M60050.001104
MCAS EL TORO
SSIC # 5090.3

ORANGE COUNTY WATER DISTRICT
10500 Ellis Avenue
Post Office Box 8300
Fountain Valley, CA 92728-8300
Telecopier: (714) 378-3373

TRANSMITTAL

TO: Mr. Andy Piszkin
Southwest Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

THE FOLLOWING ITEMS ARE:

_X_ ENCLOSED

___ REQUESTED

___ SENT SEPARATELY VIA _____

DATE: October 28, 1994

SUBMITTED BY: Roy Herndon RLH

SUBJECT: Construction records for monitoring Well No. MCAS-5A (replacement for destroyed monitoring Well No. MCAS-5).

NO. OF COPIES	DESCRIPTION
1	DWR report of abandonment of well No. MCAS-5
1	DWR report of construction of well No. MCAS-5A
1	Geologist's borehole log of well MCAS-5A
1	Electric log for well MCAS-5A
1	Draft well construction diagram of well MCAS-5A
1	Water quality analysis for well MCAS-5A
1	Geologist's "Drilling and Well Construction Report" for well MCAS-5A

THE ABOVE ITEMS ARE SUBMITTED:

___	AT YOUR REQUEST	___	FOR YOUR ACTION
_X_	FOR YOUR FILES	___	FOR YOUR SIGNATURE
___	FOR YOUR REVIEW	___	FOR YOUR INFORMATION

COMMENTS: Andy - This information is provided for you and your consultants (Bechtel?) to update your records on this well. Let me know if you have any questions.

Roy Herndon

:CATE
ner's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

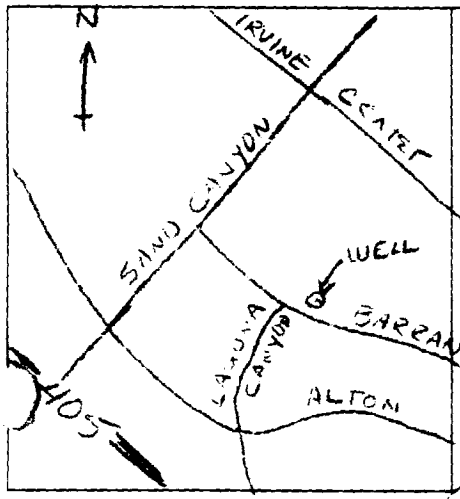
Do not fill in
No. 349283

lice of Intent No. _____
Local Permit No. or Date 93-09-09

State Well No. [redacted]
Other Well No. 6/9-12R2

(1) OWNER: Name ORANGE COUNTY WATER DISTRICT
Address 10500 ELLIS AVE
City FOUNTAIN VALLEY ZIP CA

(2) LOCATION OF WELL (See instructions):
County ORANGE Owner's Well Number MCAS-5
Well address if different from above _____
Township 6 Range 9 Section 12 R2
Distance from cities, roads, railroads, fences, etc. _____



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☐ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☒ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☒
Municipal ☐
Other ☐
(Describe)

(5) EQUIPMENT:
Rotary ☐ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☐ No ☐ Size _____
Diameter of bore _____
Packed from _____ to _____ ft.

(7) CASING INSTALLED:
Steel ☐ Plastic ☐ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☐ No ☐ If yes, to depth _____ ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval _____ ft.
Method of sealing _____

(10) WATER LEVELS:
Depth of first water, if known _____ ft.
Standing level after well completion _____ ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☐ If yes, by whom? _____
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge _____ gal/min after _____ hours Water temperature _____
Chemical analysis made? Yes ☐ No ☐ If yes, by whom? _____
Was electric log made Yes ☐ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 151 ft. Completed depth _____ ft.

from ft. to ft. Formation (Describe by color, character, size or material)

10-FOOT PVC PREPACK SCREEN WAS REMOVED FROM WELL.
WELL CASING WAS THEN PRESSURE GROUTED TO SURFACE USING A CEMENT-BENTONITE MIXTURE.
WELL ABANDONED BY BEYLIK DRILLING AND WITNESSED BY ANDY CAMPBELL, OCWD

Work started 9-14 19 93 Completed 9-14 19 93

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to best of my knowledge and belief.

Signed _____ (Well Driller)
NAME _____ (Person, firm, or corporation) (Typed or printed)
Address _____
City _____ ZIP _____
License No. _____ Date of this report _____

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File with DWR

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

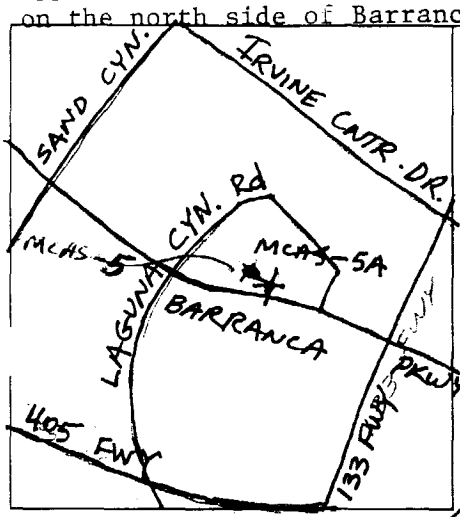
WATER WELL DRILLERS REPORT

Do not fill in
No. 349295

Notice of Intent No. _____ State Well No. _____
Local Permit No. or Date _____ Other Well No. _____

(1) OWNER: Name Orange County Water District
Address 10500 Ellis Ave.
City Fountain Valley, CA ZIP 92728

(2) LOCATION OF WELL (See instructions):
County Orange Owner's Well Number MCAS-5A
Well address if different from above _____
Township 06S Range 09W Section 12R
Distance from cities, roads, railroads, fences, etc. North of San Diego Fwy (405) West of Laguna Canyon Fwy (133) approx. 1150 Ft. east of Laguna Canyon Road on the north side of Barranca Pkwy.



WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Municipal ☐
Other ☒
(Describe) Monitoring

(5) EQUIPMENT:
Mud Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ No ☐ Size 8x16
Diameter of bore 12¼ in.
Packed from 105 to 160 ft.

