COLLECTED SAMPLES AT NODE #12.
 16:25 DECONTAMINATED EQUIPMENT
 16:55 COLLECTED RUSSEATE SAMPLE FROM EQUIPMENT DECONTAMINANTS.
 17:15 DAVE OFF-SITE TO DISPOSE OF SECOND WATER (220 GAL) AT ON-SITE TREATMENT FACILITY.
 17:22 COMPLETED SAMPLING FOR THE DAY.
 17:38 COLLECTED 24 SOIL SAMPLES.
 17:38 OFF-SITE TO FERTILIZER TO PREPARE SAMPLES FOR SHIPMENT.
 17:49 PER J. CARTER, ONE OF THE DANGEROUS WAY SAMPLES NEEDS TO BE COLLECTED IN WHITE POWDERY AREA BETWEEN NODES #2 AND #3.
 18:10 OFF-SITE TO FEDEX TO SHIP SOIL SAMPLES.

Robert J. Wheeler
 3-6-02

⑥

LITAAP

3/6/02

SAMPLE #	LOCATION	TIME	DATE
175511(0-0.5)	NODE #11	15:35	3-6-02
175511(0-0.5) DUP	"	"	"
175511(0-0.5) MS	"	"	"
175511(0-0.5) QA	"	"	"
175511(1-2)	"	"	"
175512(0-0.5)	NODE #12	15:35	3-6-02
175512(1-2)	"	"	"
17 RSOB	RUSSEATE	16:55	"

038653

②

3-7-02 LHAAP SITE 17

6:55 ON-SITE AT LHAAP TO CONTINUE SOIL SAMPLING AT SITE 17.

7:12 ON-SITE AT SITE 17, DAVE BLANK AND ROBERT SHERES. CLADY W/ TEAP = 57°F

7:20 SET UP DECON STATION.

7:40 COLLECTED SAMPLES AT NODE #13.

8:00 COLLECTED SAMPLES AT NODE #14.

8:00 BOY AND JEFF ON-SITE TO SET DRAINAGE POINTS (5). POINTS WILL BE SAMPLED.

8:15 COLLECTED SAMPLES AT NODE #15.

8:40 COLLECTED SAMPLES AT NODE #16. SAMPLE (1-2) HAS BLUE-COLORED MATERIAL. NOT SURE WHAT MATERIAL IS.

8:49 DECONNECTED EQUIPMENT.

9:38 COLLECTED SAMPLES FROM NODE #17. COLLECTED FELD BLANK (SOURCE #1) AND LHAAP SAMPLE (EQUIPMENT TIE-ON).

9:54 COLLECTED SAMPLES AT NODE #18.

10:10 COLLECTED SAMPLES AT NODE #19.

10:21 COLLECTED SAMPLES AT NODE #20.

10:37 COLLECTED SAMPLES AT NODE #21.

11:00 COLLECTED SAMPLES AT NODE #22.

11:15 COLLECTED SAMPLES AT NODE #23.

11:45 DECONNECTED EQUIPMENT.

11:50 OFF-SITE FOR LUNCH.

③

3-7-02 LHAAP

SAMPLE #	LOCATION	TIME	DATE
17SS13(0-0.5)	NODE #13	7:40	3-7-02
17SS13(1-2)	"	7:40	"
17SS14(0-0.5)	NODE #14	8:00	"
17SS14(1-2)	"	"	"
17SS15(0-0.5)	NODE #15	8:15	"
17SS15(1-2)	"	"	"
17SS16(0-0.5)	NODE #16	8:40	"
17SS16(0-0.5) DUP	"	"	"
17SS16(0-0.5) QA	"	"	"
17SS16(1-2)	"	"	"
17RS04	FLUXGATE	9:33	"
17FB 02	FELD BLANK	9:35	"
17SS17(0-0.5)	NODE #17	9:38	"
17SS17(1-2)	"	"	"
17SS18(0-0.5)	NODE #18	9:54	"
17SS18(1-2)	"	"	"
17SS19(0-0.5)	NODE #19	10:10	"
17SS19(1-2)	NODE #19	"	"
17SS20(0-0.5)	NODE #20	10:21	"
17SS20(1-2)	"	"	"

G38654

⑨

37-02 LONGHORN AREA PLANT.
 13:25 ON-SITE AT SITE 17.
 13:35 COLLECTED SAMPLES AT NODE #24.
 13:44 COLLECTED SAMPLES AT NODE #25.
 14:14 COLLECTED SAMPLES AT NODE #26 & #27.
 RECD HORN, THE GENERAL EUG. LAB
 DID NOT SEE A 17SS06(0-0.5)MS SAMPLE
 IN COVER AS RECORDED ON CHAN OF
 CUSTODY(COC). SAMPLE COLLECTED AT 11-12" (DEBRIS).
 14:20 LIVES AT COC AND FIELD BOOK TO-2
 A 17SS06(0-0.5)MS WAS NOT COLLECTED.
 14:40 COLLECTED SAMPLES AT NODE #28. SAMPLE
 AT NODE #20 WERE COLLECTED AT 13:55.
 14:51 COLLECTED SOIL SAMPLE AT NODE #29.
 15:10 COLLECTED SAMPLES AT NODE #30. SAMPLE
 (1-2) COLLECTED AT 11-12" DUE TO DEBRIS
 IN HOLE.
 15:21 DECONNECTED EQUIPMENT.
 15:49 COLLECTED TRUSEATE SAMPLES.
 15:55 COLLECTED SAMPLES AT NODE #31.
 16:15 COLLECTED SAMPLES AT NODE #32.
 16:25 COLLECTED SAMPLES AT NODE #33.
 16:31 COLLECTED A TOTAL OF 42 SOIL SAMPLES
 TODAY. TRUNKING SAMPLES CUTTER BY RY AND JEFF.
 17:10 COMPLETED SAMPLING FOR THE DAY.
 17:18 OFF-SITE TO FIRESTATION TO PREPARE

⑩

3-7-72 DECON H2O DISPOSED = 20 GAL

SAMPLE #	LOCATION	TIME	DATE
17SS21(0-0.5)	NODE #21	10:37	3-7-72
17SS21(0-0.5) DUP	"	"	"
17SS21(0-0.5) MS	"	"	"
17SS21(0-0.5) QA	"	"	"
17SS21(1-2)	"	"	"
17SS22(0-0.5)	NODE #22	11:00	"
17SS22(1-2)	"	"	"
17SS23(0-0.5)	NODE #23	11:15	"
17SS23(1-2)	"	"	"
17 RS 05	TRUSEATE	13:30	"
17SS 24(0-0.5)	NODE #24	13:35	"
17SS 24(1-2)	"	"	"
17SS 25(0-0.5)	NODE #25	13:44	"
17SS 25(1-2)	"	"	"
17SS 26(0-0.5)	NODE #26	13:55	"
17SS 26(0-0.5) DUP	"	"	"
17SS 26(0-0.5) QA	"	"	"
17SS 26(1-2)	"	"	"
17SS 27(0-0.5)	NODE #27	14:14	"
17SS 27(1-2)	"	"	"
17SS 28(0-0.5)	NODE #28	14:40	"
17SS 28(1-2)	"	"	"
17SS 29(0-0.5)	NODE #29	14:51	"
17SS 29(1-2)	"	"	"

038655

(12)

3-7-02	LHAAP	LOCATION	TIME	DATE
SAMPLE #				
175530(0-0.5)	NODE #30		15:01	3-7-02
175530(1-2)	"		"	"
175531(0-0.5)	NODE #31		15:55	"
175531(0-0.5) DUP	"		"	"
175531(0-0.5) MS	"		"	"
175531(0-0.5) QA	"		"	"
175531(1-2)	"		"	"
17RS06	REUSEATE		15:49	"
17RS07	"		"	"
175532(0-0.5)	NODE #32		16:15	"
175532(1-2)	"		"	"
175533(0-0.5)	NODE #33		16:25	"
175533(1-2)	"		"	"

(11)

3-7-02 Longhorn Ann. Area
COOLERS FOR SHIPMENT.
16:33 OFF-SITE TO FENDER WITH SAMPLE COOLERS.

Collect Sample 3-7-02

(13)

3-8-02 LONGHORN ANNO. PLANT

07:30 ON-SITE AT SITE 17 TO COMPLETE SAMPLING. TEMP = 62°F, CLOUDY (D.B. & R.S.)

07:42 SETUP DECON STATION.

07:58 COLLECTED SAMPLES AT NODE #34.

08:07 COLLECTED SAMPLES AT NODE #35.

08:30 COLLECTED SAMPLES AT NODE #36.

08:44 COLLECTED SAMPLES AT NODE #37.

09:05 COLLECTED SAMPLES AT NODE #38.

09:17 COLLECTED SAMPLES AT NODE #39.

09:40 COLLECTED SAMPLES AT NODE #40.

10:01 DECONTAMINATED EQUIPMENT

10:30 COLLECTED TRIPLICATE SAMPLES (2).

10:59 COLLECTED SAMPLES AT NODE #41.

11:17 COLLECTED SAMPLES AT NODE #42.

COMPLETED NODE SAMPLING FOR GLIA.

11:20 STEVE AND IAVE ON-SITE COLLECTING

WELL WATER SAMPLES.

11:40 COLLECTED SAMPLES AT DRAINAGE WAY

(POINT/SAMPLE LOCATION #43).

11:58 COLLECTED SAMPLES AT DRAINAGE WAY

(LOCATION #45). ONLY SAMPLES APPEARED ON

WATER IN DITCH.

12:04 COLLECTED SAMPLES AT DRAINAGE WAY (LOCATION #44).

12:18 COLLECTED SAMPLES AT DRAINAGE WAY :

(LOCATION #46).

3-8-02

LHAAP

SAMPLE	LOCATION	TIME	DATE
175534(0.5)	NODE #34	7:58	3-8-02
175534(1-2)	"	"	"
175535(0.5)	NODE #35	8:07	"
175535(1-2)	"	"	"
175536(0.5)	NODE #36	8:30	"
175536(1-2)	"	"	"
175537(0.5)	NODE #37	"	"
175537(1-2)	"	"	"
175538(0.5)	NODE #38	8:44	"
175538(1-2)	"	"	"
175539(0.5)	NODE #39	9:05	"
175539(1-2)	"	"	"
175540(0.5)	NODE #40	9:30	"
175540(1-2)	"	"	"
175541(0.5)	NODE #41	10:30	"
175541(1-2)	"	10:30	"
175542(0.5)	NODE #42	"	"
175542(1-2)	"	"	"
175543(0.5)	NODE #43	"	"
175543(1-2)	"	"	"
175544(0.5)	NODE #44	"	"
175544(1-2)	"	"	"
175545(0.5)	NODE #45	"	"
175545(1-2)	"	"	"
175546(0.5)	NODE #46	"	"
175546(1-2)	"	"	"
175547(0.5)	NODE #47	"	"
175547(1-2)	"	"	"
175548(0.5)	NODE #48	"	"
175548(1-2)	"	"	"
175549(0.5)	NODE #49	"	"
175549(1-2)	"	"	"
175550(0.5)	NODE #50	"	"
175550(1-2)	"	"	"
175551(0.5)	NODE #51	"	"
175551(1-2)	"	"	"
175552(0.5)	NODE #52	"	"
175552(1-2)	"	"	"
175553(0.5)	NODE #53	"	"
175553(1-2)	"	"	"
175554(0.5)	NODE #54	"	"
175554(1-2)	"	"	"
175555(0.5)	NODE #55	"	"
175555(1-2)	"	"	"
175556(0.5)	NODE #56	"	"
175556(1-2)	"	"	"
175557(0.5)	NODE #57	"	"
175557(1-2)	"	"	"
175558(0.5)	NODE #58	"	"
175558(1-2)	"	"	"
175559(0.5)	NODE #59	"	"
175559(1-2)	"	"	"
175560(0.5)	NODE #60	"	"
175560(1-2)	"	"	"
175561(0.5)	NODE #61	"	"
175561(1-2)	"	"	"
175562(0.5)	NODE #62	"	"
175562(1-2)	"	"	"
175563(0.5)	NODE #63	"	"
175563(1-2)	"	"	"
175564(0.5)	NODE #64	"	"
175564(1-2)	"	"	"
175565(0.5)	NODE #65	"	"
175565(1-2)	"	"	"
175566(0.5)	NODE #66	"	"
175566(1-2)	"	"	"
175567(0.5)	NODE #67	"	"
175567(1-2)	"	"	"
175568(0.5)	NODE #68	"	"
175568(1-2)	"	"	"
175569(0.5)	NODE #69	"	"
175569(1-2)	"	"	"
175570(0.5)	NODE #70	"	"
175570(1-2)	"	"	"
175571(0.5)	NODE #71	"	"
175571(1-2)	"	"	"
175572(0.5)	NODE #72	"	"
175572(1-2)	"	"	"
175573(0.5)	NODE #73	"	"
175573(1-2)	"	"	"
175574(0.5)	NODE #74	"	"
175574(1-2)	"	"	"
175575(0.5)	NODE #75	"	"
175575(1-2)	"	"	"
175576(0.5)	NODE #76	"	"
175576(1-2)	"	"	"
175577(0.5)	NODE #77	"	"
175577(1-2)	"	"	"
175578(0.5)	NODE #78	"	"
175578(1-2)	"	"	"
175579(0.5)	NODE #79	"	"
175579(1-2)	"	"	"
175580(0.5)	NODE #80	"	"
175580(1-2)	"	"	"
175581(0.5)	NODE #81	"	"
175581(1-2)	"	"	"
175582(0.5)	NODE #82	"	"
175582(1-2)	"	"	"
175583(0.5)	NODE #83	"	"
175583(1-2)	"	"	"
175584(0.5)	NODE #84	"	"
175584(1-2)	"	"	"
175585(0.5)	NODE #85	"	"
175585(1-2)	"	"	"
175586(0.5)	NODE #86	"	"
175586(1-2)	"	"	"
175587(0.5)	NODE #87	"	"
175587(1-2)	"	"	"
175588(0.5)	NODE #88	"	"
175588(1-2)	"	"	"
175589(0.5)	NODE #89	"	"
175589(1-2)	"	"	"
175590(0.5)	NODE #90	"	"
175590(1-2)	"	"	"
175591(0.5)	NODE #91	"	"
175591(1-2)	"	"	"
175592(0.5)	NODE #92	"	"
175592(1-2)	"	"	"
175593(0.5)	NODE #93	"	"
175593(1-2)	"	"	"
175594(0.5)	NODE #94	"	"
175594(1-2)	"	"	"
175595(0.5)	NODE #95	"	"
175595(1-2)	"	"	"
175596(0.5)	NODE #96	"	"
175596(1-2)	"	"	"
175597(0.5)	NODE #97	"	"
175597(1-2)	"	"	"
175598(0.5)	NODE #98	"	"
175598(1-2)	"	"	"
175599(0.5)	NODE #99	"	"
175599(1-2)	"	"	"
175600(0.5)	NODE #100	"	"
175600(1-2)	"	"	"

038657

(13)

3-8-02 LHAAP

12:39 COLLECTED SAMPLES AT DRAINAGE WAY (LOCATION #47). ALL SAMPLES (SOIL) HAVE BEEN QUERIED

AT SITE 17.

12:57 OFF-SITE FOR LUNCH.

13:50 ON-SITE AT SITE 17 TO DECON EQUIPMENT.

14:50 DAVE LEFT SITE 17 TO DISPOSE OF

APPROXIMATELY 20 GAL OF DECON. WATER 15:20 DEMOBILIZED AT SITE 17. VIEWED

15:31 ON-SITE AT SITE 18/24. VIEWED

LOCATIONS SET BY ROY AND JEFF.

15:35 OFF-SITE AT SITE 18/24 TO FIRE

STATION TO PREPARE COOLERS FOR

SHIPMENT.

15:40 PER THE STD, RUSSENTES ARE TO BE COLLECTED AT 1 IN 20 SAMPLES. ¹⁰ 3/8/02

SAMPLES AT SITE 17 HAD RUSSENTES

COLLECTED 1 IN 10. RUSSENTES QUERIED

TODAY AND REMAINDER OF SAMPLINGS TO BE 1 IN 20 SAMPLES. CANCELED + RS RUSSENTE (172510).

16:10 PREPARED SAMPLES FROM SITE 17 FOR

SHIPMENT TO LABORATORIES.

17:05 ROY OFF-SITE TO FEDEX WITH SAMPLES.

R. H. Shum

3-8-02

LHAAP
DW = DRAINAGE WAY (16)

3-8-02

SAMPLE	LOCATION	TIME	DATE
17SS41(0-0.5)	NODE #41	10:59	3-8-02
17SS41(0-0.5) DUP	"	"	"
17SS41(0-0.5) MS	"	"	"
17SS41(0-0.5) QA	"	"	"
17SS41(1-2)	"	"	"
17SS42(0-0.5)	NODE #42	11:17	"
17SS42(1-2)	"	"	"
17SS43(0-0.5) DWAY	DWAY	11:40	"
17SS43(1-2)	"	"	"
17SS44(0-0.5) DWAY	DWAY	12:04	"
17SS44(1-2)	"	"	"
17SS45(0-0.5) DWAY	DWAY	11:58	"
17SS45(1-2)	"	"	"
17SS46(0-0.5) DWAY	DWAY	12:18	"
17SS46(0-0.5) DUP	"	"	"
17SS46(0-0.5) QA	"	"	"
17SS46(1-2)	"	"	"
17SS47(0-0.5) DWAY	DWAY	12:39	"
17SS47(1-2)	"	"	"
17RS10	RUSSENTE	12:55	3/8/02

038658

19

39:02 CONCLUSION
13:33 COLLECTED SAMPLES AT LOCATION #2. COMPLETED SAMPLING AT SITE 50.
13:42 OFF SITE OF SITE 50 TO FIRE STATION TO DECON EQUIPMENT.
14:42 DECONNED EQUIPMENT.
15:02 ON-SITE AT SITE 29 TO COLLECT SOIL SAMPLES.
15:08 COLLECTED SAMPLES AT LOCATION #1.
15:17 COLLECTED SAMPLES AT LOCATION #2.
15:26 COLLECTED SAMPLES AT LOCATION #3.
15:38 COLLECTED SAMPLES AT LOCATION #4.
15:48 COLLECTED SAMPLES AT LOCATION #5.
16:03 COLLECTED SAMPLES AT LOCATION #6.
16:11 COLLECTED SAMPLES AT LOCATION #7.
16:16 OFF-SITE OF SITE 29 TO DECON EQUIPMENT.
16:49 DECONNED SAMPLING EQUIPMENT.
16:50 COLLECTED RAINWATER SAMPLE.
17:24 COMPLETED SAMPLING FOR THE DAY. COLLECTED 36 SOIL SAMPLES.
17:30 OFF-SITE.

Robert Shuler
3-9-02

3-9-02	LHAAP	LOCATION	TIME	DATE
S05503(0-0.5)	#3		12:43	3-9-02
S05503(0-0.5) DUP	"		"	"
S05503(0-0.5) QA	"		"	"
S05503(1-2)	#5		13:02	"
S05505(0-0.5)	"		"	"
S05505(1-2)	#5		"	"
S05502(0-0.5)	#2		13:33	"
S05502(1-2)	"		"	"
295501(0-0.5)	#1		15:08	"
295501(1-2)	"		"	"
295502(0-0.5)	#2		15:17	"
295502(1-2)	"		"	"
295503(0-0.5)	#3		15:26	"
295503(0-0.5) DUP	"		"	"
295503(0-0.5) MS	"		"	"
295503(0-0.5) QA	"		"	"
295503(1-2)	"		"	"
295504(0-0.5)	#4		15:38	"
295504(1-2)	"		"	"
295505(0-0.5)	#5		15:48	"
295505(1-2)	"		"	"
295506(0-0.5)	#6		16:03	"
295506(1-2)	"		"	"
295507(0-0.5)	#7		16:11	"
295507(1-2)	"		"	"
295501 RAINWATER			16:50	"

038660

(23)

3-10-02

Cons. H. 02

13:20 DECONTAMINATED EQUIPMENT.
13:40 ON-SITE AT SITE 47 TO
COLLECT REMAINING SAMPLES FROM
LOCATIONS #6 - 10. WET GOOD TYPE AREA.
13:50 COLLECTED SAMPLES AT LOCATION #6.
14:03 COLLECTED SAMPLES AT LOCATION #7.
14:17 COLLECTED SAMPLES AT LOCATION #8.
14:42 COLLECTED SAMPLES AT LOCATION #9.
15:09 COLLECTED SAMPLES AT LOCATION #10.
15:20 COMPLETED SAMPLING AT SITE #47.
OFF-SITE TO FIREHALL TO DECON
EQUIPMENT.
15:25 ON-SITE AT FIREHALL TO DECON
SAMPLING EQUIPMENT.
16:08 DECONTAMINATED SAMPLING EQUIPMENT.
16:15 ON-SITE AT SITE 04.
16:17 COLLECTED SAMPLES AT LOCATION #1.
16:25 COLLECTED SAMPLES AT LOCATION #2.
16:38 COLLECTED SAMPLES AT LOCATION #3.
16:54 COMPLETED SAMPLING FOR THE DAY
AT SITE 04.
16:56 ON-SITE AT FIREHALL TO DECON
EQUIPMENT. PREPARE SAMPLES FOR SHALING.
17:30 DECONTAMINATED SAMPLING EQUIPMENT.
18:27 OFF-SITE
FOR THE DAY.
Robert Shulz 3/10/02

3-10-02

CHAP

(24)

SAMPLE #	LOCATION	TIME	DATE
475503 (0-0.5)	#3	11:35	3-10-02
475503 (0-0.5) DUP	"	"	"
475503 (0-0.5) 2A	"	"	"
475503 (1-2)	"	"	"
475502 (0-0.5)	#2	11:46	"
475502 (1-2)	"	"	"
475501 (0-0.5)	#1	11:50	"
475501 (1-2)	"	"	"
475506 (0-0.5)	#6	13:50	"
475506 (1-2)	"	"	"
475507 (0-0.5)	#7	14:03	3-10-02
475507 (1-2)	"	"	"
475508 (0-0.5)	#8	14:17	"
475508 (0-0.5) DUP	"	"	"
475508 (0-0.5) MS	"	"	"
475508 (0-0.5) DA	"	"	"
475508 (1-2)	"	"	"
475509 (0-0.5)	#9	15:09	"
475509 (1-2)	"	14:42	"
29K502	29K502	10:24	"
475510 (0-0.5)	#10	14:42	"
475510 (1-2)	"	"	"

038662

3-10-02

Long Horn

(25)

3-10-02

SAMPLE #

LHAAP

LOCATION

TIME

DATE

47801
045501(0-0.5)
045501(1-2)
045502(0-0.5)
045502(1-2)
045503(0-0.5)
045503(0-0.5) DUP
045503(0-0.5) QA
045503(1-2)

RUNSTATES
SITE #04 #1
#1
#2
"
#3
"
"
"

15:51
16:17
"
16:25
"
16:38
"
"
"

3-10-02
"
"
"
"
"
"
"

038663

(27)

3-11-02 Long Haven

7:40 ARRIVED AT FEDER TO SHIP SOIL SAMPLES. OFFICE DOES NOT OPEN UNTIL 9:00 AM. LOCAL TIME.

7:45 RAN AT HOTEL TO AWAIT OPENING OF FEDER OFFICE. (R.S./DB - PERSONNEL)

9:00 ARRIVED AT FEDER TO SHIP SAMPLES.

9:45 ON-SITE AT CHAMP FIRE HALL TO SETUP DECON STATION. TEMP = 49°F, CLOUDY.

10:15 ON-SITE AT SITE 04 TO COLLECT SOIL SAMPLES.

10:22 COLLECTED SAMPLES AT LOCATION #4.

10:36 COLLECTED SAMPLES AT LOCATION #5.

10:50 COLLECTED SAMPLES AT LOCATION #6.

11:02 COLLECTED SAMPLES AT LOCATION #7.

11:13 COLLECTED SAMPLES AT LOCATION #8.

11:35 COLLECTED SAMPLES AT LOCATION #9.

SPRINK WAS IN WATER. MOVED LOCATION OVER APPROX 5' TO BANK.

COLLECTED SAMPLES AT LOCATION #15.

STILL IN WATER. MOVED LOCATION APPROX 3' TO BANK.

11:45 ETL PERSONNEL ON-SITE TO DO

DPT AT LOCATIONS #3 AND #9.

12:04 COLLECTED DPT SAMPLES (4-5') AT LOCATION #9.

3-11-02

LHAP

(28)

SAMPLE #

LOCATION

TIME

DATE

045504(0-0.5)

#4

10:22

3-11-02

045504(1-2)

"

"

"

045505(0-0.5)

#5

10:36

"

045505(1-2)

"

"

"

045506(0-0.5)

#6

10:50

"

045506(1-2)

"

"

"

045507(0-0.5)

#7

11:02

"

045507(1-2)

"

"

"

045508(0-0.5)

#8

11:13

"

045508(0-0.5) DUP

"

"

"

045508(0-0.5) MS

"

"

"

045508(0-0.5) QA

"

"

"

045508(1-2)

"

"

"

045509(0-0.5)

#9

11:35

"

045509(1-2)

"

"

"

045515(0-0.5)

#15

11:50

"

045515(1-2)

"

"

"

045509(4-5)

#9

12:04

"

045503(4-5)

#3

12:08

"

038664

(29)

(30)

DATE	LOCATION	TIME	DATE	LOCATION	TIME
3-11-02	CHAPAR.		3-11-02	CHAPAR.	
12:08	COLLECTED DPT SOIL SAMPLES AT LOCATION #3.	12:52	045510 (0-0.5)	TRANSISTATE	3-11-02
12:20	OFF-SITE TO FIRE HALL TO DECON EQUIPMENT.	14:52	045512 (1-2)	#12	"
12:50	DECON EQUIPMENT.	"	045511 (0-0.5)	"	"
12:52	COLLECTED TRANSISTATE SAMPLES.	15:16	045511 (0-0.5) DUP	#11	"
13:06	OFF-SITE TO FIRE HALL.	"	045511 (0-0.5) QA	"	"
14:00	ON-SITE AT FIRE HALL.	"	045511 (1-2)	"	"
14:47	ON-SITE AT SITE 04 TO COLLECT REMAINING 5 SAMPLES.	15:25	045510 (0-0.5)	#10	"
14:52	COLLECTED SAMPLES AT LOCATION #12.	"	045510 (1-2)	"	"
15:16	COLLECTED SAMPLES AT LOCATION #11.	15:45	045513 (0-0.5)	#13	"
15:25	COLLECTED SAMPLES AT LOCATION #10.	"	045513 (1-2)	"	"
15:45	COLLECTED SAMPLES AT LOCATION #13.	15:57	045514 (0-0.5)	#14	"
15:57	COLLECTED SAMPLES AT LOCATION #14.	"	045514 (1-2)	"	"
	COMPLETED SAMPLING AT SITE 04.				
16:12	ON-SITE AT SITE #7.	16:19	045501 (0-0.5)	#7	"
16:19	COLLECTED SAMPLES AT LOCATION #1 OF SITE #46. SAMPLE LOCATION WAS IN DRAINAGE WAY DUE TO DRAINAGE WAY BEING FULL OF WATER. SAMPLE LOCATION WAS MOVED 1 FT. OUT TO BANK AREA.	"	045501 (1-2)	"	"
16:32	COLLECTED SAMPLES AT LOCATION #2.	16:32	045502 (0-0.5)	#2	"
16:50	OFF-SITE OF SITE 46 TO FIRE HALL TO DECON EQUIPMENT.	"	045502 (0-0.5) DUP	"	"
		"	045502 (0-0.5) MS	"	"
		"	045502 (0-0.5) QA	"	"
		"	045502 (1-2)	"	"
		18:23	045501	TRANSISTATE	"

038665

(30)

3-11-02

(31)

LongHorn

3-11-02

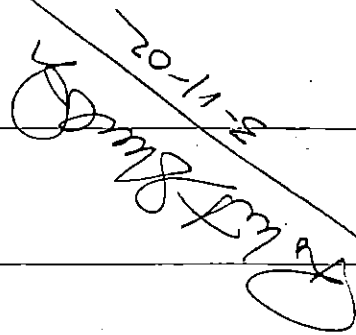
16:58 INSITE AT FIRE HALL TO RECON
EQUIPMENT.

17:23 COLLECTED ROSEATE SAMPLES,

17:39 PREPARED COOLERS FOR SHIPMENT.

COLLECTED SAMPLES AT 14 LOCATIONS.

17:53 OFF SITE TO RED EX.


 Jeff Blum
 3-11-02

3-12-02

Longhorn

(35)

14:42 COMPLETED SOIL SAMPLING AT SITE 46. COLLECTED SAMPLES FROM 13 LOCATIONS. OFF-SITE.

14:46 ON-SITE AT FIREHALL TO DECON SAMPLING EQUIPMENT. SOIL SAMPLES FOR ALL 7 SITES HAVE BEEN COLLECTED.

15:20 DECONTAMINATED EQUIPMENT AND PREPARED SOIL SAMPLES FOR SHIPMENT.

15:47 ON-SITE AT SITE 04 TO COLLECT DPT GW SAMPLES AT 4 LOCATIONS.

16:00 ATTEMPTED TO COLLECT GW SAMPLE WITH SEDIMENT AND QUANTITY OF WATER IN WELL WAS LIMITED. PEG JEFF, THE WELL NEEDS TO BE DECONTAMINATED.

16:15 AT 04DN01. WAS NOT ABLE TO RECOVER WATER.

16:35 AT 04DN03. WAS NOT ABLE TO RECOVER. PEGGED WELL. LEFT BANNER IN WELL.

16:45 COLLECTED 04DN04 SAMPLE AT LOCATION #4

16:58 ON-SITE AT SITE 46 TO COLLECT 7 DPT GW SAMPLES.

17:05 AT 04DN07 TO COLLECT SAMPLE. WAS

3-12-02

Utah

(36)

SAMPLE	LOCATION	TIME	DATE
46SS12(0.0.5)	#12	13:45	3/12/02
46SS12(0.0.5) DUP	"	"	"
46SS12(0.0.5) MB	"	"	"
46SS12(0.0.5) QA	"	"	"
46SS12(1-2)	"	"	"
46SS13(0.0.5)	#13	14:10	"
46SS13(1-2)	"	"	"
46SS14(0.0.5)	#14	14:20	"
46SS14(1-2)	"	"	"
46SS15(0.0.5)	#15	14:30	"
46SS15(1-2)	"	"	"
04DN04	#4	16:45	"
04DN01	#1	17:18	"
04DN02	#2	17:39	"
04DN02 DUP	"	"	"
04DN02 QA	"	"	"

038668

37

038669

3-12-62

Long Horns

NOT ABLE TO COLLECT SAMPLE. BRUSH
DOWNED TO DEPTH OF 12' APPEARS
TO BE AN OBSTRUCTION AT 12'.

17:10 AT ⁴⁰ DNDW 01 TO COLLECT WATER
SAMPLE.

17:18 COLLECTED ⁴⁰ DNDW 01 SAMPLE AT
LOCATION #1 ⁴⁰

17:39 COLLECTED ⁴⁰ DNDW 02 SAMPLE AT
LOCATION #2. OFF SITE.

17:46 ON-SITE AT FIREHALL. REARRANGING
SAMPLES FOR SHIPMENT.
18:45 OFF-SITE TO FEDEX.

3-12-62
Felix H. Hump

3-13-02

LONGHORN

13:40 CHECKED FLOW RATE. RATE WAS STEADY AT 240 ml/min.
 13:50 WATER LEVEL MAINTAINED / STABLE AT DTW = 5.5 ft. FLOW RATE = 240 ml/min.
 PURGED 1.5 GAL FROM WELL

PH	CONC	TUBE	TEMP	D.O
7.1	4.1	0.0	170C	0.9 ml/L
7.1	4.1	0.0	170C	0.9 ml/L
7.1	4.1	0.0	170C	0.1 ml/L

14:17 COLLECTED SAMPLE 17WN06. TOTAL LENGTH OF TUBE = 20.3 ft.