(7) CASING INSTALLED:
Steel ☒ Plastic ☐ Concrete ☐
Astm Gr. B

From ft.	To ft.	Dia. in.	Gage or Wall
0	120	4	40
130	133	4	40

(8) PERFORATIONS:
Type of perforation or size of screen

From ft.	To ft.	Slot size
120	130	0.04
Stainless steel wire-wrap		

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ No ☐ If yes, to depth 105 ft.
Were strata sealed against pollution? Yes ☒ No ☐ Interval 0-105 ft.
Method of sealing 10 sac CEMENT

(10) WATER LEVELS:
Depth of first water, if known Unknown ft.
Standing level after well completion 39.2 ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☒ If yes, by whom? _____
Type of test Pump ☐ Bailer ☐ Air lift ☐
Depth to water at start of test _____ ft. At end of test _____ ft.
Discharge _____ gal/min after _____ hours Water temperature _____
Chemical analysis made? Yes ☒ No ☐ If yes, by whom? _____
Was electric log made Yes ☒ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 160 ft. Completed depth 133 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	30	Clay w/silt: 70% clay, 25% silt, tr. sand, dk. brn., sand to 2mm, poorly sorted, subangular.
30	60	Sand and silt: 65% sand, 30% silt, olive, sand to 3mm, poorly sorted angular.
60	80	Clay with sand: yellow brn to olive brn., sand to 2mm, poorly sorted, angular.
80	125	Clay with silt: light olive brown 70% clay, up to 40% silt in same intervals; sand to 2mm, moderately sorted, chips of brn and gray sticky clay at 100-115 ft. & siltstone chips
125	140	Clay and silt: lt. yellow brn. and olive gray; tr. sand to 7mm poorly sorted, siltstone chips are olive to dark gray and orange.
140	160	Clay w/sand: yellowish-brown; sand to 4mm, poorly sorted, angular, abundant siltstone chips (dark gray).

Work started July 14, 19 94 Completed July 27, 19 94

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Signed _____ (Well Driller)
NAME Layne-Western McCalla Division (Person, firm, or corporation) (Typed or printed)
Address 13855 Central Ave.
City Chino, CA ZIP 91710
License No. 510011 Date of this report _____

DWR 188 (REV. 12-86) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 86 96355

BOREHOLE LOG

WELL NAME MCAS-5A

PROJECT: DS661A
LOCATION: 1150 ft. East of Laguna Canyon Rd, North side of Barranca Parkway.

DATE DRILLED: 07-15-94 and 07-21-94
HOLE DIAMETER: 12 1/4"
TOTAL DEPTH: 159'
SCREEN INTERVAL(S): 120-130'

DEPTH	SAMPLE DESCRIPTION	NOTES
0-23 ft	Clay and silt - 60% clay, 30% silt, 10% sand; dark grayish-brown (10YR 4/2); <1/256mm to 2mm, clay to very coarse sand; poorly sorted; angular; moderate sphericity; multicolored clasts; contains dark brown chips of clay.	Matrix has slightly darker color through the top 3 feet.
23-30 ft	Clay with silt - 75% clay, 15% silt, 10% sand; dark brown (10YR 4/3); <1/256mm to 1mm, clay to coarse sand; poorly sorted; subangular; moderate sphericity.	Gritty texture.
30-40 ft	Sand with silt - 85% sand, 15% silt; brown (10YR 4/3); <1/256mm to 2mm, silt to very coarse sand; moderately sorted; subangular to subround; high sphericity; multicolored clasts.	
40-45 ft	Sand and silt - 60% sand, 30% silt, 10% clay; olive (5YR 5/3); <1/256mm to 3mm, clay to very fine pebble gravel; poorly sorted; angular to subangular; moderate sphericity; multicolored clasts.	
45-50 ft	Sand and silt - 65% sand, 30% silt, 5% clay; olive-gray (5YR 5/2); <1/256mm to 3mm, clay to very fine pebble gravel; poorly sorted; angular; moderate sphericity.	High quartz content.
50-55 ft	Sand and silt - 60% sand, 30% silt, 10% clay; olive (5YR 5/3); <1/256mm to 2mm, clay to very coarse sand; poorly sorted; angular; moderate sphericity.	
55-60 ft	Sand and silt - 50% sand, 35% silt, 15% clay; olive (5YR 5/3); <1/256mm to 1mm, clay to coarse sand; poorly sorted; angular; high sphericity.	High quartz content.
60-70 ft	Clay with sand - 75% clay, 20% sand, 5% silt; yellowish-brown (10YR 5/4); <1/256mm to 1mm, clay to coarse sand; poorly sorted; subangular; moderate sphericity; sticky clay; multicolored clasts.	Drill chatter at 63 feet.

DEPTH	SAMPLE DESCRIPTION	NOTES
70-80 ft	Clay with sand - 80% clay, 20% sand; light olive-brown (2.5YR 5/4); < 1/256mm to 2mm, clay to coarse sand; poorly sorted; angular; moderate sphericity; multicolored clasts; contains chips of clay with light olive-brown color.	
80-90 ft	Clay with silt - 65% clay, 25% silt, 10% sand; light yellowish-brown (2.5YR 6/4); < 1/256mm to 1mm, clay to coarse sand; poorly sorted; angular; moderate sphericity; multicolored clasts; thick and sticky clay.	Few large pebbles up to 10mm.
90-95 ft	Clay with sand - 85% clay, 15% sand; brown (10YR 5/3); < 1/256mm to 1mm, clay to coarse sand; poorly sorted; subangular; moderate sphericity; clay is thick and sticky, contains gray chips of clay.	
95-100 ft	Clay - 80% clay, 10% sand, 10% silt; light olive-brown (2.5YR 5/4); < 1/256mm to 2mm, clay to very coarse sand; moderately sorted; subangular; moderate sphericity; contains chips of gray and brown colored clay.	
100-115 ft	Clay and silt - 50% clay, 40% silt, 10% sand; light olive-brown (2.5YR 5/4); < 1/256mm to 1mm, clay to coarse sand; poorly sorted; moderate sphericity; very thick clusters of brown and gray clay, sticky clay.	
115-120 ft	Clay - 85% clay, 10% silt, 5% sand; olive (10YR 5/3); < 1/256mm to 1mm; clay to coarse sand; moderately sorted; angular; low sphericity; thick, sticky clay.	Matrix is a mixture of olive & olive-brown colored clays.
120-125 ft	Clay with silt - 80% clay, 15% silt, 5% sand; olive (5YR 5/3); < 1/256mm to 2+mm, clay to very coarse sand; moderately sorted; angular; low sphericity; thick, sticky clay, contains clumps of orange colored silt and brown clay.	Rough drilling at 118 feet.
125-135 ft	Clay and silt - 50% clay, 45% silt, 5% sand; light yellowish-brown (2.5YR 6/4); < 1/256mm to 7mm, clay to medium pebble gravel; poorly sorted; angular; low sphericity; sticky clay, contains clumps of olive colored clay and orange silt.	
135-140 ft	Clay with silt - 70% clay, 20% silt, 10% sand; olive gray (5YR 5/2); < 1/256mm to 2mm; clay to very coarse sand; poorly sorted; angular to subangular; low sphericity; contains clumps of dark gray silt.	Rough drilling at 137 feet.
140-155 ft	Clay with sand - 80% clay, 15% sand, 5% silt; olive brown (5YR 5/4); < 1/256mm to 4mm; clay to fine pebble gravel; poorly sorted; angular; low sphericity; contains abundant dark gray chips of consolidated silt.	Drill-bit sample.

welenco

ELECTRIC LOG

FILING NO.

COMPANY McCALLA BROS. DRILLING

WELL MCAS-5A ORANGE CO. WATER DIST.

FIELD IRVINE

COUNTY ORANGE STATE CALIFORNIA

LOCATION: ON BARRANCA PARKWAY
EAST OF LAGUNA CANYON ROAD

SEC TWP RGE

OTHER SERV:
NONE

JOB NO.
23039

Permanent Datum: GROUND LEVEL Elev: N/A

Log Measured From GL 0 Ft Above Perm Datum

Drilling Measured From GROUND LEVEL

K.B.

D.F.

G.L.

Date	07-21-94	-	- -
Run No.	ONE		
Depth - Driller	160'		
Depth - Logger	159.5'		
Btm. Log Inter.	158.5'		
Top Log Inter.	5'		
Casing-Driller	NONE at	at	at
Casing-Logger	NONE at	at	at
Bit Size	12.75"		
Type Fluid In Hole	BENTONITE		
Dens. | Visc.	N/A | N/A	|	|
pH Fluid Loss	N/A | N/A ml	| ml	| ml
Source of Sample	N/A		
Rm at Meas.Temp	N/A at 75 F	at 75 F	at 75 F
Rmf at Meas.Temp	N/A at 75 F	at 75 F	at 75 F
Rmc at Meas.Temp	N/A at F	at F	at F
Source:Rmf Rmc	MEAS |	|	|
Rm at BHT	N/A at F	at F	at F
Time Since Circ.	0 HR.		
Max. Rec. Temp.	N/A F	F	F

This Heading and Log Conform To API RP 31

Scale Changes

Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data

Run No.	Tool Type	PadType	Tool Pos	Other
ONE	ELECTRIC		FREE	

Mud Type or Additional Samples

Sample No.				
Driller				
Fluid in Hole				
Visc.				
Fluid Loss	ml	ml		
Source of Sample				
Rm at Meas. Temp.	at F	at F	at F	at F
Rmf at Meas. Temp.	at F	at F	at F	at F
Rmc at Meas. Temp.	at F			
Source:Rmf Rmc		at F	at F	at F
Rm at BHT	at F	at F	at F	at F

REMARKS:

RESISTANCE
ohms

SINGLE POINT
Detail Curve

RESISTIVITY
ohmmeters2 /meter

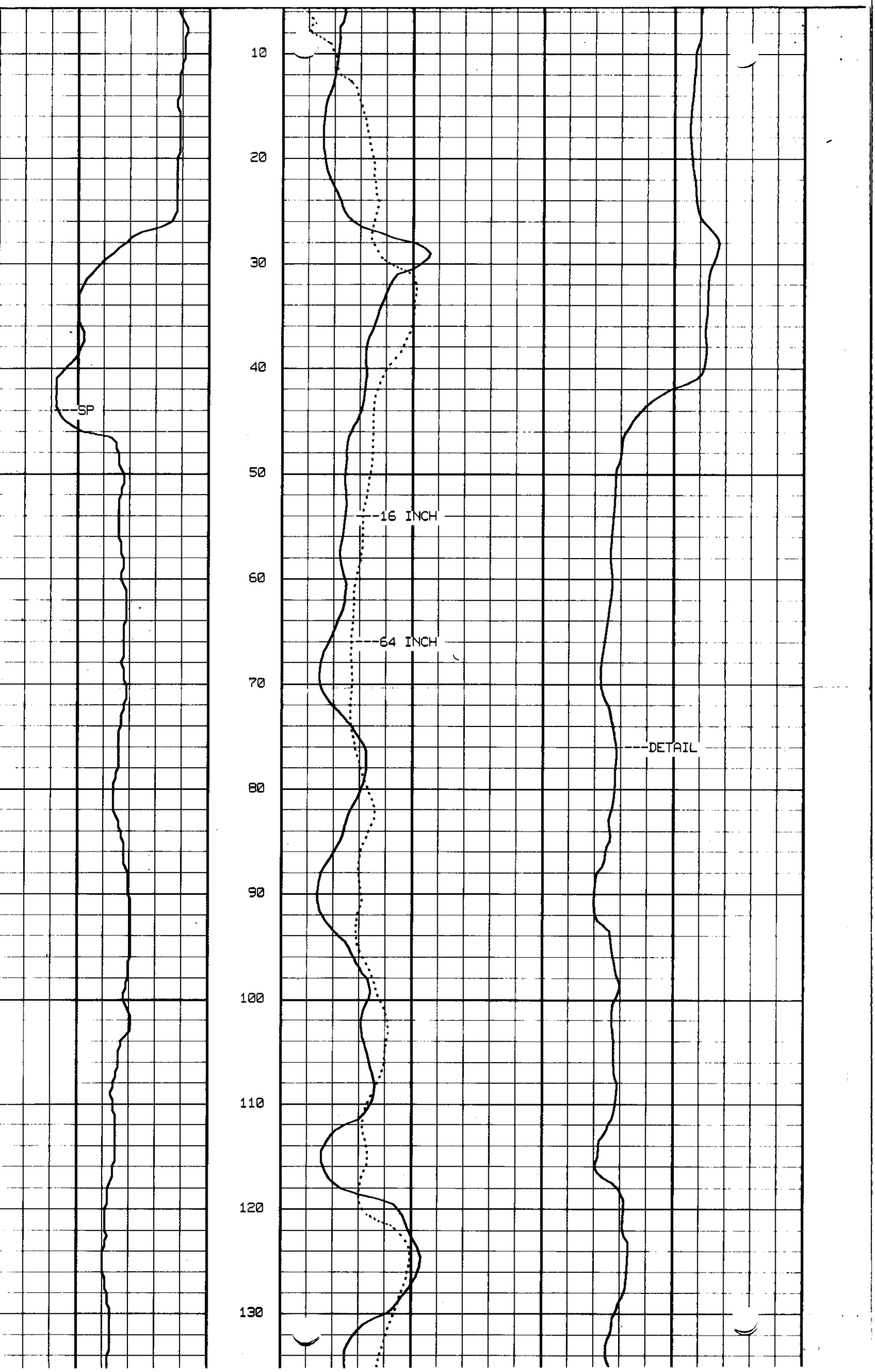
SHORT NORMAL
16 Inch
0 50

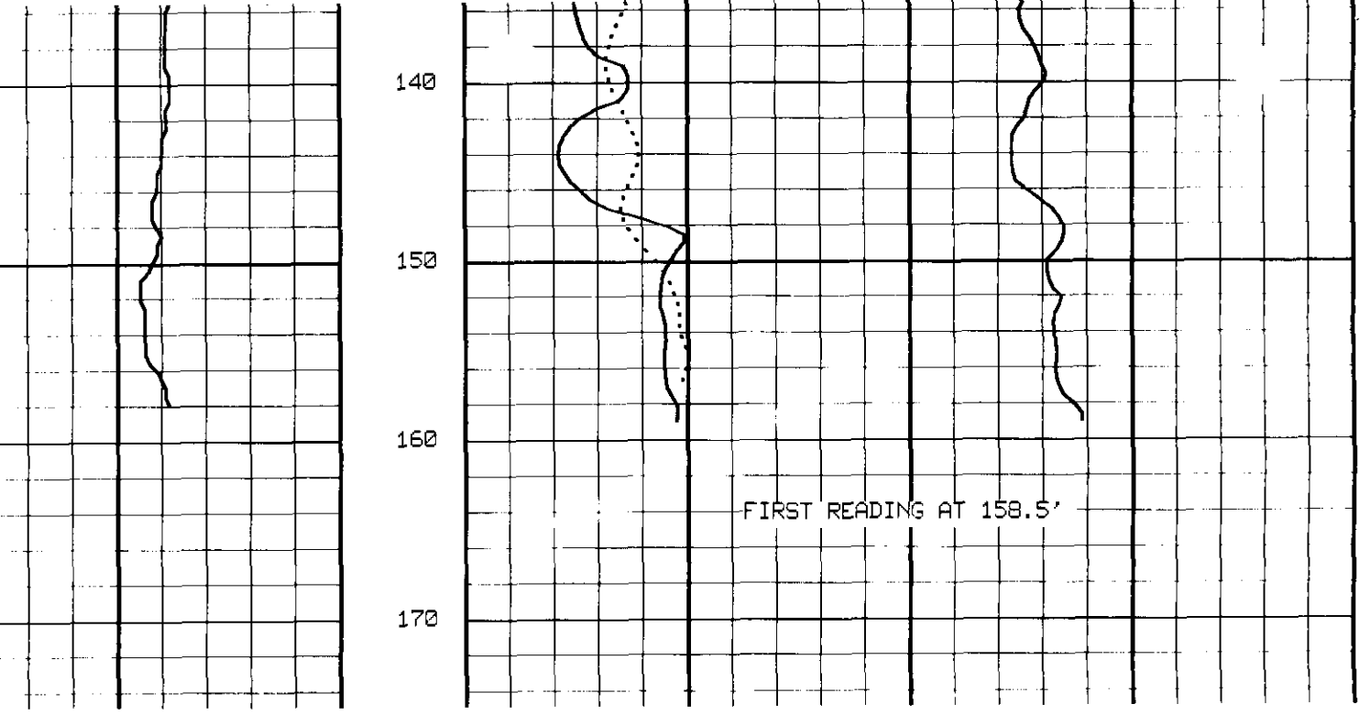
LONG NORMAL
64 Inch
0 50

DEPTHS

SPONTANEOUS POTENTIAL
millivolts

+ 5 -


10
20
30
40
50
60
70
80
90
100
110
120
130
SP
16 INCH
64 INCH
DETAIL

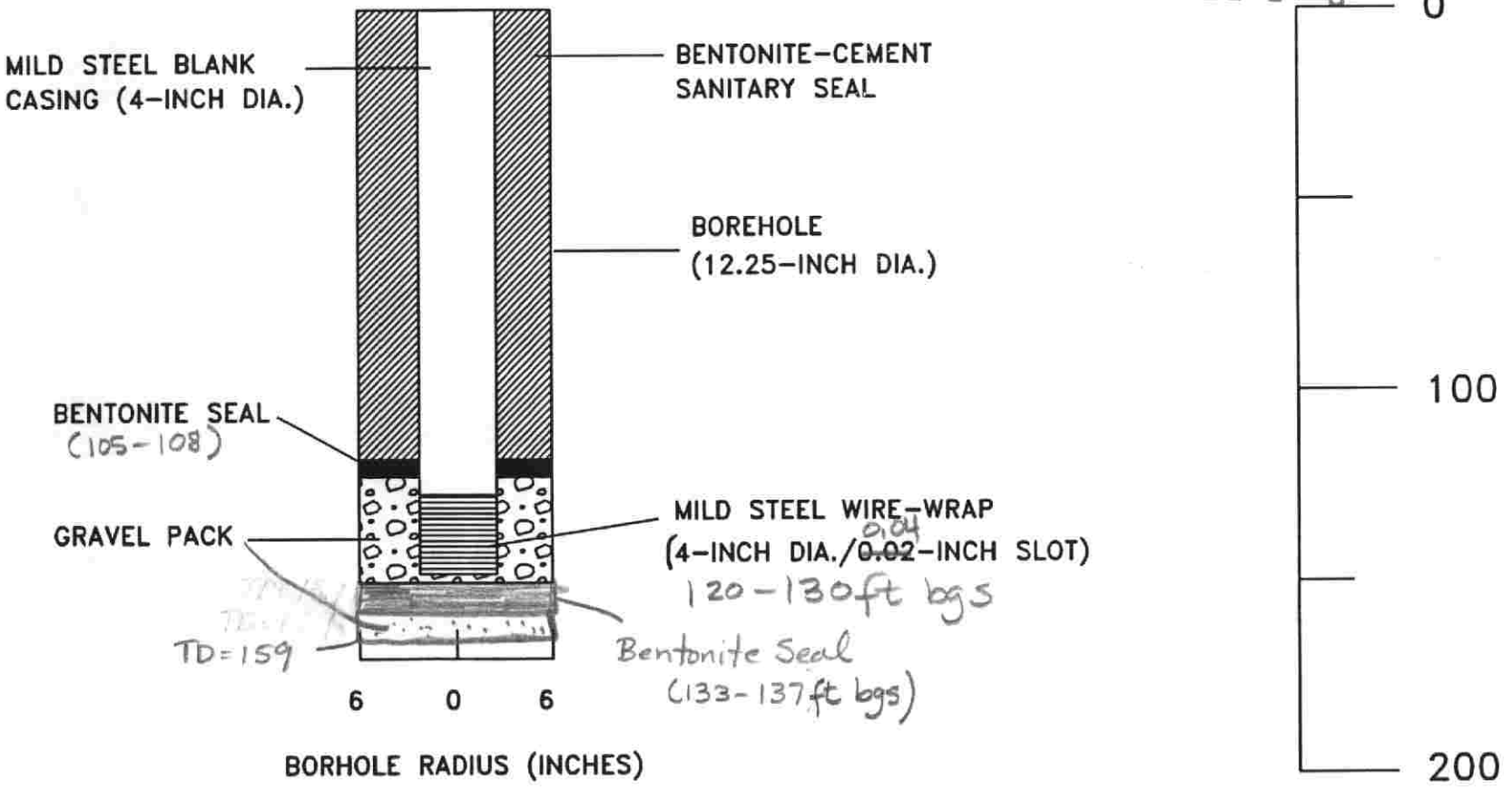


		0 64 Inch 50 LONG NORMAL	Detail Curve SINGLE POINT
- 5 +		0 16 Inch 50 SHORT NORMAL	
millivolts PONTANEOUS POTENTIAL	DEPTHS	ohmmeters2/meter RESISTIVITY	ohms RESISTANCE

~~PROPOSED~~ MONITORING WELL DESIGN FOR MCAS-5A MONITORING WELL

DRAFT

DRAFT



ORANGE COUNTY WATER DISTRICT
SAMPLE RESULTS

Station Name: MCAS-5A/1
Station Type: WELL CASING
Perf Interval (ft.): 120-130
Aquifer: UNDEFINED

State Well Number: 06S/09W-12R00
Well Owner: O.C. WATER DISTRICT
Well Name: MCAS-5A
City: IRVINE

Sample Group ID: 94014033
Sample ID: 94021088
Sample Date/Time: 07/27/1994 18:35:00
Receive Date/Time: 07/28/1994 13:25:00
Sampling Method: SUBMERSIBLE PUMP
Sampling Agency: O.C. WATER DISTRICT
Sampled By: PHIL ROYBAL
Monitoring Program: Irvine Desalter
Comments: WELL SAMPLED AT END OF WELL DEVELOPMENT

Lab Sample No.: OCWD9419817D
Laboratory: OCWD
Analysis Requested: 601602

FIELD PARAMETERS:
EC (umhos/cm): 1290
pH (UNITS): 7.0
TEMP (C): NA
D.O. (mg/L): NA
D.O. TEMP (C): NA

Parameter Abbr	Parameter Name	Analysis Method	Dates Extract	Dates Analysis	Result Value	Result Units	Detect Limits Value	Detect Limits Units
Reported Values								
CH3Cl	Chloromethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
CH3Br	Bromomethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
VNYLCL	Vinyl chloride	601/602		07/28/1994	ND	ug/L	.5	ug/L
ClETHA	Chloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
CH2Cl2	Methylene Chloride	601/602		07/28/1994	ND	ug/L	.5	ug/L
11DCE	1,1-Dichloroethene	601/602		07/28/1994	ND	ug/L	.5	ug/L
11DCA	1,1-Dichloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