14:32 SETUP ON 17WN09. PID READINGS WAS 0.6 PPM. SUSTAINED. T.D = 6.2 ft PER THE WORK PLAN. INITIAL DTW = 8.1 ft.

62' - 8.1' = 53.9'
 0.65 (53.9) = 35.0
 35.0 gal = 1 WELL VOLUME
 10.5 gal = 3 WELL VOLUMES

14:46 CHECKED FLOW RATE. RATE WAS 110 ml/min AT DTW = 8.41 ft. WATER LEVEL NOT STABLE.
 14:58 WATER LEVEL STABILIZED AT FLOW RATE = 100 ml/min AND DTW = 8.54 ft. PURGED 1.5 gal FROM WELL

3-13-02

LONGHORN

15:39 COLLECTED PARAMETER READINGS.
 15:40 PH 6.7 CONC 0.44 TUBE 1.0 TEMP 180C DO 1.5 mg/L
 15:45 PH 6.7 CONC 0.44 TUBE 1.0 TEMP 170C DO 1.6
 15:50 PH 6.7 CONC 0.44 TUBE 1.0 TEMP 170C DO 1.8 ml/L
 15:52 COLLECTED SAMPLE 17WN09. TOTAL LENGTH OF TUBE = 53.4 ft

15:59 SETUP ON 17WN10. PID READINGS WAS 0.0 PPM. T.D = 31 ft PER THE WORK PLAN. INITIAL DTW = 7.4 ft.

31' - 7.4' = 23.6'
 0.65 (23.6) = 15.3 gal
 15.3 gal = 1 WELL VOLUME
 46.0 gal = 3 WELL VOLUMES

16:12 FLOW RATE WAS 150 ml/min. WATER LEVEL STEADY. DTW = 7.74' PURGED 1.5 gal

PH	CONC	TUBE	TEMP	DO
6.8	3.9	1.0	170C	2.2 ml/L
6.8	3.9	1.0	170C	2.2
6.8	3.9	1.0	170C	2.1

038671

(44)

LHAP3-13-02

(43)

Long Horn3-13-02

16:55 Collected SAMPLE 17WN10. TOTAL
WEIGHT OF TUBE = 28.2 FT.

17:06 OFF-SITE TO TREATMENT PLANT
TO DISPOSE OF DECON WATER.

17:17 ON-SITE AT FIRE HALL TO PREPARE
SAMPLES FOR SHIPMENT.

18:15 OFF-SITE TO FORD EX.

Wetland
3-13-02

3-14-02

LONG HORN

6:45 ON-SITE AT FIREHALL TO GET EQUIPMENT TO SAMPLE.

7:55 ON-SITE AT SITE 17 TO COLLECT GROUND WATER WELL SAMPLES. CLOUDY, TEMP = 59°F. PERMUTEC = R.S/D.B.

8:00 SET UP ON 17WN05. INITIAL DTW = 9.46 FT. WAS 0.0 PPM. INITIAL DTW = 9.46 FT. T.D. PER WORKPLAN IS 152 FT.

152' - 9.46' = 142.5 FT

0.65(142.5) = 92.7 gal

92.7 gal = 1 WELL VOLUME

278.0 gal = 3 WELL VOLUMES.

9:04 FILLED SYSTEM WITH WELL WATER TO BEGIN STEADY FLOW PROCESS.

9:15 FLOW RATE AT MIN. OF 100 ml/min. DTW = 10.19 FT.

8:17 BRIAN JOHNSON AND CHRIS KENNEDY OF USACE ON-SITE TO VIEW OPERATIONS.

8:27 FLOW RATE AT 100 ml/min. NOT ABLE TO MAINTAIN STEADY FLOW RATE. 0.3 FT DROP ESTABLISHED AT 10.49 FT.

8:34 17WN05 WILL NEED TO BE PURGED. JEFFE GOING TO GET CARGER PUMP. PULLED OFF WELL.

3-14-02

(45)

8:42 SETUP ON 17WN04. PID READING WAS 0.0 PPM. INITIAL DTW = 7.85 FT. T.D. PER WORKPLAN IS 24 FT.

24' - 7.85' = 16.2'

0.65(16.2) = 10.5 gal

10.5 gal = 1 WELL VOLUME

31.5 gal = 3 WELL VOLUMES

9:52 CHECKED FLOW RATE. RATE WAS 150 ml/min. AT DTW = 8.02 FT. TRYING TO MAINTAIN STEADY RATE.

8:55 FLOW RATE ESTABLISHED AT 150 ml/min. AT DTW = 8.02 FT. PURGED 1.5 gal OF WATER.

Pk	CONDUCT	TURB	TEMP	RE
9:26 7.0	3.4	1.0	16°C	0.4 ml
9:31 7.0	3.4	1.0	16°C	0.4
9:36 7.0	3.4	1.0	16°C	0.4

9:42 COLLECTED SAMPLE 17WN14. LENGTH OF TUBE = 23.6 FT.

9:51 SETUP ON 17WN04. T.D. PER THE WORKPLAN IS 37.0 FT. PID READING WAS 0.0 PPM. INITIAL DTW = 6.45 FT.

038673

3-18-02

LONG HOLE

37'-6.45' = 30.6'
 0.65(30.6) = 19.9 gal
 19.9 gal = 1 WELL VOLUME
 59.6 gal = 3 WELL VOLUMES

10:00 CHECKED FLOW RATE. RATE WAS 150 ml/min,
 BUT FLOW NOT STEADY.

10:09 FLOW RATE ESTABLISHED AT 105 ml/min
 AT DTW = 6.81 FT.

	PH	COND	TUBE	TEMP	DO
10:48	6.1	1.1	3.0	17°C	1.9
10:53	6.1	1.1	3.0	17°C	2.0
10:58	6.1	1.1	3.0	17°C	2.8

11:05 PURGED 1.5 GAL FROM WELL. COLLECTED
 SAMPLE 17WV04. FINAL DTW = 6.88 FT.
 TOTAL LENGTH OF TUBE = 35.5 FT.

11:15 SET UP ON 17WV01. P.D. REMAINING
 WAS 0.0 PPM. T.D. PER THE WORK PLAN
 IS 31.0 FT. INITIAL DTW = 5.2 FT.

(31' - 5.2') = 25.8'
 0.65(25.8) = 16.8 gal
 16.8 gal = 1 WELL VOLUME
 50.4 gal = 3 WELL VOLUMES

3-14-02

LHARD

11:28 COLLECTED FLOW RATE. RATE WAS 245 ml/min
 AT DTW = 5.5 FT. RATE NOT STABLE.

11:33 FLOW RATE ESTABLISHED AT 220 ml/min
 AT DTW = 5.51 FT.

	PH	COND	TUBE	TEMP	D.O.
11:52	6.4	4.4	2.0	19°C	0.2 mll
11:57	6.4	4.4	2.0	19°C	0.3
12:02	6.4	4.4	2.0	19°C	0.3

12:04 PURGED 1.5 GAL FROM WELL. COLLECTED
 SAMPLE 17WV01. FINAL DTW = 5.51 FT.
 TOTAL LENGTH OF TUBE = 30.0 FT.

12:16 OFFSITE FOR LUNCH

13:17 CAL-SITE AT FIRE STATION TO GET
 SUPPLIES

13:26 ON-SITE AT SITE 17.

13:30 SET UP ON 17WV08. P.D. REMAINING
 WAS 0.0 PPM. T.D. PER THE WORK
 PLAN IS 34 FT. INITIAL DTW = 6.2 FT.

13:54 CHECKED FLOW RATE. RATE WAS 170 ml/min
 AT DTW = 6.45 FT.

14:04 FLOW RATE ESTABLISHED AT 170 ml/min
 AT DTW = 6.5 FT.

038674

3-14-02

Longford

(89)

(34' - 6.2') = 27.8'
0.65(27.8) = 18.1 gal

18.1 gal = 1 well volume
54.3 gal = 3 well volumes

Ph	Cond	Turb	Temp	D.O.
14:26	1.6	1.0	190C	2.0 mg/l
14:31	1.7	1.0	190C	1.9
14:36	1.7	1.0	190C	1.8

14:40 Purged 1.5 gal from well. Flow rate was 170 ml/min and DTW = 6.5 ft. Collected sample 17WN08. Total length of tube = 23.2 ft.

14:47 Set up on 17WN07. T.D. per the work plan was 52 ft initial DTW was 6.62 ft. PID readings was 0.0 ppm.

(52' - 6.62') = 45.4'
0.65(45.4) = 29.5 gal
29.5 gal = 1 well volume
88.5 gal = 3 well volumes

14:54 checked flow rate. Rate was 200 ml/min at DTW = 7.1 - 6.82. Level not stable.

3-14-02

Longford

(50)

15:02 Flow rate was checked. Rate established at 210 ml/min. DTW = 6.85 ft.

Ph	Cond	Turb	Temp	D.O.
15:15	1.0	2.0	190C	0.0
15:20	1.0	2.0	190C	0.0
15:25	0.86	3.0	190C	0.0

Purged 1.5 gal of well water

Flow rate was 210 ml/min at 6.85 ft.

15:32 Collected sample 17WN07. Total length of tube = 15'

15:30	7.9	1.0	3.0	190C	0.0
15:35	7.8	0.86	3.0	190C	0.0

15:43 Purged 2.0 gal of well water. Flow rate was 210 ml/min at DTW = 6.85 ft. Collected sample 17WN07. Total length of tube = 48.7 ft.

15:52 Set up on 17WN13. PID readings was 0.0 ppm. Per the work plan, total depth is 32 ft. Initial DTW = 5.72 ft.
32' - 5.72' = 26.3'

0.65(26.3) = 17.1 gal.

038675

3-14-02

Longbottom

(52)

17.1 gal = 1 well volume
 51.2 gal = 3 well volumes

16:01 collected flow rate rate was
 175 ml/min at DTW = 6.09 ft.

16:04 collected flow rate rate was

150 ml/min at 6.10 (DTW). level
 3.1402
 not stabilized.

ph	Cond	Turb	Temp	DTW
6.7	4.1	3.0	19°C	1.9
6.7	4.1	3.0	19°C	1.9
6.7	4.1	3.0	18°C	2.1

16:46 Purged 1.5 gal of water. Flow
 rate was 150 ml/min at 6.10' (DTW).

Total length of tube = 30.9'. Collected
 sample 17WN13.

17:02 Disposed of purge water at
 treatment plant. off-site site 17.

17:15 on-site at fire hall to prepare
 samples for shipment.

17:46 off-site to Federal.

Robert G. Kelly
 3-14-02

3-15-02

Longbottom

(52)

07:00 on-site at fire hall. Temp
 was 71.0°F cloudy. Personnel = P.S./D.B.
 on-site at site 17.

7:43 set up on 17WN02. no reading
 was 0.0 ppm. total depth per
 the work plan is 24 ft. initial
 DTW was 3.42 ft.

24' - 3.42' = 20.6 ft
 $0.65(20.6') = 13.4 \text{ gal}$

13.4 gal = 1 well volume
 40.2 gal = 3 well volumes.

7:54 Flow rate established at
 175 ml/min at DTW = 3.66 ft.

ph	Cond	Turb	Temp	DTW
7.1	3.5	0.0	17°C	0.5 ml/l
8:12	3.5	0.0	17°C	0.4 ml/l
8:17	3.5	0.0	17°C	0.4 ml/l

8:20 Purged 1.5 gal of water. Final DTW
 was 3.69 ft. Flow rate was 175 ml/min.
 Collected sample 17WN02. Total
 length of tube = 21.8 ft.

038676

3-15-02

8:33

LONG HORN

SETUP ON 17WW130. THIS
IS A 2" INCH WELL. PER THE
WORKPLAN, TOTAL DEPTH = 23 FT.
INITIAL DTW = 3.43 FT. PID = 0.0 PPM.

23' - 3.43' = 19.6 FT

0.17 (19.6') = 3.3 gal

3.3 gal = 1 WELL VOLUME

9.9 gal = 3 WELL VOLUMES

8:49

FLOW RATE WAS MEASURED AT 100 ml/min
AT DTW = 4.89 FT. FLOW RATE AND NOT
BE MAINTAINED AT 100 ml/min WHICH IS
THE MINIMUM ALLOWED FLOW RATE. GOING
TO PURGE 3 WELL VOLUMES.
9:37 PURGED 3 WELL VOLUMES. DTW WAS
18.9 FT.

9:38

9:43

9:48

9:55

ph	COND	TUBE	TEMP	D.O.
7.0	5.1	0.0	18°C	3.3 mg/L
7.0	5.1	0.0	18°C	3.2
7.0	5.1	0.0	18°C	3.1 mg/L

COLLECTED SAMPLE 17WW130. WELL
RECHARGED. DTW = 10.25 FT. TUBE
LENGTH WAS 20.7 FT.

3-15-02

LH AAP

(54)

10:08

SET UP ON 17WW12 (4" WELL)
PID READING WAS 0.0 PPM. TOTAL
DEPTH PER WORKPLAN = 49.0 FT. INITIAL
DTW = 6.98 FT

49' - 6.98' = 42.0'

0.65 (42.0) = 27.3 gal

27.3 gal = 1 WELL VOLUME

81.9 gal = 3 WELL VOLUMES

10:29

FLOW RATE CHECKED. RATE WAS
180 ml/min AT DTW = 7.24 FT.
WATER COVER MAINTAINING FLOW RATE
ESTABLISHED.

ph	COND	TUBE	TEMP	D.O.
6.3	1.7	2.0	17°C	0.1 mg/L
6.3	1.7	2.0	17°C	0.1
6.3	1.7	2.0	17°C	0.1

10:52 PURGED 1.75 gal FROM WELL. FLOW RATE
WAS 180 ml/min AT DTW = 7.25 FT.

COLLECTED SAMPLE 17WW12. TOTAL

LENGTH OF TUBE = 42.4 FT

10:58 SET UP ON 17WW11 (4" WELL).

PID READING = 0.0 PPM. TOTAL

038677

3-15-02

LONGSTERN

(53)

DEATH PER THE WORK PLAN IS 47 FT.
INITIAL DTW = 6.13 FT.

$$47' - 6.73' = 40.3 \text{ FT}$$

$$0.65(40.3) = 26.2 \text{ gal}$$

$$26.2 \text{ gal} = 1 \text{ WELL VOLUME}$$

$$78.7 \text{ gal} = 3 \text{ WELL VOLUMES}$$

11:11 CHECKED FLOW RATE. RATE WAS AT THE MINIMUM OF 100 ml/min AT DTW = 7.29 FT.

11:20 AT A FLOW RATE OF 100 ml/min, COULD NOT MAINTAIN STEADY FLOW RATE. WELL WILL BE PURGED.

12:10 WELL WAS PURGED DRY AT DTW = 11.5 FT. PER THE WORK PLAN, THE FD WAS 47 FT. FLOW MEASUREMENTS SHOWED THE TOTAL DEPTH = 17.9 FT. PURGED 8 gal OF WATER BEFORE THE WELL DRY. SINCE WELL NOT DRY, SAMPLE WILL BE COLLECTED. WILL PERFORM PARAMETER TESTS. TOOK 1 READING PER DIRECTION FROM B. ARCHER.

PH	CND	TURB	TEMP	P.O.
6.1	2.6	6.0	1700	1.4

12:23 COLLECTED SAMPLE 17 WU11. DTW = 10.7 FT.

3-15-02

(52)

TOTAL LENGTH OF TUBE = 13.2 FT.

13:41 ON-SITE AT FIRE HALL TO GET BATTERY

13:54 ON-SITE AT SITE 17 TO COLLECT 2 WELL WATER SAMPLES AT MW18 AND MW19.

13:58 SET UP ON 17 WU11. DID READINGS WAS 0.0 PPM. TOTAL DEPTH NOT IN WORK PLAN. THEREFORE MEASURED THE TOTAL DEPTH AT 33.56 FT. INITIAL DTW WAS 5.62 FT. WELL VOLUMES CALCULATED BASED ON FIELD MEASUREMENT FOR TOTAL DEPTH.

$$(34' - 5.62') = 28.4'$$

$$0.65(28.4') = 18.4 \text{ gal}$$

$$18.4 \text{ gal} = 1 \text{ WELL VOLUME}$$

$$55.2 \text{ gal} = 3 \text{ WELL VOLUMES}$$

14:15 AT 100 ml/min AND DTW = 6.25 FT, COULD NOT MAINTAIN STEADY FLOW/WATER (DEATH). GOING TO PURGE WELL (3 WELL VOLUMES) VOLUME BASED UPON FIELD MEASUREMENT OF TOTAL DEPTH.

038678

3-15-02

Cont. then

15:07

RAISED UPON USING THE REMANUAL
PUMP IN THIS WELL (9 GAL/Hr), GOING
TO MOVE OFF THIS WELL TO GET BIGGER
PUMP. PURGE 3 WELL VOLUMES. PLEASD
APPROXIMATELY 9 GAL OF WATER.

15:23

SET UP ON ~~THIN~~ ^{29.3102} 17 WNW 18.
PID READING WAS 0.0 PPM. TOTAL DEPTH
NOT IN WORKPLAN. FIELD MEASUREMENT
OF TOTAL DEPTH WAS 33.5'. INITIAL
DTW = 5.8'.

$$(33.5' - 5.8') = 27.7$$

$$0.68(27.7) = 18.8 \text{ gal}$$

18 gal = 1 WELL VOLUME

54 gal = 3 WELL VOLUMES

15:36

FLOW RATE WAS AT MINIMUM OF
100 ml/min AT DTW = 6.22 FT. WILL
ATTEMPT TO SUSTAIN 100 ml/min UP TO
6.52 FT (MAX 0.3').

16:02

NOT ABLE TO STAY WITHIN 0.3' DEEP
FROM 6.22 FT. FINAL DTW = 6.52 FT. WELL
WILL BE PURGED. PURGED 0.75 GAL
OFF-SITE TO TREATMENT PLANT TO
DISPOSE OF WATER.

16:32

ON-SITE AT FIRE HALL TO PREPARE

3-15-02

(57)

SAMPLES FOR SHIPMENT. COLLECTED
SAMPLES FROM 4 WELLS AT SITE
17 TODAY. TWO WELLS DID NOT PRODUCE
WATER FOR SAMPLES (0.3' DEEP AND RATE
TO COLLECT 3 WELL VOLUMES).

17:30 OFF-SITE TO FESS WITH SAMPLES.

[Signature]
3-15-02

3-16-02

(59)

LONGSTREET

07:20 6 IN-SITE AT FIREHALL. GOING TO 60 TO SITE 16 TO COLLECT WW SAMPLES. TEMP = 53°F. CLOUDY (25/0.3).
 7:50 ON-SITE AT SITE 16. P.D. READING WAS 0.0 PPM. INITIAL DTW WAS 25.35 FT. TOTAL DEPTH PER DATE WORKPLAN IS 46 FT. SETUP ON 16 WNW 37.

46' - 25.35' = 20.7'
 $0.65(20.7) = 13.5 \text{ GAL}$
 13.5 gal = 1 WELL VOLUME
 40.5 gal = 3 WELL VOLUMES

8:05 FLOW RATE ESTABLISHED AT 100 ml/min AT DTW = 25.8 FT. MAX DRAWDOWN = 26.10 FT. BEFORE WELL CAN BE PURGED.
 8:23 REACHED MAX DROP OF 26.10 FT. STEADY WATER LEVEL NOT MAINTAINED. WELL WILL NEED TO BE PURGE.
 8:39 SETUP ON 17 WNW 38. P.D. READING WAS 0.0 PPM. INITIAL DTW WAS 25.9 FT. TOTAL DEPTH PER THE WORKPLAN IS 30 FT.

30' - 25.19' = 4.8'
 $0.65(4.8) = 3.1 \text{ GAL}$
 3.1 gal = 1 WELL VOLUME
 9.3 gal = 3 WELL VOLUMES

3-16-02

LITAA

(60)

8:40 FLOW RATE CALCULATED AT 105 ml/min AT DTW = 25.34 FT. GOING TO ATTEMPT TO MAINTAIN THIS FLOW RATE.
 8:43 RATE ESTABLISHED AT 105 ml/min AT DTW = 25.34 FT. MAX DRAWDOWN ~~WAS~~ ^{IS} 25.64 FT. BEFORE PURGING (IF NEEDED).

	PH	COND	TURB	TEMP	P.D.
9:06	6.6	4.5	0.0	18°C	0.2 mg/L
9:11	6.6	4.5	0.0	18°C	0.1
9:16	6.6	4.5	0.0	18°C	0.1

9:20 PURGED 1.5 gal FROM WELL. COLLECTED 16 WNW 38. TOTAL LENGTH OF TUBE = 29.6 FT.

9:34 SETUP ON 16 WNW 38. P.D. READING WAS 1.9 PPM INSIDE WELL. P.D. = 0.0 PPM IN BREATHING ZONE. TOTAL DEPTH PER THE WORKPLAN IS 55.0 FT. INITIAL DTW = 25.12 FT. WELL DIA = 6".

CALCULATIONS FOR 6" WELL MULTIPLE (1 FT OF H₂O)
 $AREA = \pi r^2 = (\pi)(3 \text{ IN})^2 = \frac{28.3 \text{ IN}^2}{144} = 0.2 \text{ FT}^2$
 $VOLUME (6") \text{ AT } 1 \text{ FT} = (0.2 \text{ FT}^2)(1 \text{ FT}) = 0.2$

038680

3-16-02

LONG HORN

1 ft³ = 7.43 gal (Conversion Factors)

$$\text{GAL MULTIPLIER} = \frac{0.25 \text{ ft}^3}{1 \text{ ft}^3} \times \frac{7.43 \text{ gal}}{1 \text{ ft}^3} = 1.86 \text{ gal}$$

$$(55' - 25.12') = 29.88 \text{ ft}$$

$$1.86 (29.88) = 55.6 \text{ gal}$$

55.6 gal = 1 Well Volume

134 gal = 3 Well Volumes

9:38 Flow Rate Collected. Rate was 120 ml/min at DTW = 25.33 ft. Water color was slightly orange, no odor. PID on water was 0.0 ppm. Appears air or gas is entering, being injected into well.

PID Checked water in bucket. PID readings was 14.3 ppm (highest readings). Readings was at outlet of tubing. Readings in bucket and breathing zone 0.0 ppm.

ph	Cond	Turb	Temp	A.O
6.8	13.0	0.0	17°C	0.3 mg/L
6.8	13.0	0.0	17°C	0.3
6.8	13.0	0.0	17°C	0.3

10:26
10:31
10:36

3-16-02

LAAP

(62)

1.5 18 3-16-02

10:40 Purged 1.5 gal of water. Flow rate was estimated at 120 ml/min at DTW = 25.33 ft. Total length of

tube = 52.65 ft. Collected sample

16 Well Volumes

1.5 18 3-16-02

10:43 Setup on 16 Well Volumes. PID readings at well was 0.5 ppm. Initial

DTW was 22.89 ft. Total depth

of well per the well plan is

42 ft (6" well)

$$42' - 22.89' = 19.1'$$

$$1.5 (19.1) = 28.7 \text{ gal}$$

28.7 gal = 1 Well Volume

86.1 gal = 3 Well Volumes

10:46 Took PID readings at tube outlet going

into discharge bucket. Highest reading

was 12.9 ppm. PID readings in bucket

was 0.0 ppm. PID readings in breathing

zone was 0.0 ppm (Pellometer of

well). Yellowish color to water

038681

3-16-02

LONGHORN

(63)

10:57 FLOW RATE ESTABLISHED AT 130 ml/min
AT DTW = 22.96 ft.

11:12 COLOR OF WATER LIGHTER (SUGGESTS YEASING)

PH	COND	TURB	TEMP	DO
6.3	5.8	1.0	170C	0.3 ml
6.3	5.8	1.0	170C	0.3
6.3	5.8	1.0	170C	0.2

11:30 PURGED 1.25 GAL OF WATER. COLLECTED
SAMPLE 16 WNW 32. TOTAL LENGTH
OF TUBE WAS 38 FT.

11:52

12:59 ON-SITE AT FIREHALL

13:25 ON-SITE AT SITE 16.

13:32 SET UP ON 16 WNW 32. PID READING
WAS 0.0 PPM. INITIAL DTW = 28.05 ft.
TOTAL DEPTH = 33 ft. PER THE WORKPLAN.

33' - 28.05' = 4.95'

0.65 (4.95') = 3.28 gal

3.28 gal = 1 WELL VOLUME

9.6 gal = 3 WELL VOLUMES.

14:00 FLOW ESTABLISHED AT 105 ml/min AT
DTW = 28.4 ft.

3-16-02

LHARP

(64)

PH	COND	TURB	TEMP	DO
6.7	3.0	1.0	180C	0.4

PH	COND	TURB	TEMP	DO
6.7	3.0	1.0	180C	0.3

PH	COND	TURB	TEMP	DO
6.7	3.0	1.0	180C	0.2

14:25 PURGED 1.25 GAL OF WATER. COLLECTED
SAMPLE 16 WNW 32. TOTAL LENGTH
OF TUBE WAS 31.1 ft.

14:30 SET UP ON 16 WNW 31. PID READING
WAS 0.0 PPM. INITIAL DTW = 28.0 ft.
TOTAL DEPTH IS 50 ft. PER THE
WORKPLAN.

50' - 28' = 22 ft

0.65 (22) = 14.3 gal

14.3 gal = 1 WELL VOLUME

42.9 gal = 3 WELL VOLUMES

14:44 RATE ESTABLISHED AT 140 ml/min AT
DTW = 28.01 ft.

PH	COND	TURB	TEMP	DO
6.4	1.9	0.0	180C	0.2 ml

PH	COND	TURB	TEMP	DO
6.3	1.9	0.0	180C	0.2

PH	COND	TURB	TEMP	DO
6.3	1.9	0.0	180C	0.2

15:00
15:05
15:10

038682

(65)

3-16-02

LEWIS TUBE

15:18 PURGED 1.25 GAL OF WATER
COLLECTED SAMPLE 16WW31. TOTAL
LENGTH OF TUBE WAS 48 FT.
15:29 SETUP ON 16WW34. PID READING
WAS 0.0 PPM. INITIAL DTW = 27.84 FT.
TOTAL DEPTH = 32.5 FT PER THE WORKPLAN.

$32.5' - 27.84' = 4.7 \text{ FT}$
 $0.65(4.7') = 3.0 \text{ GAL}$
3.0 GAL = 1 WELL VOLUME
9.0 GAL = 3 WELL VOLUMES

15:36 COULD NOT GET FLOW CELL TO FILL UP.
FIELD MEASURED TOTAL DEPTH AT 34.75 FT.
15:39 FLOW STARTED AND FLOW CELL FILLED UP
WITH WATER. DEPTH OF WELL COULD HAVE
CAUSED SLOW START OF FLOW.
15:43 FLOW RATE OF 100 ml/min AT DTW
= 28.42 FT. STEADY WATER LEVEL COULD
NOT BE MAINTAINED. NEW TO BE PURGED.
15:55 WELL PUMPED DRY AT DTW = 28.18 FT
WHILE ATTEMPTING TO PURGE.

PH	COND	TUBE	TEMP
7.2	1.3	0.0	D.O.
			70C 9.9 ml/l

3-16-02

LHAAP

(66)

16:08 PURGED 0.75 GAL BEFORE WELL
WEST DRY. CO. WILL ALLOW WELL
TO RECHARGE BEFORE COLLECTING SAMPLE.
16:10 SET UP ON 16WW33. PID READING
WAS 0.0 PPM. INITIAL DTW = 27.86 FT.

TOTAL DEPTH PER THE WORKPLAN
IS 30 FT.
 $30' - 27.86' = 2.14'$

COLLECTED SAMPLE 16WW34 TOTAL
LENGTH OF TUBE = 29.8 FT.

16:10 SET UP ON 16WW33. PID READING
WAS 0.0 PPM. INITIAL DTW = 27.86 FT.
TOTAL DEPTH OF WELL = 50 FT PER THE
WORKPLAN

$50' - 27.86' = 22.14'$
 $0.65(22.14') = 14.4 \text{ GAL}$
 $14.4 \text{ GAL} = 1 \text{ WELL VOLUME}$
 $43.2 \text{ GAL} = 3 \text{ WELL VOLUMES}$

16:16 MINIMUM FLOW RATE OF 100 ml/min AT
DTW = 28.38 FT ESTABLISHED WITH STEADY
WATER LEVEL. MAXIMUM DRAWDOWN
AT THIS RATE IS UP TO 28.58 FT.

3-16-02

LONGHORN

(67)

ph	COND	TURB	TEMP	DO
16:51 6.5	2.5	0.0	170C	0.2mg/l
16:56 6.5	2.5	0.0	170C	0.2
17:01 6.5	2.5	0.0	170C	0.2

17:05 RECEIVED SAMPLE 16WW37 FROM JEFF CARTER. JEFF COLLECTED SAMPLE FROM WELL. SAMPLE HAS ORANGE COLOR TO 17.

17:07 PURGED 1.25 gal FROM THE WELL. BUZZED SAMPLE 16WW33. TOTAL LENGTH OF TUBE = 48.0 FT.

17:15 SET UP ON 16WW22. DID READINGS WAS 0.0 PPM. INITIAL DTW WAS 25.77 FT. TOTAL DEPTH OF WELL PER THE WORK PLAN IS 32.0 FT.

32' - 25.77' = 6.2'
 $0.65(6.2) = 4.0 \text{ gal}$
 4.0 gal = 1 well volume
 12.0 gal = 3 well volumes

17:25 FLOW RATE ESTABLISHED AT 100 ml/min AT DTW = 25.95 FT. MAXIMUM DRAWDOWN UP TO 26.25 FT (IF NEEDED).

3-16-02

LHAAP

(68)

ph	COND	TURB	T	DO
18:05 5.9	3.9	0.0	180C	0.2mg/l
18:10 5.8	3.9	0.0	180C	0.2
18:15 5.9	3.9	0.0	180C	0.2

18:18 PURGED 1.5 GAL OF WELL WATER. COLLECTED SAMPLE 16WW22. TOTAL LENGTH OF TUBE = 29.6 FT. FINAL DTW = 25.97 FT.

8:26 OFF-SITE TO FIRETALL.

18:45 OFF-SITE FROM FIRETALL FOR THE DAY. COLLECTED SAMPLES

151 16 9 locations AT SITE
 1534602
 16.

[Signature]
 3-16-02

3-17-02

(6A)

7:12 ON-SITE AT FIELDHALL TO GET EQUIPMENT

07:50 ON-SITE AT SITE 16 TO COLLECT G/W/W SAMPLES AT 16WNW27.

8:01 SET UP ON 16WNW27. P.D. READINGS WAS 0.0 PPM. INITIAL DTW = 3.29 FT. TOTAL DEPTH PER THE WORKPLAN IS 50 FT.

(50' - 3.29') = 46.7'

0.65(46.7') = 30.4 gal

30.4 gal = 1 WELL VOLUME

91.2 gal = 3 WELL VOLUMES

8:15 FLOW RATE ESTABLISHED AT 180 ml/min AT DTW = 3.55 FT. WATER LEVEL STEADY.

ph	COND	TEMP	D.O.
8:29 6.4	1.7	16.0C	0.1 ml/l
8:34 6.4	1.8	16.0C	0.1
8:39 6.4	1.8	16.0C	0.1

8:45 PURGED 1.5 GAL. COLLECTED SAMPLE 16WNW27. TOTAL LENGTH OF TUBE = 34.25 FT.

8:49 SET UP ON 16WNW28. P.D. READINGS WAS 0.0 PPM. INITIAL DTW = 3.30 FT. TOTAL DEPTH

3-17-02

LTHAP

(70)

PER THE WORKPLAN IS 22 FT.

(22' - 3.30') = 18.7'

0.65(18.7') = 12.2 gal

12.2 gal = 1 WELL VOLUME

36.6 gal = 3 WELL VOLUMES

9:02 FLOW RATE ESTABLISHED AT MINIMUM OF 100 ml/min AT DTW = 3.89 FT. MAXIMUM DRAWDOWN (0.3') WOULD BE UP TO 4.19 FT (DTW).

9:21 MAXIMUM DTW = 4.19 FT REACHED. STEADY WATER LEVEL COULD NOT BE MAINTAINED. WELL WILL BE PURGED AND THEN SAMPLED.

9:25 SET UP ON 16WNW24. P.D. READING WAS 0.0 PPM. INITIAL DTW = 3.35 FT. TOTAL DEPTH = 17 FT PER THE WORKPLAN

17' - 3.35' = 13.7'

0.65(13.7') = 8.9 gal

8.9 gal = 1 WELL VOLUME

26.7 gal = 3 WELL VOLUMES

9:47 MINIMUM FLOW RATE OF 100 ml/min AT DTW = 3.80 FT. WATER LEVEL NOT

038685

3-17-02

Longhorn

(11)

STABILIZING. GOING TO PURGE WELL.

11:13 PURGED WELL UNTIL IT WET DRY.

DTW = 14.22 FT. PURGED 18 GAL. WELL

ALLOW WELL TO RECHARGE AND TAKE

GRAB SAMPLE.

11:23 COLLECTED SAMPLE 16WW24. DTW

= 12.26 FT. TOTAL LENGTH OF

TUBE = 15.3 FT.

11:40 SETUP ON 16WW23. PID READINGS

WAS 0.0 PPM. INITIAL DTW = 3.3 FT.

TOTAL DEPTH = 35 FT. PER THE WORK PLAN,

35' - 3.3' = 31.7'

0.65(31.7) = 20.6 GAL

20.6 GAL = 1 WELL VOLUME

61.8 GAL = 3 WELL VOLUMES

11:49 FLOW RATE ESTABLISHED AT 175 ml/min
AT DTW = 3.45 FT. WATER LEVEL STEADY.

	PH	COND	TURB	TEMP	D.O.
12:12	6.1	2.7	0.0	15°C	0.2 mg/L
12:17	6.2	2.7	0.0	15°C	0.1
12:22	6.2	2.7	0.0	15°C	0.1

3-17-02

LHAAP

(12)

12:26 PURGED 11.5 GAL OF WATER. COLLECTED

SAMPLE 16WW23. TOTAL LENGTH OF

TUBE = 33.45 FT.

12:55 ON-SITE AT FIRE HALL TO RECHARGE
PRIORITY

13:24 OFF-SITE FOR LUNCH.

14:00 ON-SITE AT SITE 04 SETUP ON

04WW24. PID READINGS WAS

0.0 PPM. INITIAL DTW = 4.95 FT.

TOTAL DEPTH = 16 FT.

(16' - 4.95') = 11.1 FT

0.65(11.1) = 7.2 GAL

7.2 GAL = 1 WELL VOLUME

21.6 GAL = 3 WELL VOLUMES

14:15 FLOW RATE AT 100 ml/min AT DTW
= 5.75 FT. WATER LEVEL

	PH	COND	TURB.	TEMP	D.O.
16:33	6.8	7.0	0.0	15°C	2.5
16:38	6.8	7.0	0.0	15°C	2.4
16:43	6.8	7.1	0.0	15°C	2.4

038686

038687

3-1702

Loughboro

14:51

PURGED 1.25 GAL OF WATER. FINAL
 DTW = 6.04 FT. COLLECTED SAMPLE
 OF W.W.M.W.O.L. TOTAL LENGTH OF
 TUBE = 14.2 FT.

15:20 ON-SITE AT FIREHALL TO PACK

EQUIPMENT INTO VEHICLES.

18:30 OFF-SITE FROM CHAM.

Robert & Wood
 2017-03-17

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(divider page)***

LONGHORN AAP
KARNACK, TX

PLANT-WIDE PERCHLORATE
INVESTIGATION

2ND SAMPLING EVENT
DRY SEASON

TECHNICAL LEAD
LOG BOOK

(9/16 - 9/25/02)

JEFF CARTER

NATIONAL

408

MINING TRANSIT BOOK

038689

JEFF CARTER

254

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USACE TULSA DISTRICT

CONTRACT # DACAS6-01-C-2008

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LYNN MUCKEL RATH 679-2047

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KARNACK, TX 75661

This Book is manufactured of a High Grade
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INDEX

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GATE

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3185

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038690

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BEST WESTERN

STEVE 274

DAVE 101

LA QUINTA

ROB 124

JEFF 120

BOB

ROY

RALPH

PSC

(865) 777-1401

EXT 212

DEAN

TRAMWAY

ALL TIME

GENERAL

PARTLY CLOUDY, DRIZZLING, MID 80°F

0730 ON POST

0800 MET W/ STEVE BRUNTON'S

DAVE CICA @ FIRE STATION

OB'S HAZARD SAFETY MEETING

PRESENT

JEFF CARTER

DOUG HAWN ROBSHERLES

RALPH RAY DAVE BLANK

STEVE BRUNTON DAVE CICA

DISCUSSED BIG HAZARDS

(SNACKS & BUGS)

DISTRIBUTED DEET INSECT

REPELLANT, SNACK CHAPS

TEAM 1 (STEVE & DAVE)

INSTALLING PORT POINTS

TEAM 2 (DOUG & RALPH) TUBING

WELLS

TEAM 3 (ROB & DAVE) SOIL

SAMPLING @ 29

JEFF CARTER

LHAAP

DRY SEASON

PARTLY CLOUDY, DRIZZLING, MID 80°F

0730 ON POST

0800 MET W/ STEVE BRUNTON'S

DAVE CICA @ FIRE STATION

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WELLS

TEAM 3 (ROB & DAVE) SOIL

SAMPLING @ 29

JEFF CARTER

SIGN
HERE

038691

③ 9/18/02
 LHAAP
 DRY SEASON
 WFS
 0710 ON POST
 WEATHER: 77°F CLOUDY
 MET W/DAVE MOREIS (CIRCLEM)
 TOOK HIM TO SITE 50 TO
 BEGIN CLEARING LOCATION FOR
 SOWWOS
 TEAM 1 COMPLETING TUBING @
 (STEVE B.) SITE 18 THEN MOVING
 (DAVE C.) TO SITE 46
 TEAM 2 COMPLETING TUBING @
 (BOUGHMAN) SITE 16 THEN BEGINNING
 (RALPH RAY) WELL SAMPLING @ SITE 4
 TEAM 3 COMPLETING TUBING @
 (ROB SHARLES) SITE 12 THEN MOVING TO
 (DAVE BLANK) SITE 29 TO COMPLETE
 SOIL SAMPLING

038692

Jeff Carter

9/17/02
 Tue ②
 LHAAP
 DRY SEASON
 10:15 PICK UP FED EX
 @ GUARD HOUSE. SAMPLE
 CONTAINERS FROM CLIFF
 MURRAY (COE)
 11:30 DRIVE AROUND U/ROY
 HOEKSTRA CHECK SUMP
 BEHINDS ROCKY WASH @
 SITE 29, CHECK SUMP
 @ SITE 16, TEAM 1 INSTALL
 PORE POINT @ SUMP.
 12:30 LUNCH
 1:30 TEAM 1 COMPLETES PORE
 POINTS TUBING SITE 18 WELLS
 TEAM 2 TUBING SITE 17 WELLS
 TEAM 3 OUT OF SOIL SAMPLES
 CONTAINERS TUBING SITE 50
 1900 LEAVING SITE
 COMPLETE: TUBING SITE 4, 50, 17
 MOST OF SOIL SAMPLING @ 29
 Jeff Carter

9/18/02
 WED
 L HARR
 DRY SEASON
 13.9-14.8 SND - SLT VMOIST
 14.4-18.2 SND - DK BRN/AA WET
 18.2-19.0 SND - VSLTY DK BRN
 19-20 SND / AA VMOIST
 20-20.5 CL DK GY w/IRON STN
 20.5-23 SND - BRN TO ORNG VSLTY ABNDT
 20.5-23 SND - IRON STN BANDS VMOIST
 DRILLED PILOT HOLE TO 23 FT
 W 4.23 HSA
 DRILLED OUT TO INSTALL WELL
 W/10" ID HSA
 1100 COMPLETION OVERDRILLING
 BEGIN INSTALLING 4" DIA
 STAINLESS STEEL WELL Casing
 10' WIRE WRAP SCREEN
 1140 COMPLETED INSTALLING SAND
 PACK & BENTONITE
 1200 LUNCH
 038693
 Jeff Cant

9/18/02
 WED
 L HARR
 DRY SEASON
 DOUG
 0900 GTTL
 TO INSTALL SOWWOS
 SAND - ANS1/ANSR61-1994
 SND - LT VSLTY (20-40)
 2-4 SND - AA
 5-10 SLT - LT GY, ABNDT
 CL, DRY
 BECOMES MOIST @ 8'
 ABNDT ORNG IRON STN
 10-11.2 CL - VSLTY, LT GY
 ABNDT IRON STN, ORNG
 moist
 11.2-12 SND - DK BRN, VSLTY
 ORNG IRON STN, moist
 12-12.7 CL - VSLTY, DK GY moist
 12.7-13.3 SND - DK BRN/AA moist
 13.3-13.9 CL - DK GY/AA
 Jeff Cant

WED
9/18/02
(6)

LHAAP

DRY SEASON

1300 INSTALLING GUARD
POSTS
AND CONCRETE PAD
LOCKING CASING

1340 MOVE DRILL CUTTING
DRUMS (2.5) TO
PAVED AREA OF SITE SO

1345 DRILL CREW LEAVING SITE

LABELLED DRUMS

Auger Cuttings From
MON FOR WELL
SOWWOS

COLLECTED 9/18/02
COLLECTED BY: STEP INC.
DRILLED BY: ETL INC.

DIGITAL CAMERA BROKEN. WONT
REND DISCS

1460

guy Cant

(7)
9/18/02
WED

LHAAP

DRY SEASON

SOWWOS

SAND: 14 BAGS

BENTONITE:
2 BAGS
3/8" PULVER

CONCRETE
PAD

GRAVEL

BENTONITE
MUD

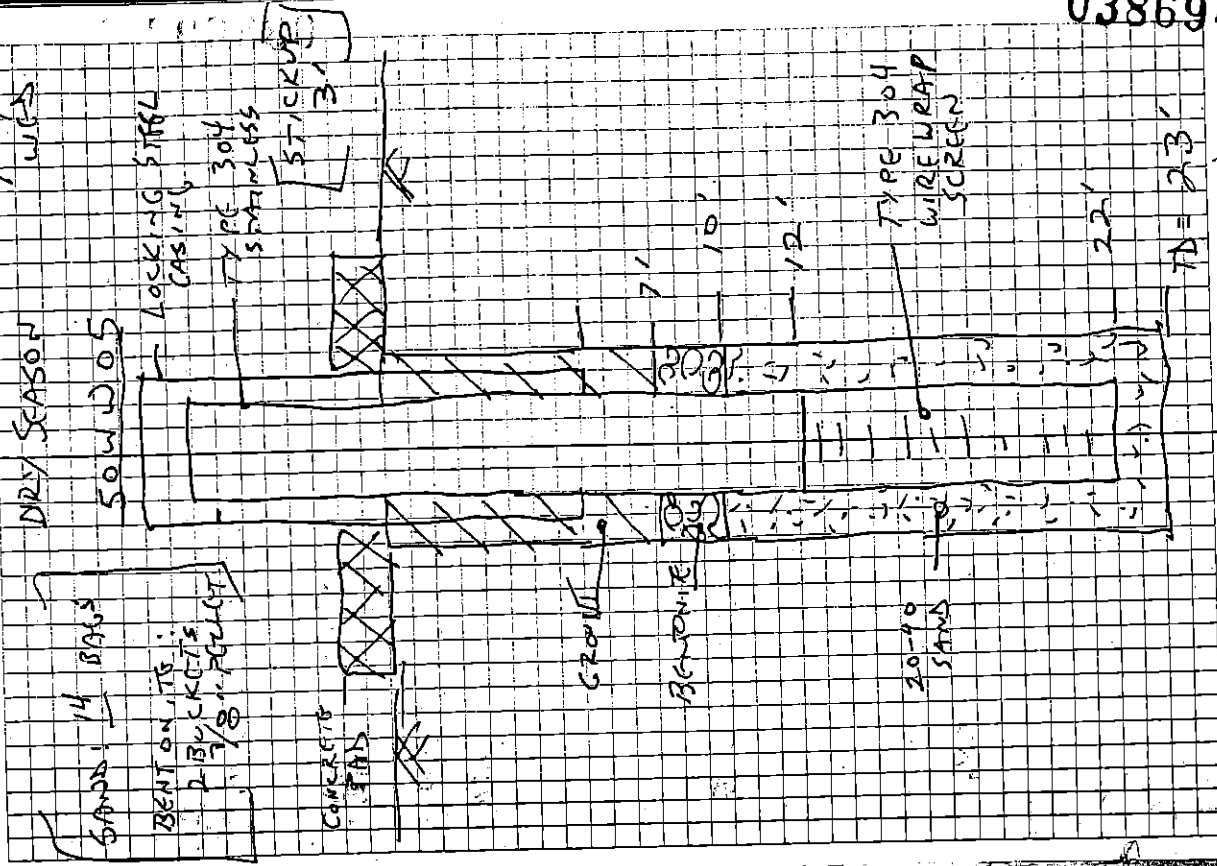
20-40
SAND

TYPE 304
WIRE WRAP
SCREEN

22'

TD = 23'

038694



⑨ 9/14/02
LHAAP
DRY SEASON
THUR

TECH LEAD / LT. ROY HICKS
ORGANIZED MORNING MEETING

0900 J. CARTER ON SITE met
W/ ROY DISCUSSED DAY PLAN

TEAM 1 COMPLETED TUBING @
SITE 29 & SITE 47
BEGAN SAMPLING SITE 46

TEAM 2 SAMPLING @ SITE 17
THEN MOVED TO SITE 18/24

TEAM 3 SAMPLING SITE 12

ROY & JEFF PUT BAILER IN
ALL PORE WATER POINTS

HEAVY RAINS FORCED SHUT
DOWN OF SAMPLING

1730 ALL TEAMS LEAVING
SITE

038693
JW/Car

⑧ 9/18/02
WED
LHAAP
DRY SEASON

TEAM 1 COMPLETED
TUBING SITE 46
BEGAN SITE 47 TUBING

TEAM 2 SAMPLING COMPLETED
TUBING SITE 46
SAMPLED SITE 4 BEGAN
INCREASING TAP WATER
SAMPLE

SAMPLING SITE 17

TEAM 3 COMPLETED SOIL
SAMPLING TUBES SITE
12.

1930 HOURS, ALL TEAMS LEAVING
SITE

JW/Car

FRI 9/29/02
 LHAAP
 DRY SEASON
 (11)

UGLES REMAINING	
SITE 12	6
SITE 16	18
SITE 17	17
SITE 18	13
SITE 29	20
SITE 46	8
SITE 47	19
SITE 50	5
	105

SURFACE/PORE WATERS:
 SITE 16 12 [1 VOC]
 SITE 18 10 [1 VOC ONLY]
 SITE 29 2
 24 [2 VOC]

103 SAMPLE
 10 QA
 10 QC
 5 MS
 138 BOTTLES 133
 29
 762
 24-SAMPLE
 1 QA
 2 QC
 MS
 29 BOTTLES

038696

FRI 9/29/02
 (10)
 LHAAP
 DRY SEASON
 TEMP: 71°F CLOUDY LRAIN
 0700 ON POST

TEAM 1 @ SITE 46
 TEAM 2 @ SITE 17
 TEAM 3 @ SITE 12

BOTTLE COUNT	
TEAM 1	11
TEAM 2	10
TEAM 3	15
	36

OUTRIGS 16 SMALL PLASTIC
 21 PLASTIC TOP
 24 VINYL TOP
 10 QA BOTTLE
 6 VOC VIALS
 3 TRIP BLANK

16
 21
 24
 10
 36
 107
 + 50 ON ORDER
 157

11
 15
 10
 36

J. J. Carth

FRI 9/20/02
(12)

LHAPP
DRY SEASON
FEB 6X

484137074267
TRACK # FOR PH PROBES

TALK TO AM SENTH
PINGS AS SHREVEPORT
DEBBIE W. HITEAS

BORROWED PH PROBE FROM
- COMPLETE ENVIRONMENTAL
CALLED DEAN @ PCS
HE SAID TRACKING SHOWED
PROBES WERE DELAYED ON
FEB 6X BUT SHOULD DELIVER
TODAY.

CALLED GEOTEC ABOUT SILICON
TUBING. THEY ALSO BLAMED FENG
FOR DELAY BUT SHOULD DELIVER
TODAY.

DID NOT RECEIVE SAMPLE
BOTTLE SHIPMENT. BOX ORDERED
ANOTHER 50 FOR DELIVERY TO
HOTEL TOMORROW A.M.

Jeff Cant

FRI 9/20/02
(13)

LHAPP
DRY SEASON

NOTES ON ADDITIONAL
PERCHLORATE SAMPLING (SOIL).
ON MONDAY TALK TO BILL CORRIGAN
ABOUT AREAS UTILIZING VALUENT
TREATMENT. KNOW OF 2 AREAS NOW:

- 1) SITE 4
- 2) PARKER @ SITE 18

3RD AREA @ SITE 47 (BAG 25C)?

WON. MEET W/ STATE TO SPLIT 18 PW/4
FOR VOC ONLY.

WON. MEET W/ STATE TO SPLIT SEEP SAMPLE

1630 STOP SAMPLING. LAST

FEB EX SHIPMENT IN
SHREVEPORT @ 1800

1700 LEAVE SITE

038697
Jeff Cant

SAT
9/21/02
(14)

LHAAP
DRY SEASON
Temp 60°F
0700 ON POST
Team 1 @ SITE 47
Team 2 @ SITE 18
Team 3 @ SITE 50
SITES COMPLETED
SITE 4 DONE
SITE 12 DONE
SITE 17 / DEEP WELL (17 WELLS)
REMAINING
SITE 48
SITE 46 4 WELLS REMAIN
0730 DRIVE TO SITE 50 DENGROU
SOWN 05 (NEW WELL)
DEPTH TO WATERS 13.45 FT
STICK UP: 3'
TD: 25.4
MEASURING POINT TO C
Jeff Cuthbert

SAT
9/27/02
LHAAP
DRY SEASON
(15)
WATER COLUMN
25.4
17.45
11.95
11.95
0732 BEGIN BAILING WELL
0805 BAILING SEAL
WL: 13.8
RETURN TO FIRE STATION TO GET
GRUNDIGOS PUMP
SET UP @ WELL
0904 BEGIN PUMPING @ 2.5 GPM
PUMP SET @ WELL BOTTOM
7.77 G/WELL
VOLUME 3.4 (1/4) 2 11.95
4 WELLS 0.65
MULTIPLIER 3.4 x 36 11.95
0913 PUMPED 15 TOTAL GAL
0916 5 GAL (TOTAL 20)
0918 5 G (25)
0921 5 G (30)
0924 5 G (35)
STOPPED PUMP
038698
Jeff Cuthbert

SAT 9/21/02
 LHAAP
 DRY SEASON
 (17)
 WELLS NEEDING OTHER SAMPLING METHOD

SITE 4 [0]
 SITE 12 [0]
 SITE 17 17WWS
 SITE 46 46WWS DEEP
 44SMW22
 44SMW17
 44SMW13

TEAM 3 COMPLETED SITE 50
 MOVING TO SITE 29
 TEAM 2 MOVING TO SITE 18
 TEAM 1 WORKING ON SITE 47

1650 SET UP @ SITE 29 ROCKET
 WASH FACILITY TO COLLECT SAMPLE
 FROM PUMP BEHIND BUILDING (29SW1)
 ALSO COLLECTING SURFACE/PORE WATER
 QA, QC, MS SAMPLES

1700 SAMPLE 29SW1 COLLECTED
 ALSO COLLECTED QA, QC, MS
 DVES

038699
 Jeff Cuth

SAT 9/21/02
 LHAAP
 DRY SEASON
 RESUME DEVELOPMENT OF
 50WWS

WL: 14.2

1000	START PUMP (2.5 GPM)	55 TOTAL
1002	5 GAL [5 WWS]	60
1004	5 10	65
1007	5 15	70
1009	5 20	75
1011	5 25	80
1013	5 30	85
1016	5 35 (PUMP DRY)	90
1019	5 40	95
1022	5 45	100
1025	5 50	

PUMP OFF

1030 DEVELOPMENT COMPLETE
 TEAM 3 WILL SAMPLE
 AND MEASURE PARAMETERS

1200 LUNCH

Jeff Cuth

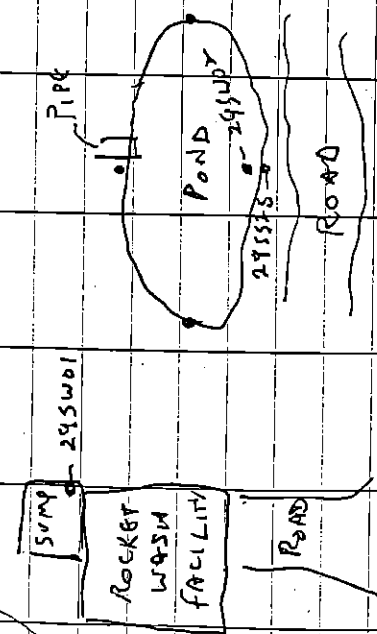
SAT
9/21/02
(18)

LHAAP
DRY SEASON

1720 SET UP TO COLLECT
SURFACE WATER SAMPLE
29SW02 FROM POND @
SITE 29

1728 COLLECTED 29SW02
CO-LOCATED TO SOIL
SAMPLE 29SS2.5

SITE
29



1830 HANG GROUNDPODS IN 17W05
1930 ALL CREWS OFF POST

Jeff Cant

SUN
9/22/02
(19)

LHAAP
DRY SEASON

0700 ON POST
TEMP 71°F PARTLY CLOUDY
TEAM 1 TO SITE 47
TEAM 2 TO SITE 16
TEAM 3 TO SITE 29
0720 ALL TEAMS LAUNCHES

ASK DOUG ABOUT SOURCE WATER
BLANK [NEED TO COLLECT]

0820 HANG GROUNDPODS PUMP IN
46WU03

1300 ATTEMPT TO SAMPLE ROEF
POINTS @ SITE 16 & 18.

WATER FROM LAST THURSDAY
STORM GUTTER STILL TO HIGH
TO COLLECT MOST SAMPLES

1630 BEGAN OFF TRANSPORTING
WASTE WATER TO TREATMENT
PLANT

1930 COMPLETED

038700
Jeff Cant

9/22/02

LHAAP

DRY SEASON

1945

TEAM 1 & 3 LEAVING SITE.

TEAM 1 PURGING

WELL @ SITE 46

2000

COMPLETED PURGING

LHSMW22. RIG

DOWN

2030

LEAVING SITE

LHAAP

DRY SEASON

9/23/02

(21)

OGIS CREWS HEADING TO SITE

I WILL STAY BEHIND TO FEED

WEEKEND SAMPLES; GO TO LONG

WELL FOR EQUIPMENT

21

0945 ON POST

TEAM 3 PURGING 17W205

40 WELLS REMAIN TO SAMPLE

AT START OF DAY

LHSMW13 - CHECK STEVE'S LOG

LOW. MAY BE INTEGRITY PROBLEM

W/WELL CASING. IMMEDIATE

REACTION TO STEAM EVENT

(ROSE 5' OVERNIGHT).

TEAM 2 COMPLETING SITE 16

MOVING TO SITE 18

TEAM 1 COMPLETING SITE 47

MOVING TO SITE 29

038701

Jeff Cant

Jeff Cant

9/23/02

(22)

LHAAP

DRY SEASON

1209

CLIFF MURRAY (LOE)
ON SITE

1308

PULLS FIELD BLANK
SAMPLE OF FILTERED
SOURCE WATER

(LHFB01)

1230

COLLECTS WASTE
CHARACTERIZATION
SAMPLES FROM THE
2.5 DRUMS OF CUTTINGS
FROM INSULATION OF
WELL 50WU05 SAMPLE
DESIGNATION 50D501

1830

COLLECTS 18PW14
PORE WATER FOR VOC
ANALYSIS. ONLY ABLE
TO COLLECT 1.5 40ML
VIALS

Jeff Canty

LHAAP

DRY SEASON

(23)

1853 COLLECTS 18SW010

SEEP POINT FOR VOC
ANALYSIS [COLOCATED W/16W05]

1940

ALL PERSONNEL
LEAVING SITE

WELLS REMAINING

SITE 4 ✓

SITE 11 ✓

SITE 16 ✓

SITE 17 ✓

SITE 19-9

SITE 29-8

SITE 46 ✓

SITE 47 ✓

SITE 50 ✓

(3 NOT YET ON GOV)

TOTAL: 17

PLUS: 21 PORE WATER SAMPLES

038702

Jeff Canty

TH 9/24/02

(54)

LHAAP DRY SEASON

OGSS ON POST

TEAM 1 @ SITE 29
(ALSO FINISHING SITE 46)

TEAM 2 @ SITE 18

TEAM 3 @ SITE 18

17 WELLS & 21 PORE WATER
REMAIN

WORK ON KEEPING GRUNDOS
PUMPS DECONNED AND
HANDLING WASTE WATER

1200 LUNCH

TEAM 1 REPORTED THAT LHS MW 13
(SITE 46) HAS NOT PRODUCED ANY WATER
AFTER PULGING DRY LHS MW 57
(SITE 42) HAS ALSO NOT PRODUCED
WATER AFTER PURGING DRY

Jeff Cate

9/24/02

(25)

LHAAP DRY SEASON

WILL TRY TO SAMPLE THESE WELLS
LATER TODAY

TEAM 1 REPORTED THAT 29 WELLS & 21
WELLS NOT PUMPING PER STAINC

TEAM 1
29 WELLS 188' 4' 48" 34'
29 WELLS 78' 4' 48" 34'

DECIDED TO PURGE 3 WELLS
VOLUMES w/ GRUNDOS & SAMPLE

LHS MW 13 9/24

STEVE REPORTED THAT 29 WELLS
HAS HAD VERY HIGH LEVELS OF
METHYLENE CHLORIDE IN THE PAST.
DECIDED TO PUMP IT LAST TO
AVOID CROSS-CONTAMINATION
(NOTES TO INFORM RC OF METHYLENE
CHLORIDE ON GRUNDOS)

TEAM 2 & 3 ONLY HAVE 3 MORE
WELLS @ SITE 18. TEAM 1 ONLY HAS
2 MORE WELLS TO VISIT @ SITE 29

Jeff Cate

038703

Tue
9/24/02
(26)

LHAAP	DRY SEASON
1445	COLLECT 16PW11
1450	COLLECT 16PW12 DUP'S
1500	COLLECT 16PW09
1511	COLLECT 16PW08 QA
1515	COLLECT 16PW07
1518	COLLECT 16PW06
1522	COLLECT 16PW05
1655	COLLECTED 16PW04
1705	ATTEMPTED TO COLLECT
	16PW03 TOO DEEP
	16PW02 3 16PW01 ALSO
	TO DEEP TO COLLECT
	SAMPLE
1708	MOVE TO SITE 18
	COLLECTED
	18PW27, 18PW29, 18PW30
	ALL OTHER POINTS UNDER WATER
	AND COULD NOT SAMPLE

Jill Cant

LHAAP
9/24/02
(27)

DRY SEASON	
1835	COLLECTED LMS MW13
	SAMPLE (VERY TURBID) @
	SITE 47 BY BAILEY
1843	COLLECTED LMS MW57
	SAMPLE (VERY TURBID) @
	SITE 47 BY BAILEY
1855	SET UP TO SAMPLE
	29WW16 w/ BAILEY
1858	COLLECTED SAMPLE
	29WW16 NOTE: WATER
	HAS CONTAMINATED HIGH
	LEVELS OF SOLVENTS
	(METHYLENE CHLORIDE STEEL)
	SHOULD NOTE THIS ON COC.
1900	SAMPLING COMPLETE
	RETURN TO FIRE
	STATION TO DECON
	AND PACK

038704
Jill Cant

9/24/02
TUE

(23)

LHAAP

DRY SEASON

2045 PACKING & DECON

COMPLETE

ALL TEAMS LEAVING

SITE.

LHAAP

DRY SEASON

0630 ON POST

LOAD VEHICLES PREPARE

TO LEAVE

WATER

ALL DRUMS AND CONTAINERS

REMOVED TO STORAGE AT

BLOG 50-G @ SITE 47.

TRAILER RETURNS TO

COMPLETE ENVIRONMENTAL

YARD.

0830 ALL VEHICLES PACKED

AND PERSONNEL LEAVE

SITE

DRY SEASON SAMPLING

COMPLETE

HOWEVER, STEVE TRUNTON RETAINED EMPTY

SAMPLE CONTAINERS AND WILL ATTEMPT

TO SAMPLE THE PORE WATER POINTS

THAT COULD NOT BE REACHED DUE TO

HIGH WATER. THIS EFFORT WILL OCCUR OVER

THE NEXT WEEK AS HE COMPLETES SURVEY

ACTIVITIES.

038705

J. Cant

J. Cant

9/25/02

LHAAP

DRY SEASON

WED

(31)

ACTIVITIES RECORDED BY STEVE BRUNTON:

FROM A FAX SENT 9/30/02 -

(QUOTE) JEFF

DAVE AND I WERE ABLE TO COLLECT
THE REMAINING PORE WATER SAMPLES
BEFORE WE LEFT WEDNESDAY. WE

TOOK A 5-GALLON BUCKET AND CUT A
2-INCH ~~PIPE~~ DIAMETER HOLE IN THE BOTTOM

A PIECE OF RUBBER CUT FROM AN INNER
TUBE WAS TAPED ACROSS THE HOLE. A HOLE

ABOUT 1/2-INCH IN DIAMETER WAS THEN
CUT IN THE RUBBER. THIS ALLOWED US TO

SLIP THE BUCKET OVER THE PVC RISER
AND FORM A SEAL. ANY WATER IN THE

BUCKET WAS DRAINED OUT WITH A CUP BEFORE
THE CAPS ON THE PVC RISER WERE REMOVED.

WE WERE ABLE TO COLLECT SAMPLES FROM ALL
THE SUBMERGED PORE POINTS. WE SHOWED

CLIFF MURRAY WHAT WE WERE GOING TO DO
AND HE HAD NO PROBLEM WITH IT. HE TOOK A

COUPLE OF PICTURES OF OUR SET-UP. INCLUDED
WITH THIS FAX ARE THE 2 CHAINS-OF-CUSTODY AND
3 PAGES OF BRIEF FIELD NOTES. (ENDS QUOTE)

Jeff Cant

038706

PAGE

INTENTIONALLY

BLANK

Jeff Cant

WBS
5/02

(32)

LHAPP

DRY SEASON

TRANSCRIPT OF FIELD NOTES
REGGIES FROM STEVE BRUNTON:

16PW02 SAMPLED AT 1515
QA/QC. PORE POINT ~ 0.75 FT
BELOW WATER. WATER IN PORE
POINT 0.2 BELOW TOC. WATER
GRAY WITH SILTY SAND SEDIMENT

16PW01 SAMPLED AT 1523. PORE
POINT ~ 1.5 FT BELOW WATER
SURFACE. WATER IN CASING
~ 0.5 BELOW TOC. BAILER WAS
3/4 FULL. BUCKET FLOODED
UNABLE TO COLLECT MORE SAMPLE

16PW03 SAMPLED AT 1535
PORE POINT ~ 0.75 FT BELOW
WATER SURFACE. WATER IN CASING
~ 0.5 BELOW TOC

Jeff Caputo

INSCRIPT
STEVE BRUNTON

FIELD NOTES

LHAPP

DRY SEASON

(33)

18PW22 PORE POINT ~ 0.6 FT BELOW
BAYON SURFACE. WATER FLOWING FROM
PORE POINT. WATER CAP REMOVED. DID
NOT SAMPLE. RETURNED AT 1700
AND COLLECTED SAMPLE AT 1708
18PW23 SAMPLE COLLECTED 1645
PORE POINT ~ 0.25 BELOW WATER
SURFACE. WATER IN CASING ~ 1 FT
BELOW TOC. SEDIMENT IN BOTTOM.
GRAY SILTY FINE SAND.

18PW24 SAMPLE COLLECTED 1628
PORE POINT ~ 0.15 FT BELOW SURFACE.
WATER IN CASING ~ 1 INCH BELOW
TOC. SEDIMENT GRAY SILTY FINE SAND.