CHCl3	Chloroform	601/602		07/28/1994	ND	ug/L	.5	ug/L
CCl4	Carbon tetrachloride	601/602		07/28/1994	ND	ug/L	.5	ug/L
12DCP	1,2-Dichloropropane	601/602		07/28/1994	ND	ug/L	.5	ug/L
TCE	Trichloroethene	601/602		07/28/1994	3.0	ug/L	.5	ug/L
112TCA	1,1,2-Trichloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
CHBr2C	Dibromochloromethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
PCE	Tetrachloroethene	601/602		07/28/1994	ND	ug/L	.5	ug/L
CLBENZ	Chlorobenzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
12DCB	1,2-Dichlorobenzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
13DCB	1,3-Dichlorobenzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
14DCB	1,4-Dichlorobenzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
CCl3F	Trichlorofluoromethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
t12DCE	trans-1,2 Dichloroethene	601/602		07/28/1994	ND	ug/L	.5	ug/L
12DCA	1,2-Dichloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
111TCA	1,1,1-Trichloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
CHBrCl	Bromodichloromethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
t13DCP	trans-1,3-Dichloropropene	601/602		07/28/1994	ND	ug/L	.5	ug/L
c13DCP	cis-1,3-Dichloropropene	601/602		07/28/1994	ND	ug/L	.5	ug/L
BENZ	Benzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
CHBr3	Bromoform	601/602		07/28/1994	ND	ug/L	.5	ug/L
1122PC	1,1,2,2-Tetrachloroethane	601/602		07/28/1994	ND	ug/L	.5	ug/L
TOLU	Toluene	601/602		07/28/1994	6.4	ug/L	.5	ug/L
EtBENZ	Ethylbenzene	601/602		07/28/1994	ND	ug/L	.5	ug/L
Cl3F3E	Trichlorotrifluoroethane (Freon 113)	601/602		07/28/1994	ND	ug/L	.5	ug/L
2ClEVE	2-Chloroethylvinyl ether	601/602		07/28/1994	ND	ug/L	1	ug/L
MEK	Methyl ethyl ketone (MEK)	601/602		07/28/1994	ND	ug/L	5	ug/L
MIBK	Methyl isobutyl ketone (MIBK)	601/602		07/28/1994	ND	ug/L	5	ug/L
B2CLEE	bis (2-chloroethyl) ether	601/602		07/28/1994	ND	ug/L	5	ug/L
c12DCE	cis-1,2-Dichloroethene	601/602		07/28/1994	ND	ug/L	.5	ug/L
TTHMs	Total THMs	601/602		07/28/1994	ND	ug/L	.5	ug/L