18PW26 SAMPLE COLLECTED AT 1640
PORE POINT ~ 0.3 FT BELOW WATER
SURFACE. PORE POINT HAS WATER
FLOWING SLIGHTLY OVER TOC.

SEDIMENT GRAY SILTY FINE SAND
18PW28 SAMPLE COLLECTED 1647
PORE POINT ~ 0.2 FT BELOW WATER SURFACE
PORE POINT HAS WATER FLOWING. SEDIMENT
GRAY SILTY FINE SAND.

Jeff Caputo

9/25/02

(34)

TRANSCRIPT OF
STEVE BRUNTON
FIELD NOTES

LHAAP

DRY SEASON

18PW25 SAMPLE COLLECTED 1633
PORE POINT NO. 25 FT BELOW WATER
SURFACE. WATER IN CASING
~ 1/2 INCH BELOW TOC. SEDIMENT
GRAY SILTY FINE SAND.

18PW31 PORE POINT > 0.1 FT
BELOW WATER SURFACE PORE
POINT DRY. NO WATER IN
CASING. YELLOWISH BROWN
CLAY SILT IN BOTTOM.

PORE POINTS 18PW27, 18PW29,
AND 18PW30 DID NOT HAVE
BAILERS IN THEM. 18PW29
WAS BELOW WATER SURFACE

END OF STEVE BRUNTON'S NOTES

Jeff Cantor

WGD

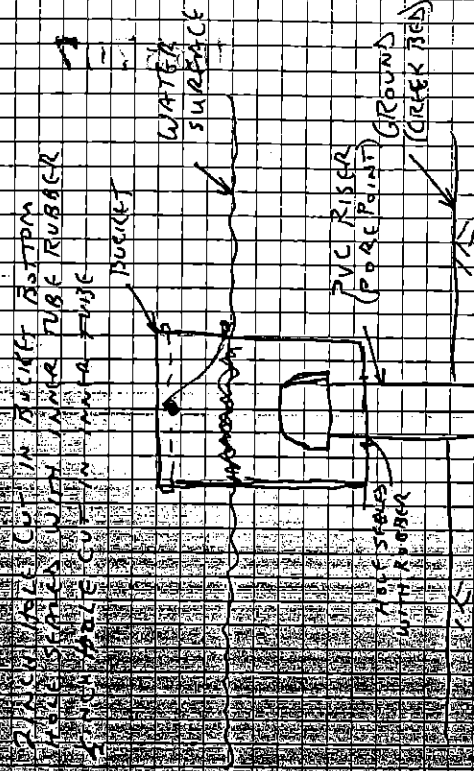
9/25/02

(35)

LHAAP

DRY SEASON

REMOVAL OF STEVE BRUNTON'S
PORE WATER SAMPLING APPARATUS



ALL WATER BAILED FROM BUCKET
BEFORE REMOVING PORE POINT CAP.

END OF DRY SEASON
SAMPLING EVENT

0388708

Jeff Cantor

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LONGHORN AAP
KARNACK, TX

PLANT-WIDE PERCHLORATE
INVESTIGATION

2ND SAMPLING EVENT
DRY SEASON

TEAM 1

LOG BOOK

STEVE DAVE

(Brunton / Cika)

(9/17 - 9/24/02)

NATIONAL

408

MINING TRANSIT BOOK

① 9/17/02 LHAAT
 Dave Cika / Steve Brunton
 Warm and Muggy. Light drizzle
 early am. Partly Cloudy and Clearing
 6:50 Arrived at LHAAT
 7:45 Equipment Arrived and start
 unpacking
 8:20 Richard meeting and tailgate
 safety briefing
 8:40 Arrived Site 16 to set drive
 points on Harrison Bayou. No
 flow in bayou. A few spots of
 stagnant water. Most of
 channel dry to Damp
 8:55 Showed Jeff bayou conditions
 and discussed well point locations.
 9:05 Began setting points.
 10:40 Completed in stalling 11
 well points. Add an additional
 point near seep.

9/17/02 ②

11:50 Returned to Fire house
 to clean 4 well screens that
 were not in bags
 11:25 Site 18 began setting
 for water points.
 13:15 Completed setting for water
 points at site 18. Returning
 to Fire House for Lunch and
 tubing for wells.
 13:45 Return to Site 18 to install
 tubing into wells for ground water
 sampling.
 14:09 1408 - Top of outer casing
 Water level = 22.27 ft
 Depth of Well = 32.42 ft
 Length of tubing = ~ 27.3 ft

038711

③ 9/17/02 Tuesday

14.25

BUW17 TOC

Depth of Water: 26.58 Ft

Depth of Well: 37.90 Ft

Length of Tubing: 32.90 Ft

BUW18 TOC

Depth of Water: 26.90

Depth of Well: 63.95

Length of Tubing: 59.00

Unable to lower tubing to depth.
Need additional weight on tubing.

C84 1449 TOC

Depth of Water: 24.99 Ft

Depth of Well: 55.01 Ft

Length of Tubing: 50.0 Ft

BUW07 1503

Depth of Water: 15.31 Ft

Depth of Well: 28.0

Length of Tubing: 23.0 Ft

9/17/02 ④

1513 Went back to fire house to get additional weights for tubing

18W019 1544 TOC

Depth of Water: 11.37 Ft

Depth of Well: 37.15 Ft

Length of Tubing = 53 Ft

18W20 1600 TOC

Wasp inside protective casing

Depth of Water = 17.26 Ft

Depth of Well = 36.20 Ft

Length of Tubing = 31.5 Ft

18W08 1615 TOC

Depth of Water = 10.83 Ft

Depth of Well = 22.40 Ft

Length of tubing = 17.5 Ft

038712

⑤ 9/17/02

18WV09 1622 TOC

Depth of Water = 8.64 ft

Depth of Well = 61.92

Length of Tubing = 57 ft

16:43

Added weight to 18WV09
a set tubing to 59 ft

16:58 MW20
18WV20 TOC

Depth of Water = 12.20 ft

Depth of Well = 18.30 ft

Length of Tubing = 15.5 ft
No weight on tubing

MW08 1709

Depth of Water = 16.74 ft

Depth of Well = 33.4 ft

Length of Tubing = 28.5 ft

9/17/02 ⑥

17:35 MW13 TOC

Depth of Water = 7.92 ft

Depth of Well = 48.6 ft

Length of Tubing = 43.5 ft

17:52 18WV11 TOC

Depth of Water = 13.62 ft

Depth of Well = 65.3 ft

Length of Tubing = 60.4

1608 Need more zip ties.

Stopping for the day. Will
resume with 18WV10 in
the morning.

~~33B~~

038713

9/18/02

Dave Cifer / Steve Brunton
Warm and Muggy. Partly Cloud
Highs Low 90's

Arrived at LHAAP 0846
Load equipment, tailgate meeting
at 725.

18MW10 740 TOC
Depth of Water = 14.24 Ft
Depth of Well = 35.1 Ft
Length of Tubing = 30.00 Ft

MW17 0756 TOC
Depth of Water = 10.04 Ft
Depth of Well = 28.00 Ft
Length of Tubing = 23.1 Ft

46 MW04 0825
Depth of Water = 16.81 Ft
Depth of Well = 26.80 Ft
Length of Tubing = 22 Ft

LHS MW22 0840
Depth of Water = 18.87 Ft
Depth of Well = 28.9 Ft
Length of Tubing = 24 Ft

9/18/02

LHS MW23 0856 TOC
Depth of Water = 20.02 Ft
Depth of Well = 42.1 Ft
Length of Tubing = 38.0 Ft

LHS MW13 0911 TOC
Depth of Water = 18.09 Ft
Depth of Well = 27.8 Ft
Length of Tubing = 23.3 Ft

LHS MW17 0924 TOC
Depth of Water = 18.18 Ft
Depth of Well = 26.9 Ft
Length of Tubing = 27.4 Ft
Not Weighed Tubing

LHS MW19 0936 TOC
Depth of Water = 16.31 Ft
Depth of Well = 30 Ft
Length of Tubing = 25 Ft

LHS MW10 0943 TOC
Depth of Water = 17.87 Ft
Depth of Well = 26.9 Ft
Length of Tubing = 22.4 Ft

038714

(9)

9/18/02

46 MW 02 0959

Depth of Water = 26.69 ft
Depth of Well = 47.6 ft
Length of Tubing = 42.5 ft

46 MW 03 1010

Depth of Water = 31.74
Depth of Well = 103.4 ft
Length of Tubing =

No tubing installed due to depth to water

LHS MW 43 1035

Depth of Water = 15.53 ft
Depth of Well = 18.30 ft
Length of Tubing = 16.90 ft
No weight added

LHS MW 42 1052

Location of well as shown of drawing is incorrect.

Depth of Water = 17.27 ft
Depth of Well = 22.00 ft
Length of Tubing = 19.5 ft
No weight added - Weighted.

9/18/02

(10)

LHS MW 40 1113

Depth to Water = 26.69 ft
Same water in bottom of pump.
Not enough to measure or sample.

105 1118

Depth of Water = 18.07 ft
Depth of Well = 27.5 ft
Length of Tubing = 23 ft
Not Weighted

LHS MW 43 1118

Depth of Water = 16.74 ft
Depth of Well = 22.9 ft
Length of Tubing = 20 ft

LHS MW 41 1321

Depth to Water = 15.15 ft
Depth of Well = 19 ft
Length of Tubing = 17.5 ft
Not Weighted
Begin using 0.1510 tubing

LHS MW 46 1334

Depth to Water = 16.84 ft
Depth of Well = 19.9 ft
Length of Tubing = 17.5 ft
Not Weighted

038715

(11) 9/18/02

47W W27 13.47 TOC
 Depth to Water = 15.38 ft
 Depth of Well = 22.3 Not
 Length of Tubing = 19 ft Weighted

LH5MW60 13.57 TOC
 Depth to Water = 14.64 ft
 Depth of Well = 29.5 ft
 Length of Tubing = 24.5 ft
 Not weighted

LH5MW53 14.10 TOC
 Depth to Water = 14.34 ft
 Depth of Well = 16.9 ft
 Length of Tubing = 15.5 ft
 Not weighted

47W W26 14.22 TOC
 Depth to Water = 19.03 ft
 Depth of Well = 22.80 ft
 Length of Tubing = 27 ft
 No weighted

LH5MW54 14.37
 Depth to Water = 12.19 ft
 Depth of Well = 45.4 ft
 Length of Tubing = 40 ft

~~Not~~
 Weighted

9/18/02

LH5MW56 14.49 TOC
 Depth of Water = 17.39 ft
 Depth of Well = 21.9 ft
 Length of Tubing = 19.5 ft
 Not weighted

LH5MW57 15.02 TOC
 Depth to Water = 9.46 ft
 Depth of Well = 17.4 ft
 Length of Tubing = 12.5 ft
 Not weighted

47W W11 15.12 TOC
 Depth to Water = 17.13 ft
 Depth of Well = 22.00 ft
 Length of Tubing = 20 ft
 Not weighted

LH5MW55 15.30 TOC
 Depth of Water = 17.51 ft
 Depth of Well = 20.3 ft
 Length of Tubing = 19 ft

038716

13

9/18/02

47WW18 1540 TOC
Depth to Water = 17.84 ft
Depth of Well = 24.00 ft
Length of Tubing = 21.00 ft
Not Weighted

47WW19 1552 TOC
Depth to Water = 17.26 ft
Depth of Well = 64.38 ft
Length of Tubing = 59 ft
Added metal weight

47WW20 1616 TOC
Depth to Water = 17.13 ft
Depth of Well = 98.2 ft
Length of Tubing = 93 ft
Added metal weight

47WW21 1634 TOC
Depth to Water = 10.92 ft
Depth of Well = 23.9 ft
Length of Tubing = 19 ft
Not weighted

116 1730 TOC
Depth to Water = 26.73 ft Not
Depth of Well = 45.8 ft weighted
Length of tubing = 35.5 ft

14

9/18/02

29WW05 1743 TOC
Depth to Water = 17.18 ft
Depth of Well = 24.9 ft
Length of Tubing = 21 ft
Not weighted

29WW06 1755 TOC
Depth to Water = 21.45 ft
Depth of Well = 31.6 ft
Length of Tubing = 26.5 ft
Not weighted

29WW11 1810 TOC
Depth to Water = 19.42 ft
Depth of Well = 30 ft
Length of Tubing = 25 ft
Not weighted

29WW12 1824 TOC
Depth to Water = 23.18 ft
Depth of Well = 32.3 ft
Length of Tubing = 27.5 ft
Not weighted

038717

(15) 9/18/02

29WW13 18.33

Depth to Water = 32.15 ft

Depth of Well = 59.8 ft

Length of Tubing = 55.5

Weighted

29WW06 18.45

Depth to Water = 24.23 ft

Depth of Well = 35.1 ft

Length of Tubing = 30.1 ft

Weighted

30B

9/19/02

Steve Brandon / Dave C. Ka

Weather Warm, Muggy 70.2 Chance of

Rain Overcast

075.3

29WW13 TOC

Depth to Water = 17.24 ft

Depth of Well = 34.9 ft

Length of Tubing = 30 ft

Weighted

082 0812

Depth to Water = 17.16 ft

Depth of Well = 29 ft

Length of Tubing = 24 ft

Weighted

29WW08 0840

Depth to Water = 20.32 ft

Depth of Well = 40 ft

Length of Tubing = 35 ft

Weighted

29WW18 0912

Depth to Water = 19.73 ft

Depth of Well = 32 ft

Length of Tubing = 27 ft

Weighted

038718

(17)

9/19/02

29WW20

0924

TOC

Depth to Water = 24.73 Ft

Depth of Well = 32.7 Ft

Length of Tubing = 29 Ft

Weighted

29WW22

0936

TOC

Depth to Water = 25.16 Ft

Depth of Well = 35.5

Length of Tubing = 30 Ft

Weighted

29WW19

0950

TOC

Depth to Water = 20.25 Ft

Depth of Well = 35.5 Ft

Length of Tubing = 30 Ft

Weighted

038719

(18)

1055 Begin setting up at

46WW104

Water level at Start = 18.98

Water level after filling equipment

17.11

WL Flow Pro Con Turb DO Temp pH

17.11 100m 1.78 37 0.80 22.6 7.3

17.16 1300 1.79 39 0.48 22.2 7.1

17.33 17.05 1.31 36 0.41 21.9 7.2

17.40 2200 1.81 38 0.38 21.8 7.0

17.45 2400 1.80 37 0.35 21.8 7.0

17.51 2.800 1.79 37 0.35 21.7 7.0

17.56 3.200 1.78 35 0.35 21.7 7.0

17.62 3.900 1.77 33 0.32 21.7 7.0

17.65 4.300 1.74 31 0.48 23.2 9.0

Perchomate sample collected 1158

1305 Begin setting up at 46WW122

Depth WL at Start = 18.75 Ft

WL after filling equipment 19.09

WL Flow Pro Con Turb DO Temp pH

19.13 500m 1.400 7.3 8.0 0.45 23.1 6.6

19.28 100m 1.00 7.36 7.0 2.80 23.4 6.6

19.38 1600 1.600 7.37 4.9 2.45 23.5 5.4

(99)

9/19/02

Production exceeding the
13 limit. will purge.

Unable to purge well with
the pump we have. Max pumping
rate is ~.15 gal/minute.

Purged 6 gals and had 4 ft
of draw down. Stop will return
with better pump at late time.

1445 LHS MW 23

Starting WL = 20.75 ft + TOC

WL after filling equipment = 20.00 ft

WL Rel PVol con Turb DO Temp Ph

20.80 1000 ml/min 5.67 5.0 6.64 23.3 6.2

20.80 1000 ml/min 5.71 6.0 1.32 23.3 5.9

20.79 1600 ml/min 5.72 3.0 1.17 23.2 5.8

20.88 5550 5.70 2.0 0.67 22.1 5.9

Heavy Rains Prevented readings for
150 minutes last reading taken
after 50 min. Drop in temp due
to drop in air temp

Perchlorate sample LHS MW 23
collected at 16:30

9/20/02 20

Joe Coka and Steve Euston
study intermittent with 5000 Chloride
and cleaning in afternoon. High 80's

0730 LHS MW 13

Depth to water = 10.75

Depth to water after filling equipment
= 11.01 ft

WL Rel PVol con Turb DO Temp Ph

11.12 700 ml/min 400 0.371 99.9 3.45 22.8 6.9

11.27 75 1000 0.361 99.9 3.24 22.2 6.9

11.37 70 1000 0.355 99.9 3.27 22.2 6.9

Attempted to purge. but pumping
rate was too low to practically
purge well. Also WL was 11.55 ft.
was 15.55 ft.

0837 LHS MW 19

Depth to water = 16.34 ft

WL level after equipment filled = 16.65

038720

(21) 9/20/02

9:20 9:50

WL	Flow	PVol	Con	Turb	DO	Temp	pH
16.77	~80 mL	400	1.74	2	0.33	21.6	7.0
16.80	80 mL	1200	1.75	1	0.30	21.6	7.0
16.86	80 mL	1600	1.75	1	0.21	21.6	7.0
16.80	45 mL	2200	1.76	0	0.26	21.8	7.1
16.80	70 mL	2800	1.74	1	0.33	22.3	7.1
16.83	100 mL	3400	1.75	1	0.36	22.5	7.1
16.83	100	4000	1.75	0	0.34	22.5	7.1
16.85		4600	1.74	1	0.35	22.9	7.1

Percarbonate sample
collected at 10:16

1030 46 WWD1
Depth to water = 17.93
Depth to water after filling
= 18.05 ft

WL	Flow	PVol	Con	Turb	DO	Temp	pH
18.05	200 mL	500	0.1	8	0.01	21.9	7.1
18.09	150 mL	1200	0.099	8	0.00	21.8	7.1
18.15	150 mL	1800	0.097	8	-0.03	21.8	7.2
18.20	95 mL	2400	0.096	7	0.22	22.2	7.2
18.20	85 mL	3000	0.095	8	0.31	22.4	7.2
18.21	45 mL	3600	0.094	8	0.32	22.5	7.2
18.22	45 mL	4200	0.094	9	0.33	22.6	7.2
18.23	65 mL	4800	0.094	11	0.45	22.6	7.2

9/20/02 (22)

Percarbonate sample
collected at 11:28
435 H6WWD02
Depth to water = 26.59
Depth to water after filling
= 26.65 ft

WL	Flow	PVol	Con	Turb	DO	Temp	pH
26.65	120 mL	400	0.62	3	0.00	23.3	7.1
26.66	120 mL	1000	0.62	3	0.23	23.1	7.0
26.68	120 mL	1600	0.63	3	0.33	23.0	7.0
26.68	120	2200	0.63	3	0.34	23.0	7.1
26.68	120	2800	0.64	4	0.36	23.1	—
26.68	120 mL	3400	0.65	4	0.33	23.1	—
26.68	120	4000	0.65	4	0.30	23.1	—
26.68		4600	0.66	4	0.30	23.1	—

Percarbonate sample
collected 1306. pH probe
batteries dead

038721

1 (23)

9/20/02

1447 LHS MW 17

Depth to water = 18.11 ft.

Depth to water after filling equipment = 18.33 ft

WL Flow	P Vol.	Cond.	Turb.	DO	Temp	pH
18.41	400	0.93	2	1.56	25.5	7.2
19.52	1000	0.42	2	2.30	25.4	7.0
18.63	500	0.42		(Drawdown @ 0.3 ft)		

1350 LHS MW 18

Depth to water = 18.60 ft

Depth to water after filling equipment = 18.81

WL Flow	P Vol.	Cond.	Turb.	DO	Temp	pH
18.87	400	2.90	5	2.17	25.6	6.9
18.92	1000	3.24	4	1.61	25.7	6.9
18.96	1600	3.24	4	1.65	25.9	7.0
19.02	2200	3.23	4	1.45	26.1	7.0
19.06	2800	3.19	3	1.51	26.2	6.9
19.09	3400	3.19	2	1.29	26.3	6.9

Collected Perchlorate sample LHS MW 18 at 1700.

SMB

9/21/02

Dave C. Ka and Steve Brunton

Weather Clear, dryer high upper 80s

0925 - calibrated new pH probe on horizon with 4 pH standard using span method

0935 47 MW 26

Depth to water = 19.09

Depth after filling equipment = 19.25
Williams, 25 ID to kind

WL Flow	P Vol.	Cond.	Turb.	DO	Temp	pH
19.30	400	0.65	0	0.47	20.9	6.7
19.31	1000	0.55	1	0.27	20.9	6.7
19.43	1600	0.54	0	0.16	21.1	6.9
19.47	2200	0.54	0	0.06	21.0	6.7
19.50	2800	0.537	1	0.13	21.3	6.88
19.52	3400	0.535	0	0.14	21.5	6.69
19.54	4000	0.535	0	0.05	21.7	6.29

Collected sample 47 MW 26 collected at 0927.

038722

(25)

9/21

0940 ~~47~~ 47 WNW 17
Depth to water = 15.23
Depth to water after filling equipment
= 15.47 ft

WL Flow	Pool	Cond	Turb	DO	Temp	pH
15.46	90 400	.223	2	-0.02	21.8	5.43
15.48	90 1000	.130	2	-0.07	23.2	5.42
15.50	105 1600	.229	2	0.12	23.55	
15.50	105 2200	.228	2	0.16	23.7	5.42
15.53	105 2800	.227	2	0.26	23.9	5.42
15.53	105 3400	.226	2	0.47	24.0	5.44
15.54	105 4000	.225	1	0.79	24.2	5.45

Precipitate sample 47 WNW 17
Collected at 1033

1045 LA5MW60
Depth to water = 14.59
Depth after filling equipment = 14.86

1.35

9/21/02

(26)

WL Flow	Pool	Cond	Turb	DO	Temp	pH
14.82	200 ML	400	12	0.04	21.0	6.33
14.82	170 ML	1200	5	0.01	21.0	6.33
14.86	260 ML	1600	1	-0.02	20.8	6.33
14.88	260	2200	1	-0.09	20.6	6.34
14.89	260	2800	1	-0.12	20.5	6.33
14.89	260	3400	2	-0.12	20.4	6.33
14.90	260	4000	2	-0.43	20.3	6.33
14.90	260	4600	2	-0.12	20.3	6.33

Precipitate sample collected at
1132 LA5MW60

1215 LA5MW54
Water level 12.21 ft
Water level after fill 12.52 ft

WL Flow	Pool	Cond	Turb	DO	Temp	pH
12.48	150 400	1.54	62	0.45	22.7	6.60
12.44	150 1000	1.55	23	0.50	22.7	6.60
12.51	200 1600	1.56	21	0.36	22.2	6.60
12.55	200 2200	1.55	24	0.39	21.8	6.61
12.58	200 2800	1.55	8	0.34	21.6	6.61
12.64	200 3400	1.55	5	0.15	21.2	6.61
12.66	200 4000	1.55	19	0.11	21.1	6.61

Precipitate sample LA5MW54 collected
at 12:56

038723

(27)

9/21/02

1310 LHS MW 56
Water level = 17.34
Level after filling equip = 17.60

WL Flow	Plat	Can	Turb	DO	Temp	pH
17.58 200 ml	400	0.751	20	0.03	24.5	6.54
17.68 200 ml	1000	0.752	5	0.12	24.5	6.54
17.64 150	1600	0.748	3	0.47	25.0	6.54
17.73 150	2200	0.761	3	0.93	24.9	6.52
17.75 140	2800	0.806	3	1.47	25.0	6.53
17.76 140	3400	0.847	3	1.43	25.2	6.54
17.76 140	4000	0.902	3	1.73	25.2	6.55

Peach brook sample
collected at 13:49

WL Flow	Plat	Can	Turb	DO	Temp	pH
18.85 90	400	0.79	20	1.30	23.7	6.76
18.89 120	1000	0.82	8	1.48	23.5	6.75
18.89 120	1600	0.81	7	1.16	23.5	6.75
18.89 120	2200	0.82	6	1.13	22.9	6.76
18.90 120	2800	0.78	6	1.16	22.4	6.76
18.90 120	3400	0.74	10	0.81	22.8	6.76
18.90 120	4000	0.75	11	0.71	22.9	6.76

(2)

collected Peach brook sample
105 at 14.56

WL Flow	Plat	Can	Turb	DO	Temp	pH
15.11 LHS MW 42						
Depth to water	17.78 ft					
Depth after filling equipment	17.64 ft					
WL Flow Plat Can Turb DO Temp pH						
17.78	400	3.97	25	1.44	22.2	6.07
Draw down to great well to be purged dry. Well purged dry at 15:50 after ~4 gallons water removed.						

WL Flow	Plat	Can	Turb	DO	Temp	pH
16:05 LHS MW 43						
Depth to water	16.78					
Depth after equip filled	16.97					
WL Flow Plat Can Turb DO Temp pH						
17.0 105	400	3.00	3	1.43	21.6	5.93
17.15 80	1000	3.01	4	0.67	22.1	5.14
17.2 60	1600	3.01	4	0.47	22.0	5.92
17.2 60	2200	3.01	4	0.42	23.2	5.92
17.4 60	2800	3.00	3	0.38	23.4	5.92
17.4 60	3400	3.01	2	0.30	23.5	5.94
17.4 60	4000	3.01	2	0.37	23.3	5.92

038724

(29) 9/21/02

Collected Perchlorate sample
 LHS MW 43 at 1737.

1742 47WVW1

Depth to water: 17.83

Depth to water after filling equipment
 18.04

WL Flow	PVol	Con	Tub	DO Temp	pH
18.03 200	400	6.56	13	0.02	23.0 6.25
18.07 100	1000	6.60	11	0.53	21.9 6.25
18.10 100	1600	6.61	9	0.99	22.9 6.25
18.09 200	2200	6.24	8	1.09	22.8 6.24
18.12 2800		6.63	7	0.97	22.9 6.23
18.13 3400		6.65	6	0.91	22.9 6.21
18.14 4000		6.66	6	0.85	22.8 6.20
Collected Perchlorate sample					
47WVW1 @ 1821					

1633 4HS MW 57

Depth to water = 8.33 ft

Depth to water after equipment
 filled = 8.60

9/21/02 (30)

4HS MW 57

WL Flow	PVol	Con	Turb	DO Temp	pH
17.7 400	400	0.183	182	0.87	24.6 5.55
17.83 100	100	0.154	186	0.97	24.7 5.52

Terminated low flow. Unable to
 maintain draw down.
 Well needs to be purged.

038725

20/11/02

(5)

name Cika and Steve Brown for

Weather Warm dry mostly clear
Highs mid 80's

highs mid 80s /

Resume sampling & site 44

1260
LXWUSHY

Depth to Water = 15.33 Ft

wt after filling Equipment = 15.

WL Flow	PVol	Con Turb DO	Temp pH
400	2.99	2	21.0 5.7

1585-501 1007

27.05.71

1585-501 1007

Terminated Low flow. Start purging to dry. Purged dry at 8:10, after about 3.5 gal.

5780 LHS MW 46

17.17.64	17.17.64
----------	----------

Due to limited amount of water

(3rd) in well will not attempt
low flow. Will just purge dry.

Purged dry at 0852 after 2.5 gallons.

20/22/6

23

81MMH 47WV18

$$W_2 = 18.00$$

total after filling equipment is 18.1

WZ	Flow	QVol	Con	Temp	DO	Temp	pH

18.09	130	400	3.76	100	0.13	22.4	6.53
-------	-----	-----	------	-----	------	------	------

DATE	DESCRIPTION	AMOUNT	BALANCE
10.11.80	1000	3.78	90
			0.31
			13.2
			6.94

[illegible][illegible]

Time	Temp	Wind	Clouds	Pressure	Humidity	Visibility	Remarks
1815	110	2000	3.0	1022	55	10	Light rain
1830	110	2000	3.0	1022	55	10	Light rain
1845	110	2000	3.0	1022	55	10	Light rain
1900	110	2000	3.0	1022	55	10	Light rain
1915	110	2000	3.0	1022	55	10	Light rain
1930	110	2000	3.0	1022	55	10	Light rain
1945	110	2000	3.0	1022	55	10	Light rain
2000	110	2000	3.0	1022	55	10	Light rain
2015	110	2000	3.0	1022	55	10	Light rain
2030	110	2000	3.0	1022	55	10	Light rain
2045	110	2000	3.0	1022	55	10	Light rain
2100	110	2000	3.0	1022	55	10	Light rain
2115	110	2000	3.0	1022	55	10	Light rain
2130	110	2000	3.0	1022	55	10	Light rain
2145	110	2000	3.0	1022	55	10	Light rain
2200	110	2000	3.0	1022	55	10	Light rain
2215	110	2000	3.0	1022	55	10	Light rain
2230	110	2000	3.0	1022	55	10	Light rain
2245	110	2000	3.0	1022	55	10	Light rain
2300	110	2000	3.0	1022	55	10	Light rain
2315	110	2000	3.0	1022	55	10	Light rain
2330	110	2000	3.0	1022	55	10	Light rain
2345	110	2000	3.0	1022	55	10	Light rain
2400	110	2000	3.0	1022	55	10	Light rain

Time	Temp	Wind	Clouds	Pressure	Humidity	Visibility	Remarks
18:30	18.5	10	2/100	1013.0	85	10	Clear
19:00	18.0	10	2/100	1013.0	85	10	Clear
19:30	17.5	10	2/100	1013.0	85	10	Clear
20:00	17.0	10	2/100	1013.0	85	10	Clear
20:30	16.5	10	2/100	1013.0	85	10	Clear
21:00	16.0	10	2/100	1013.0	85	10	Clear
21:30	15.5	10	2/100	1013.0	85	10	Clear
22:00	15.0	10	2/100	1013.0	85	10	Clear
22:30	14.5	10	2/100	1013.0	85	10	Clear
23:00	14.0	10	2/100	1013.0	85	10	Clear
23:30	13.5	10	2/100	1013.0	85	10	Clear
24:00	13.0	10	2/100	1013.0	85	10	Clear

[illegible]

Collected Percholate sample
at 10:34.
41WB8

61 MAY 19 10 43

$$W_L = 17.34 \text{ k}$$
$$w_{\text{after equip.}} = 17.56$$
[illegible]

7.34	400	2.72	8	0.41	24.83	6.44
7.34	400	2.72	8	0.41	24.83	6.44

Year	Population	Area	Density
1734	800	2.74	5.1
1739	800	2.74	5.1
1744	800	2.74	5.1
1749	800	2.74	5.1
1754	800	2.74	5.1
1759	800	2.74	5.1
1764	800	2.74	5.1
1769	800	2.74	5.1
1774	800	2.74	5.1
1779	800	2.74	5.1
1784	800	2.74	5.1
1789	800	2.74	5.1
1794	800	2.74	5.1
1799	800	2.74	5.1
1804	800	2.74	5.1
1809	800	2.74	5.1
1814	800	2.74	5.1
1819	800	2.74	5.1
1824	800	2.74	5.1
1829	800	2.74	5.1
1834	800	2.74	5.1
1839	800	2.74	5.1
1844	800	2.74	5.1
1849	800	2.74	5.1
1854	800	2.74	5.1
1859	800	2.74	5.1
1864	800	2.74	5.1
1869	800	2.74	5.1
1874	800	2.74	5.1
1879	800	2.74	5.1
1884	800	2.74	5.1
1889	800	2.74	5.1
1894	800	2.74	5.1
1899	800	2.74	5.1
1904	800	2.74	5.1
1909	800	2.74	5.1
1914	800	2.74	5.1
1919	800	2.74	5.1
1924	800	2.74	5.1
1929	800	2.74	5.1
1934	800	2.74	5.1
1939	800	2.74	5.1
1944	800	2.74	5.1
1949	800	2.74	5.1
1954	800	2.74	5.1
1959	800	2.74	5.1
1964	800	2.74	5.1
1969	800	2.74	5.1
1974	800	2.74	5.1
1979	800	2.74	5.1
1984	800	2.74	5.1
1989	800	2.74	5.1
1994	800	2.74	5.1
1999	800	2.74	5.1
2004	800	2.74	5.1
2009	800	2.74	5.1
2014	800	2.74	5.1
2019	800	2.74	5.1
2024	800	2.74	5.1
2029	800	2.74	5.1
2034	800	2.74	5.1
2039	800	2.74	5.1
2044	800	2.74	5.1
2049	800	2.74	5.1
2054	800	2.74	5.1
2059	800	2.74	5.1
2064	800	2.74	5.1
2069	800	2.74	5.1
2074	800	2.74	5.1
2079	800	2.74	5.1
2084	800	2.74	5.1
2089	800	2.74	5.1
2094	800	2.74	5.1
2099	800	2.74	5.1
2104	800	2.74	5.1
2109	800	2.74	5.1
2114	800	2.74	5.1
2119	800	2.74	5.1
2124	800	2.74	5.1
2129	800	2.74	5.1
2134	800	2.74	5.1
2139	800	2.74	5.1
2144	800	2.74	5.1
2149	800	2.74	5.1
2154	800	2.74	5.1
2159	800	2.74	5.1
2164	800	2.74	5.1
2169	800	2.74	5.1
2174	800	2.74	5.1
2179	800	2.74	5.1

[illegible]

Time	Lat	Long	Wind	Wave	Clouds	Remarks
17.1	13.1	120.0	2:00	2	72	
17.2	13.2	120.0	2:00	3	72	
17.3	13.3	120.0	2:00	3	72	
17.4	13.4	120.0	2:00	3	72	
17.5	13.5	120.0	2:00	3	72	
18.0	14.0	120.0	2:00	3	72	
18.1	14.1	120.0	2:00	3	72	
18.2	14.2	120.0	2:00	3	72	
18.3	14.3	120.0	2:00	3	72	
18.4	14.4	120.0	2:00	3	72	
18.5	14.5	120.0	2:00	3	72	
19.0	15.0	120.0	2:00	3	72	
19.1	15.1	120.0	2:00	3	72	
19.2	15.2	120.0	2:00	3	72	
19.3	15.3	120.0	2:00	3	72	
19.4	15.4	120.0	2:00	3	72	
19.5	15.5	120.0	2:00	3	72	
20.0	16.0	120.0	2:00	3	72	
20.1	16.1	120.0	2:00	3	72	
20.2	16.2	120.0	2:00	3	72	
20.3	16.3	120.0	2:00	3	72	
20.4	16.4	120.0	2:00	3	72	
20.5	16.5	120.0	2:00	3	72	
21.0	17.0	120.0	2:00	3	72	
21.1	17.1	120.0	2:00	3	72	
21.2	17.2	120.0	2:00	3	72	
21.3	17.3	120.0	2:00	3	72	
21.4	17.4	120.0	2:00	3	72	
21.5	17.5	120.0	2:00	3	72	
22.0	18.0	120.0	2:00	3	72	
22.1	18.1	120.0	2:00	3	72	
22.2	18.2	120.0	2:00	3	72	
22.3	18.3	120.0	2:00	3	72	
22.4	18.4	120.0	2:00	3	72	
22.5	18.5	120.0	2:00	3	72	
23.0	19.0	120.0	2:00	3	72	
23.1	19.1	120.0	2:00	3	72	
23.2	19.2	120.0	2:00	3	72	
23.3	19.3	120.0	2:00	3	72	
23.4	19.4	120.0	2:00	3	72	
23.5	19.5	120.0	2:00	3	72	
24.0	20.0	120.0	2:00	3	72	
24.1	20.1	120.0	2:00	3	72	
24.2	20.2	120.0	2:00	3	72	
24.3	20.3	120.0	2:00	3	72	
24.4	20.4	120.0	2:00	3	72	
24.5	20.5	120.0	2:00	3	72	
25.0	21.0	120.0	2:00	3	72	
25.1	21.1	120.0	2:00	3	72	
25.2	21.2	120.0	2:00	3	72	
25.3	21.3	120.0	2:00	3	72	
25.4	21.4	120.0	2:00	3	72	
25.5	21.5	120.0	2:00	3	72	
26.0	22.0	120.0	2:00	3	72	
26.1	22.1	120.0	2:00	3	72	
26.2	22.2	120.0	2:00	3	72	
26.3	22.3	120.0	2:00	3	72	
26.4	22.4	120.0	2:00	3	72	
26.5	22.5	120.0	2:00	3	72	
27.0						

[illegible]

1745	4000	2.71	3	0.12	23.	7	6.44
1745							

[illegible]

038726

(33)

9/22/02

Collected	Perchlorate sample				
47 WW19	at 11:40.				
1145	47WW20				
WL = 17.00	42				
WL after equipment	filled = 17.23 ft				
WL Flow PVI	Con Turb DO Temp pH				
17.12 210	400 0.783	23	0.61	22.2	9.05
17.13 310	1000 0.850	9	0.49	22.1	7.92
17.13 310	1600 0.910	5	0.23	21.8	7.86
17.18 310	2200 0.932	5	0.05	21.7	7.83
17.18 310	2800 0.939	5	-0.08	21.7	7.80
17.14 310	3400 0.950	5	-0.20	21.7	7.85
17.14 310	4000 0.960	4	-0.15	21.7	7.79
17.22 350	4600 0.960	3	-0.14	21.5	7.79
Perchlorate sample	47WW20				
collected at	12:13				
1227	LHSMW42				
Return to collect sample	from purged well.				
WL = 17.43.	Purged 300 ml before				
collecting sample	LHSMW42 at 12:38				

038727

(34)

9/22/02

1503	LHSMW53				
Due to low water level and history	of well, the well will be				
purged only	WL = 14.32				
Purged Dry at 1325	after n				
3 gallons of water					
1358	@ 47WW21				
WL = 11.05	705				
WL after filling sample equipment	= 11.43				
WL Flow PVI Cond. Turb DO Temp pH					
1122 101	4100 4.34	61	0.46	21.9	6.56
1125 110	1000 4.37	21	0.45	21.9	6.53
1127 202	1600 4.40	20	0.40	21.8	6.51
1129 150	2200 4.42	19	0.21	21.8	6.51
1130 150	2800 4.41	18	0.37	21.7	6.54
1131 150	3400 4.40	11	0.14	21.7	6.54
1133 150	4000 4.40	5	0.11	21.7	6.54
Perchlorate sample	47WW21				
Collected @	1449				

36

4/22/02

038728

455 474W23
WL = 17.43 ft
WL after filling Equip. = 17.49 ft

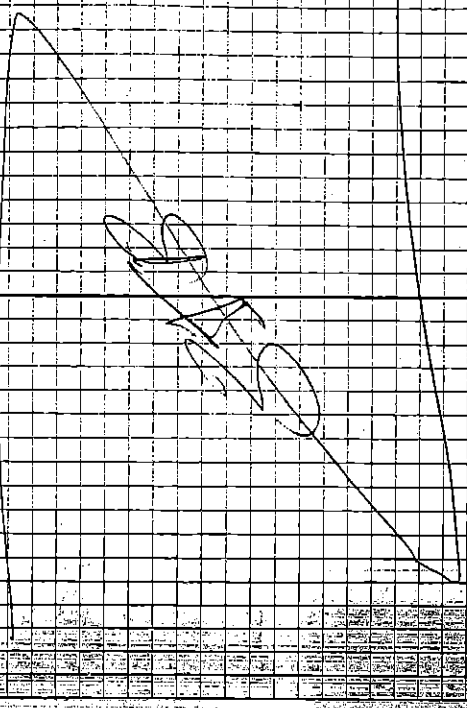
WL Flow Pval	Can	turb	DO	Temp	pH
17.55 500	600	1.14	2	-0.14	22.7 6.66
17.55 500	1200	1.14	3	-0.23	22.5 6.66
17.56 500	2000	1.14	3	-0.25	22.4 6.67
17.56 500	2800	1.14	5	-0.28	22.3 6.66
17.55 500	3600	1.14	2	-0.34	22.3 6.67
17.55 500	4400	1.14	5	-0.34	22.2 6.68
5200	1.13	3	-0.35	22.2 6.68	

Perchlorate Sample 474W23
Collected at 15:23.

1545 LHSMMW55
WL = 17.43
WL after Due to low amount of water
in well (>2.5 ft) will purge well
dry. Well purged dry 16:25 after
~3 gal.

1745 LHSMMW57
Set up to purge well
WL = 8.13
Purged dry at 1805 after
~10 gals.

1816 LHSMM22
Set up to purge well
WL = 18.93
Purged dry at 20:00 after
~14 gals



(37)

9/23/02

Dave Cika and Steve Brunton
Clear and Sunny, High Mid 80's

0745 LHS MW 417

Returned to collect perchlorate
sample

WL = 15.48 ft

Perchlorate sample collected

after purging ~ 300 mL

Collected LHS MW 417 at

0752. May have lost 16" piece of
silicone tubing down hole.

0758 LHS MW 46

Returned to collect perchlorate
sample.

WL = 17.23

Perchlorate sample collected after

purging ~ 300 mL.

Collected LHS MW 46 at

0805.

LHS MW 13 0815

WL = 14.15 ft

Set up to purge well with
geo-pump. Purged dry at

0846 after ~ 4 gal.

(38)

9/23/02

0850 LHS MW 17

Set up to purge well.

WL = 19.31 ft

Well purged 0855 after
~ 14 gal.

0912 LHS MW 22

Returned to collect sample

WL = 22.73 ft. 0911 allow

to recover some more.

1023 LHS MW 53

WL = 15.11

Returned to collect perchlorate sample,
after purging ~ 300 mL.

Collected sample at 1031

1038 LHS MW 55

WL = 17.14

Returned to collect perchlorate sample

after purging ~ 300 mL.

Collected sample LHS MW 55 at

1046.

038729

9/23/02

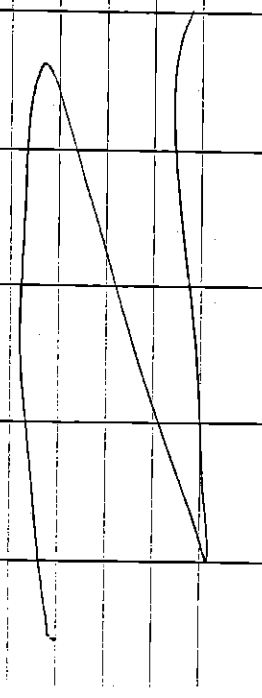
31 9/23/02

58 LHS MW 57 WL = 15.13.
Returned to collect perchlorate
sample after purging ~ 300 mL.
Collected sample LHS MW 57
at HAS. Well has not
recovered.

1155 29WU10
W.L. = 21.73' TOC

WL Flow	PVol	Filling m ³ /cm Cond	Sample equip Tub. DO	Temp PH
22.00	250 600	2.15	20	20.9° 6.68
22.02	250 1200	2.47	6	20.7° 6.67
22.04	250 1800	2.47	15	20.8° 6.68
22.09	250 2400	2.48	17	20.4° 6.69
22.07	250 3000	2.49	16	20.4° 6.70
22.07	250 3600	2.50	14	20.3 6.70
22.07	250 4000	2.49	14	20.4 6.70

Perchlorate Sample 29WU10
collected @ 1239



24W 24WU10
WL = 24.59' TOC
WL after filling equipment = 24.89
WL Flow PVol Cond Temp pH
24.93 400 4.40 1 1.16 22.1 6.36
24.98 1000 4.42 0 1.65 22.9 6.38

This well will require purging. Unable
to maintain water level at 1600 ft.
pumping rate.

At 29WU20 @ 1420 E Quad number 1555

WL	Flow	PVol	Cond	Tub.	DO	Temp	PH
25.00	400	2.59	0	0.59	21.5	6.47	
25.01	100	2.60	0	1.03	21.7	6.48	
25.03	70	2.60	0	0.65	21.8	6.49	
25.07	2200	2.60	0	0.62	21.8	6.50	
25.09	2800	2.61	0	0.63	21.8	6.57	
25.14	3400	2.60	0	0.62	21.8	6.57	
25.13	4000	2.61	0	0.62	21.7	6.51	

Perchlorate Sample @
29WU20 collected
@ 1520

038730

9/23/02

(41) 1556 @ 29WW22
W.L. = 25.23' TOC
W.L. after filling vessel
= 25.62

TOC	W.L. Flow	mi	no/in	Turb	DO	Temp	pH
25.54	100	400	1.36	24	0.04	21.7	7.00
25.56	90	1000	1.36	20	0.08	21.8	7.02
25.59	80	1600	1.36	17	0.05	21.8	7.02
25.61	100	2200	1.36	19	0.00	21.9	7.02
25.63	100	2800	1.36	14	-0.01	21.8	7.02
25.65		3400	1.36	14	-0.03	21.9	7.02
25.67		4000	1.36	13	-0.04	22.0	7.02

Perchlorate sample collected from

29WW22 @ 1637

17:00 LHSMMW57 has had no recovery unable to sample

17:15 LHSMMW57 WL = 21.38
Collected sample at 1723

17:45 LHSMMW17 WL = 24.49
Not sufficient recovery

(43)

9/24/02

Dave Cika and Steve Buntan
Dredged and Cool in am. Sunny with
highs in mid 80s, cloudy after 1500

0748 LHSMMW13

0748 WL 18-3 Bottom. Same
as LHSMMW57, no water.

0732 LHSMMW17

WL = 22.01 ft.

Collected LHSMMW17 Perchlorate
sample at 0714.

0910 LHSMMW29-29WW06

Setting up to purge with grout
pump. WL = 25.19 ft.

Water has yellow color like at
Site 16. Purged ~ 15 gal before
well went dry.

134830

9/24/02 Cont'd

WL	Flow	PVO	Cond	Turb	DO	Temp	pH
22.41	15	400	2.15	26	0.00	18.2	6.87
22.51	15	1000	2.14	15	0.11	18.5	6.90
22.53	15	1600	2.14	10	0.19	19.0	6.89
22.55	15	2200	2.14	7	0.22	19.4	6.90
22.58		2800	2.15	5	0.23	20.2	6.91
22.60		3400	2.15	4	0.28	20.8	6.92
22.62		4000	2.15	4	0.20	20.6	6.91
29W17 sample collected @ 1059							

WL	Flow	PVO	Cond	Turb	DO	Temp	pH
26.80	10	400	3.13	2	0.19	19.9	6.69
26.92	10	1000	2.90	1	0.29	20.6	6.73
26.93	10	1600	2.65	1	0.47	21.1	6.76
27.01	10	2200	2.50	1	0.56	21.5	6.75
27.05	10	2800	2.54	1	0.56	21.7	6.73
27.06	10	3400	2.51	1	0.65	22.0	6.73
27.08	10	4000	2.51	1	0.63	22.1	6.71
29W15 sample collected @ 1310							

1115	29W16						
WL = 40.04	ft						
Peristaltic pump won't lift water!							
1129	29W16						
WL = 44.30	ft						
Need Grundfos for Penstaltic Pump!							

WL	Flow	PVO	Cond	Turb	DO	Temp	pH
29.32	15	400	1.24	6	-0.09	20.7	6.83
29.32	15	1200	1.41	3	-0.09	21.4	6.94
29.34	100	1800	1.47	5	-0.01	21.2	6.86
29.38	25	2400	1.47	4	-0.03	21.1	6.87
29.44	25	3000	1.47	5	-0.06	20.9	6.87
29.45	150	3800	1.46				
29W18 sample collected @ 1418							

038732

038733

(46)

9/24/02

29WU06 Sampled by Ralph
~~29WU06~~ Sampled by Jeff

LKSMW13 and LKSMW57
 Sampled by Jeff

9/24/02 Cont'd
 1330 Pumping @ 29WU01
 with Grundfos pump (submersible)
 to circulate water prior to sampling
 * Purged 90 gallons from 29WU21

1453 → 29WU19

Water Level = 20.78' TOC

Water Level after Filling

Sample equipment = 20.89' TOC

W.L.	Flow	PVol.	Cond.	Turb.	DO	Temp	pH
20.91	90	400	5.22	6	0.29	20.8	6.19
20.95	75	1000	5.22	5	1.23	21.4	6.22
20.97	75	1600	5.22	5	1.30	21.8	6.20
20.99	75	2200	5.23	6	1.26	22.0	6.20
21.02	75	2800	5.22	7	1.19	22.1	6.20
21.05	75	3400	5.21	6	1.3	22.2	6.21
21.08	75	4000	5.21	6	1.20	22.1	6.22

Sample 29WU19 Collected

@ 1605

17:25 29WU16

Set up to purge well with Grundfos
 pump. 18:30 well purged of
 ~ 95 gallons. Water from well
 had a sickly sweet odor.

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(divider page)***

LONGHORN AAP

KARNACK, TX

PLANT-WIDE PERCHLORATE

INVESTIGATION.

2ND SAMPLING EVENT

DRY SEASON

TEAM 2

LOG BOOK

(9/17- 9/24/02)

DOUG HAWN, RALPH RAY

NATIONAL

408

MINING TRANSIT BOOK

9-17-02 ① ②

038736

Site #4

4"

LH5MWO1
WL - 8.90
TDW - 17.85
Hose - 12.85 0900
04WWO2
WL 9.90
TDW 26.6
Hose 21.5 0915
04WWO1
WL 10.20
TDW 27.1
Hose 22.1 0930
Site 17
17WWO14
WL 12.0
TDW 26.4
Hose 21.5 1040
17WWO9
WL 11.70
TDW 24.1
Hose 49.1 1050

②

site 17	9-17-02
17WW010	
WL	11.90
TDW	33.40
Hose	28.40
	1100
17WW06	
WL	9.70
TDW	22.80
Hose	12.80
	1110
17WW02	
WL	7.60
TDW	24.9
Hose	19.9
	1120
17WW01	
WL	9.10
TDW	33.60
Hose	28.60
	1140
17WW03	
WL	9.1
TDW	31.90
Hose	26.90
	1155

9-17-02 ③

site 17	038737
17WW007	
WL	9.40
TDW	55.40
Hose	50.40
	1215
17WW08	
WL	9.7
TDW	33.8
Hose	28.8
	1225
17WW13	
WL	9.0
TDW	34.50
Hose	29.50
	1240
17WW11	
WL	11.4
TDW	17.7
Hose	12.9
	1250
17WW12	
WL	10.5
TDW	48.8
Hose	43.8
	1305

(4)

9-17-02

Site 17

17WW04

WL 10.1

TDW 37.6

Hose 32.6

1320

MW 18

WL 8.60

TDW 33.5

Hose 28.5

4

MW-19

ML 8.40

TDW 33.60

Hose 28.5

1515

130

ML 7.90

TDW 26.1

Hose 21.1

1525

17WW05

WL 12.6

TDW 162.51

Hose 17157.51

1545

9-17-02

16WW27

WL 8.1

TDW 39.2

Hose 34.2

16WW28

WL 9.6

TDW 24.0

Hose 19.0

1635

16WW23

WL 7.80

TDW 37.1

Hose 32.1

5

16WW24

WL 9.6

TDW 19.12

Hose 14.12

5

16WW37

WL 26.4

TDW 47.8

Hose 42.8

16WW38

WL 26.5

TDW 32.2

Hose 27.2

1530

038738

9-17-02

16EW05

WL 18.0

TOW 52.4

Hose 42.4

1545

16EW08

WL 8.5

TOW 41.6

Hose 36.6

1555

16EW01

WL 27.5

TOW 42.0

Hose 37.0

1610

16EW05

WL 25.8

TOW 47.2

Hose 42.2

1620

Handwritten signature

9-17-02

09-17-02

9-18-02

②

16WW29

WL 9.2

TOW 45.0

Hose 40

0800

16WW30

WL 8.5

TOW 45.0

Hose 40.0

0810

16WW12

WL 17.3

TOW 26.9

Hose 23.9

0830

16WW22

WL 27.5

TOW 34.2

Hose 29.2

0840

16WW31

WL 29.6

TOW 53.7

Hose 48.7

0855

16WW32

WL 29.6

TOW 34.9

Hose 29.9

0900

038739

⑧ 7-18-02

16 WW 33

WL 27.3

TDW 51.9

Hose 46.9

0915

16 WW 34

WL 29.2

TDW 34.8

Hose 29.8

0930

End of tubing Placement

@ Site 16, Back to Fire station to get Ready for sampling @ Site 4

103 CA1. HOBIBD pH 4.00, Cond 4.56, Tub. 0 Temp. 27.1

Start Prep Work @ Site

4 Well 4HSMW1

WL - 8.78.85

Flow Rate 100 ml/min

1050

1185 pH

Cond 8.90

Turb 4

Temp 24.0

⑨

7-18-02

1138 pH 6.26

Cond 8.97

Turb 4

Temp 24.2

1130 pH 6.26

Cond 8.88

Turb 5

Temp 24.1

4HSMW1D purged 1.5 g-lens
4HSMW1M

Sample Time 1135

WL 8.75 9.0

Start prep work @

Site 4 well 04 WW002

WL 9.73 12.52

Flow Rate 120 ml/min

pH 6.47

1330 Cond 2.19

Turb 35

Temp. 27.9

038740

(12)

9-18-02

PH 6.94
Cond 3.42
Turb 9
Temp 21.6

Sample Time
1855
WL 13.19
1.6 gallons
Purged

Set up on 170009, Notified
PH bulb on Horiba change
sent Ray back to
Fire station to get new
Horiba,

WL 11.97
Flow Rate 140 ml/min

1710
PH 5.94
Cond 4.72
PTurb 9
Temp 21.2

1715
PH 5.93
Cond 4.70
Turb 9
Temp 21.2

1720
PH 5.94
Cond 4.70
Turb 10
Temp 21.2

(13)

Sample Time 1735
WL 12.18

Set up on 170010
WL 12.09
Flow Rate 140 ml/min

1815
PH 5.74
Cond 4.12
Turb 14
Temp 20.8

1820
PH 5.74
Cond 4.12
Turb 13
Temp 20.8

1825
PH 5.74
Cond 4.12
Turb 14
Temp 20.8

Sample Time 1830
WL 12.18

Purged
Went back to
Fire station to
process samples.

038742

7-19-02

CA 1. Horb: a
PH 4.01, Cond 4.52, Turb
0, Temp 26.1

set up on MW 19
WL - 8.99
Flow Rate - 140 ml/min
0855

0938
PH 6.15
Cond 8.14
Turb 4
Temp 20.8

0941
PH 6.15
Cond 8.12
Turb 5
Temp 20.8

0947
PH 6.12
Cond 8.13
Turb 4
Temp 20.7

Sample Time 0853

purged 1.7 gallons

set up on 17 W 11

WL - 18.61
Flow Rate - 130 ml/min
1005

7-19-02

set up on w site
17, MW 18

WL 8.62
Flow Rate 140 ml/min
0838

PH 5.03
Cond 4.98
Turb 2
Temp 20.9

0833
PH 5.02
Cond 4.98
Turb 4.3
Temp 20.9

0838
PH 5.02
Cond 4.97
Turb 2
Temp 21.0

Sample Time 0840

Light Rain started during
sampling. Purged 1.8 gallons

45
0750

(16)

9-19-02

1052 PH 5.35
Cond 3.74
Turb 7
Temp 23.3

PH 5.34
Cond 3.73
Turb 7
Temp 23.4

PH 5.35
Cond 3.74
Turb 7
Temp 23.4

Sample Time 1105
WL 12.82

Purged 1.8 g - 1105

set up on 17WV12

WL 11.09
Flow Rate - 140 ml/min

PH 5.66
Cond 1.12
Turb 3
Temp 21.5

(17)

9-17-02

1155 PH 5.67
Cond 1.11
Turb 2
Temp 21.5

PH 5.67
Cond 1.12
Turb 2
Temp 21.5

Sample Time - 1205

WL 11.15
Purged 1.8 g - 1105
Dissolved and 9A sample

LUNCH

2" Well set up on 130 site 17

WL - 17.79 1345
Flow Rate - 140 ml/min

Dropping
to find
for low
flow
will try
Three
well Vol

26.1 - 7.779 =
18.31 x .17
3.11 (3) =
9.33

PH
Cond
Turb
Temp
PH
Cond
Turb
Temp

038744

7-19-02

PH 6.32

Cond 5.09

turb. 2

Temp. 20.0

WL 11.75

Purged 10 ga-11ons

Sample Time 1520

X130 could not be low flowed
Sampled.

Went back to fire
station and filled
out COC and labels
No more sampling today
Heavy Rain.

~~July 19, 02~~
~~July 19, 02~~

7-20-02

Set up on site in well
7000 ft. Light Rain and
overcast.

WL - 9.51

Flow rate - 130 ml/min

PH 6.86

Cond. 1.02

Turb. 11

Temp. 21.3

PH 6.87

Cond 1.02

Turb 11

Temp 21.3

PH 6.87

Cond 1.02

Turb 11

Temp. 21.3

WL - 9.58

Sample Time - 0840

Purged - 1.8 ga-11ons

Cal. Abzida

PH 4.00

Cond. 9.49

Turb. 0

Temp 24.7

038745

(20)

9-20-02

Set up on 17 WW08

WL - 9.31

Flow Rate - 140 ml/min 0850

pH 6.10

Cond. 1.27

Turb. 5

Temp. 21.0

pH 6.09

Cond. 1.27

Turb. 5

Temp. 21.0

pH 6.10

Cond. 1.27

Turb. 4

Temp. 21.0

WL 9.33

Sample Time 0850

Purged - 1.9 gallons

Set up on 17 WW13

WL 8.82

Flow Rate - 140 ml/min 1005

(21)

9-20-02

1049 pH 5.87

Cond 4.08

Turb 4

Temp 21.8

pH 5.87

Cond 4.00

Turb 4

Temp 21.8

pH 5.86

Cond 4.00

Turb 4

Temp 21.8

WL Sample Time 1100

Purged 1.8 gallons

Dip, MAT, and QA

Set up on 17 WW06

WL 9.87

Flow Rate 150 ml/min

pH 6.09

Cond 3.93

Turb 2

Temp 21.8

pH 6.08

Cond 3.93

Turb 1

Temp 21.8

038746

(2)

9-20-02

9-20-02

(23)

H-o closed up went there
wise. BUESKY, light wind

1207 Ph 6.09
Cond 3.93
Turb 1
Temp 21.8
WL 9.92

Sample Time 1210
Purged - 1.8 gallons

Lunch

Set up on site 17 well
17WU02

WL - 7.35

Flow Rate - 140 ml/min, 1345

Ph 6.01
Cond 3.92
Turb 2
Temp 22.6

Ph 6.00
Cond 3.93
Turb 2
Temp 22.6

Ph 6.01
Cond 3.93
Turb 2
Temp 22.6

WL - 7.50

Sample Time: 1440
Purged - 1.7 gallons

Set up on 17WU04
WL 10.09

Flow Rate

1449

1518 Ph 5.66
Cond 1.16
Turb 2.5
Temp 22.4

522 Ph 5.66
Cond 1.17
Turb 1.5

1518 Ph 5.66
Cond 1.16
Turb 1.4
Temp 22.4

Ph 5.66
Cond 1.16
Turb 1.4
Temp 22.4
WL 10.23
Sample Time 1530

Purged: 1.8 gallons

03874

(24)

9-20-02

Setup on 17WW01

WL 9.03

Flow Rate 150 ml/min

1535

PH 5.69
Cond 4.30
Turb 8
Temp 22.2

PH 5.69
Cond 4.31
Turb 9
Temp 22.2

PH 5.69
Cond 4.31
Turb 8
Temp 22.1

WL 9.15

Sample Time 1625
Purged 1.6 gallons

Took Dup & QA sample from
17WW01

Purged 9-21-02

(25)

9-21-02

Setup on Site 17 @

17WW03

WL 9.09

Flow Rate 150 ml/min

0737

PH 5.77
Cond 3.40
Turb 14
Temp 21.3

PH 5.78
Cond 3.40
Turb 15
Temp 21.3

PH 5.78
Cond 3.40
Turb 15
Temp 21.3

WL 9.12

Sample Time 0835
Purged 1.77 gallons

Setup on 16WW37

WL 26.62

Flow Rate

PH

Cond

Turb

Temp

038748

9-21-02

(26)

PH
Cond.
Turb.
Temp.