NA : Not Analyzed
ND : Not Detected
TR : Trace

ORANGE COUNTY WATER DISTRICT
SAMPLE RESULTS

Station Name: MCAS-5A/1
Station Type: WELL CASING
Perf Interval (ft.): 120-130
Aquifer: UNDEFINED

State Well Number: 06S/09W-12R00
Well Owner: O.C. WATER DISTRICT
Well Name: MCAS-5A
City: IRVINE

Sample Group ID: 94014033
Sample ID: 94025710
Sample Date/Time: 07/27/1994 18:35:00
Receive Date/Time: 07/28/1994 13:25:00
Sampling Method: SUBMERSIBLE PUMP
Sampling Agency: O.C. WATER DISTRICT
Sampled By: PHIL ROYBAL
Monitoring Program: Irvine Desalter
Comments: WELL SAMPLED AT END OF WELL DEVELOPMENT

Lab Sample No.: OCWD9419815
Laboratory: OCWD
Analysis Requested: GENLVLI

FIELD PARAMETERS:
EC (umhos/cm): 1290
pH (UNITS): 7.0
TEMP (C): NA
D.O. (mg/L): NA
D.O. TEMP (C): NA

Parameter		Analysis	Dates		Result		Detect Limits	
Abbr	Name	Method	Extract	Analysis	Value	Units	Value	Units
Reported Values								
EC	Electrical Conductivity	2510B		07/29/1994	1320	um/cm	1	um/cm
TDS	Total Dissolved Solids	2540C		08/01/1994	826	mg/L	1	mg/L
pH	pH	4500H+B		07/27/1994	7.4	UNITS		mg/L
Na	Sodium	A200.7		08/02/1994	139	mg/L	.1	mg/L
K	Potassium	A200.7		08/02/1994	2.6	mg/L	.1	mg/L
Mg	Magnesium	A200.7		08/02/1994	33.1	mg/L	.1	mg/L
Ca	Calcium	A200.7		08/02/1994	96.6	mg/L	.1	mg/L
TOTALK	Total Alkalinity (as CaCO3)	2320B		07/29/1994	228	mg/L	1	mg/L
OHCa	Hydroxide (as CaCO3)	2320B		07/29/1994	<1.0	mg/L	1	mg/L
CO3Ca	Carbonate (as CaCO3)	2320B		07/29/1994	<1.0	mg/L	1	mg/L
HCO3Ca	Bicarbonate (as CaCO3)	2320B		07/29/1994	228	mg/L	1	mg/L
TOTHRD	Total Hardness (as CaCO3)	A200.7		08/02/1994	377	mg/L	1	mg/L
Cl	Chloride	A300.0		07/28/1994	168	mg/L	.5	mg/L
NO2-N	Nitrite Nitrogen	A300.0		07/28/1994	<0.4	mg/L	.4	mg/L
Br	Bromide	4110B		07/28/1994	0.38	mg/L	.2	mg/L
NO3-N	Nitrate Nitrogen	A300.0		07/28/1994	9.02	mg/L	.1	mg/L
NO3	Nitrate	A300.0		07/28/1994	39.9	mg/L	.4	mg/L
PO4-P	Phosphate Phosphorus (orthophosphate)	A300.0		07/28/1994	<0.1	mg/L	.1	mg/L
SO4	Sulfate	A300.0		07/28/1994	158	mg/L	.5	mg/L
B	Boron	A200.7		08/02/1994	0.18	mg/L	.1	mg/L
TOC	Total Organic Carbon (Unfiltered)	A415.1L		07/28/1994	0.63	mg/L	.01	mg/L

NA : Not Analyzed
ND : Not Detected
TR : Trace

ORANGE COUNTY WATER DISTRICT
SAMPLE RESULTS

Station Name: MCAS-5A/1
Station Type: WELL CASING
Perf Interval (ft.): 120-130
Aquifer: UNDEFINED

State Well Number: 06S/09W-12R00
Well Owner: O.C. WATER DISTRICT
Well Name: MCAS-5A
City: IRVINE

Sample Group ID: 94014033
Sample ID: 94025710
Sample Date/Time: 07/27/1994 18:35:00
Receive Date/Time: 07/28/1994 13:25:00
Sampling Method: SUBMERSIBLE PUMP
Sampling Agency: O.C. WATER DISTRICT
Sampled By: PHIL ROYBAL
Monitoring Program: Irvine Desalter
Comments: WELL SAMPLED AT END OF WELL DEVELOPMENT