PH
Cond.
Turb.
Temp.

web

tried to pump with Geo pump, will need to bring groundwater pump in on this well

set up on #16 WW38

Flow Rate

Could not get Geo pump to pump. May need to bail this well 5' water

Setup on WL

Flow Rate 140 ml/min

1010

9-21-02

(27)

1050 PH 5.57
Cond. 5.68
Turb. 4
Temp. 19.7

1054 PH 5.88
Cond. 5.69
Turb. 3
Temp. 19.7

1059 PH 5.57
Hard Cond 5.69
Turb 3
Temp. 19.7
WL

Sample Time 1100
Purged Vol - 1.6 gallons

Carl Harbin 1115

PH 4.00, Cond. 4.48, Turb 0

Temp 24.7

Set up on 16 WW 38

Bailed dry approx 14 ft - 1100

Lost bailer, 1110 - 1150

038749

28 09-21-02

set up on 16 EW08

WL 8.03
Flow Rate 140 ml/min
1400

pH 5.85
Cond 2.77
turb 9
temp 21.7

pH 5.85
Cond 2.76
Turb 10
Temp 21.8

pH 5.85
Cond 2.77
turb 10
temp 21.8

WL - 8.86
Sample Time - 1455

Purged - 1.8 g-llon
sample-DUP, DIS, & QA

Set up on 16 EW05

-P

29

16 EW05
WL 26.22
Flow Rate 140 ml/min
1515

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

~~pH~~
~~Cond~~
~~turb~~
~~temp~~
- pH
Cond
Turb
Temp

038750

31

9-21-02

1718
pH 5.94
Cond 5.69
Turb 23.3

1722
pH 5.94
Cond 5.68
Turb 23.4

WL - 28.69

Sample Time - 1723
Purge Volume - 1.6 gal

Setup on WW22
WL 27.35
Flow Rate 140 ml/min
1730

pH 6.13
Cond 7.84
Turb 13
Temp 20.4

pH 6.13
Cond 7.78
Temp 20.4
Turb 14

9-21-02

pH 6.14
Cond 7.79
Temp 20.4
Turb 14
WL - 27.61
Sample Time - 1828
Purge Vol - 1.2 gal

~~1732~~
~~1731~~

038751

(32) 9-22-02

Set up on 16 WW31

WL 29.52
Flow Rate 150 ml/min 0725

Pid 7.2 ppm

PH 5.73
Cond 2.02
Turb 2
Temp 19.3

PH 5.73
Cond 2.02
Turb 1
Temp 19.3

PH 5.73
Cond 2.02
Turb 1
Temp 19.3

WL 29.63
0820 - Sample Time - 1.8 gatt
Purged water - 1.8 gallons

CAI Horbia - PH 4.00
Cond 4.49, Turb 0, Temp 26.3

(33)

9-22-02

Set up on 16 WW32

WL 29.62

Flow Rate 0830

PH 4.06
Cond 2.82
Turb 39
Temp 19.9

PH 6.06
Cond 2.82
Turb 40
Temp 19.9

PH 6.06
Cond 2.82
Turb 39
Temp 19.9

WL 29.91
Sample Time - 2.1 gallons
Purged water - 2.1 gallons

Set up on 16 WW33

Flow Rate 10 ml/min

PH 6.18
Cond 2.36
Turb 6

Temp 19.8

038752

(34)

9-22-02

1054
 PH 6.17
 Cond 2.37
 Turb 7
 Temp 19.8

1058

PH 6.17
 Cond 2.37
 Turb 6
 Temp 19.8

WL - 27.52

Sample Time - 1100

Purged Vol. - 1.8 gallons

Set up on WW 34

PID

WL - 29.29

33.7 ppm Flow Rate - 140 ml/min

10-1150

1058

PH 6.12
 Cond 1.30
 Turb 27
 Temp 21.0

1154

PH 6.13
 Cond 1.30
 Turb 27
 Temp 21.0

9-22-02 (35)

1158
 PH 6.12
 Cond 1.30
 Turb 27
 Temp 21.1

WL 29.48

Sample Time 1158

Purged 1.7 gallons

Lucca

Set up on WW 27

WL 7.62

PID Flow Rate - 140 ml/min 1335

No Reading
 Above Buck
 Ground (4.2)

1415

PH - 5.53
 Cond - 1.48
 Turb - 3

Temp - 20.9

PH - 5.53
 Cond - 1.48

Turb - 3

Temp - 21.0

PH - 5.53

Cond - 1.48

Turb - 2

Temp - 20.9

038753

(36)

9-22-02

WL -

Sample Time - 1425

Purged - 1.9 gallons

Setup on 16W028

WL 7.69

Flow Rate 140 ml/min

13-1430

PID Reading
Not Above
Background
1515

pH 5.67
Cond 1.18
Turb 5
Temp 21.5

pH 5.64
Cond 1.18
Turb 5
Temp 21.4

1519

pH 5.67
Cond 1.18
Turb 5
Temp 21.4

1523

WL 9.92
Sample Time 1525
Purged - 1.7 gallons

Also took Dup & MS

(37)

9-22-02

Set up on 16W023
WL 7.40

Flow Rate 130 ml/min
1532

PID No
Reading Above
Background

PN 5.42
Cond 2.44
Turb 4
Temp 21.1

pH 5.42
Cond 2.44
Turb 4
Temp 21.1

pH 5.42
Cond 2.44
Turb 4
Temp 21.1

WL 7.46
Sample Time - 1625
Purged Vol - 1.7 gallons

Set up on 16W024
WL 9.00

Flow Rate 130 ml/min
1630

PID
Reading Above
Background

pH 4.43
Cond 2.11
Turb 5
Temp 22.2

038754

38

9-22-02

pH 4.44
Cond 2.11
Turb 5
Temp 22.1

pH 4.44
Cond 2.10
Turb 5
Temp 22.4

WL - 1.4 140 ml/min
Sample Time - 1730
Purged Vol - 1.8 gallons
Took Dup and QA samples

Set up again on 16WW 37

WL 27.25
Flow Rate 120 ml/min
1740

pH 6.34
Cond 7.53
Turb 7
Temp 23.6

pH 6.34
Cond 7.53
Turb 7
Temp 23.4

9-22-02

39

pH 6.34
Cond 7.54
Turb 7
Temp 23.5

WL - 27.53
Sample Time - 1830
Purged Vol - 1.63 gallons

~~9-22-02~~
~~1840~~

038755

(40)

9-23-02

still @ site 16, set
up on well 16 WWS 25

WC 26.64
Flow Rate 130 ml/min

No PID Reading
Above Background

0820

pH 5.57
Cond. 4.33
Turb. 5
Temp. 14.4

0824

pH 5.57
Cond. 4.33
Turb. 4
Temp. 18.4

0828

pH 5.57
Cond. 4.33
Turb. 4
Temp. 18.4
WC 26.82

Sample Time 0830
Purged Vol. 1.6 gallons
Cal. Horb. a - pH, 4.00, Cond 4.99
Turb, 0 Temp 121.9

(41)

9-23-02

Setup on 16 WWS 30

PID Reading WC - 7.92
9.6 PPM Flow Rate - 130 ml/min

0931 PH 6.12

Cond. 4.150
Turb. 4.507
Temp. 20.9

0935

pH 6.12
Cond. 1.50
Turb. 6
Temp. 20.8

0937

pH 6.12
Cond. 1.50
Turb. 7
Temp. 20.8

WC - 8.12

Sample Time - 0940
Purged: 1.7 gallons

Setup on 16 WWS 29

PID Reading WC 17.71
64.9 PPM Flow Rate 130 ml/min

0945

038256

43

9-23-02

16 WW 29

1035

PH 5.45

Cond 1.41

Turb 1

Temp 20.5

1037

PH 5.44

Cond 1.41

Turb 1

Temp 20.5

temp

Sample Time

Purged Vol

1044 PH 5.45

Cond 1.41

Turb 1

Temp 20.5

WL 7.92

Sample Vol Time - 1045

Purged Vol - 1.8 gallons

move to site 18

Set up on WW-08

WL 16.70

Flow Rate 120 ml/min

No PID Reading

Above Background

1156

PH 4.18

Cond - 1.55

Turb 4

Temp 20.6

43

9-23-02

1201

PH 4.17

Cond 1.55

Turb 5

Temp 20.7

PH 4.18

Cond 1.55

Turb 4

Temp 20.7

WL 17.21

Sample Time - 1205

Purged Water - 1.6 gallons

Low ch

Set up on 18 WW 10

PID Reading WL 120 ml/min 14.81

Not Above Flow Rate 180 ml/min 1525

Background

1421

PH 4.84

Cond 7.67

Turb 9

Temp 20.2

PH 4.84

Cond 7.67

Turb 9

Temp 20.1

038757

44

9-23-02

1429 PH 4.85
Cond - 764

Turb - 9
Temp - 20.3

WL - 1503

Sample Time - 1430

Purged Water - 1.6 gallon

Set up on 8 well

NO PID Reading

WL - 1491

Above BG Flow Rate - 180 ml/min 1435

1520 PH 5.73

Cond - 553

Turb - 8

Temp - 20.4

1524

PH - 5.73

Cond - 553

Turb - 8

Temp - 20.4

1528

PH 5.73

Cond - 554

Turb - 8

Temp - 20.4

WL - 1517

Sample Time - 1535

Purged Vol. 1.6 gallon

45

9-23-02

18 well Missing well CAP.

Site set up on 18 MW 17

WL - 10.03

NO PID Reading Above BG
Flow Rate 120 ml/min 1540

1635 PH 5.80

Cond 0.99

Turb 4

Temp 22.7

1639 PH 5.80

Cond 0.99

Turb 4

Temp 22.7

1644 PH 5.80

Cond 0.99

Turb 3

Temp 22.7

WL 10.33

Sample Time 1645

Purged Water 1.6 gallon

Hand or dead hand time low
flowing this well.

038758

(46)

9-23-02

Set up on 18C-08

WL 120 ml/min 11.97

Flow Rate 120 ml/min 1705

pH 6.01

Cond 8.00

Turb 3

Temp 19.4

1809 -

pH 6.01

Cond 8.00

Turb 3

Temp 19.4

1813 -

pH 6.01

Cond 8.01

Turb 3

Temp 19.4

WL - 22.02

Sample Time - 1815

Purged Water - 1.7 gallons

Dup sample & QA sample

~~Done 9/23/02~~
 Done 9/23/02

(47)

9-24-02

Set up on 18 WW17

WL 26.71

No PID Reading Above B.G.
 Flow Rate 130 ml/min 0745

0840 pH - 5.96

Cond - 9.5

Turb - 5

Temp - 17.9

0844

pH - 5.96

Cond - 9.5

Turb - 5

Temp - 17.9

0849 -

pH 5.96

Cond 9.5

Turb 4

Temp 17.9

WL - 26.75

Sample Time - 0850

Purged water - 1.7 gallon

Cal Harbina, pH - 4.00

Cond 4.49, Turb - 0, Temp 21.5

Set up on 18 WW18

WL - 26.91

Flow Rate - 120 ml/min

0900

038759

(48)

9-24-02

1005 PH 5.69

Cond - 1.717

Turb - 6

Temp - 18.6

1009 PH 5.69

Cond - 1.717

Turb - 6

Temp - 18.6

1013 PH 5.69

Cond - 1.717

Turb - 5

Temp - 18.6

WL - 26.94

Sample Time - 1015

Purged Vol - 2 gallons

Taken Dup, and QA sample

Set up on 18WU08

PID Reading

Not above

B.G.

WL 10.32

Flow Rate 130 ml/min 1040

1134

PH 5.62

Cond - 1.70

Turb - 1

Temp - 20.5

(A F A)

(49)

9-24-02

1139 PH 5.62

Cond - 1.73

Turb - 2

Temp - 20.6

1143 PH 5.62

Cond - 1.72

Turb - 1

Temp - 20.6

WL 10.60

Sample Time 1143

Purged Vol 1.8 gallons

Lunch

Set up on 18WU09

WL 8.42

PID Reading

Not above

B.G.

Flow Rate 130 ml/min 35

1340

PH 5.86

Cond - 4.53

Turb - 6

Temp - 21.3

PH 5.85

Cond - 4.53

Turb - 5

Temp - 21.3

038760

038761

9-24-02

pH 5.85

Cond 453

Turb 5

Temp 21.3

WL 8.53

Sample Time 1440

Purged Vol - 1.9 gallons

Missing Well CAP.

Took, Dup, M3, & QA Samples

~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~~~OK~~

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LONGHORN AAP
KARNACK, TX

PLANT WIDE PERCHLORATE
INVESTIGATION

2ND SAMPLING
EVENT
DRY SEASON

TEAM 3
LOG BOOK

(9/17 - 9/24/02)

ROB SHERLES, DAVE BLANK

NATIONAL

408

MINING TRANSIT BOOK

9-17-02 CHAP

①

②

CHAP. ~~DEMOGRAPHIC~~

07:45 ON SITE AT

EQUIPMENT AT FIRE HALL.

08:45 ON SITE AT

UP GRID FOR SOIL SAMPLE COLLECTION.

09:56 SET UP 200' X 200' GRID FOR

SOIL SAMPLING. DAVE BRULI AND ROO
SHEPHERD

10:10 SET UP DECEW STATION FOR

SAMPLING EQUIPMENT.

10:30 SAMPLED 295516 LOCATION SAMPLES

(COLLECTED AT 10-0.5') AND (1-2)

10:55 SAMPLED 295518 LOCATION.

11:05 SAMPLED 295518 LOCATION.

11:25 OFFSITE TO FIREHALL.

12:36 OFF-SITE FIREHALL.

13:46 ON-SITE AT SITE 29 TO CONTINUE

COLLECTING SOIL SAMPLES.

13:50 SAMPLED 295519 LOCATION.

14:00 SAMPLED 295520 LOCATION.

14:10 SAMPLED 295521 LOCATION.

D38764

②

9-1-2 LHAAP

14:42 ON-SITE AT FIREHALL TO SEE IF REMAINING SAMPLE CONTAINERS ARRIVED.
15:09 SAMPLE CONTAINERS HAVE NOT ARRIVED.
17:15 ON-SITE AT SITE 50 TO PLACE TUBING IN 4 GW WELLS.
17:18 SET UP ON 50 WNO1.
DTW = 13.54 FT
TD = 23.10 FT
17:29 SET UP ON 50 WNO2.
DTW = 16.15 FT
TD = 22.1 FT
17:43 SET UP ON 50 WNO3.
DTW = 16.95 FT
TD = 22.90 FT
18:00 SET UP ON 50 WNO4.
DTW = 19.33 FT
TD = 23.07 FT
18:16 ON-SITE AT SITE 29 TO GET SAMPLING EQUIPMENT.
18:31 ON-SITE AT FIREHALL
18:46 OFF-SITE FOR THE DAY.

John G. Smith
9-1-2

9-17-02 LHAAP

③

SAMPLE ID	SITE	LOCATION	TIME	DATE
295516(0-0.5)	29	#16	10:30	9-17-02
295516(0-0.5) DUP	"	"	"	"
295516(0-0.5) QA	"	"	"	"
295516(0-0.5) MS	"	"	"	"
295516(1-2)	"	"	"	"
295517(0-0.5)	#17	"	10:55	"
295517(1-2)	"	"	"	"
295518(0-0.5)	#18	"	11:05	"
295518(1-2)	"	"	"	"
295519(0-0.5)	#19	"	13:30	"
295519(1-2)	"	"	"	"
295520(0-0.5)	#20	"	14:00	"
295520(1-2)	"	"	"	"
295521(0-0.5)	#21	"	14:10	"
295521(0-0.5) DUP	"	"	"	"
295521(0-0.5) QA	"	"	"	"
295521(1-2)	"	"	"	"

038765

(14)

9-18-02

LHAP

07:20 ON-SITE AT LHAP
 07:48 ON-SITE AT SITE 12 TO
 PLACE TUBING IN GW WELLS.
 07:52 SET UP ON 12WN18
 DTW = 23.40 FT
 TD = 30.33 FT
 08:26 SET UP ON 12WN01
 DTW = 22.4 FT
 TD = 29.78 FT
 08:46 SET UP ON 12WN17.
 DTW = 22 FT
 TD = 23.95 FT
 09:58 SET UP ON 12WN11
 DTW = 22.22 FT
 TD = 70.22 FT
 09:20 SET UP ON 12WN10
 DTW = 21.5 FT
 TD = 24.9 FT
 09:37 SET UP ON 12WN15
 DTW = 9.05 FT
 TD = 39.45 FT
 09:52 OFF-SITE OF SITE 12 TO FIND TUBING.
 10:35 ON-SITE AT SITE 12 TO COMPLETE TUBING.
 10:38 SET UP ON 12WN13.
 DTW = 21.73 FT
 TD = 67.20 FT

9-18-02

LHAP

②

10:42 WRONG SIZE TUBING. TAKE FROM
 TERN 1. NEED 1/4" O.D. TUBING.
 10:52 SET UP ON 12WN12.
 DTW = 21.1 FT
 TD = 27.5 FT
 11:00 OFF-SITE OF SITE 12 TO CHECK ON SAMPLE
 CONTAINERS. ADDING ADS TO GDS WITH
 JEFF ON WRONG SIZE TUBING.
 11:42 OFF-SITE FOR CHECK.
 12:39 ON-SITE AT FIELDHOL.
 12:55 ON-SITE AT SITE 29 TO COLLECT REMAINING
 7 SOIL SAMPLES WITH SMALLER CONTAINERS.
 13:06 SAMPLED 29SS22 LOCATION.
 13:20 SAMPLED 29SS23 LOCATION.
 13:36 SAMPLED 29SS24 LOCATION.
 14:00 COMPLETED GRID SAMPLING, AT SITE 29.
 FOUR SAMPLERS WILL BE COLLECTED FROM ROAD
 AT SITE 29.
 14:28 ON-SITE AT ROAD. COLLECTED
 SAMPLE 29SS25 LOCATION.

038766

⑥

TIME	LOCATION	REMARKS
14:38	29SS26 LOCATION	SAMPLED
14:48	29SS27 LOCATION	SAMPLED
15:08	29SS28 LOCATION	SAMPLED
	ALL 4 SAMPLES RUN	COLLECTED
		POND.
15:23	ON-SITE AT DECON STATION (SITE 29)	
	TO DECON SAMPLING EQUIPMENT.	
15:59	COLLECTED 29R502 SAMPLING (SOIL)	
	AT SITE 29	COMPLETED
16:15	ON-SITE AT FIREHALL	
16:35	ON-SITE AT SITE 12 TO PLACE TUBE IN 12 NW 13.	
	DTW = 21.73 FT	
	TD = 67.20 FT	
16:43	ON-SITE AT SITE 29 TO PLACE TUBING IN WELLS.	
16:44	SET UP ON 117	
	DTW = 21.65 FT	
	TD = 37.0 FT	
17:10	SET UP ON 29WN09.	
	DTW = 23.19 FT	
	TD = 27.95 FT	
17:30	SET UP ON 29WN14	
	DTW = 28.28 FT	
	TD = 81.78 FT	

7-18-02 LHAAP

⑦

SAMPLE ID	LOCATION	TIME	DATE
29SS22(0.0.5)	#22	13:06	7-18-02
29SS22(1-2)	"	"	"
29SS23(0.0.5)	#23	13:20	"
29SS23(1-2)	"	"	"
29SS24(0.0.5)	#24	13:36	"
29SS24(1-2)	"	"	"
29R501	RUNOFF	14:10	"
29SS25(0.0.5)	#25	14:28	"
29SS26(0.0.5)	#26	14:38	"
29SS27(0.0.5)	#27	14:48	"
29SS28(0.0.5)	#28	15:08	"
29SS28(0.0.5) DWP	"	"	"
29SS28(0.0.5) M/S	"	"	"
29SS28(0.0.5) Q/A	"	"	"
29R502	RUNOFF	15:59	"

038767

9-18-02

LHAAP

(10)

Time	Ph	Cond	Temp	D.O.
09:29	6.01	0.52	21°C	10.16
09:34	5.97	0.49	21.7°C	9.86
09:39	5.94	0.48	21°C	10.35
09:44	5.92	0.48	20.8°C	10.35

09:50 Collected Sample 12WNW18.
 10:22 Setup on 12WNW1. Total Depth
 15.29 ft for the work plan. P.O. Readings
 15.0.0 PPM.

DTW = 22.4 ft (4" well)
 29' - 22.4' = 6.6 ft (water column)
 $0.65(6.6) = 4.3 \text{ gal}$
 $4.3 \text{ gal} = 1 \text{ well volume}$
 $(3)(4.3) = 12.9 \text{ gal} = 3 \text{ well volumes}$

10:31 Flow rate was 200 gal/min at DTW = 22.8 ft.
 10:34 Flow rate was 150 gal/min at DTW = 22.82 ft.
 10:37 Flow rate was 100 gal/min at DTW = 22.8 ft.
 This is the minimum flow rate.

11:15 Water level drop of 0.32 ft could not
 be maintained. DTW 23.13 ft. Going to
 purge 3 well volumes and then samples.
 11:41 Purged well dry. Added 5 gallons.

9-19-02

LHAAP

(11)

Time	Ph	Cond	Temp	D.O.
11:56	5.39	3.89	10	23°C 9.57
12:01	5.39	3.86	10	22.9°C 9.59
12:06	5.39	3.82	10	22.2°C 9.91

12:10 Sampled 12WNW1.
 12:31 Off site for lunch.
 13:24 on site 12 to collect water
 samples.

13:31 Setup on 12WNW1. Total depth 15
 29 ft per the work plan. P.O. readings 15.0 PPM.
 DTW = 21.10 ft (4" well)
 $29 - 21.10 = 7.90$ (water column)
 $0.65(7.9) = 5.14 \text{ gal}$

$5.14 \text{ gal} = 1 \text{ well volume}$
 $15.4 \text{ gal} = 3 \text{ well volumes}$

13:47 Flow rate at minimum of 100 gal/min at
 DTW = 21.26 ft. Will attempt to maintain
 flow within 0.32 ft drop.

14:01 Steady flow not maintained at 100 gal/min.
 DTW = 21.4 ft. Going to purge 3 well
 volumes.

038769

9-19-02

LHAAP

(12)

14:20 BEGAN RAINING SOME.

15:10 PULSED 3 WELL VOLUMES.

TIME	PH	COND	TUBS	TEMP	D.O.
15:12	6.15	2.27	11	21.5°C	10.53
15:17	6.12	2.30	4	20.6°C	10.69
15:22	6.05	2.30	6	20.4°C	10.69
15:27	6.08	2.29	4	20.0°C	10.84

15:30 SAMPLED 12WNV10.

15:34 SET UP ON 12WNV12 TOTAL DEPTH

IS 27 FT PER THE WORKPLAN. PID

READING IS 0.0 PPM.

DTW = 21.15' = 5.9' (4" WELL)
 27' - 21.15' = 5.9' (WATER COLUMN)

0.05 (5.9') = 3.8 GAL

3.8 GAL = 1 WELL VOLUME

11.4 GAL = 3 WELL VOLUMES

15:45 BEGAN RAINING. GOING TO WAIT

AND SEE IF IT STOPS.

16:05 CONTINUES TO RAIN. DEMONSTRATES TO THE FIREMAN.

16:30 CONTINUES TO RAIN. OFF SITE FOR SOME

DAY.

Robert Shuler
 9-19-02

9-20-02

LHAAP

(13)

07:00 ON-SITE AT LHAAP.

07:26 ON-SITE 12 TO COLLECT SOL SAMPLES.

07:28 SET UP ON 12WNV12. TOTAL DEPTH

IS 27 FT PER THE WORKPLAN. PID

READING IS 0 PPM.

DTW = 21.12' (4" WELL)

27' - 21.12' = 5.9' (WATER COLUMN)

0.05 (5.9') = 3.8 GAL

3.8 GAL = 1 WELL VOLUME

11.4 GAL = 3 WELL VOLUME

07:39 ESTABLISHED 100 ml/min FLOW RATE AT

DTW = 21.37 WILL CHECK TO SEE IF WATER

LEVEL STAYS WITHIN 0.32 FT DROP.

07:52 NOT ABLE TO MAINTAIN 0.32 FT DROP

AT 100 ml/min. WILL PULSE 3 WELL VOLUMES.

DTW = 21.60 ft.

09:03 PULSED WELL DRY AT 10 GAL/min WILL ALLOW

WELL TO RECHARGE AND THEN COLLECT SAMPLE.

038770

20-02

LHAAP

(14)

20-02

LHAAP

(15)

TIME	ph	COND	TURB	TEMP	D.O.
09:23	5.38	1.13	6	21.3°C	9.56
09:28	5.35	1.11	9.6	20.8°C	9.64
09:35	5.34	1.11	6	20.8°C	9.62

09:42 SAMPLED 12WNW12.

09:44 SET UP ON 12WNW13. TOTAL DEPTH

IS 65 FT. PER THE WORKPLAN. P.D.

READING IS PPM.

DTW = 21.68 FT (4" WELL)

65' - 21.68' = 43.3 FT (WATER COLUMN)

0.65(43.3) = 28.2 GAL

28.2 GAL = 1 WELL VOLUME

84.6 GAL = 3 WELL VOLUMES

09:55 CHECKED FLOW RATE. FLOW RATE IS 100 ML/MIN

AT DTW = 22.10 FT. MAINTAINING STEADY

FLOW. WILL ADJUST TO CHECK HIGHER RATE.

09:57 FLOW RATE IS 175 ML/MIN. DTW IS 22.2 FT.

NOT MAINTAINING STEADY FLOW RATE. WILL

ADJUST RATE LOWER.

10:06 FLOW RATE IS 125 ML/MIN AT DTW = 22.06 FT.

ESTABLISHED FLOW RATE.

TIME	ph	COND	TURB	TEMP	D.O.
10:25	6.43	2.51	10	20.0°C	0.96
10:29	6.44	2.51	11	20.0°C	0.94
10:33	6.44	2.51	10	20.0°C	0.98

10:36 SAMPLED 12WNW13. PURGED 3 SYSTEM

VOLUMES OF 1.5 GAL. DTW IS 22.09 FT.

10:48 SET UP ON 12WNW12. TOTAL DEPTH

IS 23 FT. PER THE WORKPLAN. P.D.

READING IS 0 PPM.

DTW = 22.07 FT (4" WELL)

23' - 22.07' = 0.93' (WATER COLUMN)

0.65(0.93) = 0.6 GAL

0.6 GAL = 1 WELL VOLUME

1.8 GAL = 3 WELL VOLUMES

10:54 SINCE HAVE LESS THAN A FOOT OF WATER,

GOING TO PURGE 3 WELL VOLUMES OR

PURGE NEW DEEP.

11:05 PURGED 3 WELL VOLUMES (23 GAL) BUT

DID NOT PUMP NEW DEEP. GOING TO CHECK

038771

9-20-02

LHAAP

(16)

PARAMETERS. DTW = 23.65 FT

TIME	PH	COND	TURB	TEMP	P.O.
11:07	5.49	10.7	77	21.0C	9.31
11:11	5.30	10.8	69	21.5C	9.20
11:16	5.24	11.0	50	22.1C	9.12

11:21 SAMPLED 12WNW17. WATER GETTING LESS TURBID WITH EACH PARAMETER CHECK.

DTW IS 23.90 FT.

11:32 ATTEMPTED TO LEAVE SITE, BUT GOT STUCK IN MUD.

13:26 DROVE AND TURNED ON SITE TO

REPAIR PULL TRUCK OUT OF MUD.

14:13:35 OFF SITE FOR LUNCH.

14:29 ON SITE AT SITE 12.

14:32 SETUP ON 12WNW15. TOTAL DEPTH

IS 38 FT PER MEASUREMENT ON 9-18-02.

DEPTH NOT IN WORK PLAN. PID READINGS

IS 0 PPM.

DTW = 8.93 FT (4" WELL)
38' - 8.93' = 29.1 FT (WATER COLUMN)

0.65 (29.1 FT) = 18.9 GAL

18.9 GAL = 1 WELL VOLUME

56.7 GAL = 3 WELL VOLUMES

9-20-02

LHAAP

(17)

14:56 MEASURED FLOW RATE AT 150 CM/min

AND DTW = 9.02 FT. DON'T HAVE

STEADY FLOW RATE YET GOING TO

ADJUST RATE SLOWER.

14:59 180 CM/min FLOW RATE IS AT DTW
OF 9.06 FT. STEADY FLOW MAINTAINED.

TIME	PH	COND	TURB	TEMP	P.O.
15:22	5.46	2.69	2	23.20C	1.87
15:25	5.47	2.68	2	23.10C	2.94
15:29	5.48	2.69	2	23.20C	2.01

15:31 SAMPLED 12WNW15. PURGED 3 SYSTEM
VOLUMES OF 1.5 GALLON. DTW IS 9.11 FT.

15:42 SETUP ON 12WNW17. (4" WELL)

@ 9.00 FT

TOTAL DEPTH IS 68 FT PER THE

WORK PLAN. PID READINGS IS 0 PPM.

DTW = 22.2 FT (4" WELL)
68' - 22.2' = 45.8 FT (WATER COLUMN)

0.65 (45.8) = 29.8 GAL

29.8 GAL = 1 WELL VOLUME

89.4 GAL = 3 WELL VOLUMES

038772

20-02 LHAAP

(18)

15:52 Flow Rate is 175 ml/min at DTW = 22.47 ft. Flow is not steady. Will adjust flow down.
15:59 Flow Rate is 100 ml/min at DTW = 22.50 ft. Stabilized Steady Flow Rate at 110 ml/min.

Time	ph	COND	TURB	Temp	D.O.
16:28	6.07	3.06	25	20.7°C	1.70
16:31	6.07	3.05	26	20.7°C	1.69
16:34	6.07	3.05	25	20.5°C	1.75

16:36 SAMPLED 12 NW 11 Poured 3 System Volumes (1.5 gal). Final DTW is 22.5 ft.

16:45 Completed Sampling at Site 12. Off site to Firehall.
17:24 Roy Heistera off site to FeDEX with samples.
17:30 Off site for the day.

John Doe
9-10-02

22-02 LHAAP

(19)

07:00 ON-SITE AT LHAAP.
07:20 ON-SITE 50 TO SAMPLE 5 GIN WELLS.
07:31 SET UP ON 50 WWD. TOTAL DEPTH IS 20 FT PER THE WORKPLAN. PID READ IS 0 PPM.

DTW = 13.3 ft (GIN Well)
20' - 13.3' = 6.7 ft (Water Column)
(0.65)(6.7) = 4.4 gal
0.4 gal = 1 Well Volume
13.2 gal = 3 Well Volumes

07:40 Flow Rate is 175 ml/min at DTW = 13.5 ft. NOT MAINTAINING STEADY FLOW. WILL ADJUST FLOW RATE.

07:45 Flow Rate is 100 ml/min at DTW of 13.53 ft. WILL ATTEMPT TO MAINTAIN 0.32 ft DROP AT THIS RATE.

08:00 Flow Rate is 100 ml/min at DTW = 13.6 ft.

Time	ph	COND	TURB	Temp	D.O.
08:24	6.17	0.749	13	19.9°C	0.82
08:35	6.81	0.75	13	19.1°C	0.75
08:40	6.83	0.75	12	19.8°C	0.68

038773

9-21-02

LHAAP

(20)

08:42 SAMPLED SOWNWOL. PURGED 3 SYSTEM VOLUMES (1.5 GAL). FINAL DTW IS 13.75 FT.
 08:50 SETUP ON SOWNWOL. TOTAL DEPTH IS 19 FT. REEVE WORKPLAN. PID READINGS IS 0 PPM.

DTW = 16.2 FT (4" WELL)

19 - 16.2 = 2.8 FT (WATER COLUMN)

(0.65(2.8)) = 1.8 GAL

1.8 GAL = WELL VOLUME

5.4 GAL = 3 WELL VOLUMES

09:08 FLOW RATE IS 16.0 mL/MIN AT DTW OF 16.2 FT. FLOW NOT STEADY. WILL ADJUST FLOW.

09:11 FLOW RATE IS 12.5 mL/MIN AT DTW OF 16.25 FT. MAINTAINING STEADY FLOW RATE.

TIME	PH	COND	TURB	TEMP	D.O.
9:48	6.4	1.7	0	20.3°C	1.46
9:53	6.4	1.7	0	20.4°C	1.60
9:56	6.4	1.7	0	20.4°C	1.40

10:00 SAMPLED SOWNWOL. PURGED 3 SYSTEM VOLUMES (1.5 GAL). FINAL DTW IS 16.42 FT.

9-21-02

LHAAP

(21)

10:10 SETUP ON SOWNWOL. TOTAL DEPTH IS 20 FT. REEVE WORKPLAN. PID READINGS IS 0 PPM.

DTW = 16.96 FT (4" WELL)

20 - 16.96 = 3.0 FT (WATER COLUMN)

0.65(3.0) = 2.0 GAL

2.0 GAL = WELL VOLUME

6.0 GAL = 3 WELL VOLUMES

10:28 FLOW RATE IS 12.5 mL/MIN AT DTW OF 17.2 FT. FLOW NOT STEADY.

10:30 FLOW RATE IS 10.5 mL/MIN AT DTW OF 17.19 FT. FLOW NOT STEADY.

10:32 FLOW RATE IS 12.0 mL/MIN AT DTW OF 17.2 FT. FLOW STEADY.

TIME	PH	COND	TURB	TEMP	D.O.
11:03	6.79	3.41	33	20.5°C	1.53
11:06	6.79	3.43	31	20.5°C	1.55
11:11	6.79	3.44	32	20.6°C	1.47

11:13 SAMPLED SOWNWOL. PURGED 3 SYSTEM VOLUMES. FINAL DTW IS 17.32 FT.

038774

9:02 (22)

LHAP

11:23 PER JEFF CARTER, HE HAS
PULSED 100 GALLONS OF WATER
FROM THE NEWLY INSTALLED WELL
SOWNOS. WELL (FORMATION WATER)
HAS RECHARGED AND GOING TO
SAMPLE WATER USING BARLETT'S WILL
TAKE A PARAMETER READINGS.

TIME	PH	COND	TUBS	TEMP D.O.
11:26	6.94	2.42	43	21.0°C 9.94

11:28 SAMPLED SOWNOS. OFF SITE SD

TO FIREHALL.

11:50 OFF SITE FOR LUNCH.

12:58 ON-SITE AT FIREHALL.

13:09 ON-SITE SD TO SAMPLE CAST WELL.

13:11 SETUP ON SOWNOS. TOTAL DEPTH

IS 20 FT PER THE WORK PLAN. P.D. READINGS

IS 0 PPM.

DTW = 19.4 FT (4" WELL)
20' - 19.4' = 0.6 FT (WATER COLUMN)
0.65 (0.6) = 0.4 GAL

0.4 GAL = 1 WELL VOLUME

1.2 GAL = 3 WELL VOLUMES

13:20 FLOW RATE IS 125 MPM AT
DTW OF 19.55 FT. NO STEADY FLOW.

9:02

LHAP

13:30 ESTIMATED 100 MPM FLOW RATE
AT DTW = 19.55 FT. WILL ATTEMPT
TO MAINTAIN THIS FLOW WITHIN
0.32 FT DROP

13:50 FLOW RATE STILL 100 MPM. DTW IS
19.74. NOT ABLE TO SUSTAIN STEADY
FLOW RATE. ^{ALMOST HALF} 3 SYSTEM VOLUMES.
THEREFORE, GOING TO PULSE 3 WELL
VOLUMES AND SAMPLE. ONLY NEED A SMALL
AMOUNT OF PULSED WATER TO HAVE 3 VOLUMES.

TIME	PH	COND	TUBS	TEMP D.O.
13:58	6.9	9.9	11	22.3°C 10.05
14:01	6.9	10.4	11	22.1°C 9.98

14:04 SAMPLED SOWNOS. PULSED 3 WELL
VOLUMES. FINAL DTW = 20.19 FT.

14:09 COMPLETED SAMPLING AT SITE SD.

14:13 ON SITE 29 TO COLLECT G.W. SAMPLES

14:15 SETUP ON 29 W/ 117. TOTAL DEPTH

15.35 FT PER THE WORK PLAN. P.D. READINGS

IS 0 PPM.