Lab Sample No.: OCWD9419815
Laboratory: OCWD
Analysis Requested: UNKNOWN

FIELD PARAMETERS:
EC (umhos/cm): 1290
pH (UNITS): 7.0
TEMP (C): NA
D.O. (mg/L): NA
D.O. TEMP (C): NA

Parameter Abbr	Parameter Name	Analysis Method	Dates Extract	Dates Analysis	Result Value	Result Units	Detect Limits Value	Detect Limits Units
Computed Values								
HCO3	Bicarbonate (as HCO3)	UNKWQAN			277.9	mg/L	1.2	mg/L
NO3NO2	Nitrate + Nitrite Nitrogen	UNKWQAN			9.02	mg/L	.1	mg/L
NO2	Nitrite	UNKWQAN			ND	mg/L	1.3	mg/L
T22CAT	Title 22 Total Cations	UNKWQAN			13.658	meq/L		

NA : Not Analyzed
ND : Not Detected
TR : Trace

State Well No: 06S/09W-12R

(Well Name)

DRILLING AND WELL CONSTRUCTION REPORT

WELL I.D.: MCAS-5A **WRMS WELL NAME:** OCWD-MCAS-5A
CONTRACT #: GBM-93-1 **WORK ORDER #:** 11

PROJECT #: DS661A

WELL LOCATION: 1150 east of Laguna Canyon Road, North side of Barranca Parkway.

PURPOSE\OBJECTIVE: Reconstruct single point Monitoring Well MCAS-5 which was abandoned due to location conflict with new Industrial development.

KEY PERSONNEL:

OCWD PROJECT MANAGER: Roy Herndon

OCWD FIELD SUPERVISOR: Marina West

OCWD ON-SITE GEOLOGISTS: Phil Roybal

CONTRACTOR FIELD SUPERVISOR: Mike Trujillo - Layne - Western Co. - McCalla Division

DRILLER: Raymond Gorman

STARTING AND COMPLETION DATES: 07-14-94 -- 07-27-94
CONDUCTOR: N/A
DRILLING: 07-15-94 and 07-21-94
WELL CONSTRUCTION: 07-22-94
PRE-ZONE DEVELOPMENT: N/A
PROJECT DURATION (from Conductor to Demob.): (7-14-94 -- 8-4-94)

OCWD ZONE DEVELOPMENT: N/A

OTHER AGENCIES INVOLVED: Marachuan Corporated (landowner)
Taisei/Oltaman's Joint Venture I (developer)
Orange Co. Health Care Agency

BOREHOLE INFORMATION

RIG AND EQUIPMENT DESCRIPTION:

DRILLING CONTRACTOR: Layne Western Co. - McCalla Division

MODEL\TYPE: Gardner Denver

DRILL PIPE COUNT LENGTH & DIAMETER: 8 20' long and 4 1/2" diameter IF drill pipes.

DRILL BIT INFORMATION: 12 1/4" Tricone

DRILLING METHOD: Direct Mud Rotary

SITE DESCRIPTION:

PRIOR TO DRILLING: Dirt lot in Irvine in undeveloped, industrial area.

DRILLING AND CONSTRUCTION: A Mud Pit was dug from the borehole to the lift pump which moved cuttings up onto the shaker table. This pit was buried in place at the end of well construction. There were also a few mud overflows out of the pit when the lift pump failed to operate properly. Drilling was stopped until the rigs hydraulic pump could be fixed thus eliminating the overflowing mud from the mud pit. Drill cuttings and fluids also fell to the ground when the backhoe was moved out from under the shaker table to dump cuttings into the roll-off bin. These materials were later removed to the roll-off bin.

BOREHOLE INFORMATION (continued)

FOLLOWING COMPLETION: Site leveled with bulldozer to its previous undeveloped condition before well construction began.

START UP AND COMPLETION DATES:

CONDUCTOR: No conductor was installed.

RIG MOBILIZATION DATE: 07-12-94

DRILLING SUMMARY

DEVIATION SURVEY RESULTS: No deviation surveys were run.

DEVIATION SURVEY INTERVALS: N/A

DEVIATION RANGE: N/A

COMMENTS: At the completion of well construction a bailer approximately 3 " in diameter and 20' long was inserted into the well casing. This bailer passed without problems to the bottom of the well therefore demonstrating that the well was plumb.

MUD CONDITIONS

	Viscosity (sec)	Weight (lb/gal)	% Sand	Water Loss	Wall Cake
Mean	36	9.25	3	N/A	N/A
Range	30.6 - 38	8.8 - 9.3	3 - 3	N/A	N/A

DRILLING FLUID AND ADDITIVES: Baroid Quik- Gel, Polypac, and city hydrant water.

SAMPLE COLLECTION

PROCESSING AND FREQUENCY: About every 5 ft or less if noticeable change in formation. Samples were collected from the trough as close to the borehole as possible. Samples were collected in a 200-mesh sieve or kitchen strainer (coarse grained) before transferring samples. Some were washed in the 200-mesh sieve to remove drilling mud.

STORAGE: Plastic sample trays and plastic sample bags. Cuttings were transported to Geology Warehouse at Forebay Headquarters, Anaheim.

STORAGE AND DISPOSAL OF DRILL CUTTINGS AND FLUIDS

CONTAINMENT METHOD: Roll-off bin (drill cuttings), 10,000 gallon Rain-for-Rent tank (drilling fluid and purged water).

TRANSPORT AND DISPOSAL SITE: Ball Road Basin via Laidlaw transport (roll-off) and McCalla Vacuum truck (liquids).

GEOPHYSICAL LOGS

COMPANY: Welenco; Bakersfield, CA.

DATE: 07-21-94

OPERATOR: Mark Sharpless

A. _x_ RESISTIVITY (16/64" normal, point)

B. _x_ SPONTANEOUS POTENTIAL

C. ___ NATURAL GAMMA

D. ___ CALIPER

F. ___ GUARD

G. ___ SONIC/SIGNATURE

OTHER LOGS: None

COMMENTS: None. Due to shallow depth of well the vertical scale was changed from 20 ft per inch to 10 ft per inch.