DTW = 21.82 FT (2" WELL)

35' - 21.82' = 13.2 FT (WATER COLUMN)

0.17 (13.2) = 2.2 GAL

2.2 GAL = 1 WELL VOLUME

1.6 GAL = 3 WELL VOLUMES

038775

9-21-02 LHAAP (23)

16:09 Flow Rate is 175 megal/min AT DTW OF 23.50 FT. Flow NOT STEADY, WILL ADJUST

16:11 Flow Rate is 100 megal/min AT DTW is 23.53 FT. WILL ATTEMPT TO MAINTAIN Flow AT 0.32 FT DROP

16:24 Flow Rate is still 100 megal/min DTW is 23.71 FT. WILL NOT BE ABLE TO RE MAINTAIN 0.32 FT DROP BECAUSE 3 SYSTEM VOLUMES ARE COLLECTED. GOING TO PURGE 3 WELL VOLUMES

16:34 PURGED WELL DEPT. PURGED 3 GALLONS. WILL ALLOW WELL TO RECHARGE AND THEN SAMPLE. DTW is 24.41 FT.

Time	ph	COND	Turb	Temp	D.O.
16:52	6.7	10.9	0	24.2°C	10.11
16:53	SAMPLED 29WUW09				
16:59	SET UP ON 29WUW05. TOTAL DEPTH IS 22 FT. LESS THE WORK PUMP P.I.D. READING IS 0 PPM.				
					DTW = 17.22 FT (4" WGL)
					22 - 17.22 FT = 4.8 FT (WATER GUNN)

038776

9-21-02 LHAAP (24)

14:49 Flow Rate is 15.150 megal/min AT DTW OF 22.18 FT. WELL RECHARGED. Consider that Flow Rate WILL INCREASE RATE A LITTLE.

15:00 Flow Rate ESTIMATED AT 160 megal/min AT DTW OF 22.10 FT. WILL ATTEMPT TO MAINTAIN 0.32 FT DROP

Time	ph	COND	Turb	Temp	D.O.
15:21	6.55	14.6	21	24.6°C	1.27
15:26	6.56	14.6	20	24.5°C	1.71
15:31	6.57	14.4	19	24.5°C	1.12
15:34	6.57	14.3	17	24.5°C	1.24

15:35 SAMPLED 29WUW17. PURGED 3 SYSTEM VOLUMES (1.5 GAL). FINAL DTW IS 22.15 FT.

15:44 SET UP ON 29WUW09. TOTAL DEPTH IS 27 FT. LESS THE WORK PUMP P.I.D. READING IS 0 PPM.

DTW = 23.26' (4" WGL)
 27 - 23.26' = 3.74 FT (WATER GUNN)
 0.66 (3.14) = 2.4 GAL
 2.4 GAL = 1 WELL VOLUME
 7.2 GAL = 3 WELL VOLUMES

9-21-02

LHAAP

26

$$0.65(4.8 \text{ ft}) = 3.12 \text{ gal}$$

$$3.12 \text{ gal} = 1 \text{ well volume}$$

$$9.4 \text{ gal} = 3 \text{ well volumes}$$

17:16 FLOW RATE IS 115 ml/min AT
DTW OF 17.39 FT. STEADY FLOW
NOT MAINTAINED.

17:20 ESTABLISHED 100 ml/min FLOW RATE
AT DTW OF 17.40 FT. WILL ATTEMPT
TO MAINTAIN 0.32 FT DEEP.

17:56 FLOW RATE IS 100 ml/min. DTW
IS 17.59 FT. PURGED 3 SYSTEM VOLUMES
OF 1.5 GALLONS WILL CHECK PARAMETERS.

Time	pH	COND	TURB	TEMP	D.O.
18:01	6.51	1.13	0	22.5°C	1.0
18:06	6.49	1.13	0	22.2°C	1.0
18:11	6.49	1.12	0	22.1°C	1.1
18:13	SAMPLED 29 WLLS. FINAL DTW IS 17.62 FT.				

18:23 OFF SITE 29 TO FILLBACK

19:28 OFF-SITE FOR THE DAY.

[Signature]
9-21-02

9-22-02

LHAAP

27

07:20 ON SITE AT LHAAP

07:22 ON SITE AT SITE 29 TO

COLLECT GW SAMPLES. SET UP

ON 29 WLL 116. TOTAL DEPTH IS

37 FT PER THE WORKMAN PID

LOADING IS 0 RPM. NEED TO
CHANGE PID.

$$STW = 20.82 \text{ ft (2" WELL)}$$

$$37 - 20.82' = 16.2 \text{ ft (WATER COLUMN)}$$

$$0.17(16.2') = 2.8 \text{ gal}$$

$$2.8 \text{ gal} = 1 \text{ well volume}$$

$$8.4 \text{ gal} = 3 \text{ well volumes}$$

07:51 ESTABLISHED 100 ml/min FLOW RATE AT
22.80 FT (DTW). FLOW NOT STEADY.

07:56 NOT ABLE TO MAINTAIN STEADY FLOW
AT 100 ml/min. DTW IS 23.0 FT.
THEREFORE, GOING TO PURGE 3 WELL
VOLUMES.

08:11 PURGE WATER HAS DARK PINK COLOR.

08:30 PURGED WELL DEPT OF DTW OF 32.05 FT.
PURGED 3.59 GALLONS

038777

9-22-02

LHAAP

(28)

TIME	Ph	COND	Turb	TEMP	D.O.
08:35	6.6	3.11	999	20.9°C	9.88
08:36	SAMPLED	29WELL 6.	FINAC DTW		
	IS 31.14 FT	WATER STILL HAS DARK			
	TINT COLOR				
08:59	SETUP ON 29WELL.	TOTAL			
	DEPTH IS 27 FT	PER THE WORKPLAN.			
	DTW = 19.55' = 7.5 FT (4" WELL)				
	0.65(7.5) = 4.8 GAL				
	4.8 GAL = 1 WELL VOLUME				
	14.4 GAL = 3 WELL VOLUMES				
09:16	FLOW RATE IS 110 ml/min AT DTW				
	OF 19.5 FT. FLOW NOT STABLE. WILL				
	ADJUST				
09:18	ESTABLISHED 100 ml/min AT DTW				
	OF 19.99 FT.				
09:35	NOT ABLE TO MAINTAIN 0.32 FT				
	DEEP POOLED ON 19.99 ft/min FLOW RATE.				
	DTW IS 20.22 FT. GOING TO PURGE 3				
	WELL VOLUMES.				
10:30	PURGED 3 WELL VOLUMES.				

9-22-02

LHAAP

(29)

TIME	Ph	COND	Turb	TEMP	D.O.
10:33	6.45	13.3	4	20.2°C	9.56
10:36	6.44	13.5	2	20.9°C	9.56
10:39	6.47	13.6	2	20.7°C	9.72
10:40	SAMPLED	29WELL 11.	FINAC DTW IS		
	26.27 FT.				
11:10	SETUP ON 29WELL 12.	TOTAL DEPTH			
	IS 34 FT PER THE WORKPLAN				
	DTW = 23.22 FT (4" WELL)				
	34' - 23.22' = 10.8 FT (WATER COLUMN)				
	0.65(10.8) = 7 GAL				
	7 GAL = 1 WELL VOLUME				
	21 GAL = 3 WELL VOLUMES				
11:22	FLOW RATE IS 130 ml/min AT DTW OF 23.52 FT.				
	WILL ADJUST FLOW.				
11:24	ESTABLISHED 100 ml/min FLOW RATE DTW				
	IS 23.55 FT. WILL ATTEMPT TO MAINTAIN				
	0.32 FT DEEP.				

038778

(30)

LHAAP

12-22-02

11:44 Flow Rate of 100 mcf/min. NOT ABLE TO MAINTAIN 0.32 FT DROP WILL HAVE TO PUMP 3 WELL VOLUMES.
DTW IS 23.80 FT.

11:51 OFF-SITE 29 FOR LUNCH.
13:10 ON-SITE 29. SETUP ON 29W13. TOTAL DEPTH IS 62 FT PER THE WORKPLAN. PID READING IS 0 PPM.

DTW = 32.24 FT. (4" WELL)
62' - 32.24' = 29.8 FT (WATER COLUMN)
0.65 (29.8') = 19.3 gals
19.3 gals = 1 Well Volume
57.9 gals = 3 Well Volumes

13:43 Peristaltic Pump will NOT Pull WATER AT CURRENTLY WILL HAVE TO USE GRINDERS PUMP
13:57 SETUP ON 29W07. TOTAL DEPTH IS 37 FT PER THE WORKPLAN. PID IS 0 PPM.

DTW = 20.7 FT (4" WELL)
37' - 20.7' = 16.3 FT (WATER COLUMN)
0.65 (16.3') = 10.6 gals.
10.6 gals = 1 Well Volume
31.8 gals = 3 Well Volumes

(31)

LHAAP

1-22-02

14:08 Flow Rate IS 110 mcf/min AT DTW OF 21.01 FT. WILL ADJUST FLOW

14:12 ESTABLISHED Flow Rate of 100 mcf/min. DTW IS 21.08 FT.

14:27 NOT ABLE TO KEEP ¹²²⁰² 0.32 FLOW RATE OF 100 mcf/min WITHIN 0.32 DROP. DTW IS 21.39 FT. WILL NEED TO BE PUMPED.

14:31 SETUP ON 29W14. TOTAL DEPTH IS 28.35' PER THE WORKPLAN. PID READING IS 0 PPM.

DTW = 28.35 FT (4" WELL)
86' - 28.35' = 57.7 FT (WATER COLUMN)
0.65 (57.7) = 37.5 gals
37.5 gals = 1 Well Volume
112.5 gals = 3 Well Volumes

14:45 Flow Rate IS 175 mcf/min. DTW IS 28.45 FT. FLOW RATE ESTABLISHED.

15:21 PUMPED 3 SYSTEM VOLUMES. PUMPED 110 gals.

038779

9-22-02

LHAAP

(32)

Time	ph	COND	TEMP	DO
15:33	7.3	0.86	7	23.0C
15:28	7.3	0.86	7	22.90C
15:33	7.3	0.86	7	22.10C

15:35 SAMPLED 29WV14. FINAL

DTW IS 28.45 FT.

15:38 ON-SITE AT SITE 17 TO

COLLECT SAMPLES 17WV05 HAS

GROUNDS PUMP AND IT GOING TO

LOW FLOW SAMPLES WELL.

16:09 OFF-SITE 29 TO FIRETRAIL TO GET

CONTROL BOX FOR PUMP

16:21 ON-SITE 29 TOTAL DEPTH PER

THE WATERPLAN IS 152 FT. P.D. REMAINING

IS 0 PPM.

DTW = 11.9 FT (4" WELL)

152 - 11.9' = 140.1 FT (WATER COLUMN)

0.65 (H₂O) = 91.1 GAL

91.1 gal = 1 WELL VOLUME

273.3 gal = 3 WELL VOLUMES

16:48 FLOW RATE IS 116 ml/min. DTW

IS 12.80 FT.

9-22-02

LHAAP

(33)

16:51 ESTABLISHED 100 ml/min FLOW
RATE. DTW IS 12.85 FT. WILL
ATTEMPT TO MAINTAIN 0.32 FT
DROP AT THIS RATE.

17:00 DTW IS 13.03 FT AT 100 ml/min
NOT GOING TO BE ABLE TO MAINTAIN
0.32 FT DROP AT THIS RATE. NEEDS
TO BE PURGED 3 WELL VOLUMES.

17:34 ON SITE 18/24 SET UP ON

18 DOWNWIRE. TOTAL DEPTH

IS 16 FT PER THE WORKPLAN.

P.D. REMAINING IS 0 PPM.

1 DTW = 11.37 FT (4" WELL)

16' - 11.37' = 4.63 FT (WATER COLUMN)

(0.65)(4.6) = 3.0 gallons

3.0 gal = 1 WELL VOLUME

9.0 gal = 3 WELL VOLUMES

17:44 FLOW RATE IS 150 ml/min DTW IS 12.74 FT.

17:46 ESTABLISHED 100 ml/min FLOW RATE

DTW IS 12.77 FT.

038780

18:10 NOT ABLE TO MAINTAIN 0.32 FT
DROP AT 100 ml/min DTW IS 13.04 FT.
18:28 PURGED WELL DEEP AT DTW OF
14.76 FT. PURGED 4.5 GALLONS.

TIME	PH	COND	TURB	TEMP	D.O.
19:56	6.4	0.24	18	28.1°C	10.27

18:57 SAMPLED 18WJMW/20. FINAL
DTW IS 14.66 FT.

19:03 ON SITE AT TREATMENT PLANT
TO DUMP WASTE WATER.

19:18 ON-SITE AT FIREHALL TO PREPARE
SAMPLE COOLERS

20:00 OFF-SITE FOR THE DAY.

~~David J. Jones~~
June 9, 2002

07:06 ON-SITE AT LHMAP
FIREHALL.

08:00 ON-SITE 17 TO PURGE 17 WELLS.
TRAILER NOT SPUN UP TO WELL.
NEED FINAL FILL FOR TRUCK.

08:30 PLACED SPREAD OVER GROUNDWATER PUMP
TO PREVENT OVERHEATING.

08:41 BEGAN PURGING 17 WELLS GOING
TO PURGE 3 WELL VALUES (2188 GAC).
DISCHARGE PUMP WATER INTO PULL
TANK AND DRAINS.

10:10 PURGED WELL DEEP AT 145.35 FT
DTW WILL PURGE SECOND FEET
OF WATER AFTER TREATMENT TO GET
FRESH WATER INTO HOSE. PURGED 1208 GAC.

10:21 SAMPLED 17 WELLS.
FINAL DTW IS 136.5 FT.

10:36 OFF-SITE 17 TO FIREHALL WITH
GROUNDWATER PUMP TO DECON.

11:18 ON-SITE 46 TO ATTEMPT TO SLOW

038781

9-23-02

LHAMP

36

11:20 SET UP ON 46 WUW03. TOTAL DEPTH IS 100 FT PER THE WORKPLAN.
P.D. READING IS 0 PPM
DTW = 31.76 FT (4" WELL)
10' - 31.76 = 69.2 FT (WATER COLUMN)
0.65 (G.P.D) = 45 GAL
45 GAL - 1 WELL VOLUME
136 GAL = 3 WELL VOLUMES
11:36 OFF SITE TO FIRE HALL TO GET FITTING FOR TUBING.
11:59 ON-SITE 29 TO GET 2 DRAMS FOR PURE WATER AT 46 WUW03.
12:15 OFF-SITE FOR LUNCH.
13:09 ON-SITE 46 TO SAMPLE 46 WUW03. FLOW RATE IS 350 MPM IN AT DTW OF 32.15 FT. WELL RECHARGING FASTER. WILL ADJUST WATER COVER METER.
13:12 FLOW RATE OF 350 MPM ESTABLISHED. DTW IS 32.12 FT.
13:16 WILL PUMP 2-3 GALLONS OF SYSTEM VOLUME SINCE USING LARGER TUBING.
13:30 PUMPED 2.5 GALLONS OF WATER

9-23-02

LHAMP

37

13:36 PH 7.62 COND 0.76 TURB 12 TEMP 21.9°C D.O. 1.36
13:41 PH 7.62 COND 0.76 TURB 9 TEMP 22°C D.O. 1.46
13:46 PH 7.62 COND 0.76 TURB 9 TEMP 22°C D.O. 1.48
13:48 SAMPLED 46 WUW03. FINAL DTW IS 32.16 FT.
14:08 ON-SITE AT FIRE HALL 40' ON TUBING FOR DECON
14:27 ON-SITE 29 TO PUMP TWO WELLS
14:29 SET UP ON 29 WUW12 THREE WELL VOLUMES IS 2 GALLONS.
14:45 PUMPED 3 WELL VOLUMES AND WELL RECHARGING. DTW IS 28.3 FT. WELL RECHARGING.
14:53 PH 6.81 COND 2.21 TURB 157 TEMP 23.9°C D.O. 10.0
15:06 SAMPLED 29 WUW12 FINAL DTW IS 21.34 FT.

038782

17:22 ON-SITE AT TREATMENT PLANT TO DISCHARGE WASTEWATER

17:32 ON-SITE AT FIREHALL WITH EQUIPMENT FOR DECONTAMINATING. PUMPED UP GROUNDWATER AND TO PLACE IN ZAWW08

17:47 ON-SITE AT ZAWW08. USED HOSE CLAMP FOR PUMP OFF-SITE TO FIREHALL.

17:56 ON-SITE AT ZAWW08 WITH HOSE CLAMP. TOTAL DEPTH IS 140 FT PER THE WELL LOG.

DATA IS 9.2700

DTW = 31.86 FT

TD = 139.10 FT

18:38 SET TUBING IN ZAWW08. WELL WILL BE SAMPLED TOMORROW.

18:50 ON-SITE AT FIREHALL TO PREPARE SAMPLES.

19:40 OFF-SITE TO REDEVELOP FOR THE DAY

[Signature]

9.2302

15:30 SET UP ON ZAWW07. GOING TO PURGE 3 WELL VOLUMES (31.8 gals).

15:45 BEGAN PURGING ZAWW07.

15:56 PURGED WELL DRY AT 25.6 GALLONS.

DTW IS 36.2 FT. WELL RECHARGING.

COND TUBS TEMP A.O.

389 143 23.3°C 9.92

16:00

16:10 SAMPLED ZAWW07. FINAL DTW IS 33.46 FT.

16:22 ON-SITE AT FIREHALL WITH EQUIPMENT FOR DECONTAMINATING. PER J. CRATER, ZAWW13 WILL BE PURGED.

16:34 ON-SITE 29. SETUP ON ZAWW13. GOING TO PURGE 3 WELL VOLUMES (57.9 gals).

16:46 BEGAN PURGING ZAWW13.

17:00 PURGED WELL DRY. PURGED 30 GALLONS OF WATER. DTW IS 34.7 FT. 54.7 FT. WELL RECHARGING.

COND 9.2300

Time ph COND TUBS TEMP D.O.

17:08 6.97 1.02 0 21.7°C 9.63

17:10 SAMPLED ZAWW13. FINAL DTW IS 45.31 FT.

9-24-02

LHAAP

(40)

07:00 ON-SITE AT LHAAP FIVE

HOUSE

07:32 ON SITE 18/24 TO COLLECT

WATER SAMPLES

07:35 SETUP ON C-02. TOTAL DEPTH

IS 32 FT. 7.10 READING IS 0 PPM.

DTW = 6.91 FT (4" WEL)

32' - 6.91' = 25.1 FT (WATER COLUMN)

0.6 (25.1') = 16.3 GAL

16.3 GAL = 1 WELL VOLUME

48.9 GAL = 3 WELL VOLUMES

07:54 ESTABLISHED 100 ml/min FLOW RATE.

DTW IS 7.40 FT = 7.45 FT.

08:29 PULSED 3 SYSTEM VOLUME (1.5 GAL)

TIME	PH	COND	TEMP	D.P.
08:30	6.22	0.81	32	19.5°C 0.98
08:35	6.22	0.82	32	19.5°C 0.88
08:40	6.23	0.81	26	19.7°C 0.80
08:43	6.22	0.81	24	19.7°C 0.87

08:45 SAMPLED C-02. FINAL DTW IS 7.65 FT.

09:02 SETUP ON C-04. TOTAL

DEPTH IS 55.5 FT PER THE

9-24-02

LHAAP

(41)

WORKPLAN: PID READING IS 0 PPM.

DTW = 24.97 FT (4" WEL)

55.5 - 24.97 = 30.5 FT

0.65 (30.5) = 19.8 GAL

19.8 GAL = 1 WELL VOLUME

59.4 GAL = 3 WELL VOLUMES

09:24 FLOW RATE ESTABLISHED AT

100 ml/min AT DTW OF 25.00 FT.

10:14 PULSED 3 SYSTEM VOLUMES (1.5 GAL)

TIME	PH	COND	TEMP	D.P.
10:16	6.28	0.29	3	18.5°C 1.92
10:21	6.28	0.29	3	18.5°C 1.53
10:26	6.27	0.29	3	18.6°C 1.41

@ 9:40

10:28 SAMPLED C-04. FINAL DTW IS 24.25 FT.

25.04 FT.

10:44 SETUP ON 18 WUOT TOTAL DEPTH

IS 27 FT PER THE WORK PLAN PID

READING IS 0 PPM.

DTW = 15 FT (4" WEL)

27 - 15 = 12 FT

038784

7-24-02

LIHAPP

42

$0.65(12) = 7.8 \text{ gal}$				
$7.8 \text{ gal} = 1 \text{ WELL VOLUME}$				
$23.4 \text{ gal} = 3 \text{ WELL VOLUMES}$				
11:00	ESTABLISHED 100 ml/min FLOW RATE.			
DTW IS 15.15 FT.				
11:46	PURGED 3 SYSTEM VOLUMES (1.5 gal each)			
<u>Time</u>	<u>ph</u>	<u>COND</u>	<u>TURB</u>	<u>TEMP</u>
11:47	6.37	0.40	10	19.7°C
11:52	6.32	0.40	9	19.7°C
11:57	6.31	0.40	9	19.7°C
12:00	SAMPLED 18WUW20. FINAL			
DTW IS 15.2 FT.				
12:12	ON-SITE AT FIREHALL			
12:22	OFF-SITE FOR LUNCH.			
13:27	ON-SITE 10/24 TO SAMPLE 18WUW19			
AND 18WUW20.				
13:30	SET UP ON 18WUW20. TOTAL DEPTH			
15	41 FT	PER THE WORKPLAN. PID READINGS		
15	0 PPM.			
DTW = 12.1 FT (4" WELL)				
$41' - 12.1' = 28.9' \text{ (WATER COLUMN)}$				
$0.65(28.9') = 18.8 \text{ gal}$				

7-24-02

LIHAPP

43

18.8 gal = 1 well volume				
56.4 gal = 3 well volumes				
13:38	FLOW RATE ESTABLISHED AT 110 ml/min.			
DTW IS 12.30 FT. WILL ATTEMPT TO				
MAINTAIN FLOW RATE WITHIN 0.32 FT DRIP.				
14:23	PURGED 3 SYSTEM VOLUMES (1.5 GAL).			
Time	ph	COND	TURB	TEMP
14:25	6.09	0.18	5	21.2°C
14:30	6.04	0.18	4	21.0°C
14:35	6.04	0.18	4	20.9°C
14:36 SAMPLED 18WUW20. FINAL DTW				
IS 12.30 FT.				
14:42	SETUP ON 18WUW19. TOTAL DEPTH			
IS 71 FT PER THE WORKPLAN. PID				
READINGS IS 0 PPM.				
DTW = 11.15 FT (4" WELL)				
71' - 11.15' = 59.9 FT (WATER COLUMN)				
0.65(59.9) = 38.9 gal				
38.9 gal = 1 well volume				
116.7 gal = 3 well volumes				

038785

038785

038786

(3)

LH 1140

9.24.02

17:27 PULSED 2.5 GALLONS OF WATER BECAUSE OF WATER TURNING FROM 29WUW08

TIME	PH	COND	TURB	TEMP	D.O.
17:29	7.97	1.0	22	24.2°C	1.83
17:34	7.97	1.0	22	24.6°C	1.73
17:39	7.97	1.0	21	24.6°C	1.65

17:41 SAMPLED 29WUW08. FINAL DTW IS 31.9 FT

18:10 ON-SITE AT TREATMENT PLANT TO DISCHARGE WASTEWATER.

18:37 ON-SITE AT FIREHALL

20:08 OFF-SITE FOR THE DAY

[Signature]

[Signature]

(44)

LH 1140

9.24.02

14:53 FLOW RATE IS 100 ml/min. DTW IS 11.42 FT.

15:35 PULSED 3 SYSTEM VOLUMES (1.5 GAL).

TIME	PH	COND	TURB	TEMP	D.O.
15:36	6.27	0.22	3	22.3°C	0.75
15:41	6.27	0.22	2	22.0°C	0.84
15:46	6.26	0.22	0	22.0°C	0.91

15:48 SAMPLED 18WUW19. FINAL DTW IS 11.46 FT.

16:10 ON-SITE AT FIREHALL TO GET EQUIPMENT FOR GROUNDFOSS PUMP.

16:22 ON-SITE 29. GOING TO SAMPLE 29WUW08.

DTW = 31.86 FT (4" WELL)
 140' - 31.86' = 108.1 FT (WATER COLUMN)
 0.65 (108.1') = 70.3 GAL

70.3 GAL = 1 WELL VOLUME
 210.9 GAL = 3 WELL VOLUMES

16:43 ESTABLISHED 100 ml/min FLOW RATE. DTW IS 32.90 FT.

17:20 RALPH RAY AND DAVE BLANK COLLECTED SAMPLE 29WUW06.

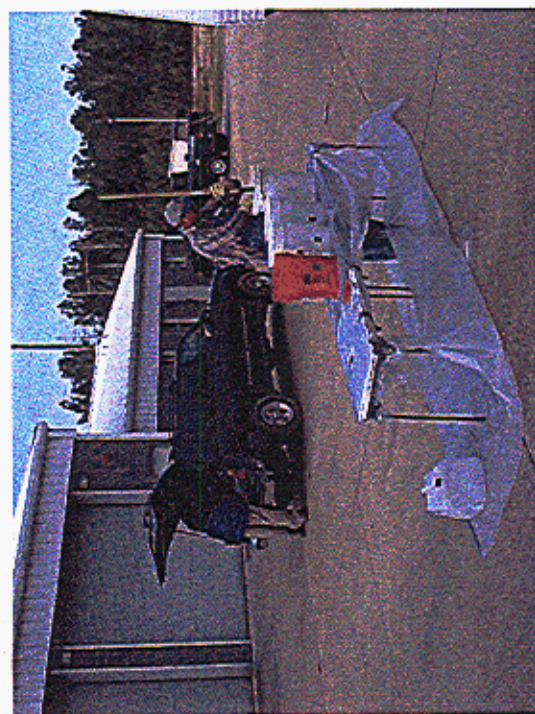
APPENDIX C
PHOTOGRAPHS



Low-Flow Sampling Set-Up



Installing Direct Push Groundwater Sample Point



Decontamination Line



Close up of Installing Direct Push Groundwater Sample Point



Well Sampling Set-up



Purple Water from Soil Pore Water Point 18PW14



Wet Weather Well Sampling Set-up



Label for Soil Pore Water Point 18PW14



Fire Station at Site 04



Fire Station Water Supply Well



Site 04 View Looking Northwest



Site 04 View Looking North



Collecting Well Sample



Setting up to Collect Well Sample



Site 16 Seep View Looking Upstream



Site 16 Seep View Looking Downstream



Site 16 Seep Point



Site 29 Sump Behind Rocket Wash Building



Site 29 East Bank of Pond



Site 29 West Bank of Pond



Site 29 Back of Rocket Wash Building



Site 29 Front of Rocket Wash Building

APPENDIX D
WELL INSTALLATION DOCUMENTATION



ETTL ENGINEERS & CONSULTANTS INC.

GEOTECHNICAL • MATERIALS • ENVIRONMENTAL

038796



October 14, 2002
Tyler, Texas

Step, Inc.
1006 Floyd Culler Court
Oak Ridge, Tennessee 37840

Attn: Mr. Jeff Carter

Re: Well Reports
Longhorn Army Ammunition Plant
Karnack, Texas

Dear Mr. Carter:

Enclosed is a copy of the State of Texas Well Report for the monitoring well that was drilled by our company at the above-mentioned site. Should you have any questions after reviewing the reports please feel free to contact ETTL at your convenience.

It has been our pleasure working with you on this project and we look forward to working with you again in the near future.

Sincerely,

ETTL ENGINEERS & CONSULTANTS INC.

Jeanie M. Odom
Geologist/Project Manager



RECEIVED

10/21/02

HOME OFFICE:

1717 East Erwin Street
Tyler, Texas 75702-6398
Office: (903) 595-4421
Lab: (903) 595-6402
Fax: (903) 595-6113

TEXARKANA:

210 Beech Street
Texarkana, Arkansas 71854
Office: (870) 772-0013
Fax: (870) 216-2413

LONGVIEW:

707 West Cotton Street
Longview, Texas 75604-5505
Office: (903) 758-0402
Fax: (903) 758-8245

SOCIETY MEMBERSHIPS: A.S.T.M. A.C.I.L. T.C.E.L. A.S.C.E. T.S.P.E. A.I.C.H.E. N.S.P.E. A.I.C.E. A.C.S. A.C.I. A.G.C.

STEP PROJECT #

038797

TRACKING# 12923

STATE OF TEXAS WELL REPORT

OWNER: Longhorn Army Ammunition Plant

ADDRESS: Hwy 134 @ Spur 449

Karnack

TX 75661

ADDRESS OF WELL'S LOCATION:

Hwy 23 Spur

Karnack

TX 75661

COUNTY: Harrison

LATITUDE: 324042

LONGITUDE: 940822

Brand/Model of GPS: Garmin III Plus

Owner's Well Number: 50WW05

ELEVATION:

Grid Number: 35 - 23 - 6

TYPE OF WORK:

☒ New Well☐ Replacement Well☐ Deepening☐ Reconditioning☐ Plugging☐ Rig Supply

PROPOSED USE:

☒ Monitor Well☐ Env. Soil Boring☐ Domestic☐ Test Well☐ Industrial☐ Irrigation☐ Injection☐ Public Supply☐ De-watering

If Public Supply well, were plans submitted to the TNRCC?

☐ Yes☐ No

WELL LOG:

Date Drilling:

DIAMETER OF HOLE:

Dia. (in.) From (ft.) To (ft.)

Started 9/18/2002

10.25 Surface 23

Completed 9/18/2002

DRILLING METHOD:

☐ Driven☐ Air Hammer☒ Hollow Stem Auger☐ Bored☐ Air Rotary☐ Cable Tool☐ Reverse Circulation☐ Mud Rotary☐ Jetted☐ Other

BOREHOLE COMPLETION:

☐ Open Hole☐ Underreamed☐ Other☐ Straight Wall☒ Gravel Packed

Gravel Packed Interval from 10 ft. to 23 ft.

CEMENTING DATA:

Cemented from 0 ft. to 7 ft. No. of sacks used 2

Cemented from ft. to ft. No. of sacks used

Method Used Gravity

Cemented By Driller

Distance to Septic System ft.

Method of Verification

SURFACE COMPLETION:

☐ Specified Surface Slab Installed☐ Pitless Adapter Used☒ Specified Steel Sleeve Installed☐ Approved Alternative Procedure Used

WATER LEVEL:

Static level

ft. below land surface

Date

Artesian Flow

gpm. Date

PLUGGING INFO:

☐ Well Plugged within 48 hours

Casing left in well: Cement/Bentonite left in well:

From (ft.) To (ft.) From (ft.) To (ft.) Cem/Bent Sacks Used:

TYPE OF PUMP:

☐ Turbine☐ Jet☐ Submersible☐ Cylinder☐ Other

Depth to pump bowls, cylinder, jet, etc.

PACKERS:

Type

Depth

WELL TESTS:

Type of test:

☐ Pump☐ Bailer☐ Jetted☐ Estimated

Yield:

gpm with

ft. drawdown after

hrs.

WATER QUALITY:

Did Driller knowingly penetrate any strata which contained undesirable constituents?

☐ Yes☒ No

Type of water:

Depth of Strata:

Chemical Analysis made?

☐ Yes☐ No

COMPANY NAME E TTL Engineers & Consultants Inc.

WELL DRILLER'S LICENSE NO. 2126

ADDRESS 1717 E. Erwin

Tyler

TX 75702

Name as Signature Doug Hinds

Registered Driller Apprentice

Drill Comments:

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

038798

Section 32.005 of the Texas Water Code, concerning confidential information in the Reporting of Well Logs, reads as follows:

"Each copy of a well log, other than a department copy must include the name, mailing address, and telephone number of the department. The well log shall be recorded at the time of drilling, and must show the depth, thickness, and character of the strata penetrated, the location of water-bearing strata, the depth, size and character of casing installed, and any other information required by department rule. The department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner or person for whom the well was drilled."

The last sentence specifies the means whereby you may, if you wish, assure that logs of your wells will be kept confidential. Please include the report's Tracking number on your written request.

Texas Department of Licensing & Regulation

P.O. Box 12157
Austin, TX 78711
512-463-7880

DESCRIPTION AND COLOR OF FORMATION MATERIAL

From (ft.)	To (ft.)	Description
0-4		Silty sand - light brown
4-10		Silty - light gray
10-11		Clay - light gray
11-12		Sand - dark gray
12-12.5		Clay - dark gray
12.5-13.25		Sand - dark brown
13.25-14		Clay - dark gray
14-20		Silty sand - dark brown
20-20.5		Clay - dark gray
20.5-23		Sand - brown & orange

CASING, BLANK PIPE, AND WELL SCREEN DATA

Dia.	New/ Used	Type	Setting From/To	Gage
4	New	304 Stainless Steel	0 - 12	
4	New	304 Stainless Steel - wirewrap	12 - 22	0.010"

DRILLING LOG		DIVISION TULSA	INSTALLATION LONGHORN AAP	Hole No. 50WW05	SHEET OF 2	SHEETS
1. PROJECT LHAAP PLANT WIDE PERCHLORATE			10. SIZE AND TYPE OF BIT 12" OD HSA			
2. LOCATION (Coordinates or Station) NORTH 6957581.566 EAST 3309709.464			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) 195.2 MSL			
3. DRILLING AGENCY STEP, INC.			12. MANUFACTURERS DESIGNATION OF DRILL MOBILE B-61			
4. HOLE NO. (As shown on drawing title and title number) 50WW05			13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		DISTURBED	UNDISTURBED
5. NAME OF DRILLER (Doug) ETTL, INC.			14. TOTAL NUMBER CORE BOXES		—	
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED — DEG. FROM VERT.			15. ELEVATION GROUND WATER		—	
7. THICKNESS OF OVERBURDEN			16. DATE HOLE		STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK NA			17. ELEVATION TOP OF HOLE		—	
9. TOTAL DEPTH OF HOLE 23 FT			18. TOTAL CORE RECOVERY FOR BORING		—	
			19. SIGNATURE OF INSPECTOR		<i>[Signature]</i>	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	1		SAND - 7.5 YR 6/4, VERY SILTY, MOIST LIGHT BROWN			
	2					
	3					
191.2	4					
	5		SILT - 7.5 YR 7/1 LIGHT GRAY, ABUNDANT CLAY DRY BECOMES MOIST AT 8 FT			
	6		ABUNDANT ORANGE IRON STAIN			
	7					
	8					
	9					
185.2	10					
183.90	11		CLAY - 7.5 YR 7/1 VERY SILTY LIGHT GRAY ABUNDANT IRON STAIN MOIST			
183.2	12		SAND - 7.5 YR 3/4, DARK BROWN, VERY SILTY, MOIST			
	13		CLAY - VERY SILTY DARK GRAY MOIST			
	14		SAND - DARK BROWN, VERY SILTY, MOIST			
	15		CLAY - DARK GRAY, VERY SILTY, MOIST			
	16		SAND - 7.5 YR 3/4 SILTY, VERY MOIST BECOMES WET AT 14 FT			

038800

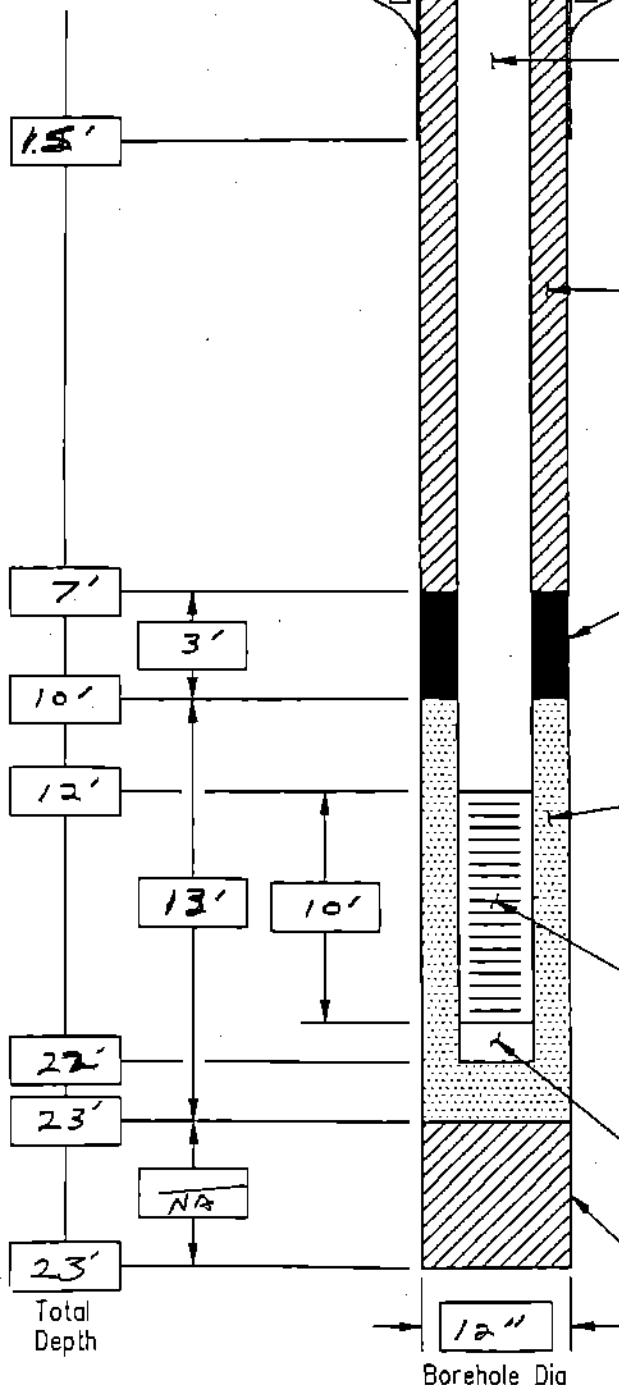
DRILLING LOG (Cont Sheet)			ELEVATION TOP OF HOLE			Hole No. 50W05	
PROJECT LHAAP PLANT WIDE PERCHLORATE			INSTALLATION LONGHORN AAP			SHEET OF 2 2 SHEETS	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	18		SAND - 7.5 YR 3/4 DARK BROWN ABUNDANT ORANGE IRON STAIN BECOMES VERY WET AT 18.2 FT				
	19						
175.2	20		CLAY - 7.5 YR 4/1 DARK GRAY				
	21		SAND - 7.5 YR 5/6 BROWN TO ORANGE VERY SILTY ABUNDANT IRON STAINED BANDS VERY MOIST				
	22						
172.2	23						
						TOTAL DEPTH = 23 ft	

MONITORING WELL CONSTRUCTION LOG - Standard

038801

WELL NO.: 506W05	INSTALLATION: LONGHORN AAP	SITE: LHAAP SITE 50
PROJECT NO.: 114-109 / 114-001	CLIENT/PROJECT: TULSA COE, LHAAP PERCHLORATE	
CONTRACTOR: STEP, INC	DRILLING CONTRACTOR: ETTL, INC	
START - DATE: 9/18/02	TIME: 09:00	END - DATE: 9/18/02 TIME: 13:00
BUILT BY:	WELL COORDINATES: N 6957581.56E 3309709.464	

Elev 198.10
 Height 3.5
 Elev 197.60
 Height 3'
 GS Elev 195.2
 GS Height 0.00'
 Depth BGS



PROTECTIVE CSG
 Material/ Type HINGED LOCKING CAP STEEL
 Diameter 8" SQUARE
 Weep Hole ☐ Yes ☒ No

GUARD POSTS
☒ Yes ☐ No
 No. 4 Type STEEL/CONCRETE FILLED

SURFACE PAD
 Composition & Size CONCRETE 3' x 3' x 6"

RISER PIPE
 Type 304 STAINLESS STEEL
 Diameter 4"
 Total Length (TOC to TOS) 15'

Ventilated Cap ☒ Yes ☐ No
 O-Rings For Threads ☐ Yes ☒ No

GROUT
 Composition & Amount TYPE I CEMENT WITH POWDERED BENTONITE
 Tremied ☒ Yes ☐ No
 Interval BGS 0-7'

CENTRALIZERS ☐ Yes ☒ No
 Depth(s) _____

SEAL
 Type PELLET BENTONITE (3/8") [2 BUCKETS]
 Source BAROLD
 Setup/Hydration Time 2 HR
 Volume Fluid Added 10 GALLON
 Tremied ☐ Yes ☒ No

FILTER PACK
 Type ANSI/ASRC1-1994 (20-40)
 Amount Used 14 BAGS
 Tremied ☐ Yes ☒ No
 Source _____
 Gr Size Dist _____

SCREEN
 Type 304 STAINLESS STEEL
 Diameter 4" WIRE WRAPPED
 Slot Size 0.01
 Interval BGS 12' TO 22'

SUMP
 Interval BGS NA
 Type of Bottom Cap _____

BACKFILL PLUG
 Material NA
 Setup/Hydration Time _____
 Tremied ☐ Yes ☐ No

APPENDIX E
SURVEY DATA

Longhorn Army Ammunition Plant, Karnack, Texas

Plant-Wide Perchlorate Investigation

STEP Sample Points

Survey Data provided by Global Engineering and Surveying

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
16PW01	310.000	3,314,793.81	6,953,811.65	NM	PW	Top of Casing	
16PW02	311.000	3,314,752.52	6,953,866.75	NM	PW	Top of Casing	
16PW03	312.000	3,314,713.25	6,953,879.93	NM	PW	Top of Casing	
16PW04	313.000	3,314,658.89	6,953,876.92	NM	PW	Top of Casing	
16PW05	314.000	3,314,614.45	6,953,894.01	NM	PW	Top of Casing	
16PW06	316.000	3,314,603.97	6,953,910.00	NM	PW	Top of Casing	
16PW07	317.000	3,314,624.35	6,953,943.42	NM	PW	Top of Casing	
16PW08	318.000	3,314,665.84	6,953,973.71	NM	PW	Top of Casing	
16PW09	319.000	3,314,710.25	6,953,996.03	NM	PW	Top of Casing	
16PW10	320.000	3,314,755.22	6,953,984.84	NM	PW	Top of Casing	
16PW11	321.000	3,314,818.09	6,953,988.68	NM	PW	Top of Casing	
16SP01	315.000	3,314,614.02	6,953,894.76	NM	PW	Seep	
18PW22	330.000	3,315,913.81	6,954,560.17	NM	PW	Top of Casing	
18PW23	331.000	3,315,926.29	6,954,603.89	NM	PW	Top of Casing	
18PW24	323.000	3,315,907.93	6,954,645.79	NM	PW	Top of Casing	
18PW25	322.000	3,315,919.21	6,954,689.12	NM	PW	Top of Casing	
18PW26	324.000	3,315,928.40	6,954,737.88	NM	PW	Top of Casing	
18PW27	325.000	3,315,961.82	6,954,766.72	NM	PW	Top of Casing	
18PW28	326.000	3,316,011.99	6,954,765.59	NM	PW	Top of Casing	
18PW29	327.000	3,316,062.64	6,954,779.41	NM	PW	Top of Casing	
18PW30	328.000	3,316,099.81	6,954,810.32	NM	PW	Top of Casing	
18PW31	329.000	3,316,090.87	6,954,863.82	NM	PW	Top of Casing	
29SS16	301.000	3,306,051.68	6,955,851.93	NM	SS	Ground Surface	
29SS17	309.000	3,305,983.55	6,955,792.08	NM	SS	Ground Surface	
29SS18	308.000	3,305,910.95	6,955,734.62	NM	SS	Ground Surface	
29SS19	302.000	3,305,989.47	6,955,933.89	NM	SS	Ground Surface	
29SS20	305.000	3,305,905.97	6,955,861.23	NM	SS	Ground Surface	
29SS21	306.000	3,305,823.35	6,955,791.02	NM	SS	Ground Surface	
29SS22	304.000	3,305,918.43	6,955,992.35	NM	SS	Ground Surface	
29SS23	303.000	3,305,842.42	6,955,902.55	NM	SS	Ground Surface	
29SS24	307.000	3,305,769.57	6,955,865.42	NM	SS	Ground Surface	
50WW05	332.000	3,309,709.46	6,957,581.57	197.60	MW	Top of Casing	
04DW01	10	3,306,095.40	6,958,987.96	209.7	DPT	Top of Casing	
04DW02	28	3,306,181.61	6,959,163.33	212.3	DPT	Top of Casing	
04DW03	29	3,306,118.20	6,959,323.48	211.7	DPT	Top of Casing	
04DW04	30	3,305,987.70	6,959,477.46	212.8	DPT	Top of Casing	
04SS01	11	3,306,004.92	6,958,994.57	209.1	SS	Ground Surface	
04SS02	17	3,305,955.05	6,959,042.01	208.2	SS	Ground Surface	
04SS03	16	3,305,907.15	6,959,086.74	210.8	SS	Ground Surface	
04SS04	20	3,306,062.90	6,959,046.01	209.8	SS	Ground Surface	
04SS05	19	3,306,003.60	6,959,105.64	212.2	SS	Ground Surface	
04SS06	18	3,305,965.59	6,959,144.70	212.6	SS	Ground Surface	
04SS07	21	3,306,084.99	6,959,069.09	209.7	SS	Ground Surface	

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
04SS08	22	3,306,030.25	6,959,123.64	211.1	SS	Ground Surface	
04SS09	23	3,305,991.16	6,959,173.28	211.0	SS	Ground Surface	
04SS10	27	3,306,109.96	6,959,114.79	209.8	SS	Ground Surface	
04SS11	26	3,306,067.72	6,959,164.87	211.0	SS	Ground Surface	
04SS12	25	3,306,029.45	6,959,209.51	212.0	SS	Ground Surface	
04SS13	12	3,305,910.25	6,959,004.38	207.8	SS	Ground Surface	
04SS14	15	3,305,857.16	6,958,952.45	NM	SS	Ground Surface	
04SS15	24	3,305,975.02	6,959,189.21	210.9	SS	Ground Surface	
16DW01	2044	3,313,555.85	6,953,752.68	NM	DPT	Top of Casing	
16DW02	2043	3,313,747.06	6,953,992.92	NM	DPT	Top of Casing	
16DW03	2040	3,314,169.27	6,953,926.10	NM	DPT	Top of Casing	
16DW04	2039	3,314,558.52	6,953,968.16	NM	DPT	Top of Casing	
17DW01	115	3,315,423.26	6,952,983.70	180.2	DPT	Top of Casing	
17SS01	126	3,316,085.60	6,952,988.43	176.5	SS	Ground Surface	
17SS02	125	3,315,983.98	6,952,987.69	176.3	SS	Ground Surface	
17SS03	123	3,315,887.54	6,952,981.50	176.1	SS	Ground Surface	
17SS04	122	3,315,776.80	6,952,979.20	175.4	SS	Ground Surface	
17SS05	119	3,315,651.00	6,952,975.05	175.5	SS	Ground Surface	
17SS06	118	3,315,550.60	6,952,973.45	176.6	SS	Ground Surface	
17SS07	116	3,315,450.69	6,952,972.06	179.4	SS	Ground Surface	
17SS08	114	3,315,446.24	6,952,869.92	177.4	SS	Ground Surface	
17SS09	113	3,315,594.25	6,952,861.33	174.7	SS	Ground Surface	
17SS10	112	3,315,656.37	6,952,875.30	174.3	SS	Ground Surface	
17SS11	111	3,315,792.35	6,952,894.01	174.5	SS	Ground Surface	
17SS12	110	3,315,877.14	6,952,883.58	166.9	SS	Ground Surface	
17SS13	109	3,315,981.39	6,952,878.42	175.7	SS	Ground Surface	
17SS14	108	3,316,070.10	6,952,873.30	176.1	SS	Ground Surface	
17SS15	105	3,316,058.41	6,952,777.86	175.6	SS	Ground Surface	
17SS16	104	3,315,964.80	6,952,777.00	175.1	SS	Ground Surface	
17SS17	103	3,315,860.02	6,952,781.16	174.9	SS	Ground Surface	
17SS18	102	3,315,751.63	6,952,780.26	174.7	SS	Ground Surface	
17SS19	101	3,315,650.86	6,952,780.70	174.3	SS	Ground Surface	
17SS20	100	3,315,550.72	6,952,771.30	175.4	SS	Ground Surface	
17SS21	2037	3,315,446.86	6,952,772.44	NM	SS	Ground Surface	
17SS22	99	3,315,458.96	6,952,697.36	178.4	SS	Ground Surface	
17SS23	98	3,315,542.47	6,952,688.94	177.9	SS	Ground Surface	
17SS24	97	3,315,646.76	6,952,686.89	176.6	SS	Ground Surface	
17SS25	96	3,315,743.98	6,952,692.73	177.3	SS	Ground Surface	
17SS26	95	3,315,845.68	6,952,691.14	176.1	SS	Ground Surface	
17SS27	94	3,315,949.62	6,952,681.69	176.4	SS	Ground Surface	
17SS28	93	3,316,046.62	6,952,676.04	174.9	SS	Ground Surface	
17SS29	92	3,316,028.49	6,952,575.09	177.4	SS	Ground Surface	
17SS30	91	3,315,931.12	6,952,586.49	177.4	SS	Ground Surface	
17SS31	90	3,315,832.22	6,952,590.30	177.5	SS	Ground Surface	
17SS32	89	3,315,724.47	6,952,598.74	175.5	SS	Ground Surface	
17SS33	88	3,315,639.00	6,952,587.05	175.8	SS	Ground Surface	
17SS34	87	3,315,547.16	6,952,586.78	177.0	SS	Ground Surface	
17SS35	86	3,315,463.57	6,952,595.74	176.7	SS	Ground Surface	

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
17SS36	84	3,315,471.34	6,952,493.12	177.1	SS	Ground Surface	
17SS37	83	3,315,528.13	6,952,496.59	176.7	SS	Ground Surface	
17SS38	82	3,315,609.10	6,952,493.72	176.4	SS	Ground Surface	
17SS39	81	3,315,698.08	6,952,481.25	177.1	SS	Ground Surface	
17SS40	80	3,315,813.54	6,952,492.62	176.1	SS	Ground Surface	
17SS41	79	3,315,914.69	6,952,490.00	176.2	SS	Ground Surface	
17SS42	78	3,316,006.61	6,952,472.70	176.2	SS	Ground Surface	
17SS43	124	3,315,932.08	6,953,002.25	176.1	SS	Ground Surface	
17SS44	120	3,315,629.43	6,953,015.92	172.3	SS	Ground Surface	
17SS45	121	3,315,657.96	6,953,006.89	172.3	SS	Ground Surface	
17SS46	117	3,315,511.23	6,953,077.71	172.8	SS	Ground Surface	
17SS47	85	3,315,435.47	6,952,600.27	177.1	SS	Ground Surface	
18DW01	2008	3,315,986.98	6,954,115.05	NM	DPT	Top of Casing	
18DW02	2012	3,316,760.17	6,954,773.55	NM	DPT	Top of Casing	
18DW03	2001	3,317,722.13	6,954,697.97	NM	DPT	Top of Casing	
18PW01	2034	3,315,182.54	6,953,833.98	NM	PW	Top of Casing	
18PW02	2033	3,315,217.12	6,953,886.14	NM	PW	Top of Casing	
18PW03	2032	3,315,232.29	6,953,931.26	NM	PW	Top of Casing	
18PW04	2031	3,315,258.96	6,953,971.18	NM	PW	Top of Casing	
18PW05	2030	3,315,297.11	6,954,003.26	NM	PW	Top of Casing	
18PW06	2029	3,315,343.14	6,954,030.03	NM	PW	Top of Casing	
18PW07	2028	3,315,377.07	6,954,054.54	NM	PW	Top of Casing	
18PW08	2027	3,315,421.90	6,954,063.85	NM	PW	Top of Casing	
18PW09	2026	3,315,461.60	6,954,087.52	NM	PW	Top of Casing	
18PW10	2025	3,315,500.71	6,954,022.37	NM	PW	Top of Casing	
18PW11	2024	3,315,525.75	6,953,991.21	NM	PW	Top of Casing	
18PW12	2023	3,315,559.55	6,953,945.24	NM	PW	Top of Casing	
18PW13	2022	3,315,593.61	6,953,912.23	NM	PW	Top of Casing	
18PW14	2021	3,315,646.91	6,953,910.73	NM	PW	Top of Casing	
18PW15	2020	3,315,683.74	6,953,931.55	NM	PW	Top of Casing	
18PW16	2019	3,315,731.52	6,953,952.94	NM	PW	Top of Casing	
18PW17	2018	3,315,753.90	6,953,986.17	NM	PW	Top of Casing	
18PW18	2017	3,315,781.26	6,954,037.34	NM	PW	Top of Casing	
18PW19	2016	3,315,791.41	6,954,085.35	NM	PW	Top of Casing	
18PW20	2015	3,315,765.22	6,954,127.51	NM	PW	Top of Casing	
18PW21	2014	3,315,743.98	6,954,160.53	NM	PW	Top of Casing	
18SS01	2005	3,316,346.37	6,953,052.71	NM	SS	Ground Surface	
18SS02	2006	3,315,752.07	6,953,808.92	NM	SS	Ground Surface	
18SS03	2009	3,316,235.14	6,954,265.08	NM	SS	Ground Surface	
18SS04	2010	3,316,915.45	6,954,604.22	NM	SS	Ground Surface	
18SS05	2003	3,317,553.30	6,953,746.83	NM	SS	Ground Surface	
18SS06	2004	3,317,292.34	6,953,445.19	NM	SS	Ground Surface	Staked & Sampled
18SS06 ALT	2011	3,316,892.90	6,954,705.51	NM	SS	Ground Surface	Stake
29DW01	130	3,308,123.37	6,956,283.65	NM	DPT	Top of Casing	
29DW02	132	3,307,032.97	6,955,397.91	217.3	DPT	Top of Casing	
29SS01	157	3,306,079.61	6,955,948.75	228.3	SS	Ground Surface	
29SS02	156	3,306,034.44	6,955,909.50	227.2	SS	Ground Surface	
29SS03	160	3,306,118.35	6,955,783.77	226.3	SS	Ground Surface	
29SS04	159	3,306,188.35	6,955,807.09	228.8	SS	Ground Surface	

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
29SS05	158	3,306,205.04	6,955,874.38	230.3	SS	Ground Surface	
29SS06	147	3,306,475.73	6,956,417.47	223.9	SS	Ground Surface	
29SS07	152	3,306,386.36	6,956,454.68	NM	SS	Ground Surface	
29SS08	151	3,306,342.75	6,956,432.78	NM	SS	Ground Surface	
29SS09	149	3,306,345.64	6,956,307.77	NM	SS	Ground Surface	
29SS10	146	3,306,454.63	6,956,320.37	224.7	SS	Ground Surface	
29SS11	145	3,306,509.02	6,956,269.23	NM	SS	Ground Surface	
29SS12	142	3,306,561.00	6,956,301.13	NM	SS	Ground Surface	
29SS13	141	3,306,630.84	6,956,270.55	NM	SS	Ground Surface	
29SS14	138	3,306,701.58	6,956,219.24	NM	SS	Ground Surface	
29SS15	136	3,306,794.21	6,956,164.56	NM	SS	Ground Surface	
46DW01	64	3,306,210.10	6,961,847.91	205.8	DPT	Top of Casing	
46DW02	60	3,306,399.89	6,961,914.92	205.3	DPT	Top of Casing	
46DW03	53	3,306,504.43	6,962,154.44	NM	DPT	Top of Casing	
46DW04	46	3,306,472.79	6,962,374.54	205.5	DPT	Top of Casing	
46DW05	45	3,306,390.74	6,962,595.48	206.4	DPT	Top of Casing	
46DW06	42	3,306,383.33	6,962,915.64	206.2	DPT	Top of Casing	
46DW07	31	3,306,038.46	6,962,137.03	209.1	DPT	Top of Casing	
46SS01	33	3,305,651.13	6,962,248.14	NM	SS	Ground Surface	
46SS02	34	3,305,648.63	6,962,324.63	207.2	SS	Ground Surface	
46SS03	35	3,305,647.73	6,962,576.66	208.7	SS	Ground Surface	
46SS04	36	3,305,642.29	6,962,610.27	208.6	SS	Ground Surface	
46SS05	38	3,305,637.15	6,962,734.80	NM	SS	Ground Surface	
46SS06	41	3,306,358.15	6,963,073.74	NM	SS	Ground Surface	
46SS07	43	3,306,394.81	6,962,899.25	NM	SS	Ground Surface	
46SS08	44	3,306,334.28	6,962,750.60	204.1	SS	Ground Surface	
46SS09	48	3,306,359.56	6,962,391.66	NM	SS	Ground Surface	
46SS10	51	3,306,418.39	6,962,284.63	NM	SS	Ground Surface	
46SS11	55	3,306,431.58	6,962,101.41	NM	SS	Ground Surface	
46SS12	57	3,306,441.29	6,962,016.23	NM	SS	Ground Surface	
46SS13	59	3,306,531.36	6,961,840.01	NM	SS	Ground Surface	
46SS14	61	3,306,357.81	6,961,813.68	202.0	SS	Ground Surface	
46SS15	63	3,306,336.86	6,961,724.26	NM	SS	Ground Surface	
47PW01	2096	3,308,661.35	6,957,478.64	NM	PW	Top of Casing	
47PW02	2097	3,308,726.06	6,957,461.88	NM	PW	Top of Casing	
47PW03	2095	3,308,769.89	6,957,440.76	NM	PW	Top of Casing	
47PW04	2094	3,308,833.34	6,957,429.80	NM	PW	Top of Casing	
47PW05	2093	3,308,857.06	6,957,415.36	NM	PW	Top of Casing	
47PW06	2092	3,308,898.97	6,957,399.58	NM	PW	Top of Casing	
47PW07	2091	3,308,949.93	6,957,388.78	NM	PW	Top of Casing	
47PW08	2090	3,308,994.44	6,957,383.47	NM	PW	Top of Casing	
47PW09	2089	3,309,031.08	6,957,393.34	NM	PW	Top of Casing	
47PW10	2088	3,309,078.46	6,957,408.29	NM	PW	Top of Casing	
47PW11	2087	3,309,118.98	6,957,437.16	NM	PW	Top of Casing	
47PW12	2086	3,309,155.02	6,957,441.39	NM	PW	Top of Casing	
47PW13	2085	3,309,208.56	6,957,479.26	NM	PW	Top of Casing	
47PW14	2084	3,309,250.82	6,957,495.76	NM	PW	Top of Casing	
47PW15	2083	3,309,299.60	6,957,508.58	NM	PW	Top of Casing	

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
47PW16	2082	3,309,355.55	6,957,514.51	NM	PW	Top of Casing	
47PW17	2098	3,309,404.38	6,957,529.88	NM	PW	Top of Casing	
47PW18	2081	3,309,438.57	6,957,548.12	NM	PW	Top of Casing	
47PW19	2101	3,309,495.61	6,957,560.36	NM	PW	Top of Casing	
47PW20	2060	3,309,527.27	6,957,587.46	NM	PW	Top of Casing	
47PW21	2061	3,309,593.00	6,957,602.71	NM	PW	Top of Casing	
47PW22	2080	3,309,628.39	6,957,617.56	NM	PW	Top of Casing	
47PW23	2062	3,309,681.48	6,957,619.06	NM	PW	Top of Casing	
47PW24	2079	3,309,718.34	6,957,661.74	NM	PW	Top of Casing	
47PW25	2063	3,309,762.43	6,957,663.00	NM	PW	Top of Casing	
47PW26	2078	3,309,801.27	6,957,688.70	NM	PW	Top of Casing	
47PW27	2064	3,309,857.23	6,957,693.54	NM	PW	Top of Casing	
47PW28	2077	3,309,897.68	6,957,715.50	NM	PW	Top of Casing	
47PW29	2065	3,309,955.01	6,957,713.38	NM	PW	Top of Casing	
47PW30	2076	3,309,985.15	6,957,758.95	NM	PW	Top of Casing	
47PW31	2066	3,310,045.14	6,957,767.13	NM	PW	Top of Casing	
47PW32	2075	3,310,073.90	6,957,818.10	NM	PW	Top of Casing	
47PW33	2067	3,310,120.78	6,957,832.06	NM	PW	Top of Casing	
47PW34	2074	3,310,132.56	6,957,889.85	NM	PW	Top of Casing	
47PW35	2068	3,310,166.62	6,957,911.72	NM	PW	Top of Casing	
47PW36	2073	3,310,209.48	6,957,942.82	NM	PW	Top of Casing	
47PW37	2069	3,310,249.69	6,957,980.43	NM	PW	Top of Casing	
47PW38	2072	3,310,278.05	6,958,008.92	NM	PW	Top of Casing	
47PW39	2070	3,310,331.53	6,958,053.00	NM	PW	Top of Casing	
47PW40	2071	3,310,358.76	6,958,090.53	NM	PW	Top of Casing	
47PW41	2058	3,310,427.95	6,958,167.45	NM	PW	Top of Casing	
47PW42	2057	3,310,511.56	6,958,254.45	NM	PW	Top of Casing	
47PW43	2056	3,310,613.17	6,958,347.51	NM	PW	Top of Casing	
47PW44	2055	3,310,688.16	6,958,425.99	NM	PW	Top of Casing	
47PW45	2054	3,310,732.73	6,958,519.59	NM	PW	Top of Casing	
47PW46	2051	3,310,783.22	6,958,629.07	NM	PW	Top of Casing	
47PW47	2052	3,310,850.34	6,958,723.72	NM	PW	Top of Casing	
47PW48	2053	3,310,910.29	6,958,807.01	NM	PW	Top of Casing	
47PW49	2049	3,310,974.76	6,958,910.09	NM	PW	Top of Casing	
47PW50	2048	3,311,032.88	6,958,992.07	NM	PW	Top of Casing	
47PW51	2047	3,311,121.34	6,959,142.00	NM	PW	Top of Casing	
47SS01	67	3,309,141.75	6,957,674.62	194.4	SS	Ground Surface	
47SS02	66	3,309,205.74	6,957,698.25	194.2	SS	Ground Surface	
47SS03	65	3,309,247.49	6,957,712.44	193.4	SS	Ground Surface	
47SS04	68	3,309,281.59	6,957,713.47	193.3	SS	Ground Surface	
47SS05	70	3,309,309.63	6,957,651.46	NM	SS	Ground Surface	
47SS06	176	3,310,352.93	6,959,430.85	NM	SS	Ground Surface	
47SS07	182	3,310,306.32	6,959,380.41	195.8	SS	Ground Surface	
47SS08	181	3,310,186.16	6,959,407.78	196.2	SS	Ground Surface	
47SS09	180	3,310,153.67	6,959,492.92	196.1	SS	Ground Surface	
47SS10	177	3,310,138.49	6,959,549.14	196.5	SS	Ground Surface	
50DW01	71	3,309,587.28	6,957,547.17	193.9	DPT	Top of Casing	
50DW02	171	3,309,690.90	6,957,477.12	194.7	DPT	Top of Casing	

Sample Location	SPT ID	Easting	Northing	Elevation	Type	Survey Point	Note
50DW03	172	3,309,770.26	6,957,572.88	193.2	DPT	Top of Casing	Staked, not installed
50DW04	74	3,309,811.42	6,957,393.37	196.9	DPT	Top of Casing	
50DW05	75	3,309,952.26	6,957,476.41	196.9	DPT	Top of Casing	
50DW06	173	3,309,861.27	6,957,356.43	199.6	DPT	Top of Casing	
50SS01	169	3,309,537.62	6,957,463.16	197.3	SS	Ground Surface	
50SS02	2100	3,309,490.14	6,957,494.58	NM	SS	Ground Surface	
50SS03	167	3,309,414.26	6,957,434.50	197.4	SS	Ground Surface	
50SS04	168	3,309,513.96	6,957,329.98	199.3	SS	Ground Surface	
50SS05	170	3,309,625.96	6,957,379.07	197.2	SS	Ground Surface	

DPT = direct push technology point

MW = monitoring well

NM = not measured

PW = soil pore water point

SS = soil sample point

END OF REPORT

Final
Project Report

Plant-Wide Perchlorate Investigation
Longhorn Army Ammunition Plant (LHAAP)
Karnack, Texas

April 2005

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United States Army Corps of Engineers
Tulsa District
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END OF REPORT