WELL DESIGN AND CONSTRUCTION

CASING AND SCREEN INFORMATION

CASING INSTALLATION: 07-22-94

GEOLOGISTS ON-SITE: PR, MW

****BLANK CASING****

MILD STEEL CASING:

MANUFACTURER: Dongbu

MATERIAL: 51b/ASTM A53 Gr B

CASING COUNT, LENGTH AND DIAMETER: 1 x 3 ft 4 1/2" casing pipe and 6 x 20 ft 4 1/2" casing pipes

STAINLESS STEEL CASING: N/A

MANUFACTURER:

MATERIAL:

CASING COUNT, LENGTH AND DIAMETER:

WELD TYPE: 1/8" diameter E 316L-16 SS rod for Stainless Steel connections (screen to blank) and 7024 rod on mild steel connections.

TOTAL FOOTAGE OF BLANK CASING INSTALLED:

Mild Steel Blank: 125.9'
Stainless Steel Blank: 0'

SCREENS

MANUFACTURER: Houston Screen Co., Houston, Texas

MATERIAL: 304 Stainless Steel

SCREEN COUNT ON SITE: 1- 10 ft piece, 1- 5 ft piece

LENGTH: 10.65'

(Manufacturer)	Measurements
Outside Diameter	4.51"
Smallest Inside Diameter (blank end of screen)	4.09"
Slot Width Avg.	0.04"
Number of Rods	24
Diameter of Rods	est @ 0.16"

WELD TYPE: 1/8" diameter E 316L SS rod for Stainless Steel connections (screen to blank) and 7024 rod on mild steel connections.

NUMBER OF SCREENS INSTALLED: 1

TOTAL FOOTAGE OF SCREENS INSTALLED: 10 feet

TOTAL ROD CROSS-SECTIONAL AREA: 0.482 sq. inches

WELL COMPLETION DEPTH

DEPTH TO BOTTOM OF CASING (sound well, ~~feet~~ bgs): 133' from GS

LANDING OF CASING: casing landed at 3.55 feet above ground surface until completion when the casing was cut off and capped at ground surface.

SCREEN LOCATION DEPTHS (FT BGS): 120-130'

BACKFILLING SCHEDULE

STARTING\COMPLETION DATES: 07-22-94 - 07-22-94

ON-SITE GEOLOGISTS: MW, PR

TREMIE PIPE COUNT (length, diameter): 9 tremie pipes of various lengths

GRAVEL DESCRIPTION: Heart of Texas Sand, Inc., Bakersfield, CA. type 8 x 16

ANNULAR SEAL COMPOSITION: 50% Baroid Benseal and 50% 8 x 16 Heart of Texas gravel pack.

METHOD OF GRAVEL AND SEAL PLACEMENT: Gravel pumped via centrifugal pump through tremie pipe. Tremie pipe kept near bottom of annulus at all times. Seal material was dry mixed before pumping through tremie. Borehole fluid viscosity was approximately 30-32 sec/qt during backfilling operations.

SOUNDING METHOD: Wireline sounder with counter. Sounder was run to the bottom of tremie pipe and the distance from tremie bottom to bottom of annulus was measured on the counter. The two measurements were added together to get depth to top of gravel or seal interval.

BOREHOLE FLUID VISCOSITY: Approximately 30-32 sec/qt

BOREHOLE MUD WEIGHT: Not measured

BOREHOLE SAND CONTENT: Not measured

SURFACE SEAL COMPOSITION: 3' bentonite seal followed by 10 sack cement slurry.

COMMENTS:

WELL DEVELOPMENT INFORMATION

INITIAL DEVELOPMENT:

STARTING\COMPLETION DATES: 07-26-94 -- 07-27-94

DEVELOPERS: Paul Gulden (equipment operator), Jeff (helper), Juan (helper) - Layne - Western Co. - McCalla Division

ON-SITE GEOLOGISTS: Phil Roybal

PROCEDURES: Started swabbing well at 10:45 and continued until 11:53. During that time the 20 foot bailer was brought out of the hole a total of 5 times, with each sample becoming less and less viscous. The first sample looked very much like drilling fluid while the last sample looked like dirty water.

Water levels were obtained from the top of the steel casing which had just been down to surface. The 1st water level (36.1 ft) was taken before any of the bailing activities took place. The 2nd reading was 44.75 ft and was taken after the bailer was brought out of the hole for the fourth time. The final water level reading was 37.54 ft and was taken 7 minutes after the fifth and final bail.

Pumping out of the well with a submersible pump began successfully on the afternoon of July 27th (crew brought wrong diameter pump on 26th). The initial water level reading was recorded at 33.8 ft. Pumping began at 11:47 and followed a routine of 5 minutes of pumping followed by a recovery period of about 15 minutes with the pump off. EC, pH, and TDS readings were recorded for every sample at the end of the 5 minute pumping period. Water level readings were also taken about at the beginning and the end of each pump cycle. Flow was also measured with a bucket and increased with increasing clarity of the water. The well was then pumped from 16:20 to 17:10 until the water level dropped to 89.5 ft. The pump was turned off again and remained off until the water level recovered to 48.4 ft. The pump was then turned on again at 17:20 to 17:42 while the water level dropped to 70 ft. Purging followed from 17:53 to 18:34 at 5 gallons per minute to pump the required 194 gallons from the well (3 well volumes were purged). The well maintained a steady water level of about 75 ft during the purging process. Samples were collected and analyzed at the OCWD lab for 601/602 and General Mineral Level I.

WELL DEVELOPMENT INFORMATION (continued)

DATA RECORDED: Bailing and pumping procedures, EC, TDS, pH, flow rate.

STORAGE AND DISPOSAL OF FLUIDS: Water pumped into the Rain-for-Rent tank on site. Fluids were tested clean and were disposed at Ball Road Basin on 8-5-1994.

VIDEO SURVEY **No video survey was performed.**

DATE:
COMPANY:
GEOLOGIST:
RESULTS:

SECONDARY DEVELOPMENT N/A

STARTING\COMPLETION DATES:

PROCEDURES:

DATA RECORDED:

STORAGE AND DISPOSAL OF FLUIDS:

VIDEO SURVEY N/A

DATE:

COMPANY:

GEOLOGIST:

RESULTS: