100 West Broadway, Suite 240, Long Beach, California 90802-4443

2036707

October 22, 2003

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Subject: August 2003 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Telephone
562.951.2000
Facsimile
562.951.2100

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of August 2003.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in July (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the August 2003 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Three groundwater samples collected in August met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 µg/L); Gage 26-1 (5.5 µg/L), Gage 66-1 (2.4 µg/L), and Gage 92-1 (2.8 µg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 µg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the August WSCP sampling, perchlorate was detected at or above the new PAL (i.e., greater than or equal to 4.0 µg/L) in fifteen wells and four water system sampling points including:

Richardson #1 (5.6 µg/L)
Gage 26-1 (7.3 µg/L)
Gage 31-1 (10 µg/L)
Gage 92-1 (29 µg/L)
Garner #6 (4.1 µg/L)
Raub #5 (4.3 µg/L)
COR Church St (6.9 µg/L)
VA Hospital (16 µg/L)
Gage Lemona (Gage) (5.2 µg/L)
Gage Arlington (5.8 µg/L)
LL Univ Anderson #3 (5.2 µg/L)
Gage 29-1 (9.3 µg/L)
Gage 66-1 (20 µg/L)
Hunt #11 (8.3 µg/L)
Garner #7 (5.1 µg/L)
Warren #1 (6.5 µg/L)
RHWC #2 (8.2 µg/L)
Iowa Booster (Waterman) (4.0 µg/L)
7th &Chicago (5.4 µg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: August 2003 Data Results
Table 2: Summary of August 2003 Water Level Measurements
Table 3: August 2003 Sample Identifications
Figure 1: TCE Data Results August 2003
Figure 2: Perchlorate Data Results August 2003
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
AUGUST 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	NS	NR	NR
3171	Mountain View #4[c]	NS	NR	NR
3175	Mountain View #5[b]	8/4/2003	ND (4 0)	ND (0 5)
693	Richardson #1[b]	8/4/2003	5 6	ND (0 5)
707	Richardson #3[c]	NS	NR	NR
3132	Richardson #4[c]	NS	NR	NR
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend Lawton[a]	8/5/2003	ND (4 0)	ND (0 5)
2968	Richardson Blend[a]	8/5/2003	ND (4 0)	ND (0 5)
Mountain View Power				
554	SCE #2 (AUX)[c]	8/5/2003	ND (4 0)	ND (0 5)
Loma Linda University				
267	LL Univ Anderson #2[b]	NS	NR	NR
717	LL Univ Anderson #3[b]	8/5/2003	5 2	NR
City of Riverside (Gage System)				
252	Gage #26-1[bd]	8/4/2003	7 3	5 5
258	Gage #27 1[bd]	NS	NR	NR
259	Gage 27 2[b]	NS	NR	NR
260	Gage 29-1[b]	8/4/2003	9 3	NR
219	Gage 29 2[bde]	NS	NR	NR
220	Gage 29 3[bde]	NS	NR	NR
218	Gage 30 1[c]	NS	NR	NR
214	Gage 31-1[b]	8/4/2003	10	NR
215	Gage 46-1[b]	NS	NR	NR
253	Gage 51-1[bde]	NS	NR	NR
216	Gage 56 1[c]	NS	NR	NR
257	Gage 66 1[b]	8/4/2003	20	2 4
257	Gage 66-1[b] (Duplicate)	8/4/2003	19	2 3
644	Gage 92 1[bde]	8/4/2003	29	2 8
641	Gage 92 2[c]	NS	NR	NR
642	Gage 92-3[c]	NS	NR	NR
3091	Gage 98-1[c]	NS	NR	NR
City of Riverside (Waterman System)				
273	Hunt #6[b]	NS	NR	NR
271	Hunt #10[b]	NS	NR	NR
272	Hunt #11[b]	8/4/2003	8 3	NR
285	Garner #1[b]	8/4/2003	ND (4 0)	NR
286	Garner #2[b]	NS	NR	NR
284	Garner #5[b]	NS	NR	NR
1908	Garner #6[b]	8/4/2003	4 1	NR
2576	Garner #7[b]	8/4/2003	5 1	NR
254	Raub #2[b]	NS	NR	NR
224	Raub #3[b]	NS	NR	NR
255	Raub #4[b]	NS	NR	NR
222	Raub #5[b]	8/4/2003	4 3	NR
666	Raub #6[b]	NS	NR	NR
665	Raub #8[b]	8/4/2003	ND (4 0)	NR
202	Scheuer[b]	NS	NR	NR
282	Stiles[b]	NS	NR	NR
249	Warren #1[b]	8/4/2003	6 5	NR
247	Warren #4[b]	NS	NR	NR
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	8/5/2003	4 0	ND (0 5)
2947	Gage Delivery (Gage)[a]	NS	NS	NS

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
AUGUST 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
3177	Gage Lemona (Gage)[a]	8/5/2003	5 2	ND (0 5)
2948	7th & Chicago (Reservoir)[a]	8/5/2003	5 4	ND (0 5)
2948	7th & Chicago (Reservoir)[a] Duplicate	8/5/2003	ND (4 0)	ND (0 5)
3018	Gage Arlington[a]	8/5/2003	5 8	NR
City of Redlands				
542	COR Church St[b]	8/4/2003	6 9	NR
542	COR Church St[b] (Duplicate)	8/4/2003	6 3	NR
29	COR Orange St[c]	NS	NR	NR
74	COR Rees[b]	8/4/2003	NR	ND (0 5)
1029	COR Mission[b]	NS	NR	NR
65	COR #31A[b]	NS	NR	NR
265	COR #34[b]	NS	NR	NR
71	COR #35[b]	NS	NR	NR
75	COR #37[b]	NS	NR	NR
2673	COR #38[c]	NS	NR	NR
Riverside Highlands Water Company				
1354	RHWC #2[b]	8/5/2003	8 2	NR
1361	RHWC #5[b]	8/5/2003	ND (4.0)	NR
383	RHWC #18[b]	NS	NR	NR
Other Wells - Agricultural				
82	New York Street Well[b]	NS	NR	NR
81	COR #41[b]	NS	NR	NR
3174	VA Hospital Well[b]	8/5/2003	16	NR

Notes

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314 0
TCE analyzed using EPA Method 502 2

a = Well/sample point sampled on monthly basis if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
AUGUST 2003 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	8/5/2003	188 00	1086	898	Pumping
3171	Mountain View #4	8/5/2003	282 00	1106	824	Pumping
3175	Mountain View #5	8/5/2003	186 00			Pumping
693	Richardson #1	8/5/2003	227 00	1077	850	Pumping
707	Richardson #3	8/5/2003	253 00	1078 69	825 69	Static
3132	Richardson #4	8/5/2003	220 00	1074	854	Pumping
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	8/4/2003	NM	1075	NM	Pumping
717	LL Univ Anderson #3	8/4/2003	NM	1070	NM	Pumping
City of Riverside (Gage System)						
252	Gage #26-1	8/5/2003	118 50	1045 33	926 83	Pumping
258	Gage #27-1	8/5/2003	107 80	1044 64	936 84	Pumping
259	Gage #27-2	8/5/2003	118 50	1044 64	926 14	Pumping
260	Gage #29-1	8/5/2003	110 60	1044 43	933 83	Pumping
219	Gage #29-2	8/5/2003	111 70	1046 31	934 61	Pumping
220	Gage #29-3	8/5/2003	112 80	1048 75	935 95	Pumping
218	Gage #30-1	8/5/2003	216 80	1054 17	837 37	Pumping
214	Gage #31-1	8/5/2003	155 70	1054 64	898 94	Pumping
215	Gage #46-1	8/5/2003	168 10	1065 5	897 4	Pumping
253	Gage #51-1	8/5/2003	195 00	1044 64	849 64	Pumping
216	Gage #56-1	8/5/2003	218 30	1065 5	847 2	Pumping
257	Gage #66-1	8/5/2003	165 90	1044 85	878 95	Pumping
644	Gage #92-1	8/5/2003	199 60	1047 78	848 18	Pumping
641	Gage #92-2	8/5/2003	211 10	1053 38	842 28	Pumping
642	Gage #92-3	8/5/2003	228 20	1058 78	830 58	Pumping
3091	Gage #98-1	8/5/2003	230 50	1058 78	828 28	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015 5	NM	Pumping
271	Hunt #10	NM	NM	1017	NM	Pumping
272	Hunt #11	NM	NM	1015 7	NM	Pumping
City of Redlands						
542	COR Church St	8/1/2003	192 0	1344 8	1152 8	Pumping
29	COR Orange St	8/1/2003	165 0	1282	1117	Pumping
74	COR Rees	8/1/2003	280 0	1490	1210	Static
1029	COR Mission	8/1/2003	148 0	1130	982	Static
65	COR #31A	8/1/2003	193 0	1319	1126	Static
265	COR #34	8/1/2003	159	1090	931	Static
71	COR #35	8/1/2003	227	1395	1168	Static
75	COR #37	8/1/2003	184	1435	1251	Static
2673	COR #38	8/1/2003	NM	1220	NM	Static
81	COR #41	8/1/2003	185	1312	1127	Pumping

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
AUGUST 2003 SAMPLE IDENTIFICATIONS

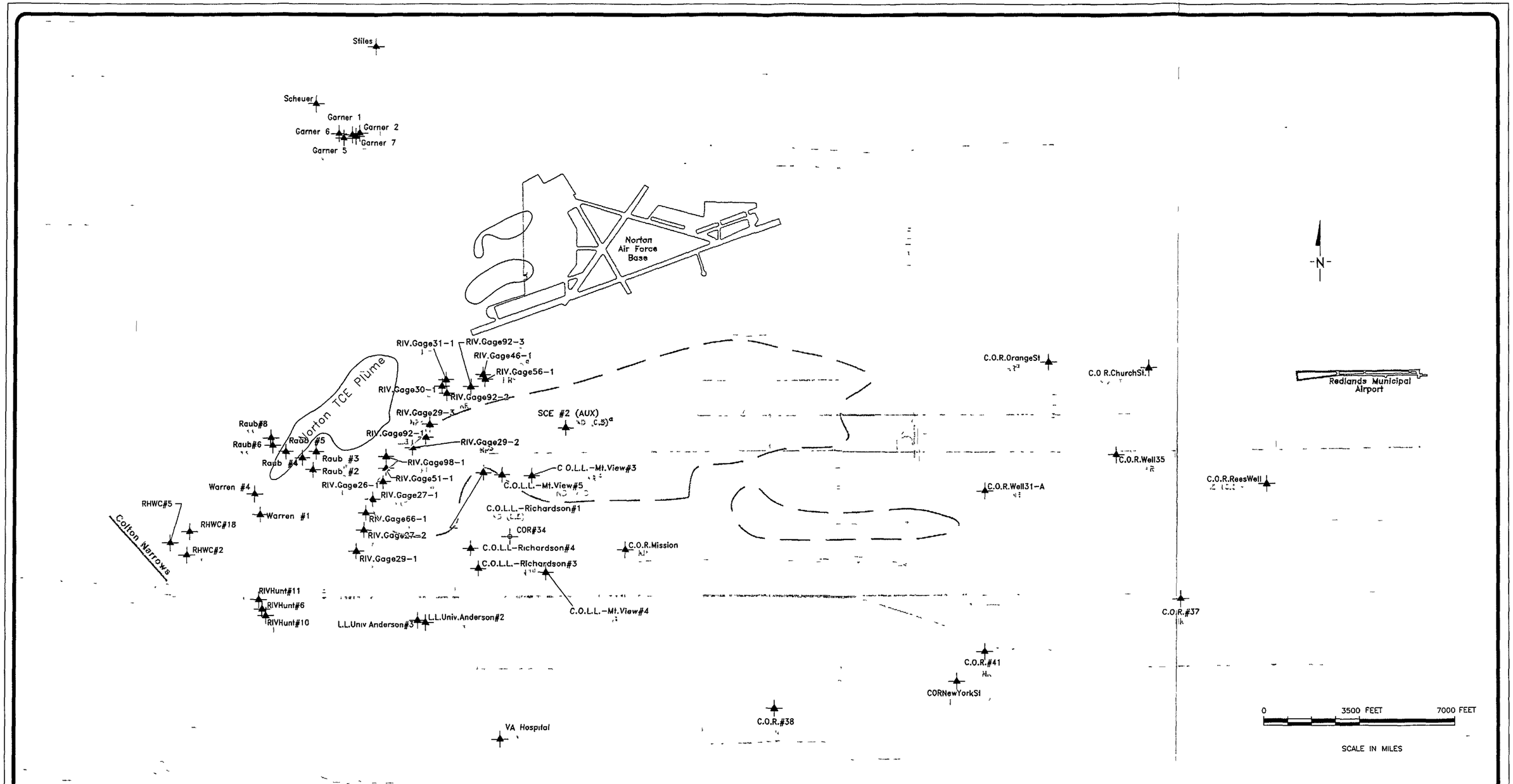
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	NS	NS	NS	NR	NR
3171	Mountain View #4	NS	NS	NS	NR	NR
3175	Mountain View #5	8/4/2003	15:15	GW-8-13	Yes	Yes
693	Richardson #1	8/4/2003	14:40	GW-8-12	Yes	Yes
707	Richardson #3	NS	NS	NS	NR	NR
3132	Richardson #4	NS	NS	NS	NR	NR
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	8/5/2003	10:30	GW-8-21	Yes	Yes
2968	Richardson Blend	8/5/2003	10:55	GW-8-22	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	8/5/2003	11:40	GW-8-23	Yes	Yes
Loma Linda University						
267	LL Univ Anderson #2	NS	NS	NS	NR	NR
717	LL Univ Anderson #3	8/5/2003	9:30	GW-8-19	Yes	NR
City of Riverside (Gage System)						
252	Gage #26-1	8/4/2003	10:30	GW-8-3	Yes	Yes
258	Gage #27-1	NS	NS	NS	NR	NR
258	Gage #27-1	NS	NS	NS	NR	NR
259	Gage #27-2	NS	NS	NS	NR	NR
260	Gage #29-1	8/4/2003	11:15	GW-8-6	Yes	NR
219	Gage #29-2	NS	NS	NS	NR	NR
220	Gage #29-3	NS	NS	NS	NR	NR
218	Gage #30-1	NS	NS	NS	NR	NR
214	Gage #31-1	8/4/2003	10:05	GW-8-2	Yes	NR
215	Gage #46-1	NS	NS	NS	NR	NR
253	Gage #51-1	NS	NS	NS	NR	NR
216	Gage #56-1	NS	NS	NS	NR	NR
257	Gage #66-1	8/4/2003	10:50	GW-8-4	Yes	Yes
257	Gage #66-1 (Duplicate)	8/4/2003	10:55	GW-8-5	Yes	Yes
644	Gage #92-1	8/4/2003	9:30	GW-8-1	Yes	Yes
641	Gage #92-2	NS	NS	NS	NR	NR
642	Gage #92-3	NS	NS	NS	NR	NR
3091	Gage #98-1	NS	NS	NS	NR	NR
City of Riverside (Waterman System)						
273	Hunt #6	NS	NS	NS	NR	NR
271	Hunt #10	NS	NS	NS	NR	NR
272	Hunt #11	8/4/2003	17:15	GW-8-17	Yes	NR
285	Garner #1	8/4/2003	13:00	GW-8-8	Yes	NR
286	Garner #2	NS	NS	NS	NS	NR
284	Garner #5	NS	NS	NS	NR	NR
1908	Garner #6	8/4/2003	13:15	GW-8-9	Yes	NR
2576	Garner #7	8/4/2003	12:45	GW-8-7	Yes	NR
254	Raub #2	NS	NS	NS	NR	NR
224	Raub #3	NS	NS	NS	NR	NR
255	Raub #4	NS	NS	NS	NR	NR
222	Raub #5	8/4/2003	13:50	GW-8-11	Yes	NR
666	Raub #6	NS	NS	NS	NR	NR
665	Raub #8	8/4/2003	13:35	GW-8-10	Yes	NR
202	Scheuer	NS	NS	NS	NS	NR
282	Stiles	NS	NS	NS	NR	NR
249	Warren #1	8/4/2003	17:35	GW-8-18	Yes	NR
247	Warren #4	NS	NS	NS	NR	NR

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
AUGUST 2003 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	8/5/2003	13 30	GW-8-24	Yes	Yes
2947	Gage Delivery (Gage)	NS	NS	NS	NS	NS
3177	Gage Lemona (Gage)	8/5/2003	13 55	GW-8 25	Yes	Yes
2948	7th & Chicago (Reservoir)	8/5/2003	14 35	GW-8-26	Yes	Yes
2948	7th & Chicago (Reservoir) Duplicate	8/5/2003	14 40	GW-8-27	Yes	Yes
3018	Gage Arlington	8/5/2003	15 00	GW-8-28	Yes	NR
City of Redlands						
542	COR Church St	8/4/2003	14 25	GW-8-15	Yes	NR
542	COR Church St (Duplicate)	8/4/2003	14 30	GW-8-16	Yes	NR
29	COR Orange St	NS	NS	NS	NR	NR
74	COR Rees	8/4/2003	16 00	GW-8-14	NR	Yes
1029	COR Mission	NS	NS	NS	NR	NR
65	COR #31A	NS	NS	NS	NR	NR
265	COR #34	NS	NS	NS	NR	NR
71	COR #35	NS	NS	NS	NR	NR
75	COR #37	NS	NS	NS	NR	NR
2673	COR #38	NS	NS	NS	NR	NR
Riverside Highlands						
1354	RHWC #2	8/5/2003	15 30	GW-8-29	Yes	NR
1361	RHWC #5	8/5/2003	15 45	GW-8-30	Yes	NR
383	RHWC #18	NS	NS	NS	NR	NR
Other Wells - Agricultural						
82	New York Street	NS	NS	NS	NS	NR
81	COR #41	NS	NS	NS	NR	NR
3174	VA Hospital Well	8/5/2003	9 55	GW-8-20	Yes	NR

FIGURES



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- .2 TCE Results (µg\L)
- a Bimonthly Sampling Results
- b Well Currently Being Treated for TCE
- Water Purged to Waste and not Into System
- Approximate TCE Plume Location 5 µg\L (2002 Interpretation of Redlands Plume)
- 5 Approximate TCE Plume Location 5 µg/L (Earth Tech April 2002 Interpretation of Norton AFB Plume)
- Not Detected at Indicated Detection Limit
- NS Not Sampled
- NA Not Analyzed
- * Twice-Monthly Sampling Results
- NR Not Required

Blending Point Sampling Data

D(0.5)	C.O.L.L. Mountain View Blend at Lawton
D(0.5)	C.O.L.L. Richardson Blend
D(0.5)	Riv. Iowa Booster (Waterman)
NS	Riv. Gage Delivery (Gage)
D(0.5)	Riv. Gage Delivery (Lemona)
ND (0.5), ND (0.5)	Riv. 7th + Chicago (Reservoir) Gage Arlington

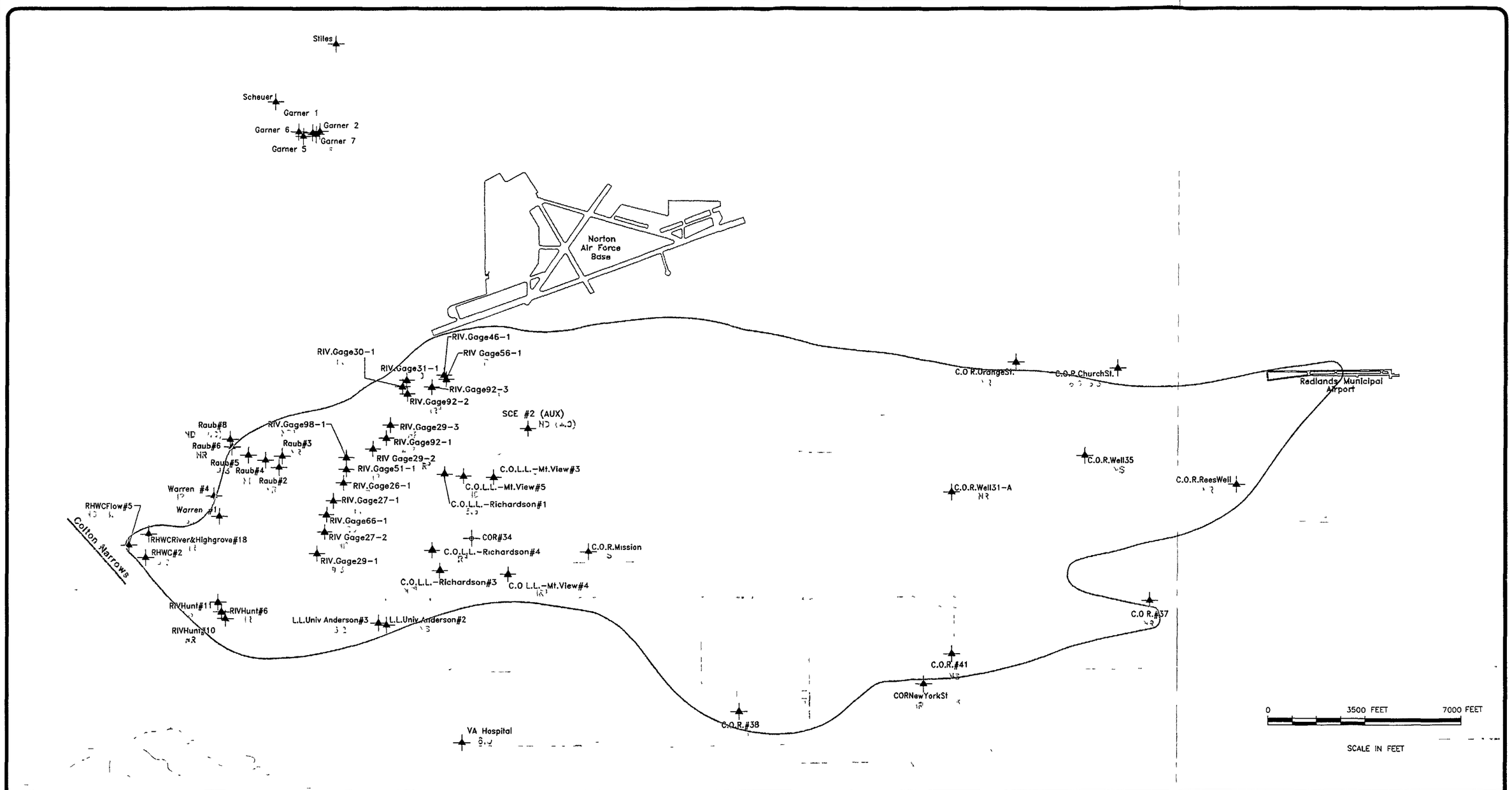
File G:\ls\LongBeachCA\work\Remediation\LVC Riverside POP\WSCP\cad\Monthly Report\Aug03TCEReport.dwg Time Oct 23 2003 - 3:47pm

TITLE WSCP Production Well Sampling Program TCE Data Results August 2003

LOCATION LOCKHEED MARTIN REDLANDS, CALIFORNIA

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb	FIGURE
DRAFTED:	Jeffrey Waugen	1
PROJ	52773	
DATE	08/14/03	



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- Approximate 4 µg/L Perchlorate Plume Location (2002 Interpretation)
- * Twice-Monthly Sampling Results

45	Perchlorate (µg/L) Results
ND(4.0)	Not Detected at Indicated Detection Limit
NS	Not Sampled
a	Bimonthly Sampling Results
b	Water Purged to Waste and not Into System

Blending Point Sampling Data

ND (4.0)	C.O.L.L. Mountain View Blend - Lawton
ND (4.0)	C.O.L.L. Richardson Blend
4.0	Riv. Iowa Booster (Waterman)
NS	Riv. Gage Delivery (Gage)
5.2	Riv. Gage Delivery (Lamona)
5.4/ND (4.0)	Riv. 7th + Chicago (Reservoir)
5.8	Gage Arlington

TITLE WSCP Production Well Sampling Program
Perchlorate Data Results August 2003

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A AECOM INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb	FIGURE
DRAFTED	Jeffrey Waugen	2
PROJ	52773	
DATE	08/14/03	

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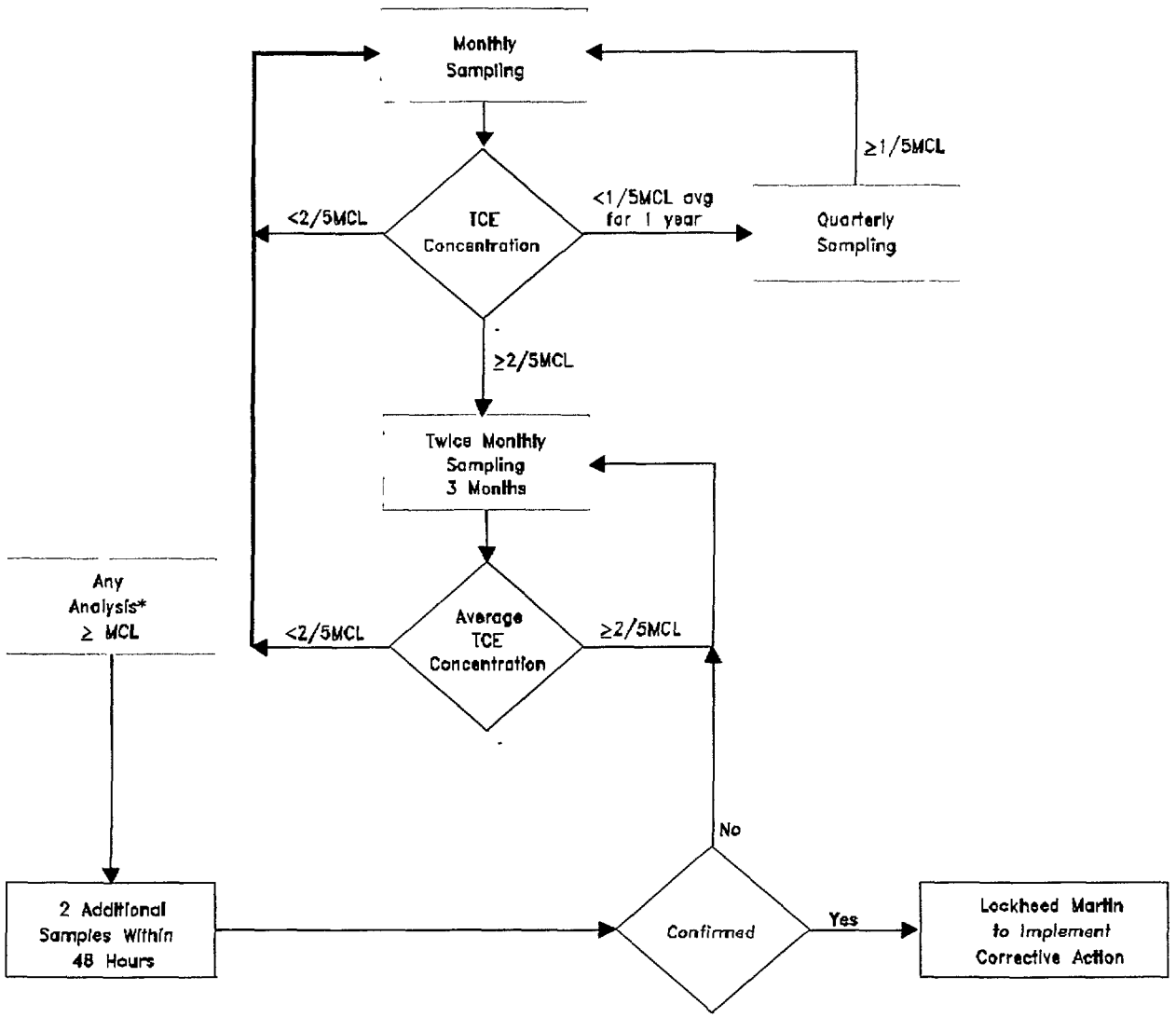


Footnote:

* If, at a specific well, blending is occurring to provide acceptable water for compounds other than TCE, then no corrective action may be necessary as long as the concentration of TCE is less than 5.0 µg/L in the finished water.

TCE MCL = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

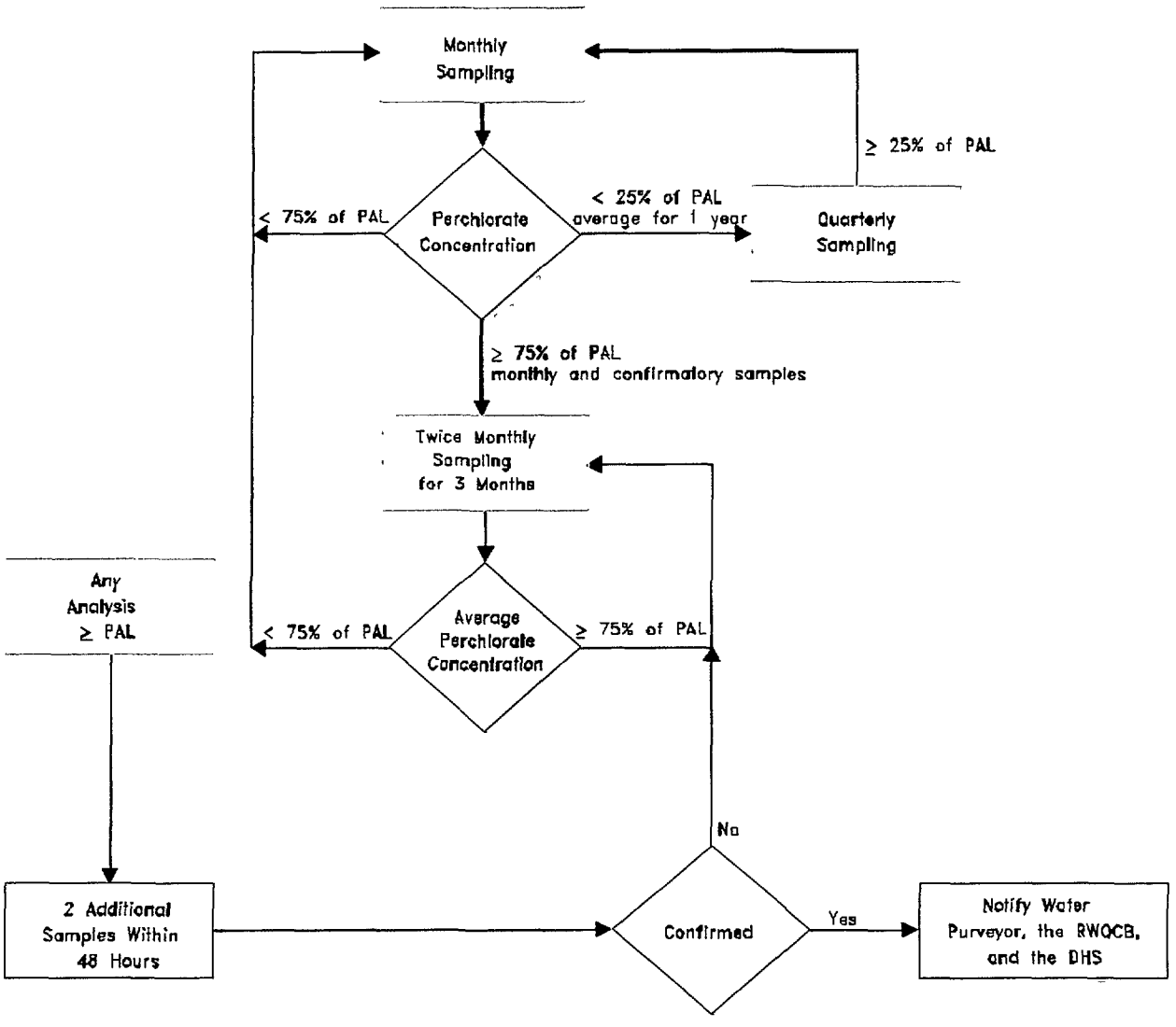
L:\REMEDIATION\LMC\WSCP\CAD\TCEMATRIXFIG-3.dwg

TITLE: Decision Matrix for Sampling of Production Wells for TCE from the Crafton-Redlands Plume

LOCATION: LOCKHEED MARTIN REDLANDS, CALIFORNIA

EARTH TECH
A tyco INTERNATIONAL LTD COMPANY

CHECKED:	Liles Cobb	FIGURE:
DRAFTED:	Lee Mehr	3
PROJ.:	38872	
DATE:	04/28/00	



Footnote:
Perchlorate Provisional Action Level (PAL) = 18 µg/L (California Department of Health Services, May 1997)

TITLE: Decision Matrix for Sampling Production Wells for Perchlorate			
LOCATION: LOCKHEED MARTIN REDLANDS, CALIFORNIA			
EARTH TECH A tyco INTERNATIONAL LTD COMPANY	CHECKED:	Liles Cobb	FIGURE: 4
	DRAFTED:	Lee Mehr	
	PROJ.:	3BB72	
	DATE:	04/28/00	

L:\REMEDIATION\LMC\WSCP\CAD\PERCH.MATRIXFIG-4.dwg

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Energy, Environment, Safety & Health
2550 North Hollywood Way, Suite 301
Burbank, CA 91505
Facsimile 818-847-0256

LOCKHEED MARTIN

Via Federal Express
BUR1003/193 WBS#48

October 27, 2003

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: August 2003 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the August 2003 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in August 2003.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

Thomas D. Blackman
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Ross Lewis, Gage Canal Company
Steve Mains, Western Municipal Water District
Morris Matson, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
✓ Kevin Mayer, US EPA (Region IX)
Don Hough, Riverside Highland Water Company
Zahra Panahi, City of Riverside
Dan Randall, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
St. Louis, MO 63105
Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

Seven W Enterprises, Inc.
1500 Crafton Avenue
P.O. Box 111
Redlands, CA 92373-1730
Attn: Janet M. Weder

bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Gail Rymer, LMC - Communications (Bethesda)
Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)

EARTH TECH™

A tyco INTERNATIONAL LTD. COMPANY

100 West Broadway, Suite 240, Long Beach, California 90802-4443

2036707

November 26, 2003

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Subject: September 2003 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Telephone
562.951.2000
Facsimile
562.951.2100

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of September 2003.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in July (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the September 2003 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Three groundwater samples collected in September met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 μg/L); Gage 29-2 (5.1 μg/L), Gage 29-3 (4.4 μg/L), and Gage 51-1 (6.5 μg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 μg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the September WSCP sampling, perchlorate was detected at or above the new PAL (i.e., greater than or equal to 4.0 μg/L) in fourteen wells and four water system sampling points including:

Gage 27-1 (7.0 μg/L)	Gage 29-2 (9.8 μg/L)
Gage 29-3 (21 μg/L)	Gage 46-1 (19 μg/L)
Gage 51-1 (54 μg/L)	Hunt #10 (4.7 μg/L)
Hunt #11 (7.1 μg/L)	Garner #5 (4.0 μg/L)
Raub #2 (21 μg/L)	Raub #3 (11 μg/L)
Raub #4 (17 μg/L)	Stiles (11 μg/L)
RHWC #18 (4.0 μg/L)	COR #41 (10 μg/L)
Iowa Booster (Waterman) (4.5 μg/L)	Gage Delivery (Gage) (6.6 μg/L)
7th &Chicago (6.3 μg/L)	Gage Arlington (6.5 μg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: September 2003 Data Results
Table 2: Summary of September 2003 Water Level Measurements
Table 3: September 2003 Sample Identifications
Figure 1: TCE Data Results September 2003
Figure 2: Perchlorate Data Results September 2003
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
SEPTEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	NS	NR	NR
3171	Mountain View #4[c]	NS	NR	NR
3175	Mountain View #5	9/3/2003	ND (4.0)	ND (0.5)
693	Richardson #1[b]	9/3/2003	NR	ND (0.5)
707	Richardson #3[c]	NS	NR	NR
3132	Richardson #4[c]	NS	NR	NR
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend - Lawton[a]	9/2/2003	ND (4.0)	ND (0.5)
2968	Richardson Blend[a]	9/2/2003	ND (4 0)	ND (0.5)
2968	Richardson Blend[a] (Duplicate)	9/2/2003	ND (4.0)	ND (0.5)
Mountain View Power				
554	SCE #2 (AUX)[c]	NS	NR	NR
Loma Linda University				
267	LL Univ Anderson #2[b]	9/4/2003	ND (4.0)	NR
717	LL Univ Anderson #3[b]	NS	NR	NR
City of Riverside (Gage System)				
252	Gage #26-1[bd]	NS	NR	NR
258	Gage #27-1[bd]	9/4/2003	7.0	1.2
259	Gage 27-2[b]	NS	NR	NR
260	Gage 29-1[b]	NS	NR	NR
219	Gage 29-2[bde]	9/4/2003	9.4	4.7
219	Gage 29-2[bde] (Duplicate)	9/4/2003	9.8	5.1
220	Gage 29-3[bde]	9/3/2003	21	4.4
218	Gage 30-1[c]	NS	NR	NR
214	Gage 31-1[b]	NS	NR	NR
215	Gage 46-1[b]	9/4/2003	19	NR
253	Gage 51-1[bde]	9/4/2003	54	6.5
216	Gage 56-1[c]	NS	NR	NR
257	Gage 66-1[b]	NS	NR	NR
644	Gage 92-1[bde]	NS	NR	NR
641	Gage 92-2[c]	NS	NR	NR
642	Gage 92-3[c]	9/4/2003	ND (4.0)	NR
3091	Gage 98-1[c]	NS	NR	NR
City of Riverside (Waterman System)				
273	Hunt #6[b]	NS	NR	NR
271	Hunt #10[b]	9/3/2003	4.7	NR
272	Hunt #11[b]	9/3/2003	7.1	NR
272	Hunt #11[b] (Duplicate)	9/3/2003	7.0	NR
285	Garner #1[b]	9/3/2003	ND (4.0)	NR
286	Garner #2[b]	NS	NR	NR
284	Garner #5[b]	9/3/2003	4.0	NR
1908	Garner #6[b]	NS	NR	NS
2576	Garner #7[b]	NS	NR	NR
254	Raub #2[b]	9/3/2003	21	NR
224	Raub #3[b]	9/3/2003	11	NR
255	Raub #4[b]	9/3/2003	17	NR
222	Raub #5[b]	NS	NR	NR
666	Raub #6[b]	9/3/2003	ND (4.0)	NR
665	Raub #8[b]	NS	NR	NR
202	Scheuer[b]	NS	NR	NR
282	Stiles[b]	9/3/2003	11	NR
249	Warren #1[b]	NS	NR	NR
247	Warren #4[b]	9/3/2003	ND (4.0)	NR

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
SEPTEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	9/2/2003	4.5	ND (0.5)
2947	Gage Delivery (Gage)[a]	9/2/2003	6.6	ND (0.5)
2948	7th & Chicago (Reservoir)[a]	9/2/2003	6.3	ND (0.5)
3018	Gage Arlington[a]	9/2/2003	6.5	NR
City of Redlands				
542	COR Church St[b]	9/4/2003	5.2	NR
29	COR Orange St[c]	NS	NR	NR
74	COR Rees[b]	NS	NR	NR
1029	COR Mission[b]	NS	NR	NR
65	COR #31A[b]	NS	NR	NR
265	COR #34[b]	NS	NR	NR
71	COR #35[b]	NS	NR	NR
75	COR #37[b]	NS	NR	NR
2673	COR #38[c]	NS	NR	NR
Riverside Highlands Water Company				
1354	RHWC #2[b]	NS	NR	NR
1361	RHWC #5[b]	NS	NR	NR
383	RHWC #18[b]	9/3/2003	4.0	NR
Other Wells - Agricultural				
82	New York Street Well[b]	NS	NR	NR
81	COR #41[b]	9/4/2003	10	NR
3174	VA Hospital Well[b]	NS	NR	NR

Notes.

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314.0
TCE analyzed using EPA Method 502.2

a = Well/sample point sampled on monthly basis, if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis, if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
SEPTEMBER 2003 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	9/1/2003	188.0	1086	898	Pumping
3171	Mountain View #4	9/1/2003	273.0	1106	833	Pumping
3175	Mountain View #5	9/1/2003	194.0			Pumping
693	Richardson #1	9/1/2003	229.0	1077	848	Pumping
707	Richardson #3	9/1/2003	241.0	1078.69	837.69	Pumping
3132	Richardson #4	9/1/2003	225.0	1074	849	Pumping
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	NM	NM	1075	NM	Pumping
717	LL Univ Anderson #3	NM	NM	1070	NM	Pumping
City of Riverside (Gage System)						
252	Gage #26-1	9/2/2003	123.9	1045.33	921.43	Pumping
258	Gage #27-1	9/2/2003	110.0	1044.64	934.64	Pumping
259	Gage #27-2	9/2/2003	121.1	1044.64	923.54	Pumping
260	Gage #29-1	9/2/2003	114.9	1044.43	929.53	Pumping
219	Gage #29-2	9/2/2003	114.0	1046.31	932.31	Pumping
220	Gage #29-3	9/2/2003	116.7	1048.75	932.05	Pumping
218	Gage #30-1	9/2/2003	219.5	1054.17	834.67	Pumping
214	Gage #31-1	9/2/2003	164 6	1054.64	890.04	Pumping
215	Gage #46-1	9/2/2003	174.7	1065.5	890.8	Pumping
253	Gage #51-1	9/2/2003	209.3	1044.64	835.34	Pumping
216	Gage #56-1	9/2/2003	217.8	1065.5	847.7	Pumping
257	Gage #66-1	9/2/2003	170.6	1044.85	874.25	Pumping
644	Gage #92-1	9/2/2003	182.8	1047.78	864.98	Static
641	Gage #92-2	9/2/2003	215.3	1053.38	838.08	Pumping
642	Gage #92-3	9/2/2003	226.4	1058.78	832.38	Pumping
3091	Gage #98-1	9/2/2003	228.1	1058.78	830.68	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015.5	NM	Pumping
271	Hunt #10	NM	NM	1017	NM	Pumping
272	Hunt #11	NM	NM	1015.7	NM	Pumping
City of Redlands						
542	COR Church St	9/1/2003	175.0	1344.8	1169.8	Static
29	COR Orange St	9/1/2003	168.0	1282	1114	Pumping
74	COR Rees	9/1/2003	314.0	1490	1176	Pumping
1029	COR Mission	9/1/2003	150.0	1130	980	Static
65	COR #31A	9/1/2003	195.0	1319	1124	Static
265	COR #34	9/1/2003	160.0	1090	930	Static
71	COR #35	9/1/2003	230.0	1395	1165	Static
75	COR #37	9/1/2003	186.0	1435	1249	Static
2673	COR #38	9/1/2003	NM	1220	NM	Static
81	COR #41	9/1/2003	190.0	1312	1122	Pumping

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
SEPTEMBER 2003 SAMPLE IDENTIFICATIONS

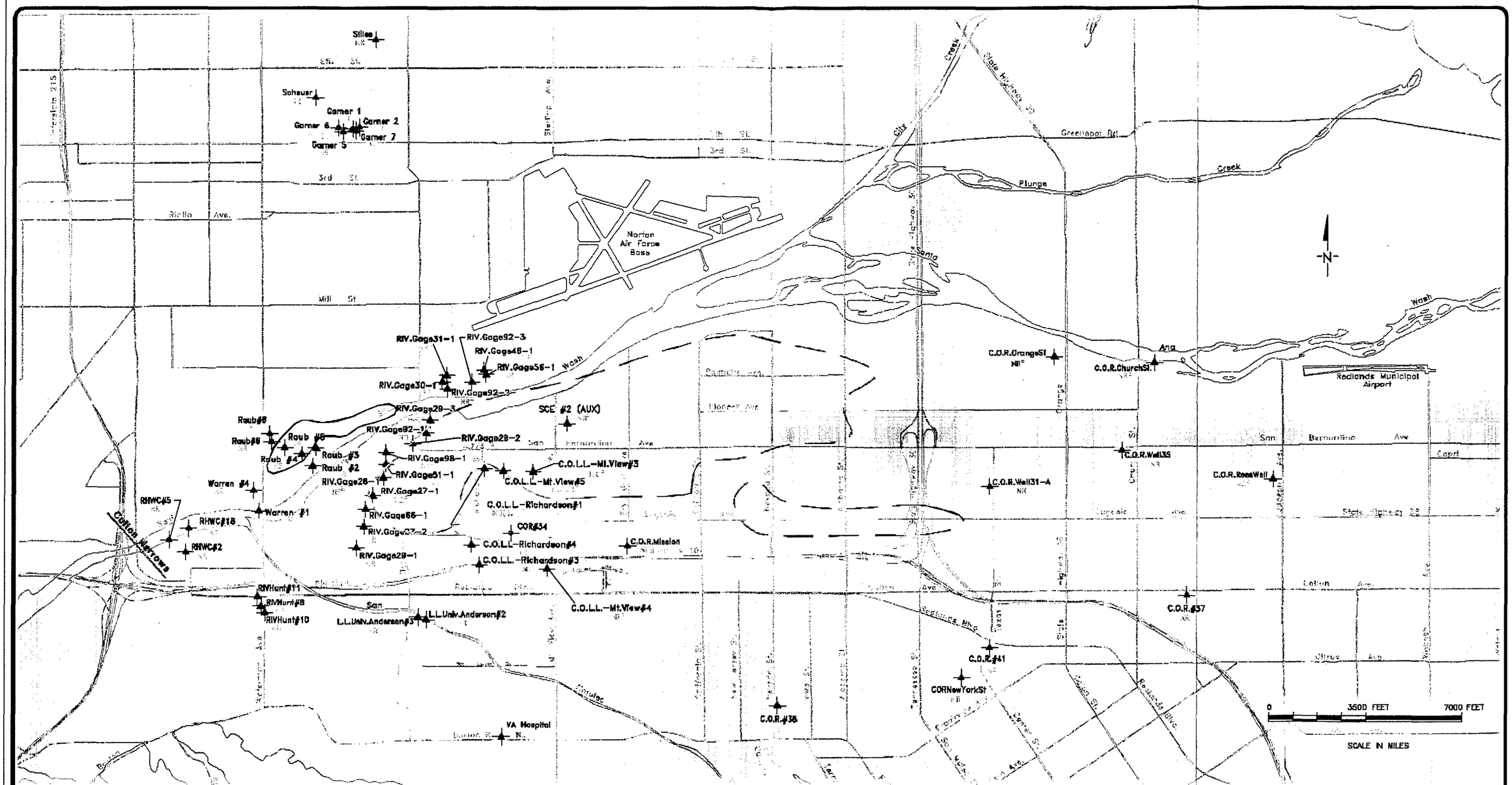
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	NS	NS	NS	NR	NR
3171	Mountain View #4	NS	NS	NS	NR	NR
3175	Mountain View #5	9/3/2003	9:15	GW-9-9	Yes	Yes
693	Richardson #1	9/3/2003	8:25	GW-9-8	NR	Yes
707	Richardson #3	NS	NS	NS	NR	NR
3132	Richardson #4	NS	NS	NS	NR	NR
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	9/2/2003	12:55	GW-9-1	Yes	Yes
2968	Richardson Blend	9/2/2003	13:55	GW-9-2	Yes	Yes
2968	Richardson Blend (Duplicate)	9/2/2003	14:00	GW-9-3	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	NS	NS	NS	NR	NR
Loma Linda University						
267	LL Univ Anderson #2	9/4/2003	10:45	GW-9-25	Yes	NR
717	LL Univ Anderson #3	NS	NS	NS	NR	NR
City of Riverside (Gage System)						
252	Gage #26-1	NS	NS	NS	NR	NR
258	Gage #27-1	9/4/2003	12:35	GW-9-26	Yes	Yes
259	Gage #27-2	NS	NS	NS	NR	NR
260	Gage #29-1	NS	NS	NS	NR	NR
219	Gage #29-2	9/4/2003	13:50	GW-9-28	Yes	Yes
219	Gage #29-2 (Duplicate)	9/4/2003	13:55	GW-9-29	Yes	Yes
220	Gage #29-3	9/3/2003	16:30	GW-9-22	Yes	Yes
218	Gage #30-1	NS	NS	NS	NR	NR
214	Gage #31-1	NS	NS	NS	NR	NR
215	Gage #46-1	9/4/2003	15:00	GW-9-31	Yes	NR
253	Gage #51-1	9/4/2003	13:20	GW-9-27	Yes	Yes
216	Gage #56-1	NS	NS	NS	NR	NR
257	Gage #66-1	NS	NS	NS	NR	NR
644	Gage #92-1	NS	NS	NS	NR	NR
641	Gage #92-2	NS	NS	NS	NR	NR
642	Gage #92-3	9/4/2003	14:30	GW-9-30	Yes	NR
3091	Gage #98-1	NS	NS	NS	NR	NR
City of Riverside (Waterman System)						
273	Hunt #6	NS	NS	NS	NR	NR
271	Hunt #10	9/3/2003	10:27	GW-9-12	Yes	NR
272	Hunt #11	9/3/2003	10:00	GW-9-10	Yes	NR
272	Hunt #11 (Duplicate)	9/3/2003	10:05	GW-9-11	Yes	NR
285	Garner #1	9/3/2003	14:05	GW-9-19	Yes	NR
286	Garner #2	NS	NS	NS	NR	NR
284	Garner #5	9/3/2003	14:20	GW-9-20	Yes	NR
1908	Garner #6	NS	NS	NS	NR	NR
2576	Garner #7	NS	NS	NS	NR	NR
254	Raub #2	9/3/2003	12:30	GW-9-15	Yes	NR
224	Raub #3	9/3/2003	13:10	GW-9-17	Yes	NR
255	Raub #4	9/3/2003	12:50	GW-9-16	Yes	NR
222	Raub #5	NS	NS	NS	NR	NR
666	Raub #6	9/3/2003	12:05	GW-9-14	Yes	NR
665	Raub #8	NS	NS	NS	NR	NR
202	Scheuer	NS	NS	NS	NR	NR
282	Stiles	9/3/2003	13:40	GW-9-18	Yes	NR
249	Warren #1	NS	NS	NS	NR	NR
247	Warren #4	9/3/2003	11:15	GW-9-13	Yes	NR

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
SEPTEMBER 2003 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	9/2/2003	15:55	GW-9-4	Yes	Yes
2947	Gage Delivery (Gage)	9/2/2003	16:25	GW-9-5	Yes	Yes
2948	7th & Chicago (Reservoir)	9/2/2003	16:50	GW-9-6	Yes	Yes
3018	Gage Arlington	9/2/2003	17:40	GW-9-7	Yes	NR
City of Redlands						
542	COR Church St	9/4/2003	9:50	GW-9-24	Yes	NR
29	COR Orange St	NS	NS	NS	NR	NR
74	COR Rees	NS	NS	NS	NR	NR
1029	COR Mission	NS	NS	NS	NR	NR
65	COR #31A	NS	NS	NS	NR	NR
265	COR #34	NS	NS	NS	NR	NR
71	COR #35	NS	NS	NS	NR	NR
75	COR #37	NS	NS	NS	NR	NR
2673	COR #38	NS	NS	NS	NR	NR
Riverside Highlands						
1354	RHWC #2	NS	NS	NS	NR	NR
1361	RHWC #5	NS	NS	NS	NR	NR
383	RHWC #18	9/3/2003	15:40	GW-9-21	Yes	NR
Other Wells - Agricultural						
82	New York Street	NS	NS	NS	NR	NR
81	COR #41	9/4/2003	8:35	GW-9-23	Yes	NR
3174	VA Hospital Well	NS	NS	NS	NR	NR

FIGURES



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- 3.2 TCE Results (µg\L)
  - a Bimonthly Sampling Results
  - b Well Currently Being Treated for TCE
  - c Water Purged to Waste and not Into System
- Approximate TCE Plume Location 5 µg\L (2002 Interpretation of Redlands Plume)
- Approximate TCE Plume Location 5 µg/L (Earth Tech April 2002 Interpretation of Norton AFB Plume)
- (<0.5) Not Detected at Indicated Detection Limit
- NS Not Sampled
- NA Not Analyzed
- NR Not Required

Blending Point Sampling Data

ND(0.5)	C.O.L.L. Mountain View Blend – Lawton
ND(0.5)/ND(0.5)	C.O.L.L. Richardson Blend
ND(0.5)	Riv. Iowa Booster (Waterman)
ND(0.5)	Riv. Gage Delivery (Gage)
ND(0.5)	Riv. 7th + Chicago (Reservoir)
NR	Gage Arlington

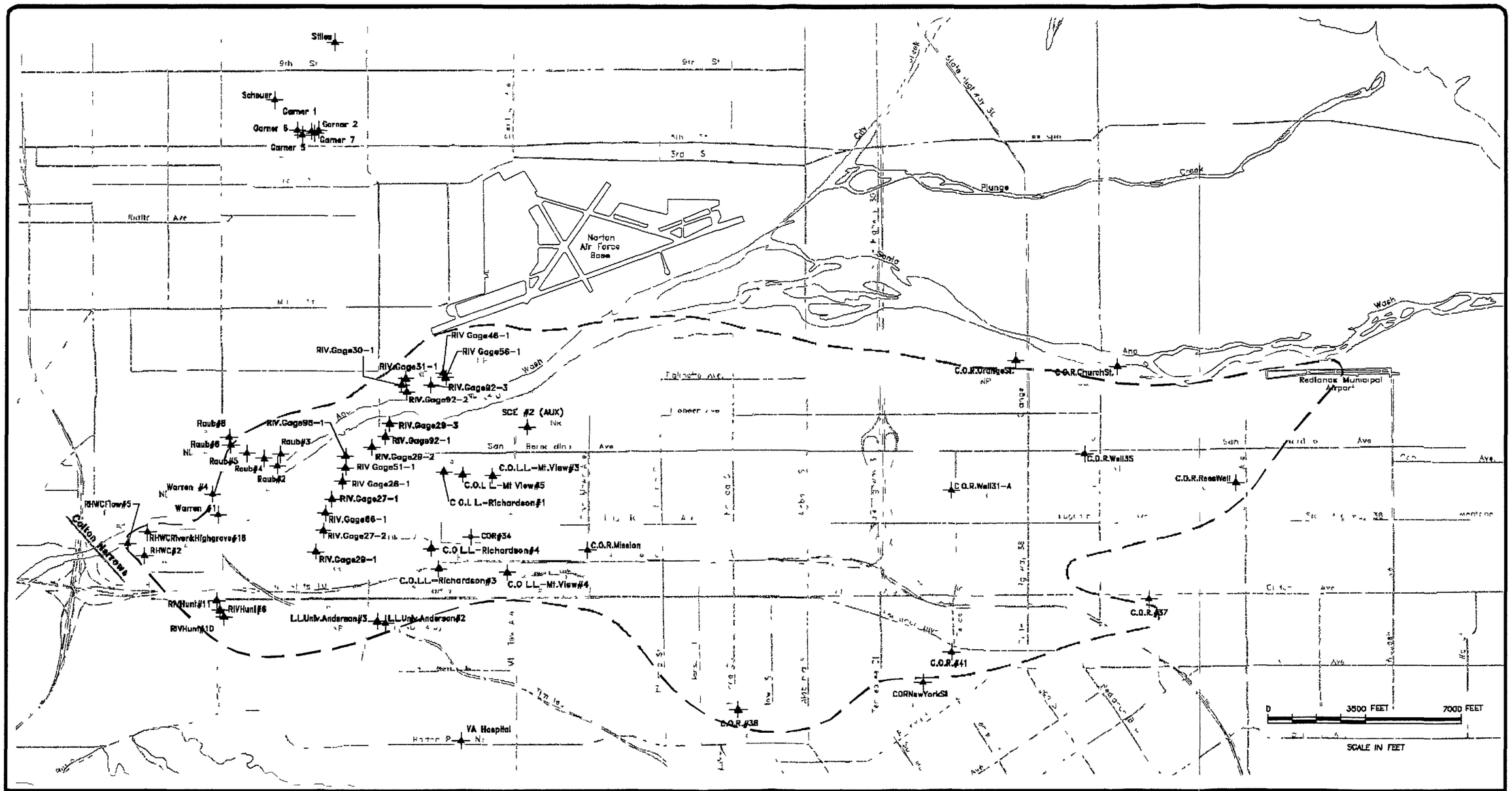
File: G:\us\LongBeach\CA\work\Remediation\LMC Riverside FDP\WSCP\cad\Monthly Report\Sep03TCEReport.dwg Time: Nov 25, 2003 - 1:17pm

TITLE: WSCP Production Well Sampling Program
TCE Data Results September 2003

LOCATION: LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A Tyco INTERNATIONAL LTD. COMPANY

CHECKED:	Liles Cobb	FIGURE:
DRAFTED:	Jeffrey Waugen	1
PROJ.:	52773	
DATE:	11/17/03	



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- Approximate 4 µg/L Perchlorate Plume Location (2002 Interpretation)

46	Perchlorate (µg/L) Results
ND(4.0)	Not Detected at Indicated Detection Limit
NS	Not Sampled
a	Bimonthly Sampling Results
b	Water Purged to Waste and not Into System

Blending Point Sampling Data

ND (4.0)	C.O.L.L. Mountain View Blend - Lawton
ND (4.0)	C.O.L.L. Richardson Blend
4.5	Riv. Iowa Booster (Waterman)
6.6	Riv. Gage Delivery (Gage)
8.3	Riv. 7th + Chicago (Reservoir)
6.5	Gage Arlington

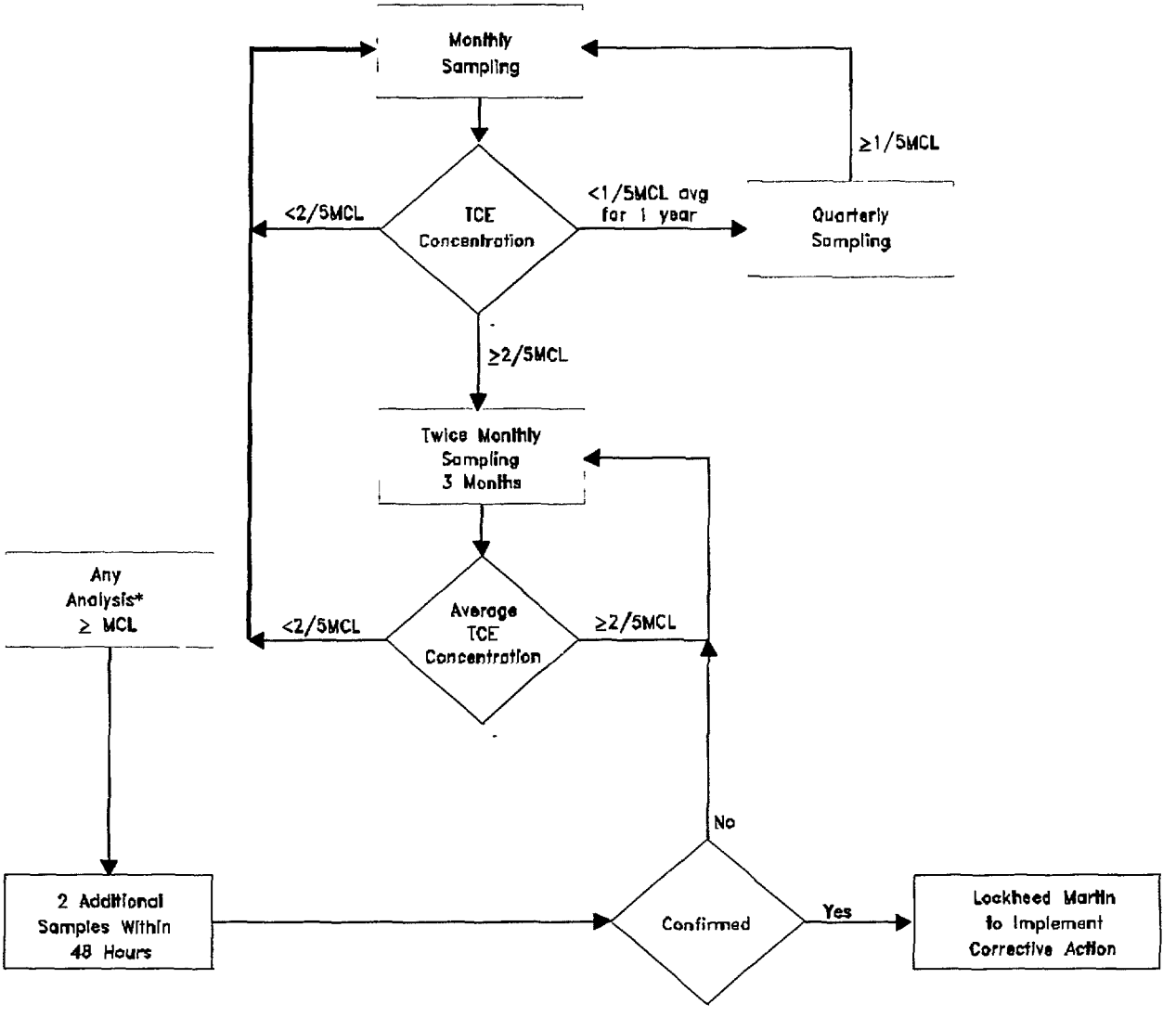
TITLE: WSCP Production Well Sampling Program
Perchlorate Data Results September 2003

LOCATION: LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A tyco INTERNATIONAL LTD COMPANY

CHECKED:	Lilas Cobb
DRAFTED:	Jeffrey Waugen
PROJ:	52773
DATE	11/17/03

FIGURE: 2



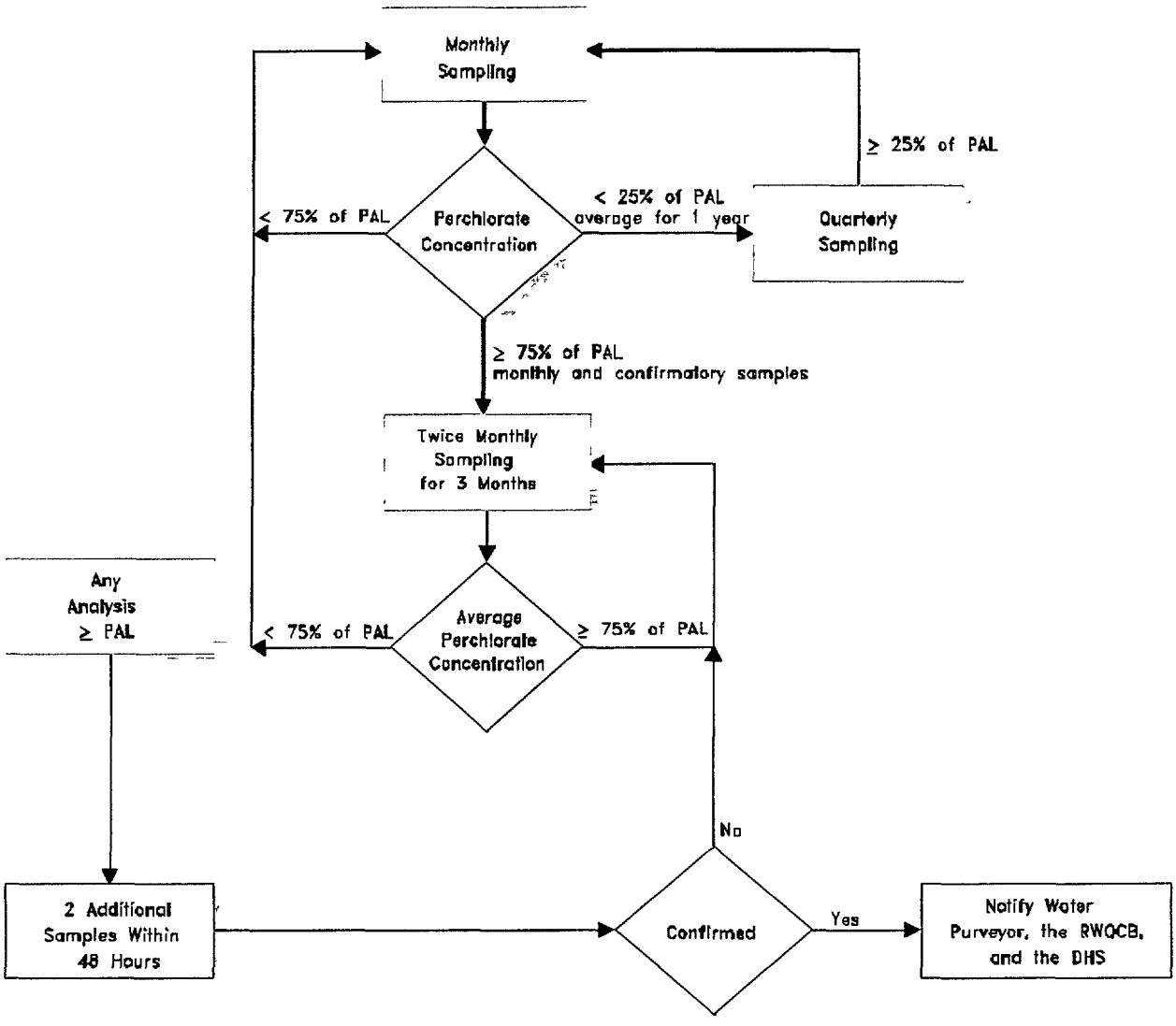
Footnote:

* If, at a specific well, blending is occurring to provide acceptable water for compounds other than TCE, then no corrective action may be necessary as long as the concentration of TCE is less than 5.0 µg/L in the finished water.

TCE MCL = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

L:\REMEDIATION\LMC\WSCP\CAD\TCEMATRIXFIG-3.dwg

TITLE: Decision Matrix for Sampling of Production Wells for TCE from the Crafton-Redlands Plume			
LOCATION: LOCKHEED MARTIN REDLANDS, CALIFORNIA			
EARTH TECH A tyco INTERNATIONAL LTD. COMPANY	CHECKED	Liles Cobb	FIGURE 3
	DRAFTED	Lee Mehr	
	PROJ.	3BB72	
	DATE	04/28/00	



Footnote:
Perchlorate Provisional Action Level (PAL) = 18 µg/L (California Department of Health Services, May 1997)

TITLE:	Decision Matrix for Sampling Production Wells for Perchlorate		
LOCATION:	LOCKHEED MARTIN REDLANDS, CALIFORNIA		
EARTH TECH A tyco INTERNATIONAL LTD COMPANY	CHECKED:	Liles Cobb	FIGURE.
	DRAFTED:	Lee Mehr	4
	PROJ.:	3BB72	
	DATE:	04/28/00	

L:\REMEDIATION\LMC\WSCP\CAD\PERCH.MATRIXFIG-4.dwg

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Energy, Environment, Safety & Health
2550 North Hollywood Way, Suite 301
Burbank, CA 91505
Facsimile 818-847-0256

LOCKHEED MARTIN

Via Federal Express
BUR1103/214 WBS#48

December 1, 2003

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: September 2003 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the September 2003 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in September 2003.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

Thomas D. Blackman, R.G., C.H.G.
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Don Hough, Riverside Highland Water Company
Ross Lewis, Gage Canal Company
Owen Lu, City of Riverside
Steve Mains, Western Municipal Water District
Morris Matson, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
Kevin Mayer, US EPA (Region IX)
Cindy Norried, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
St. Louis, MO 63105
Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

Seven W Enterprises, Inc.
1500 Crafton Avenue
P.O. Box 111
Redlands, CA 92373-1730
Attn: Janet M. Weder

bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Gail Rymer, LMC - Communications (Bethesda)
Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)

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2031707

December 23, 2003

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Subject: October 2003 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Telephone
562.951.2000
Facsimile
562.951.2100

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of October 2003.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in October (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the October 2003 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Three groundwater samples collected in October met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 μg/L); Gage 26-1 (4.4 μg/L), Gage 51-1 (6.7 μg/L) and Gage 66-1 (2.2 μg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 μg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the October WSCP sampling, perchlorate was detected at or above the new PAL (i.e., greater than or equal to 4.0 μg/L) in twelve wells and one water system sampling point including:

Richardson #1 (7.5 μg/L)
Gage 29-1 (8.2 μg/L)
Gage 66-1 (16 μg/L)
Hunt #6 (5.8 μg/L)
Raub #5 (4.8 μg/L)
RHWC #2 (7.3 μg/L)
Gage Arlington (5.1 μg/L)
Gage 26-1 (6.2 μg/L)
Gage 31-1 (9.2 μg/L)
Gage 92-1 (21 μg/L)
Raub #2 (37 μg/L)
Warren #1 (6.8 μg/L)
COR New York Street (15 μg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

Other Perchlorate Results

Additional wells outside the area of the Redlands plume were sampled for perchlorate during the October WSCP sampling. Perchlorate was detected in two of these wells at or above the PAL, including:

Stiles (12 μg/L)
VA Hospital Well (15 μg/L)

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: October 2003 Data Results
Table 2: Summary of October 2003 Water Level Measurements
Table 3: October 2003 Sample Identifications
Figure 1: TCE Data Results October 2003
Figure 2: Perchlorate Data Results October 2003
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
OCTOBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	10/2/2003	ND (4.0)	ND (0.5)
3171	Mountain View #4[c]	10/2/2003	ND (4.0)	ND (0.5)
3171	Mountain View #4[c] (Duplicate)	10/2/2003	ND (4.0)	ND (0.5)
3175	Mountain View #5[b]	NS	NS	NS
693	Richardson #1[b]	10/2/2003	7.5	0.78
707	Richardson #3[c]	10/1/2003	ND (4.0)	ND (0.5)
3132	Richardson #4[c]	10/2/2003	ND (4.0)	ND (0.5)
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend - Lawton[a]	10/1/2003	ND (4.0)	ND (0.5)
2968	Richardson Blend[a]	10/1/2003	ND (4.0)	ND (0.5)
Mountain View Power				
554	SCE #2 (AUX)[c]	10/2/2003	ND (4.0)	ND (0.5)
Loma Linda University				
267	LL Univ Anderson #2[b]	10/2/2003	ND (4.0)	NR
717	LL Univ Anderson #3[b]	10/7/2003	ND (4.0)	NR
City of Riverside (Gage System)				
252	Gage #26-1[bd]	10/1/2003	6.2	4.4
258	Gage #27-1[bd]	NS	NS	NS
259	Gage 27-2[b]	NS	NS	NS
260	Gage 29-1[b]	10/1/2003	8.2	ND (0.5)
219	Gage 29-2[bde]	NS	NS	NS
220	Gage 29-3[bde]	NS	NS	NS
218	Gage 30-1[c]	10/1/2003	ND (4.0)	ND (0.5)
214	Gage 31-1[b]	10/1/2003	9.2	1.7
214	Gage 31-1[b]	10/15/2003	NR	0.72
214	Gage 31-1[b] Duplicate	10/15/2003	NR	0.73
215	Gage 46-1[b]	NS	NS	NS
253	Gage 51-1[bde]	10/1/2003	NR	6.7
216	Gage 56-1[c]	10/1/2003	ND (4.0)	ND (0.5)
257	Gage 66-1[b]	10/7/2003	16	2.1
257	Gage 66-1[b]	10/15/2003	NR	2.2
644	Gage 92-1[bde]	10/1/2003	21	1.9
641	Gage 92-2[c]	10/1/2003	ND (4.0)	ND (0.5)
641	Gage 92-2[c] (Duplicate)	10/1/2003	ND (4.0)	ND (0.5)
642	Gage 92-3[c]	10/1/2003	NR	ND (0.5)
3091	Gage 98-1[c]	10/1/2003	ND (4.0)	ND (0.5)
City of Riverside (Waterman System)				
273	Hunt #6[b]	10/7/2003	5.8	NR
271	Hunt #10[b]	NS	NS	NS
272	Hunt #11[b]	NS	NS	NS
285	Garner #1[b]	NS	NS	NS
286	Garner #2[b]	NS	NS	NS
284	Garner #5[b]	NS	NS	NS
1908	Garner #6[b]	10/2/2003	ND (4.0)	NR
2576	Garner #7[b]	10/2/2003	ND (4.0)	NR
254	Raub #2[b]	10/7/2003	37.0	NR
224	Raub #3[b]	NS	NS	NS
255	Raub #4[b]	NS	NS	NS
222	Raub #5[b]	10/2/2003	4.8	NR
666	Raub #6[b]	10/2/2003	ND (4.0)	NR
665	Raub #8[b]	10/2/2003	ND (4.0)	NR
202	Scheuer[b]	NS	NS	NS
282	Stiles[b]	NS	NS	NS
249	Warren #1[b]	10/2/2003	6.8	NR
247	Warren #4[b]	NS	NS	NS

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
OCTOBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	10/7/2003	ND (4.0)	ND (0.5)
2947	Gage Delivery (Gage)[a]	10/7/2003	ND (4.0)	ND (0.5)
2947	Gage Delivery (Gage)[a] Duplicate	10/7/2003	ND (4.0)	ND (0.5)
2948	7th & Chicago (Reservoir)[a]	10/7/2003	ND (4.0)	ND (0.5)
3018	Gage Arlington[a]	10/7/2003	5.1	NR
City of Redlands				
542	COR Church St[b]	NS	NS	NS
29	COR Orange St[c]	10/15/2003	ND (4.0)	NR
29	COR Orange St[c] Duplicate	10/15/2003	ND (4.0)	NR
74	COR Rees[b]	NS	NS	NS
1029	COR Mission[b]	NS	NS	NS
65	COR #31A[b]	NS	NS	NS
265	COR #34[b]	NS	NS	NS
71	COR #35[b]	NS	NS	NS
75	COR #37[b]	NS	NS	NS
2673	COR #38[c]	NS	NS	NS
Riverside Highlands Water Company				
1354	RHWC #2[b]	10/7/2003	7.3	NR
1361	RHWC #5[b]	10/7/2003	ND (4.0)	NR
383	RHWC #18[b]	NS	NS	NS
Other Wells - Agricultural				
82	New York Street Well[b]	10/2/2003	15	NR
82	New York Street Well[b] Duplicate	10/2/2003	15	NR
81	COR #41[b]	NS	NS	NS
3174	VA Hospital Well[b]	10/15/2003	15	NR

Notes:

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314.0
TCE analyzed using EPA Method 502.2

a = Well/sample point sampled on monthly basis, if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis, if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
OCTOBER 2003 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	10/6/2003	184.00	1086	902	Pumping
3171	Mountain View #4	10/6/2003	278.00	1106	828	Pumping
3175	Mountain View #5	10/6/2003	183.00	1085	902	Pumping
693	Richardson #1	10/6/2003	221.00	1077	856	Pumping
707	Richardson #3	10/6/2003	258.00	1078.69	820.69	Pumping
3132	Richardson #4	10/6/2003	215.00	1074	859	Pumping
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	10/1/2003	NM	1075	NM	Pumping
717	LL Univ Anderson #3	10/1/2003	NM	1070	NM	Pumping
City of Riverside (Gage System)						
252	Gage #26-1	9/30/2003	122.80	1045.33	922.53	Pumping
258	Gage #27-1	9/30/2003	108.30	1044.64	936.34	Pumping
259	Gage #27-2	9/30/2003	102.70	1044.64	941.94	Static
260	Gage #29-1	9/30/2003	112.90	1044.43	931.53	Pumping
219	Gage #29-2	9/30/2003	113.30	1046.31	933.01	Pumping
220	Gage #29-3	9/30/2003	119.50	1048.75	929.25	Pumping
218	Gage #30-1	9/30/2003	210.90	1054.17	843.27	Pumping
214	Gage #31-1	9/30/2003	147.10	1054.64	907.54	Pumping
215	Gage #46-1	9/30/2003	115.80	1065.5	949.7	Static
253	Gage #51-1	9/30/2003	191.20	1044.64	853.44	Pumping
216	Gage #56-1	9/30/2003	223.30	1065.5	842.2	Pumping
257	Gage #66-1	9/30/2003	142.30	1044.85	902.55	Static
644	Gage #92-1	9/30/2003	194.70	1047.78	853.08	Pumping
641	Gage #92-2	9/30/2003	218.50	1053.38	834.88	Pumping
642	Gage #92-3	9/30/2003	226.60	1058.78	832.18	Pumping
3091	Gage #98-1	9/30/2003	228.10	1058.78	830.68	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015.5	NM	Pumping
271	Hunt #10	NM	NM	1017	NM	Static
272	Hunt #11	NM	NM	1015.7	NM	Static
City of Redlands						
542	COR Church St	10/1/2003	177.0	1344.8	1167.8	Static
29	COR Orange St	10/1/2003	157.0	1282	1125	Static
74	COR Rees	10/1/2003	313.0	1490	1177	Pumping
1029	COR Mission	10/1/2003	156.0	1130	974	Static
65	COR #31A	10/1/2003	196.0	1319	1123	Static
265	COR #34	10/1/2003	166.0	1090	924	Static
71	COR #35	10/1/2003	233.0	1395	1162	Static
75	COR #37	10/1/2003	206.0	1435	1229	Static
2673	COR #38	10/1/2003	NM	1220	NM	Static
81	COR #41	10/1/2003	187.0	1312	1125	Pumping
82	COR New York Street	10/1/2003	212.0	1310	1098	Pumping

Notes

All measurements reported in feet below measuring point (ft-bmp)

Water level measurements for all City of Loma Linda, City of Riverside, and City of Redlands wells were obtained by purveyor personnel

Elevations given in feet above mean sea level (ft-msl)

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
OCTOBER 2003 SAMPLE IDENTIFICATIONS

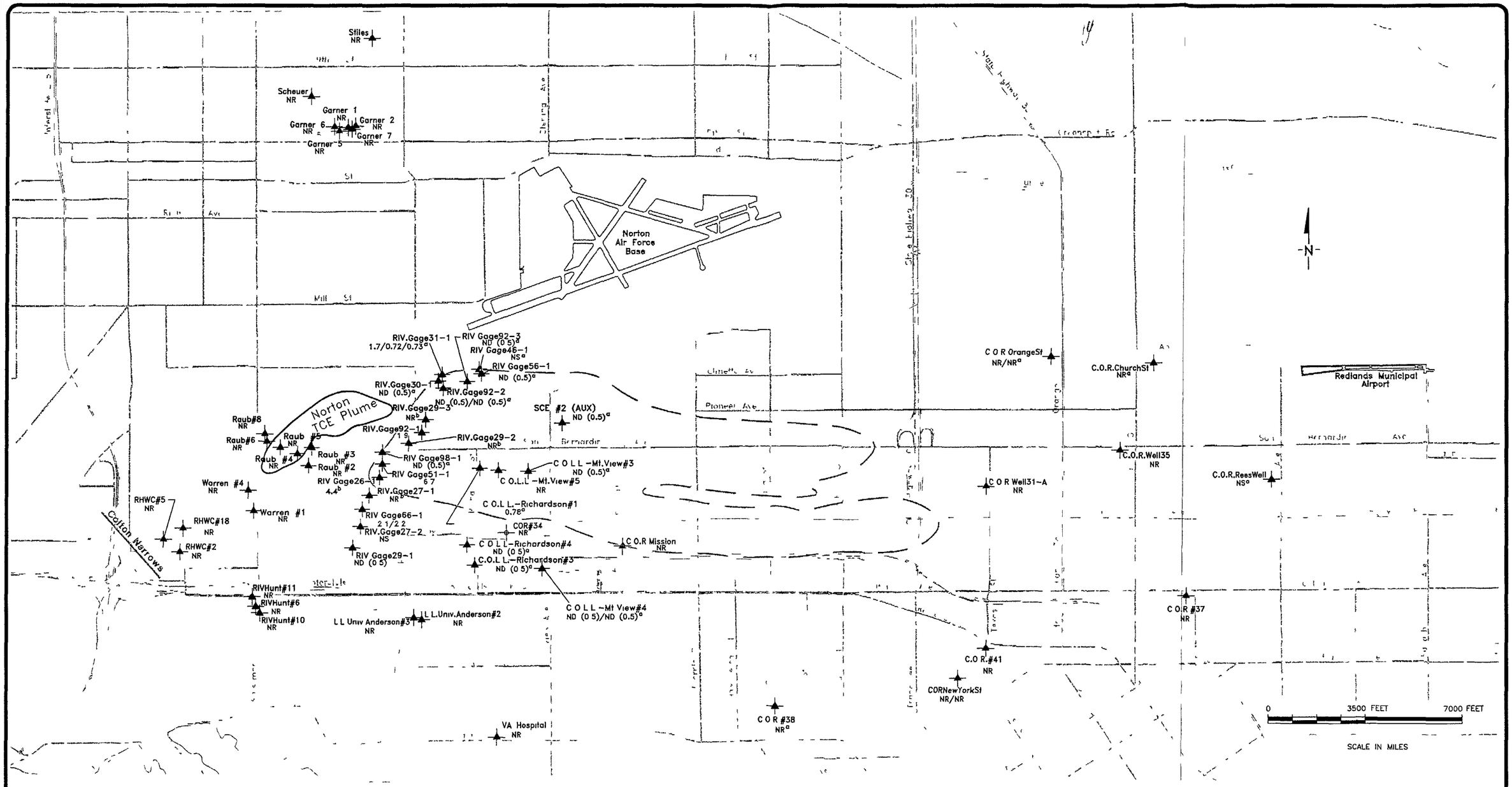
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	10/2/2003	8:40	GW-10-16	Yes	Yes
3171	Mountain View #4	10/2/2003	9:40	GW-10-17	Yes	Yes
3171	Mountain View #4 Duplicate	10/2/2003	9:45	GW-10-18	Yes	Yes
693	Richardson #1	10/2/2003	8:05	GW-10-15	Yes	Yes
707	Richardson #3	10/1/2003	15:35	GW-10-13	Yes	Yes
3132	Richardson #4	10/2/2003	10:10	GW-10-19	Yes	Yes
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	10/1/2003	16:00	GW-10-14	Yes	Yes
2968	Richardson Blend	10/1/2003	15:15	GW-10-12	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	10/2/2003	10:45	GW-10-20	Yes	Yes
Loma Linda University						
267	LL Univ Anderson #2	10/2/2003	13:40	GW-10-24	Yes	NR
717	LL Univ Anderson #3	10/7/2003	10:05	GW-10-35	Yes	NR
City of Riverside (Gage System)						
252	Gage #26-1	10/1/2003	14:30	GW-10-11	Yes	Yes
258	Gage #27-1	NS	NS	NS	NS	NS
259	Gage #27-2	NS	NS	NS	NS	NS
260	Gage #29-1	10/1/2003	10:25	GW-10-1	Yes	NR
219	Gage #29-2	NS	NS	NS	NS	NS
220	Gage #29-3	NS	NS	NS	NS	NS
218	Gage #30-1	10/1/2003	13:20	GW-10-8	Yes	Yes
214	Gage #31-1	10/1/2003	13:35	GW-10-9	Yes	Yes
214	Gage #31-1	10/15/2003	10:20	GW-10-42	NR	Yes
214	Gage #31-1 Duplicate	10/15/2003	10:25	GW-10-43	NR	Yes
215	Gage #46-1	NS	NS	NS	NS	NS
253	Gage #51-1	10/1/2003	11:15	GW-10-2	NR	Yes
216	Gage #56-1	10/1/2003	12:15	GW-10-4	Yes	Yes
257	Gage #66-1	10/7/2003	11:55	GW-10-40	Yes	Yes
257	Gage #66-1	10/15/2003	9:40	GW-10-41	Yes	Yes
644	Gage #92-1	10/1/2003	11:47	GW-10-3	Yes	Yes
641	Gage #92-2	10/1/2003	12:55	GW-10-6	Yes	Yes
641	Gage #92-2 Duplicate	10/1/2003	13:00	GW-10-7	Yes	Yes
642	Gage #92-3	10/1/2003	12:40	GW-10-5	NR	Yes
3091	Gage #98-1	10/1/2003	14:15	GW-10-10	Yes	Yes
City of Riverside (Waterman System)						
273	Hunt #6	10/7/2003	10:25	GW-10-36	Yes	NR
271	Hunt #10	NS	NS	NS	NS	NS
272	Hunt #11	NS	NS	NS	NS	NS
285	Garner #1	NS	NS	NS	NS	NS
286	Garner #2	NS	NS	NS	NS	NS
284	Garner #5	NS	NS	NS	NS	NS
1908	Garner #6	10/2/2003	12:40	GW-10-22	Yes	NR
2576	Garner #7	10/2/2003	12:20	GW-10-21	Yes	NR
254	Raub #2	10/7/2003	10:45	GW-10-37	Yes	NR
224	Raub #3	NS	NS	NS	NS	NS
255	Raub #4	NS	NS	NS	NS	NS
222	Raub #5	10/2/2003	14:55	GW-10-27	Yes	NR
666	Raub #6	10/2/2003	14:40	GW-10-26	Yes	NR
665	Raub #8	10/2/2003	14:25	GW-10-25	Yes	NR
202	Scheuer	NS	NS	NS	NS	NR
282	Stiles	NS	NS	NS	NS	NS
249	Warren #1	10/2/2003	7:45	GW-10-23	Yes	NR
247	Warren #4	NS	NS	NS	NS	NS
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	10/7/2003	8:55	GW-10-34	Yes	Yes
2947	Gage Delivery (Gage)	10/7/2003	8:30	GW-10-32	Yes	Yes
2947	Gage Delivery (Gage) Duplicate	10/7/2003	8:35	GW-10-33	Yes	Yes
2948	7th & Chicago (Reservoir)	10/7/2003	8:15	GW-10-31	Yes	Yes

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
OCTOBER 2003 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
3018	Gage Arlington	10/7/2003	7:45	GW-10-30	Yes	NR
City of Redlands						
542	COR Church St	NS	NS	NS	NS	NS
29	COR Orange St	10/15/2003	11:40	GW-10-44	Yes	NR
29	COR Orange St (Duplicate)	10/15/2003	11:45	GW-10-45	Yes	NR
74	COR Rees	NS	NS	NS	NS	NS
1029	COR Mission	NS	NS	NS	NS	NR
65	COR #31A	NS	NS	NS	NS	NR
265	COR #34	NS	NS	NS	NS	NR
71	COR #35	NS	NS	NS	NS	NR
75	COR #37	NS	NS	NS	NS	NR
2673	COR #38	NS	NS	NS	NS	NS
Riverside Highlands						
1354	RHWC #2	10/7/2003	11:30	GW-10-39	Yes	NR
1361	RHWC #5	10/7/2003	11:15	GW-10-38	Yes	NR
383	RHWC #18	NS	NS	NS	NS	NS
Other Wells - Agricultural						
82	New York Street	10/2/2003	16:05	GW-10-28	Yes	NR
82	New York Street Duplicate	10/2/2003	16:10	GW-10-29	Yes	NR
81	COR #41	NS	NS	NS	NS	NS
3174	VA Hospital Well	10/15/2003	13:15	GW-10-46	Yes	NR

FIGURES



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- 3.2 TCE Results (µg\L)
  - a Bimonthly Sampling Results
  - b Well Currently Being Treated for TCE
  - c Water Purged to Waste and not Into System
- Approximate TCE Plume Location 5 µg\L (2002 Interpretation of Redlands Plume)
- Approximate TCE Plume Location 5 µg/L (Earth Tech April 2002 Interpretation of Norton AFB Plume)

ND(0.5) Not Detected at Indicated Detection Limit
NS Not Sampled
NA Not Analyzed
* Twice-Monthly Sampling Results
NR Not Required

Blending Point Sampling Data

ND (0.5)	C.O.L.L. Mountain View Blend – Lawton
ND (0.5)	C.O.L.L. Richardson Blend
ND 0.5)	Riv. Iowa Booster (Waterman)
ND (0.5)/ND (0.5)	Riv Gage Delivery (Gage)
ND (0.5)	Riv. 7th + Chicago (Reservoir)
NR	Gage Arlington

TITLE WSCP Production Well Sampling Program
TCE Data Results October 2003

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
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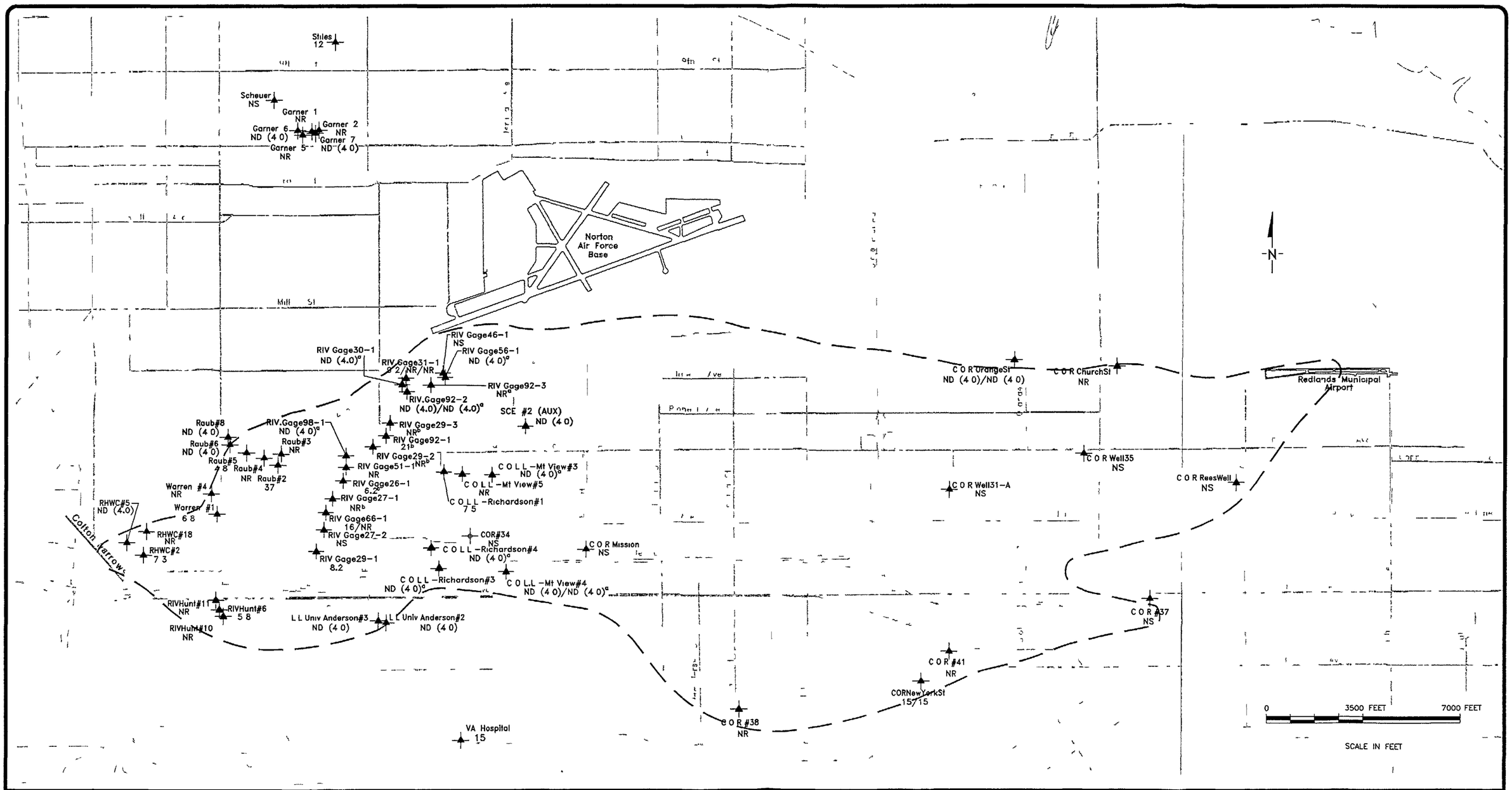
CHECKED	Liles Cobb	FIGURE
DRAFTED	Jeffrey Waugen	1
PROJ	52773	
DATE	12/22/03	



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- Approximate 4 µg/L Perchlorate Plume Location (2002 Interpretation)
- * Twice-Monthly Sampling Results

46 Perchlorate (µg/L) Results
ND(4.0) Not Detected at Indicated Detection Limit
NS Not Sampled
a Bimonthly Sampling Results
b Water Purged to Waste and not Into System

Blending Point Sampling Data

ND (4.0)	C O L L Mountain View Blend - Lawton
ND (4.0)	C O.L L Richardson Blend
ND (4.0)	Riv. Iowa Booster (Waterman)
ND (4.0)/ND (4.0)	Riv Gage Delivery (Gage)
ND (4.0)	Riv. 7th + Chicago (Reservoir)
5.1	Gage Arlington

TITLE WSCP Production Well Sampling Program
Perchlorate Data Results October 2003

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
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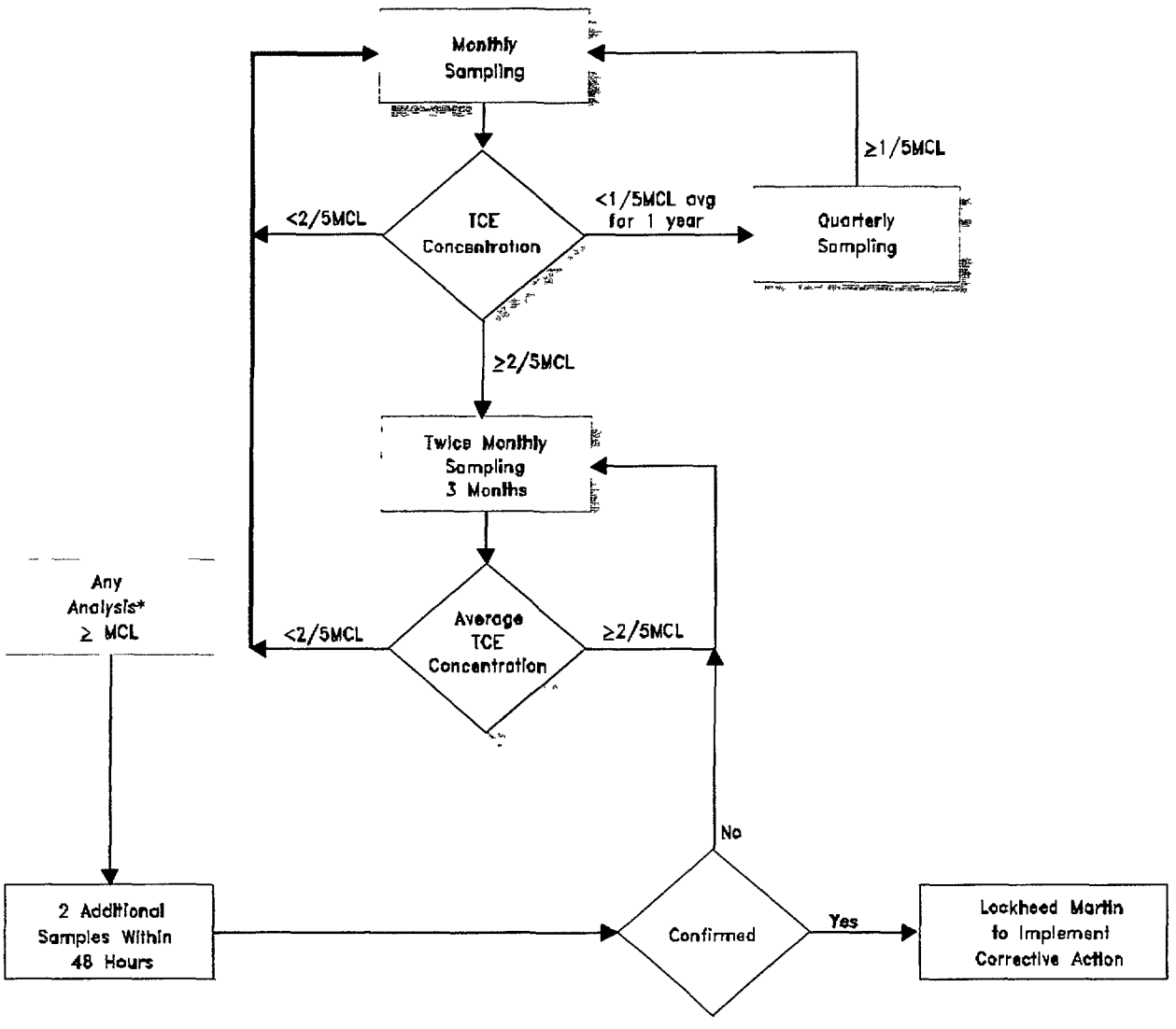
CHECKED	Liles Cobb
DRAFTED	Jeffrey Waugen
PROJ	52773
DATE	12/22/03

FIGURE 2



Footnote:

* If, at a specific well, blending is occurring to provide acceptable water for compounds other than TCE, then no corrective action may be necessary as long as the concentration of TCE is less than 5.0 µg/L in the finished water.

TCE MCL = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

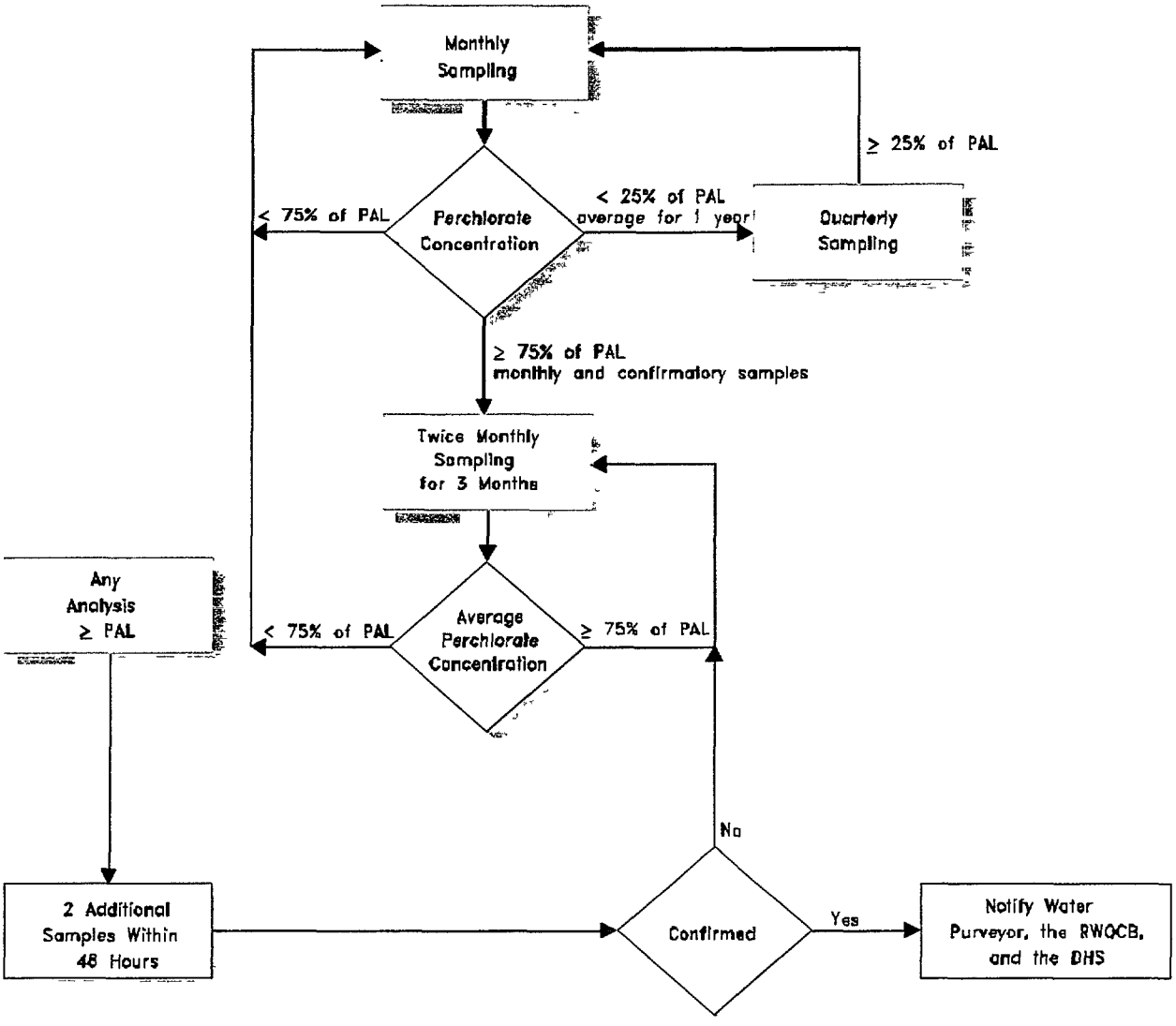
L:\REMEDIATION\LMC\WSCP\CAD\TCEMATRIXFIG-3.dwg

TITLE: Decision Matrix for Sampling of Production Wells for TCE from the Crafton-Redlands Plume

LOCATION: LOCKHEED MARTIN REDLANDS, CALIFORNIA

EARTH TECH
A Tyco INTERNATIONAL LTD COMPANY

CHECKED	Liles Cobb	FIGURE
DRAFTED	Lee Mehr	3
PROJ	3BB72	
DATE	04/28/00	



Footnote:
Perchlorate Provisional Action Level (PAL) = 18 µg/L (California Department of Health Services, May 1997)

TITLE:	Decision Matrix for Sampling Production Wells for Perchlorate		
LOCATION:	LOCKHEED MARTIN REDLANDS, CALIFORNIA		
EARTH TECH A tyco INTERNATIONAL LTD COMPANY	CHECKED:	Liles Cobb	FIGURE:
	DRAFTED:	Lee Mehr	4
	PROJ.:	38872	
	DATE	04/28/00	

L:\REMEDIATION\LMC\WSCP\CAD\PERCH.MATRIXFIG-4.dwg

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Energy Environment Safety & Health
2550 North Hollywood Way, Suite 301
Burbank, CA 91505
Facsimile 818 847 0256

LOCKHEED MARTIN

Via Federal Express
BUR1203/235 WBS#48

December 23, 2003

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: October 2003 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the October 2003 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in October 2003.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

for Thomas D. Blackman, R.G., C.H.G.
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Don Hough, Riverside Highland Water Company
Ross Lewis, Gage Canal Company
Owen Lu, City of Riverside
Steve Mains, Western Municipal Water District
Morris Matson, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
√Kevin Mayer, US EPA (Region IX)
Cindy Norried, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
St. Louis, MO 63105
Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

Seven W Enterprises, Inc.
1500 Crafton Avenue
P.O. Box 111
Redlands, CA 92373-1730
Attn: Janet M. Weder

bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Gail Rymer, LMC - Communications (Bethesda)
Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)

EARTH TECH™

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2036707

100 West Broadway, Suite 240, Long Beach, California 90802-4443

January 29, 2004

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Telephone
562.951 2000
Facsimile
562.951 2100

Subject: November 2003 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of November 2003.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in November (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the November 2003 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Two groundwater samples collected in November met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 μg/L); Gage 29-2 (4.7 μg/L) and Gage 29-3 (4.7 μg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 μg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the November WSCP sampling, perchlorate was detected at or above the new PAL (i.e., greater than or equal to 4.0 μg/L) in six wells and three water system sampling points including:

Gage 27-1 (8.9 μg/L)
Gage 29-3 (22 μg/L)
RHWC #18 (12 μg/L)
Iowa Booster (6.5 μg/L)
7th & Chicago (4.5 μg/L)
Gage 29-2 (9.6 μg/L)
Raub #4 (21 μg/L)
COR #41(8.5 μg/L)
Gage Delivery (4.6 μg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

Other Perchlorate Results

Additional wells outside the area of the Redlands plume were sampled for perchlorate during the November WSCP sampling. Perchlorate was detected in two of these wells at or above the PAL, including:

Garner #5 (4.5 μg/L)
Stiles (12 μg/L)

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

R Lile Hill for

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: November 2003 Data Results
Table 2: Summary of November 2003 Water Level Measurements
Table 3: November 2003 Sample Identifications
Figure 1: TCE Data Results November 2003
Figure 2: Perchlorate Data Results November 2003
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
NOVEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	NS	NS	NS
3171	Mountain View #4[c]	NS	NS	NS
3175	Mountain View #5[b]	11/3/2003	ND (4.0)	ND (0.5)
693	Richardson #1[b]	11/3/2003	NR	1.4
707	Richardson #3[c]	NS	NS	NS
3132	Richardson #4[c]	NS	NS	NS
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend - Lawton[a]	11/3/2003	ND (4.0)	ND (0.5)
2968	Richardson Blend[a]	11/3/2003	ND (4.0)	ND (0.5)
Mountain View Power				
554	SCE #2 (AUX)[c]	NS	NS	NS
Loma Linda University				
267	LL Univ Anderson #2[b]	NS	NS	NS
717	LL Univ Anderson #3[b]	NS	NS	NS
City of Riverside (Gage System)				
252	Gage #26-1[bd]	NS	NS	NS
258	Gage #27-1[bd]	11/4/2003	8.9	0.69
259	Gage 27-2[b]	NS	NS	NS
260	Gage 29-1[b]	NS	NS	NS
219	Gage 29-2[bde]	11/4/2003	9.6	4.7
220	Gage 29-3[bde]	11/4/2003	22	4.7
218	Gage 30-1[c]	NS	NS	NS
214	Gage 31-1[b]	NS	NS	NS
215	Gage 46-1[b]	11/4/2003	26	ND (0.5)
253	Gage 51-1[bde]	NS	NS	NS
216	Gage 56-1[c]	NS	NS	NS
257	Gage 66-1[b]	NS	NS	NS
644	Gage 92-1[bde]	NS	NS	NS
641	Gage 92-2[c]	NS	NS	NS
642	Gage 92-3[c]	11/4/2003	ND (4.0)	NR
642	Gage 92-3[c] (Duplicate)	11/4/2003	ND (4.0)	NR
3091	Gage 98-1[c]	NS	NS	NS
City of Riverside (Waterman System)				
273	Hunt #6[b]	NS	NS	NS
271	Hunt #10[b]	NS	NS	NS
272	Hunt #11[b]	NS	NS	NS
285	Garner #1[b]	11/4/2003	ND (4.0)	NR
286	Garner #2[b]	NS	NS	NS
284	Garner #5[b]	11/4/2003	4.5	NR
1908	Garner #6[b]	NS	NS	NS
2576	Garner #7[b]	NS	NS	NS
254	Raub #2[b]	NS	NS	NS
224	Raub #3[b]	NS	NS	NS
255	Raub #4[b]	11/3/2003	21	NR
222	Raub #5[b]	NS	NS	NS
666	Raub #6[b]	NS	NS	NS
665	Raub #8[b]	NS	NS	NS
202	Scheuer[b]	NS	NS	NS
282	Stiles[b]	11/4/2003	12	NR
249	Warren #1[b]	NS	NS	NS
247	Warren #4[b]	11/3/2003	ND (4.0)	NR

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
NOVEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	11/4/2003	6.5	ND (0.5)
2946	Iowa Booster (Waterman)[a] Duplicate	11/4/2003	5.4	ND (0.5)
2947	Gage Delivery (Gage)[a]	11/4/2003	4.6	ND (0.5)
2948	7th & Chicago (Reservoir)[a]	11/4/2003	4.5	ND (0.5)
3018	Gage Arlington[a]	11/4/2003	ND (4.0)	NR
City of Redlands				
542	COR Church St[b]	NS	NS	NS
29	COR Orange St[c]	NS	NS	NS
74	COR Rees[b]	NS	NS	NS
1029	COR Mission[b]	NS	NS	NS
65	COR #31A[b]	NS	NS	NS
265	COR #34[b]	NS	NS	NS
71	COR #35[b]	NS	NS	NS
75	COR #37[b]	NS	NS	NS
2673	COR #38[c]	NS	NS	NS
Riverside Highlands Water Company				
1354	RHWC #2[b]	NS	NS	NS
1361	RHWC #5[b]	NS	NS	NS
383	RHWC #18[b]	11/3/2003	5.9	NR
Other Wells - Agricultural				
82	New York Street Well[b]	NS	NS	NS
81	COR #41[b]	11/4/2003	8.5	NR
3174	VA Hospital Well[b]	NS	NS	NS

Notes:

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314.0
TCE analyzed using EPA Method 502.2

a = Well/sample point sampled on monthly basis, if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis, if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
NOVEMBER 2003 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	11/3/2003	180.00	1086	906	Pumping
3171	Mountain View #4	11/3/2003	272.00	1106	834	Pumping
3175	Mountain View #5	11/3/2003	187.00	1085	898	Pumping
693	Richardson #1	11/3/2003	205.00	1077	872	Pumping
707	Richardson #3	11/3/2003	246.00	1078.69	832.69	Pumping
3132	Richardson #4	11/3/2003	224.00	1074	850	Pumping
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	11/3/2003	NM	1075	NM	Static
717	LL Univ Anderson #3	11/3/2003	NM	1070	NM	Static
City of Riverside (Gage System)						
252	Gage #26-1	10/15/2003	118.20	1045.33	927.13	Pumping
258	Gage #27-1	10/15/2004	110.80	1044.64	933.84	Pumping
259	Gage #27-2	10/15/2003	118.40	1044.64	926.24	Pumping
260	Gage #29-1	10/15/2004	NM	1044.43	NM	Static
219	Gage #29-2	10/15/2003	102.70	1046.31	943.61	Pumping
220	Gage #29-3	10/15/2003	94.80	1048.75	953.95	Static
218	Gage #30-1	10/15/2004	209.00	1054.17	845.17	Pumping
214	Gage #31-1	10/15/2004	127.80	1054.64	926.84	Pumping
215	Gage #46-1	10/15/2003	161.90	1065.5	903.6	Pumping
253	Gage #51-1	10/15/2003	168.70	1044.64	875.94	Pumping
216	Gage #56-1	10/15/2003	209.60	1065.5	855.9	Pumping
257	Gage #66-1	10/15/2003	124.90	1044.85	919.95	Static
644	Gage #92-1	10/15/2003	170.70	1047.78	877.08	Static
641	Gage #92-2	10/15/2003	258.90	1053.38	794.48	Pumping
642	Gage #92-3	10/15/2003	231.20	1058.78	827.58	Pumping
3091	Gage #98-1	10/15/2003	217.00	1058.78	841.78	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015.5	NM	Pumping
271	Hunt #10	NM	NM	1017	NM	Pumping
272	Hunt #11	NM	NM	1015.7	NM	Pumping
City of Redlands						
542	COR Church St	11/3/2003	176.0	1344.8	1168.8	Static
29	COR Orange St	11/3/2003	138.0	1282	1144	Pumping
74	COR Rees	11/3/2003	279.0	1490	1211	Static
1029	COR Mission	11/3/2003	161.0	1130	969	Static
65	COR #31A	11/3/2003	194.0	1319	1125	Static
265	COR #34	11/3/2003	157.0	1090	933	Static
71	COR #35	11/3/2003	231.0	1395	1164	Static
75	COR #37	11/3/2003	205.0	1435	1230	Static
2673	COR #38	11/3/2003	103.0	1220	1117	Static
81	COR #41	11/3/2003	182.0	1312	1130	Static

Notes:

All measurements reported in feet below measuring point (ft-bmp)

Water level measurements for all City of Loma Linda, City of Riverside, and City of Redlands wells were obtained by purveyor personnel.

Elevations given in feet above mean sea level (ft-msl)

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
NOVEMBER 2003 SAMPLE IDENTIFICATIONS

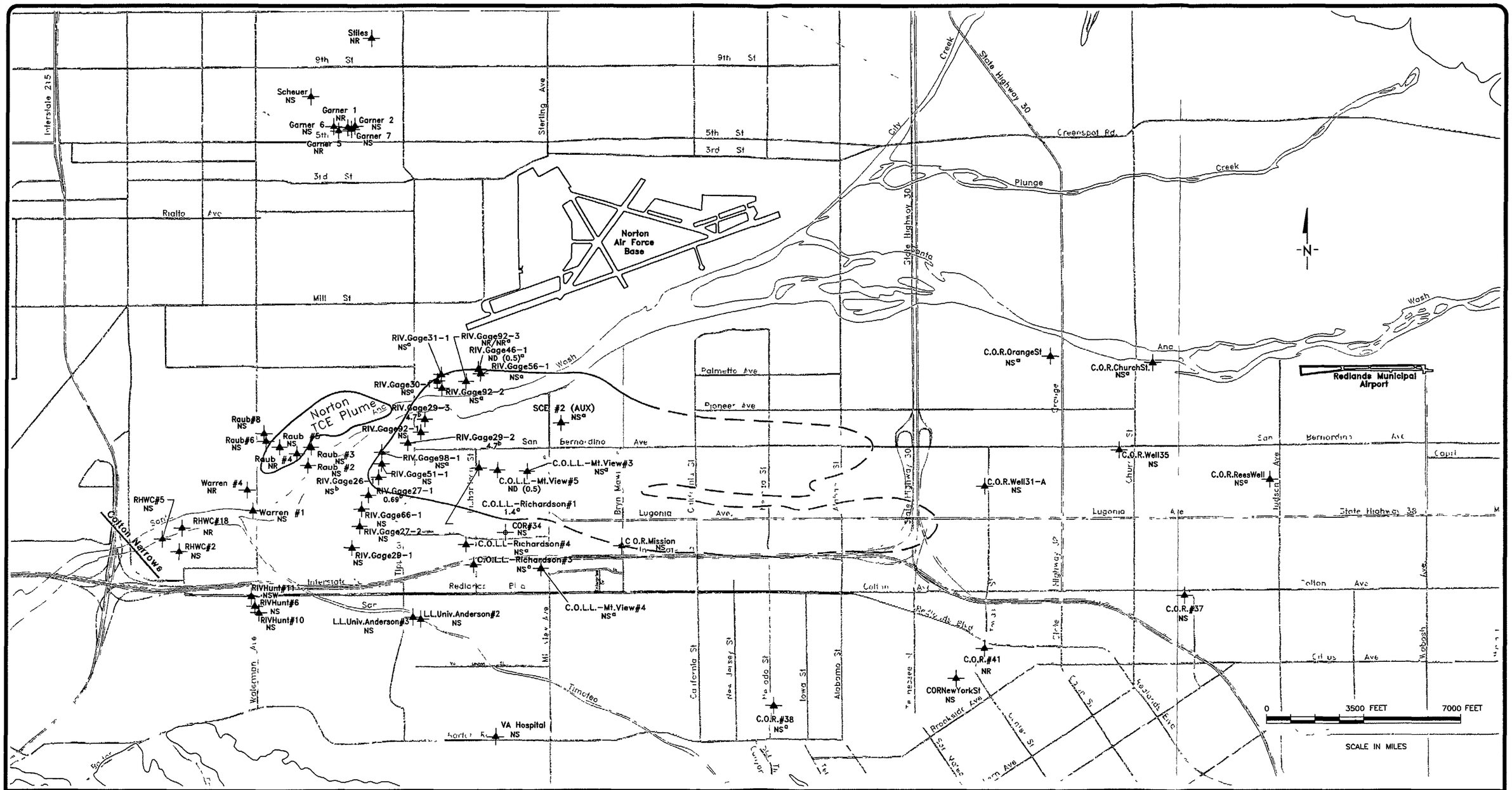
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	NS	NS	NS	NS	NS
3171	Mountain View #4	NS	NS	NS	NS	NS
3175	Mountain View #5	11/3/2003	7:45	GW-11-1	Yes	Yes
693	Richardson #1	11/3/2003	8:30	GW-11-2	NR	Yes
707	Richardson #3	NS	NS	NS	NS	NS
3132	Richardson #4	NS	NS	NS	NS	NS
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	11/3/2003	12:15	GW-11-6	Yes	Yes
2968	Richardson Blend	11/3/2003	13:15	GW-11-7	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	NS	NS	NS	NS	NS
Loma Linda University						
267	LL Univ Anderson #2	NS	NS	NS	NS	NS
717	LL Univ Anderson #3	NS	NS	NS	NS	NS
City of Riverside (Gage System)						
252	Gage #26-1	NS	NS	NS	NS	NS
258	Gage #27-1	11/4/2003	13:30	GW-11-18	Yes	Yes
259	Gage #27-2	NS	NS	NS	NS	NS
260	Gage #29-1	NS	NS	NS	NS	NS
219	Gage #29-2	11/4/2003	13:10	GW-11-17	Yes	Yes
220	Gage #29-3	11/4/2003	14:40	GW-11-22	Yes	Yes
218	Gage #30-1	NS	NS	NS	NS	NS
214	Gage #31-1	NS	NS	NS	NS	NS
215	Gage #46-1	11/4/2003	14:00	GW-11-19	Yes	Yes
253	Gage #51-1	NS	NS	NS	NS	NS
216	Gage #56-1	NS	NS	NS	NS	NS
257	Gage #66-1	NS	NS	NS	NS	NS
644	Gage #92-1	NS	NS	NS	NS	NS
641	Gage #92-2	NS	NS	NS	NS	NS
642	Gage #92-3	11/4/2003	14:20	GW-11-20	Yes	NR
642	Gage #92-3 (Duplicate)	11/4/2003	14:25	GW-11-21	Yes	NR
3091	Gage #98-1	NS	NS	NS	NS	NS
City of Riverside (Waterman System)						
273	Hunt #6	NS	NS	NS	NS	NS
271	Hunt #10	NS	NS	NS	NS	NS
272	Hunt #11	NS	NS	NS	NS	NS
285	Garner #1	11/4/2003	12:00	GW-11-15	Yes	NR
286	Garner #2	NS	NS	NS	NS	NS
284	Garner #5	11/4/2003	12:20	GW-11-16	Yes	NR
1908	Garner #6	NS	NS	NS	NS	NS
2576	Garner #7	NS	NS	NS	NS	NS
254	Raub #2	NS	NS	NS	NS	NS
224	Raub #3	NS	NS	NS	NS	NS
255	Raub #4	11/3/2003	9:10	GW-11-3	Yes	NR
222	Raub #5	NS	NS	NS	NS	NS
666	Raub #6	NS	NS	NS	NS	NS
665	Raub #8	NS	NS	NS	NS	NS
202	Scheuer	NS	NS	NS	NS	NS
282	Stiles	11/4/03	11:00	GW-11-14	Yes	NR
249	Warren #1	NS	NS	NS	NS	NS
247	Warren #4	11/3/2003	11:45	GW-11-5	Yes	NR
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	11/4/2003	8:15	GW-11-9	Yes	Yes
2946	Iowa Booster (Waterman) Duplicate	11/4/2003	8:25	GW-11-10	Yes	Yes
2947	Gage Delivery (Gage)	11/4/2003	8:45	GW-11-11	Yes	Yes
2948	7th & Chicago (Reservoir)	11/4/2003	9:10	GW-11-12	Yes	Yes
3018	Gage Arlington	11/4/2003	10:10	GW-11-13	Yes	NR

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
NOVEMBER 2003 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Redlands						
542	COR Church St	NS	NS	NS	NS	NS
29	COR Orange St	NS	NS	NS	NS	NS
74	COR Rees	NS	NS	NS	NS	NS
1029	COR Mission	NS	NS	NS	NS	NS
65	COR #31A	NS	NS	NS	NS	NS
265	COR #34	NS	NS	NS	NS	NS
71	COR #35	NS	NS	NS	NS	NS
75	COR #37	NS	NS	NS	NS	NS
2673	COR #38	NS	NS	NS	NS	NS
Riverside Highlands						
1354	RHWC #2	NS	NS	NS	NS	NS
1361	RHWC #5	NS	NS	NS	NS	NS
383	RHWC #18	11/3/03	10:10	GW-11-4	Yes	NR
Other Wells - Agricultural						
82	New York Street	NS	NS	NS	NS	NS
81	COR #41	11/4/03	7:30	GW-11-8	Yes	NR
3174	VA Hospital Well	NS	NS	NS	NS	NS

FIGURES



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- 3.2 TCE Results (µg\L)
  - a Bimonthly Sampling Results
  - b Well Currently Being Treated for TCE
  - c Water Purged to Waste and not Into System
- Approximate TCE Plume Location 5 µg\L (2003 Interpretation of Redlands Plume)
- Approximate TCE Plume Location 5 µg/L (Earth Tech 2003 Interpretation of Norton AFB Plume)

ND(0.5) Not Detected at Indicated Detection Limit
NS Not Sampled
NA Not Analyzed
NR Not Required

Blending Point Sampling Data

ND (0.5)	C.O.L.L. Mountain View Blend – Lawton
ND (0.5)	C.O.L.L. Richardson Blend
ND (0.5)/ND (0.5)	Riv. Iowa Booster (Waterman)
ND (0.5)	Riv. Gage Delivery (Gage)
ND (0.5)	Riv. 7th + Chicago (Reservoir)
NR	Gage Arlington

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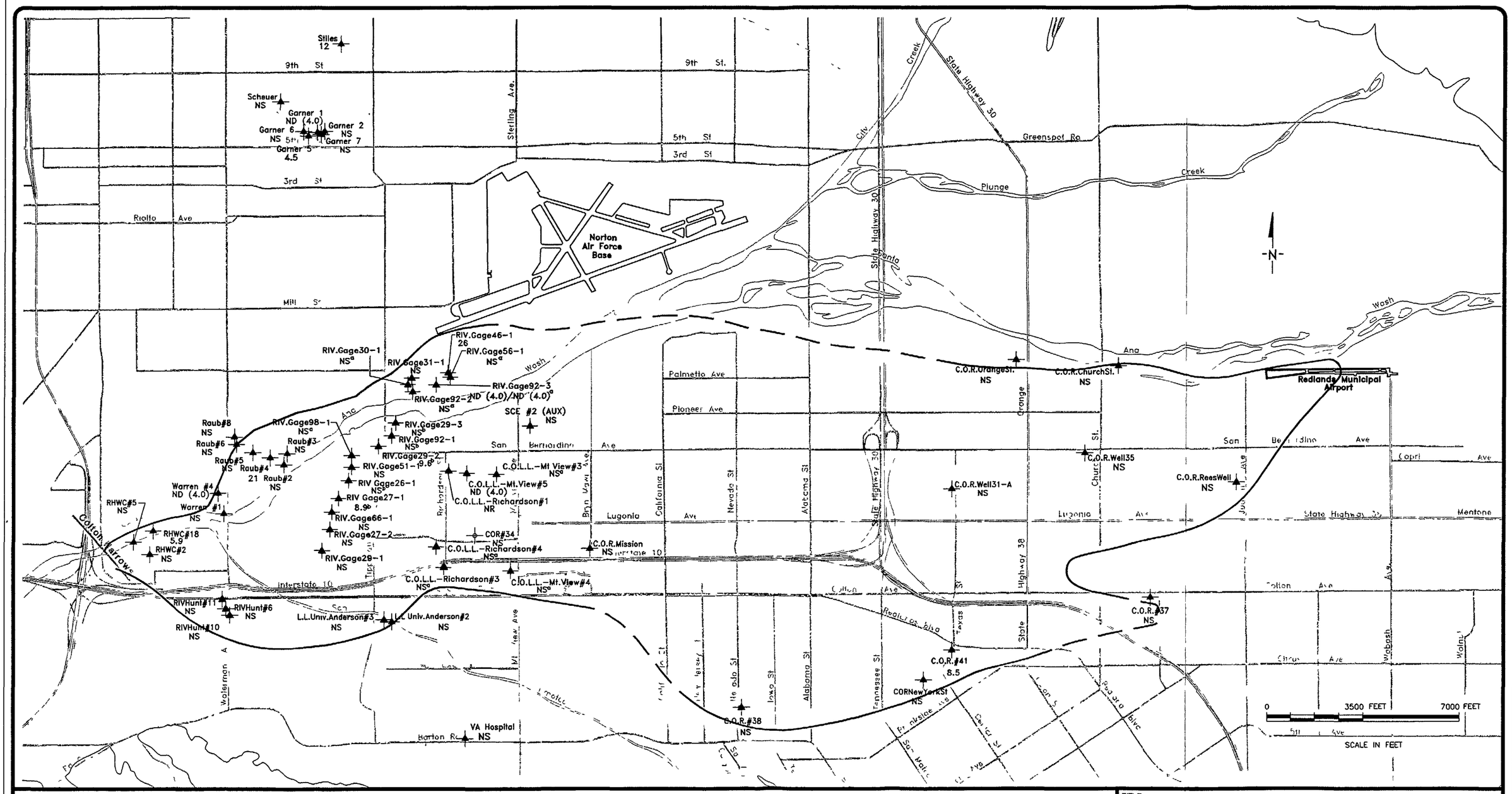
TITLE WSCP Production Well Sampling Program
TCE Data Results November 2003

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb	FIGURE
DRAFTED	Jeffrey Waugen	1
PROJ	52773	
DATE	12/22/03	



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- Approximate 4 µg/L Perchlorate Plume Location (2003 Interpretation)

46	Perchlorate (µg/L) Results
ND(4.0)	Not Detected at Indicated Detection Limit
NS	Not Sampled
a	Bimonthly Sampling Results
b	Water Purged to Waste and not Into System

Blending Point Sampling Data

ND (4.0)	C.O.L.L. Mountain View Blend – Lawton
ND (4.0)	C.O.L.L. Richardson Blend
6.5/5.4	Riv. Iowa Booster (Waterman)
4.6	Riv. Gage Delivery (Gage)
4.5	Riv. 7th + Chicago (Reservoir)
ND (4.0)	Gage Arlington

TITLE WSCP Production Well Sampling Program
Perchlorate Data Results November 2003

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A Tyco INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb	FIGURE.
DRAFTED	Jeffrey Waugen	2
PROJ	52773	
DATE	12/22/03	

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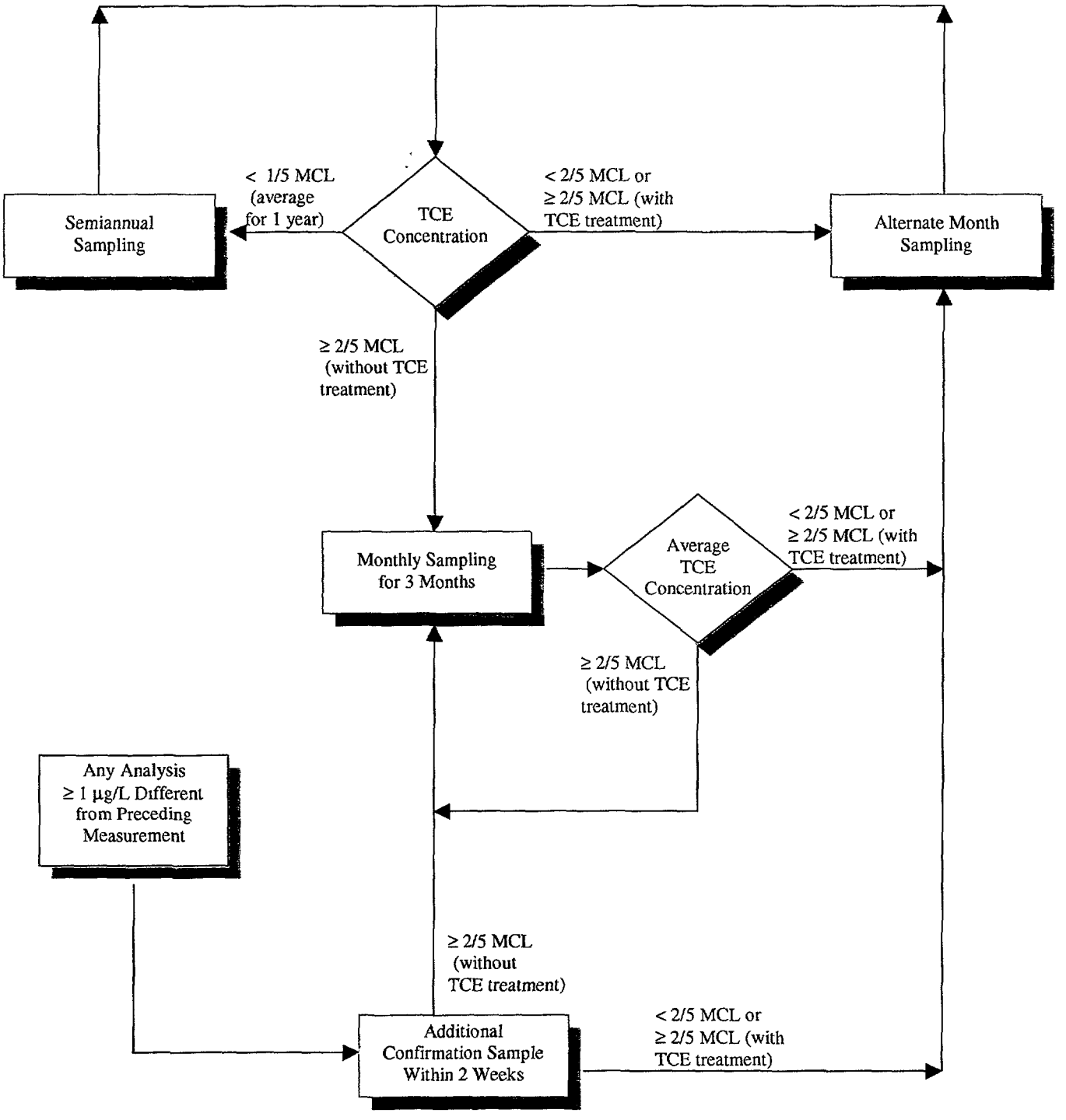


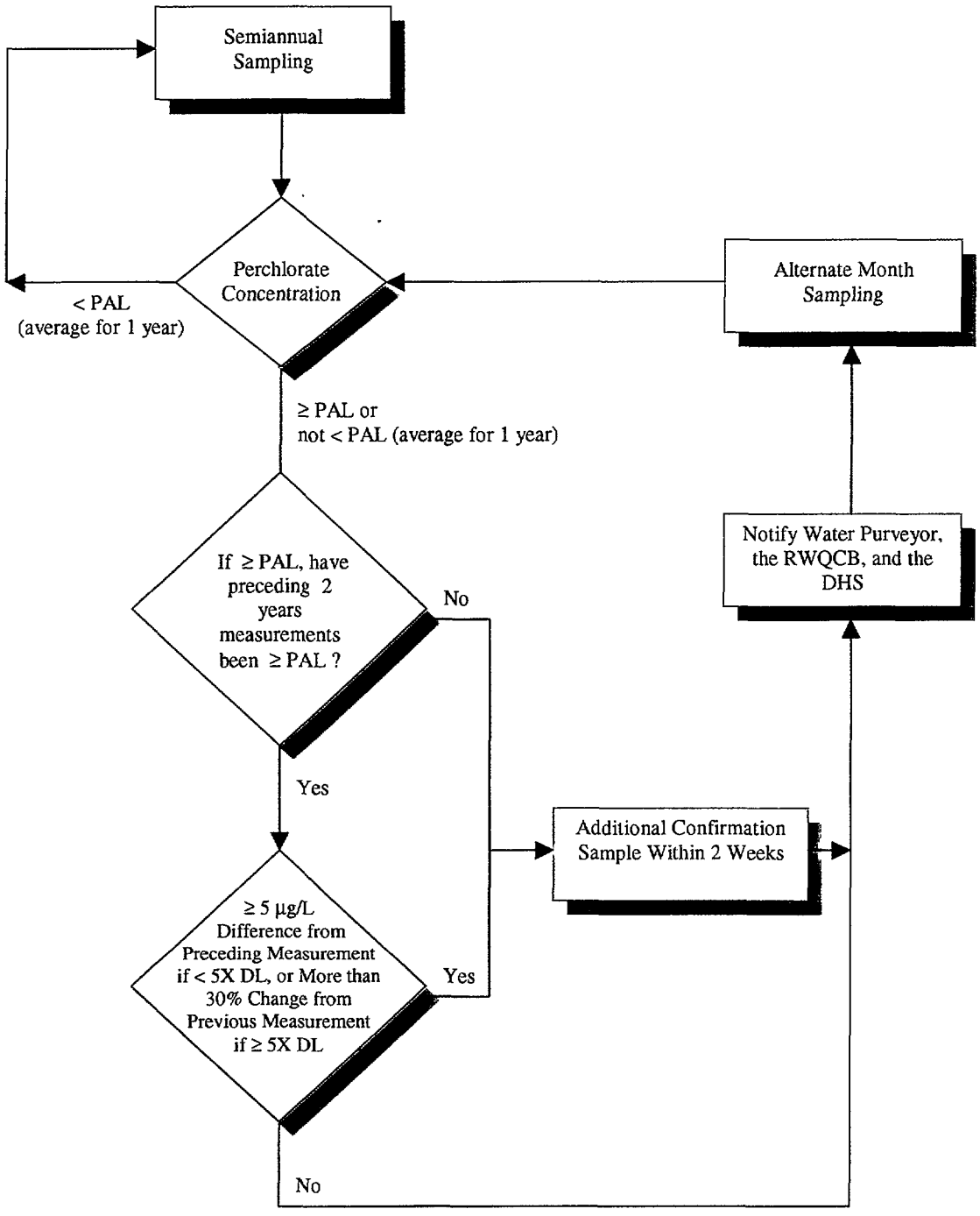
Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of TCE is less than 5 µg/L.

TCE Maximum Contaminant Level (MCL) = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

Decision Matrix for Sampling Production Wells for TCE

Date 02-02	Lockheed Martin Corp.	Figure 3
Project No 52773 0304	EARTH TECH A AECOM INTERNATIONAL LTD COMPANY	



Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of perchlorate is less than 4 µg/L.

Perchlorate Provisional Action Level (PAL) = 4 µg/L (California Department of Health Services, January 2002)

Decision Matrix for Sampling Production Wells for Perchlorate

Date 02-02	Lockheed Martin Corp.	Figure 4
Project No 52773.0304	EARTH TECH A AECOM INTERNATIONAL LTD COMPANY	

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Energy, Environment, Safety & Health
7921 Southpark Plaza, Suite 210 Littleton, CO 80120

LOCKHEED MARTIN

Via Federal Express
BUR0104/020 WBS#48

January 29, 2004

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: November 2003 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the November 2003 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in November 2003.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

Bob Simpson

for Thomas D. Blackman, R.G., C.H.G.
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Don Hough, Riverside Highland Water Company
Ross Lewis, Gage Canal Company
Owen Lu, City of Riverside
Steve Mains, Western Municipal Water District
Morris Matson, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
Kevin Mayer, US EPA (Region IX)
Cindy Norried, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
St. Louis, MO 63105
Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

Seven W Enterprises, Inc.
1500 Crafton Avenue
P.O. Box 111
Redlands, CA 92373-1730
Attn: Janet M. Weder

bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Jim Norman, HSI/Tetra Tech
Gail Rymer, LMC - Communications (Bethesda)
Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)

EARTH TECH™

A tyco INTERNATIONAL LTD COMPANY

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2636707

300 Oceangate, Suite 700, Long Beach, California 90802-4443

February 26, 2004

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Telephone
562.951.2000
Facsimile
562.951.2100

Subject: December 2003 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of December 2003.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in December (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the December 2003 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

One groundwater sample collected in December met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 μg/L): Gage 26-1 (3.4 μg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 μg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the December WSCP sampling, perchlorate was detected at or above the new PAL (i.e., greater than or equal to 4.0 μg/L) in five wells and four water system sampling points including:

Anderson #3 (6.0 μg/L)	Gage 26-1 (7.4 μg/L)
Gage 31-1 (9.6 μg/L)	Raub #5 (8.0 μg/L)
RHWC #2 (11 μg/L)	New York Street (16 μg/L)
Iowa Booster (4.2 μg/L)	Gage Delivery (7.4 μg/L)
7th & Chicago (4.6 μg/L)	Gage Arlington (7.3 μg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

Other Perchlorate Results

Additional wells outside the area of the Redlands plume were sampled for perchlorate during the December WSCP sampling. Perchlorate was detected in two of these wells at or above the PAL, including:

Garner #7 (4.5 μg/L)	VA Hospital Well (16 μg/L)

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: December 2003 Data Results
Table 2: Summary of December 2003 Water Level Measurements
Table 3: December 2003 Sample Identifications
Figure 1: TCE Data Results December 2003
Figure 2: Perchlorate Data Results December 2003
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
DECEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	NS	NS	NS
3171	Mountain View #4[c]	NS	NS	NS
3175	Mountain View #5[b]	NS	NS	NS
693	Richardson #1[b]	NS	NS	NS
707	Richardson #3[c]	NS	NS	NS
3132	Richardson #4[c]	NS	NS	NS
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend - Lawton[a]	12/2/2003	ND (4.0)	ND (0.5)
2968	Richardson Blend[a]	12/1/2003	ND (4.0)	ND (0.5)
Mountain View Power				
554	SCE #2 (AUX)[c]	NS	NS	NS
Loma Linda University				
267	LL Univ Anderson #2[b]	12/2/2003	ND (4.0)	NR
717	LL Univ Anderson #3[b]	12/2/2003	6.0	NR
City of Riverside (Gage System)				
252	Gage #26-1[bd]	12/2/2003	7.4	3.3
252	Gage #26-1[bd] (Duplicate)	12/2/2003	6.1	3.4
258	Gage #27-1[bd]	NS	NS	NS
259	Gage 27-2[b]	NS	NS	NS
260	Gage 29-1[b]	NS	NS	NS
219	Gage 29-2[bde]	NS	NS	NS
220	Gage 29-3[bde]	NS	NS	NS
218	Gage 30-1[c]	NS	NS	NS
214	Gage 31-1[b]	12/2/2003	9.6	NR
215	Gage 46-1[b]	NS	NS	NS
253	Gage 51-1[bde]	NS	NS	NS
216	Gage 56-1[c]	NS	NS	NS
257	Gage 66-1[b]	NS	NS	NS
644	Gage 92-1[bde]	NS	NS	NS
641	Gage 92-2[c]	NS	NS	NS
642	Gage 92-3[c]	NS	NS	NS
3091	Gage 98-1[c]	NS	NS	NS
City of Riverside (Waterman System)				
273	Hunt #6[b]	NS	NS	NS
271	Hunt #10[b]	NS	NS	NS
272	Hunt #11[b]	NS	NS	NS
285	Garner #1[b]	NS	NS	NS
286	Garner #2[b]	NS	NS	NS
284	Garner #5[b]	NS	NS	NS
1908	Garner #6[b]	12/1/2003	ND (4.0)	NR
2576	Garner #7[b]	12/1/2003	4.5	NR
254	Raub #2[b]	NS	NS	NS
224	Raub #3[b]	NS	NS	NS
255	Raub #4[b]	NS	NS	NS
222	Raub #5[b]	12/1/2003	8.0	NR
666	Raub #6[b]	NS	NS	NS
665	Raub #8[b]	NS	NS	NS
202	Scheuer[b]	NS	NS	NS
282	Stiles[b]	NS	NS	NS
249	Warren #1[b]	NS	NS	NS
247	Warren #4[b]	NS	NS	NS

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
DECEMBER 2003 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	12/2/2003	4.2	ND (0.5)
2947	Gage Delivery (Gage)[a]	12/2/2003	7.4	ND (0.5)
2948	7th & Chicago (Reservoir)[a]	12/2/2003	4.6	ND (0.5)
3018	Gage Arlington[a]	12/2/2003	7.3	NR
City of Redlands				
542	COR Church St[b]	NS	NS	NS
29	COR Orange St[c]	NS	NS	NS
74	COR Rees[b]	NS	NS	NS
1029	COR Mission[b]	NS	NS	NS
65	COR #31A[b]	NS	NS	NS
265	COR #34[b]	NS	NS	NS
71	COR #35[b]	NS	NS	NS
75	COR #37[b]	NS	NS	NS
2673	COR #38[c]	NS	NS	NS
Riverside Highlands Water Company				
1354	RHWC #2[b]	12/1/2003	11	NR
1361	RHWC #5[b]	12/1/2003	ND (4.0)	NR
383	RHWC #18[b]	NS	NS	NS
Other Wells - Agricultural				
82	New York Street Well[b]	12/1/2003	16	NR
81	COR #41[b]	NS	NS	NS
3174	VA Hospital Well[b]	12/2/2003	16	NR

Notes:

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314.0
TCE analyzed using EPA Method 502 2

a = Well/sample point sampled on monthly basis, if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis, if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
DECEMBER 2003 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	12/1/2003	179.00	1086	907	Pumping
3171	Mountain View #4	12/1/2003	277.00	1106	829	Pumping
3175	Mountain View #5	12/1/2003	160.00	1085	925	Pumping
693	Richardson #1	12/1/2003	203.00	1077	874	Pumping
707	Richardson #3	12/1/2003	233.00	1078.69	845.69	Pumping
3132	Richardson #4	12/1/2003	199.00	1074	875	Pumping
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	12/1/2003	NM	1075	NM	Pumping
717	LL Univ Anderson #3	12/1/2003	NM	1070	NM	Pumping
City of Riverside (Gage System)						
252	Gage #26-1	12/2/2003	115.60	1045.33	929.73	Pumping
258	Gage #27-1	12/2/2003	108.10	1044.64	936.54	Pumping
259	Gage #27-2	12/2/2003	95.50	1044.64	949.14	Static
260	Gage #29-1	12/2/2003	NM	1044.43	NM	Static
219	Gage #29-2	12/2/2003	91.30	1046.31	955.01	Static
220	Gage #29-3	12/2/2003	106.90	1048.75	941.85	Pumping
218	Gage #30-1	12/2/2003	216.40	1054.17	837.77	Static
214	Gage #31-1	12/2/2003	130.30	1054.64	924.34	Pumping
215	Gage #46-1	12/2/2003	160.20	1065.5	905.3	Pumping
253	Gage #51-1	12/2/2003	212.90	1044.64	831.74	Static
216	Gage #56-1	12/2/2003	210.30	1065.5	855.2	Pumping
257	Gage #66-1	12/2/2003	119.00	1044.85	925.85	Static
644	Gage #92-1	12/2/2003	161.20	1047.78	886.58	Static
641	Gage #92-2	12/2/2003	252.30	1053.38	801.08	Pumping
642	Gage #92-3	12/2/2003	163.00	1058.78	895.78	Static
3091	Gage #98-1	12/2/2003	206.30	1058.78	852.48	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015.5	NM	Pumping
271	Hunt #10	NM	NM	1017	NM	Pumping
272	Hunt #11	NM	NM	1015.7	NM	Pumping
City of Redlands						
542	COR Church St	12/1/2003	174.0	1344.8	1170.8	Static
29	COR Orange St	12/1/2003	102.0	1282	1180	Static
74	COR Rees	12/1/2003	278.0	1490	1212	Static
1029	COR Mission	12/1/2003	160.0	1130	970	Static
65	COR #31A	12/1/2003	196.0	1319	1123	Static
265	COR #34	12/1/2003	138.0	1090	952	Static
71	COR #35	12/1/2003	228.0	1395	1167	Static
75	COR #37	12/1/2003	191.0	1435	1244	Static
2673	COR #38	12/1/2003	105.0	1220	1115	Static
81	COR #41	12/1/2003	184.0	1312	1128	Static

Notes:

All measurements reported in feet below measuring point (ft-bmp)

Water level measurements for all City of Loma Linda, City of Riverside, and City of Redlands wells were obtained by purveyor personnel.

Elevations given in feet above mean sea level (ft-msl)

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
DECEMBER 2003 SAMPLE IDENTIFICATIONS

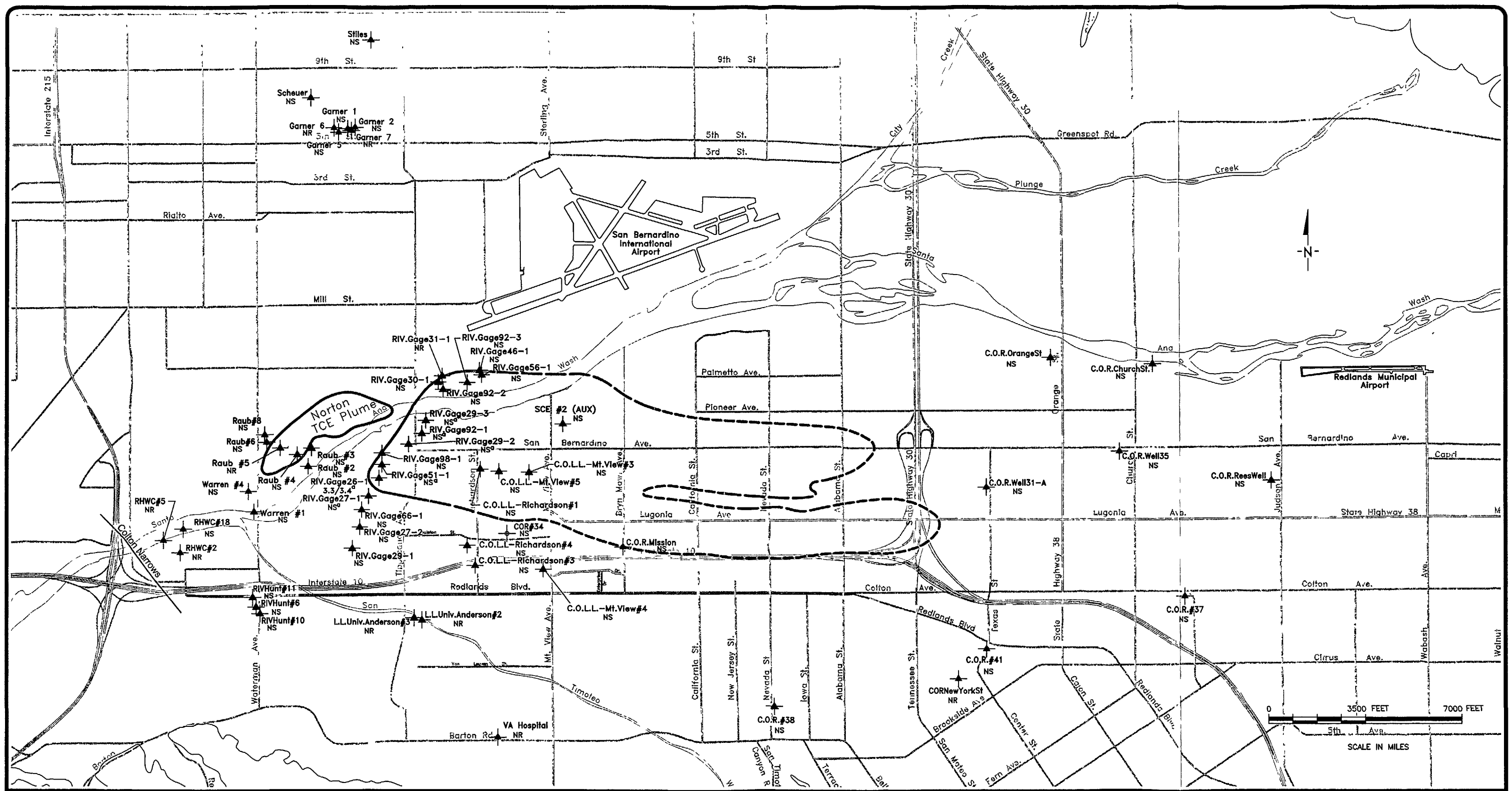
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	NS	NS	NS	NS	NS
3171	Mountain View #4	NS	NS	NS	NS	NS
693	Richardson #1	NS	NS	NS	NS	NS
707	Richardson #3	NS	NS	NS	NS	NS
3132	Richardson #4	NS	NS	NS	NS	NS
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	12/2/2003	8:15	GW-12-8	Yes	Yes
2968	Richardson Blend	12/1/2003	14:45	GW-12-7	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	NS	NS	NS	NS	NS
Loma Linda University						
267	LL Univ Anderson #2	12/2/2003	13:20	GW-12-15	Yes	NR
717	LL Univ Anderson #3	12/2/2003	13:30	GW-12-16	Yes	NR
City of Riverside (Gage System)						
252	Gage #26-1	12/2/2003	14:30	GW-12-17	Yes	Yes
252	Gage #26-1 (Duplicate)	12/2/2003	14:35	GW-12-18	Yes	Yes
258	Gage #27-1	NS	NS	NS	NS	NS
259	Gage #27-2	NS	NS	NS	NS	NS
260	Gage #29-1	NS	NS	NS	NS	NS
219	Gage #29-2	NS	NS	NS	NS	NS
220	Gage #29-3	NS	NS	NS	NS	NS
218	Gage #30-1	NS	NS	NS	NS	NS
214	Gage #31-1	12/2/2003	12:55	GW-12-14	Yes	NR
215	Gage #46-1	NS	NS	NS	NS	NS
253	Gage #51-1	NS	NS	NS	NS	NS
216	Gage #56-1	NS	NS	NS	NS	NS
257	Gage #66-1	NS	NS	NS	NS	NS
644	Gage #92-1	NS	NS	NS	NS	NS
641	Gage #92-2	NS	NS	NS	NS	NS
642	Gage #92-3	NS	NS	NS	NS	NS
3091	Gage #98-1	NS	NS	NS	NS	NS
City of Riverside (Waterman System)						
273	Hunt #6	NS	NS	NS	NS	NS
271	Hunt #10	NS	NS	NS	NS	NS
272	Hunt #11	NS	NS	NS	NS	NS
285	Garner #1	NS	NS	NS	NS	NS
286	Garner #2	NS	NS	NS	NS	NS
284	Garner #5	NS	NS	NS	NS	NS
1908	Garner #6	12/1/2003	12:55	GW-12-4	Yes	NR
2576	Garner #7	12/1/2003	13:10	GW-12-5	Yes	NR
254	Raub #2	NS	NS	NS	NS	NS
224	Raub #3	NS	NS	NS	NS	NS
255	Raub #4	NS	NS	NS	NS	NS
222	Raub #5	12/1/2003	13:50	GW-12-6	Yes	NR
666	Raub #6	NS	NS	NS	NS	NS
665	Raub #8	NS	NS	NS	NS	NS
202	Scheuer	NS	NS	NS	NS	NS
282	Stiles	NS	NS	NS	NS	NS
249	Warren #1	NS	NS	NS	NS	NS
247	Warren #4	NS	NS	NS	NS	NS
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	12/2/2003	11:00	GW-12-12	Yes	Yes
2947	Gage Delivery (Gage)	12/2/2003	10:35	GW-12-11	Yes	Yes
2948	7th & Chicago (Reservoir)	12/2/2003	10:15	GW-12-10	Yes	Yes
3018	Gage Arlington	12/2/2003	9:45	GW-12-9	Yes	NR
City of Redlands						
542	COR Church St	NS	NS	NS	NS	NS
29	COR Orange St	NS	NS	NS	NS	NS
74	COR Rees	NS	NS	NS	NS	NS

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
DECEMBER 2003 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
1029	COR Mission	NS	NS	NS	NS	NS
65	COR #31A	NS	NS	NS	NS	NS
265	COR #34	NS	NS	NS	NS	NS
71	COR #35	NS	NS	NS	NS	NS
75	COR #37	NS	NS	NS	NS	NS
2673	COR #38	NS	NS	NS	NS	NS
Riverside Highlands						
1354	RHWC #2	12/1/2003	11:25	GW-12-3	Yes	NR
1361	RHWC #5	12/1/2003	11:10	GW-12-2	Yes	NR
383	RHWC #18	NS	NS	NS	NS	NS
Other Wells - Agricultural						
82	New York Street	12/1/2003	10:15	GW-12-1	Yes	NR
81	COR #41	NS	NS	NS	NS	NS
3174	VA Hospital Well	12/2/2003	12:00	GW-12-13	Yes	NR

FIGURES



EXPLANATION

Wells Currently Sampled Under the Existing WSCP Sampling Program

3.2 TCE Results (µg\L)

a TCE Treatment Is Installed

TCE Plume Boundary (5 µ/L)
(Earthtech November 2003 Interpretation)

Location Uncertainty Less Than 1,000 Feet

Location Uncertainty 1,000 To 2,000 Feet

Location Uncertainty Greater Than 2,000 Feet

ND(0.5) Not Detected at Indicated Detection Limit

NS Not Sampled

NR Not Required

Blending Point Sampling Data

ND (0.5)	C.O.L.L. Mountain View Blend – Lawton
ND (0.5)	C.O.L.L. Richardson Blend
ND (0.5)	Riv. Iowa Booster (Waterman)
ND (0.5)	Riv. Gage Delivery (Gage)
ND (0.5)	Riv. 7th + Chicago (Reservoir)
NR	Gage Arlington

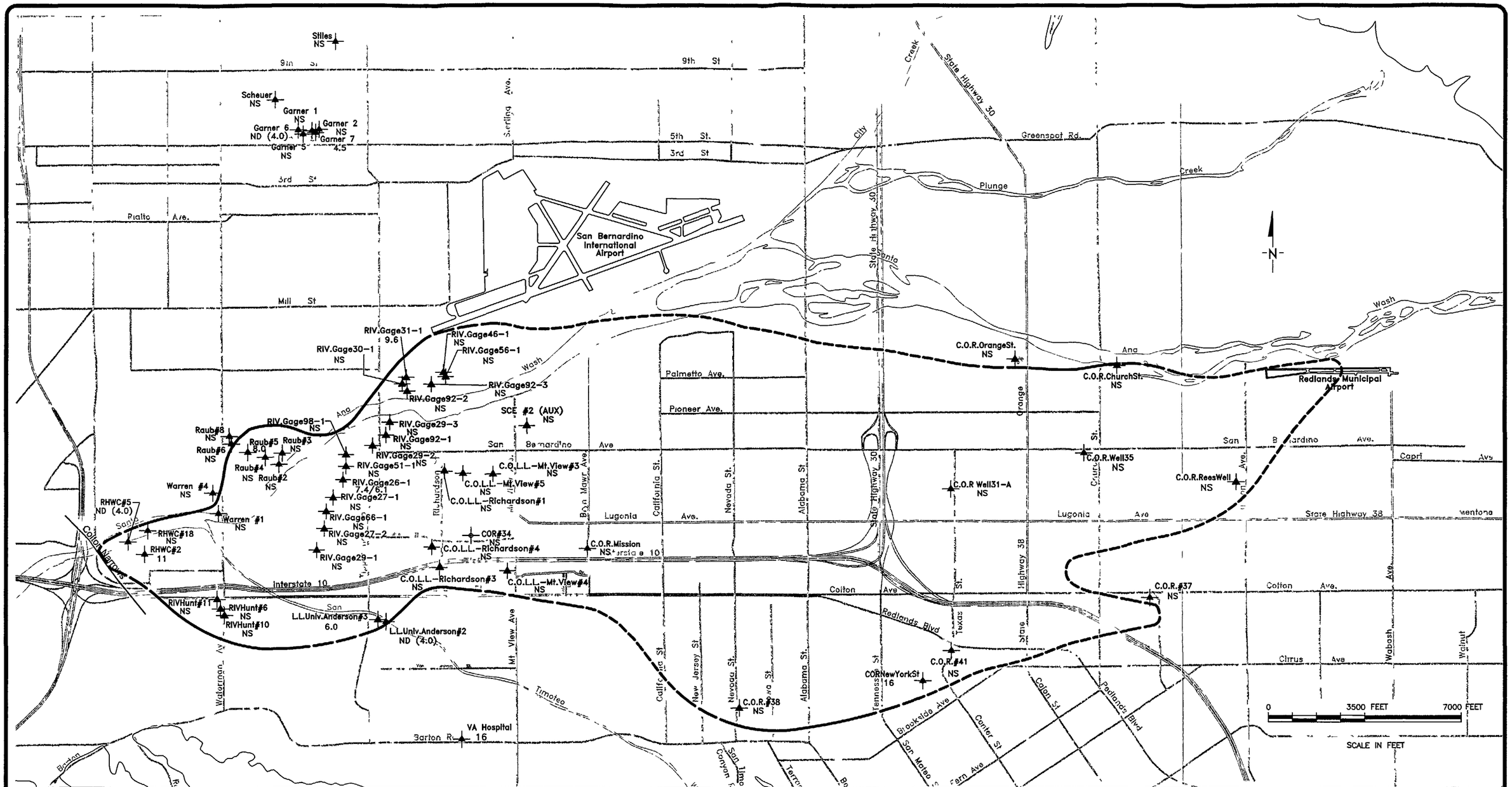
TITLE: WSCP Production Well Sampling Program
TCE Data Results December 2003

LOCATION: LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A tyco INTERNATIONAL LTD COMPANY

CHECKED:	Liles Cobb	FIGURE:
DRAFTED:	Jeffrey Waugen	1
PROJ.:	52773	
DATE:	02/25/04	

File. G:\us\LongBeachCA\work\Remediation\LMC Riverside POP\WSCP\cad\Monthly Report\03 Reports\Dec03TCEReport.dwg Time: Feb 26, 2004 – 8:41am



EXPLANATION

- Wells Currently Sampled Under the Existing WSCP Sampling Program
- 46 Perchlorate (µg/L) Results
- ND(4.0) Not Detected at Indicated Detection Limit
- NS Not Sampled

Perchlorate Plume Boundary (4 µ/L)
(Earthtech November 2003 Interpretation)

- Location Uncertainty Less Than 1,000 Feet
- Location Uncertainty 1,000 To 2,000 Feet
- Location Uncertainty Greater Than 2,000 Feet

Blending Point Sampling Data

ND (4.0)	C.O.L.L. Mountain View Blend – Lawton
ND (4.0)	C.O.L.L. Richardson Blend
4.2	Riv. Iowa Booster (Waterman)
7.4	Riv. Gage Delivery (Gage)
4.6	Riv. 7th + Chicago (Reservoir)
7.3	Gage Arlington

TITLE WSCP Production Well Sampling Program
Perchlorate Data Results December 2003

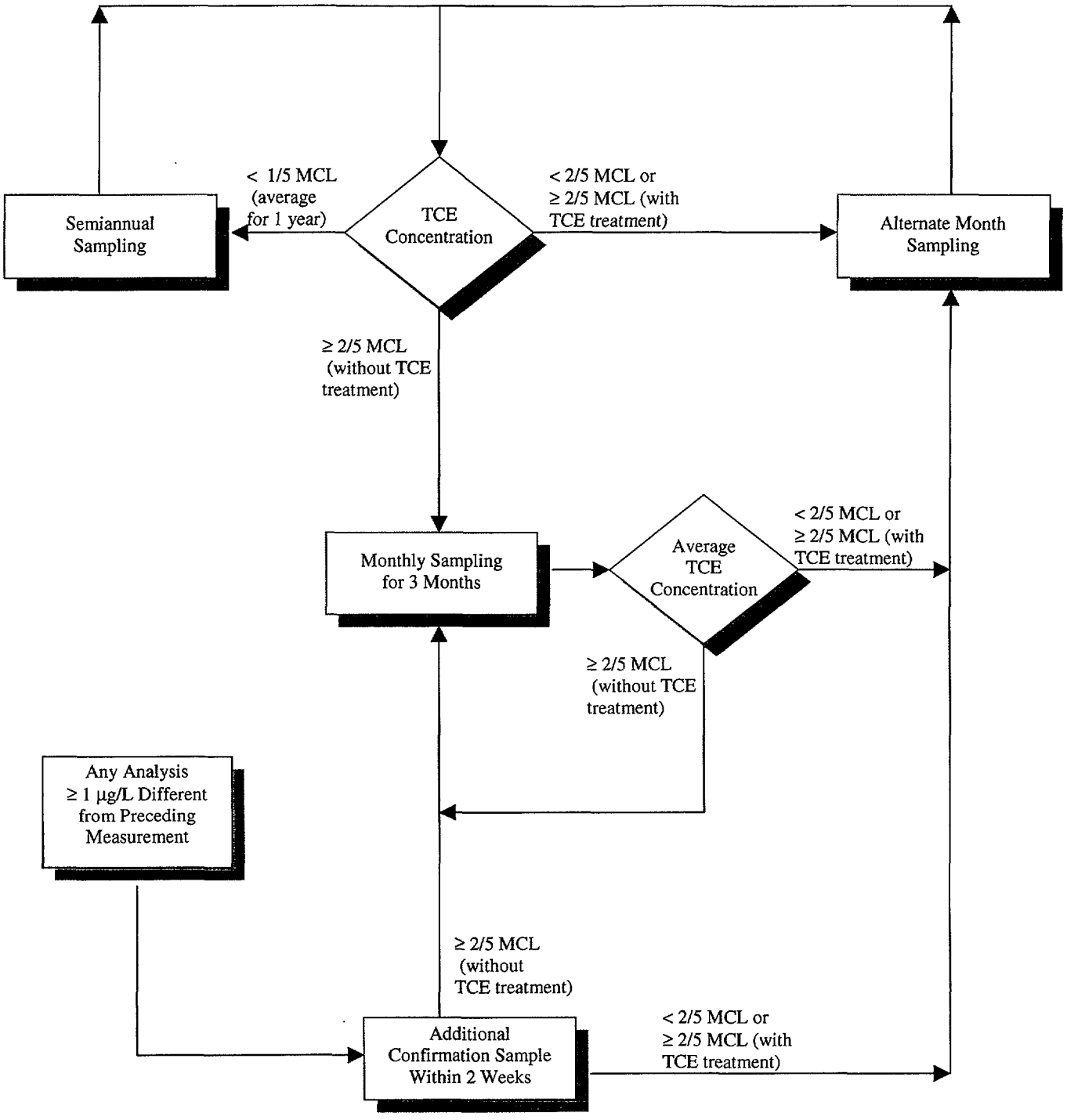
LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A tyco INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb
DRAFTED	Jeffrey Waugen
PROJ..	52773
DATE	02/25/04

FIGURE 2

File G \us\LongBeachCA\work\Remediation\LMC Riverside POP\WSCP\cad\Monthly Report\03 Reports\Dec03Perch Report dwg Time Feb 26, 2004 – 8 41am



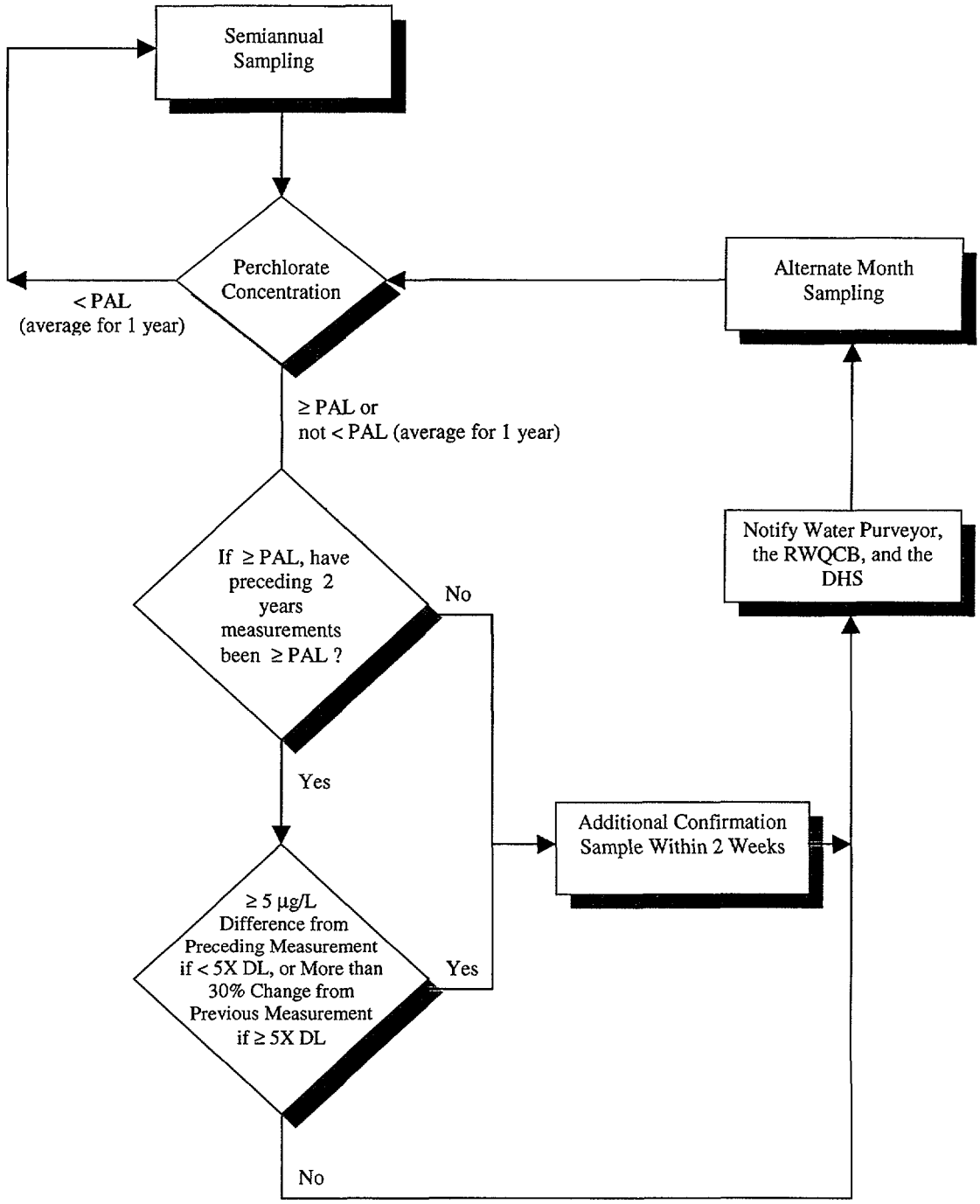
Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of TCE is less than 5 µg/L.

TCE Maximum Contaminant Level (MCL) = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

Decision Matrix for Sampling Production Wells for TCE

Date 02-02	Lockheed Martin Corp.	Figure 3
Project No. 52773.0304	EARTH TECH A tyco INTERNATIONAL LTD COMPANY	



Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of perchlorate is less than 4 µg/L.

Perchlorate Provisional Action Level (PAL) = 4 µg/L (California Department of Health Services, January 2002)

Decision Matrix for Sampling Production Wells for Perchlorate

Date 02-02	Lockheed Martin Corp.	Figure 4
Project No. 52773.0304	EARTH TECH A tyco INTERNATIONAL LTD COMPANY	

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Environment, Safety & Health
West Coast Projects Office
2550 North Hollywood Way, 3rd Floor, Burbank, CA 91505-1055
Facsimile 818-847-0256 or 818-847-0170

LOCKHEED MARTIN

Via Federal Express
BUR0204/037 WBS#48

February 27, 2004

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: December 2003 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the December 2003 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in December 2003.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

Thomas D. Blackman, R.G., C.H.G.
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Don Hough, Riverside Highland Water Company
Ross Lewis, Gage Canal Company
Owen Lu, City of Riverside
Steve Mains, Western Municipal Water District
Morris Matson, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
Kevin Mayer, US EPA (Region IX)
Cindy Norried, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
St. Louis, MO 63105
Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

Seven W Enterprises, Inc.
1500 Crafton Avenue
P.O. Box 111
Redlands, CA 92373-1730
Attn: Janet M. Weder

bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Jim Norman, HSI/Tetra Tech
Gail Rymer, LMC - Communications (Bethesda)
Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)

2036767

300 Oceangate, Suite 700, Long Beach, California 90802-4443

March 30, 2004

Lockheed Martin Corporation
West Coast Project Office
2550 N. Hollywood Way, 3rd Floor
Burbank, California 91505

Attention: Mr. Robert Simpson
Project Supervisor

Telephone
562.951.2000
Facsimile
562.951.2100

Subject: January 2004 Data Report
Water Supply Contingency Plan
Production Well Sampling Program
Crafton-Redlands Plume Project

Dear Mr. Simpson:

This report presents a summary of results of the Water Supply Contingency Plan (WSCP) production well sampling for the month of January 2004.

In accordance with the WSCP decision matrices for TCE and perchlorate (Figures 3 and 4, respectively), wells and sample points are sampled monthly, alternate months or semiannually depending on the concentrations in the wells. In general, wells not sampled in January (shown in Table 1) were not scheduled for sampling or were not in service during the sampling event.

RESULTS

Summaries of the analytical results for the January 2004 WSCP sampling event for TCE and perchlorate are shown on Figures 1 and 2, respectively, and presented in Table 1. Available groundwater elevation data are provided in Table 2. The sample number identifiers are provided in Table 3. The water sampling field forms are provided in Attachment A. Chain-of-custody, laboratory data sheets, and Level III laboratory quality assurance/quality control (QA/QC) documentation are provided in Attachment B.

Trichloroethene

Three groundwater samples collected in January met or exceeded 2/5th the MCL for TCE (i.e., were greater than or equal to 2.0 µg/L): Gage 29-2 (6.1 µg/L), Gage 29-3 (5.5 µg/L), and Gage 51-1(8.9 µg/L).

In accordance with the WSCP decision matrix, wells at or above 2.0 µg/L for TCE are sampled once a month, if active and not in treatment. Gage 66-1 is currently being sampled once a month for TCE.

Perchlorate

In the January WSCP sampling, perchlorate was detected at or above the new AL (i.e., greater than or equal to 6.0 µg/L) in five wells including:

Gage 29-1 (6.2 µg/L)
Gage 29-2 (9.4 µg/L)
Gage 29-3 (18 µg/L)
Gage 46-1 (23 µg/L)
Gage 51-1 (53 µg/L)

Under the WSCP decision matrix, analytical results of the samples collected will determine the sampling frequency for each water supply well.

Other Perchlorate Results

Additional wells outside the area of the Redlands plume were sampled for perchlorate during the January WSCP sampling. Perchlorate was detected in two of these wells at or above the AL, including:

Garner #2 (9.0 µg/L)
Stiles (11 µg/L)

CLOSING

Should you have any questions or comments, please do not hesitate to call.

Sincerely,
Earth Tech

Peter Bokor, P.E.
Program Director

Matthew Werner, R.G., C.E.G., C.H.
Project Director

Attachments:

Table 1: January 2004 Data Results
Table 2: Summary of January 2004 Water Level Measurements
Table 3: January 2004 Sample Identifications
Figure 1: TCE Data Results January 2004
Figure 2: Perchlorate Data Results January 2004
Figure 3: TCE Decision Matrix
Figure 4: Perchlorate Decision Matrix

TABLES

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
JANUARY 2004 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Loma Linda				
3106	Mountain View #3[c]	NS	NS	NS
3171	Mountain View #4[c]	NS	NS	NS
3175	Mountain View #5[b]	NS	NS	NS
693	Richardson #1[b]	1/2/2004	5.0	ND (0.5)
707	Richardson #3[c]	NS	NS	NS
3132	Richardson #4[c]	NS	NS	NS
City of Loma Linda Water System Sampling Points				
2967	Mountain View Blend - Lawton[a]	1/2/2004	ND (4.0)	ND (0.5)
2968	Richardson Blend[a]	1/2/2004	ND (4.0)	ND (0.5)
Mountain View Power				
554	SCE #2 (AUX)[c]	NS	NS	NS
Loma Linda University				
267	LL Univ Anderson #2[b]	1/6/2004	ND (4.0)	NR
717	LL Univ Anderson #3[b]	NS	NS	NS
City of Riverside (Gage System)				
252	Gage #26-1[bd]	NS	NS	NS
258	Gage #27-1[bd]	NS	NS	NS
259	Gage 27-2[b]	NS	NS	NS
260	Gage 29-1[b]	1/6/2004	6 2	NR
219	Gage 29-2[bde]	1/2/2004	9 4	6.1
220	Gage 29-3[bde]	1/2/2004	18.0	5.5
220	Gage 29-3[bde] (Duplicate)	1/2/2004	18.0	5.4
218	Gage 30-1[c]	NS	NS	NS
214	Gage 31-1[b]	1/2/2004	NR	0 79
215	Gage 46-1[b]	1/2/2004	23	NR
253	Gage 51-1[bde]	1/2/2004	53	8 9
216	Gage 56-1[c]	NS	NS	NS
257	Gage 66-1[a]	NS	NS	NS
644	Gage 92-1[bde]	NS	NS	NS
641	Gage 92-2[c]	NS	NS	NS
642	Gage 92-3[c]	NS	NS	NS
3091	Gage 98-1[c]	NS	NS	NS
City of Riverside (Waterman System)				
273	Hunt #6[b]	NS	NS	NS
271	Hunt #10[b]	NS	NS	NS
272	Hunt #11[b]	NS	NS	NS
285	Garner #1[b]	1/6/2004	ND (4.0)	NR
286	Garner #2[b]	1/6/2004	9.0	NR
284	Garner #5[b]	NS	NS	NS
1908	Garner #6[b]	NS	NS	NS
2576	Garner #7[b]	NS	NS	NS
254	Raub #2[b]	NS	NS	NS
224	Raub #3[b]	NS	NS	NS
255	Raub #4[b]	NS	NS	NS
222	Raub #5[b]	NS	NS	NS
666	Raub #6[b]	NS	NS	NS
665	Raub #8[b]	NS	NS	NS
202	Scheuer[b]	NS	NS	NS
282	Stiles[b]	1/6/2004	11	NR
249	Warren #1[b]	NS	NS	NS
247	Warren #4[b]	NS	NS	NS

TABLE 1

WSCP PRODUCTION WELL SAMPLING PROGRAM
JANUARY 2004 DATA RESULTS

Well Number	Well Name	Sample Date	Perchlorate (ug/L) Del Mar	TCE (ug/L) Del Mar
City of Riverside Water System Sampling Points				
2946	Iowa Booster (Waterman)[a]	1/6/2004	ND (4.0)	ND (0.5)
2946	Iowa Booster (Waterman)[a] (Duplicate)	1/6/2004	ND (4.0)	ND (0.5)
2947	Gage Delivery (Gage)[a]	1/6/2004	ND (4.0)	ND (0.5)
2948	7th & Chicago (Reservoir)[a]	1/6/2004	ND (4.0)	ND (0.5)
3018	Gage Arlington[a]	1/6/2004	4.0	NR
City of Redlands				
542	COR Church St[b]	NS	NS	NS
29	COR Orange St[c]	1/6/2004	ND (4.0)	NR
74	COR Rees[b]	NS	NS	NS
1029	COR Mission[b]	NS	NS	NS
65	COR #31A[b]	NS	NS	NS
265	COR #34[b]	NS	NS	NS
71	COR #35[b]	NS	NS	NS
75	COR #37[b]	NS	NS	NS
2673	COR #38[c]	1/2/2004	ND (4.0)	NR
Riverside Highlands Water Company				
1354	RHWC #2[b]	NS	NS	NS
1361	RHWC #5[b]	NS	NS	NS
383	RHWC #18[b]	NS	NS	NS
Other Wells - Agricultural				
82	New York Street Well[b]	NS	NS	NS
81	COR #41[b]	NS	NS	NS
3174	VA Hospital Well[b]	NS	NS	NS

Notes

ND(4) = Not detected at the specified limit
NR = Not Required Analysis
NS = Not Sampled
TCE = Trichloroethene
Perchlorate analyzed using EPA Method 314 0
TCE analyzed using EPA Method 502 2

a = Well/sample point sampled on monthly basis, if active
b = Well sampled once every two months, if active
c = Well sampled on Semiannual basis, if active
d = TCE treatment is installed
e = Perchlorate treatment is installed

TABLE 2

SUMMARY OF WATER LEVEL MEASUREMENTS
JANUARY 2004 SAMPLING EVENT

Well Number	Well Name	Measure Date	Depth to Water	Measuring Point Elevation	Groundwater Elevation	Comments
City of Loma Linda						
3106	Mountain View #3	1/5/2004	166.00	1086	920	Pumping
3171	Mountain View #4	1/5/2004	249.00	1106	857	Pumping
3175	Mountain View #5	1/5/2004	176.00	1085	909	Pumping
693	Richardson #1	1/5/2004	174.00	1077	903	Static
707	Richardson #3	1/5/2004	233.00	1078.69	845.69	Pumping
3132	Richardson #4	1/5/2004	168.00	1074	906	Static
Mountian View Power						
554	SCE #2 (AUX)	NM	NM	1100	NM	Static
Loma Linda University						
267	LL Univ Anderson #2	1/6/2004	NM	1075	NM	Pumping
717	LL Univ Anderson #3	1/6/2004	NM	1070	NM	Static
City of Riverside (Gage System)						
252	Gage #26-1	1/5/2004	119.80	1045.33	925.53	Pumping
258	Gage #27-1	1/5/2004	NM	1044.64	NM	Static
259	Gage #27-2	1/5/2004	97.80	1044.64	946.84	Static
260	Gage #29-1	1/5/2004	92.70	1044.43	NM	Static
219	Gage #29-2	1/5/2004	113.70	1046.31	932.61	Pumping
220	Gage #29-3	1/5/2004	126.30	1048.75	922.45	Pumping
218	Gage #30-1	1/5/2004	200.70	1054.17	853.47	Pumping
214	Gage #31-1	1/5/2004	143.10	1054.64	911.54	Pumping
215	Gage #46-1	1/5/2004	147.90	1065.5	917.6	Pumping
253	Gage #51-1	1/5/2004	141.50	1044.64	903.14	Pumping
216	Gage #56-1	1/5/2004	189.00	1065.5	876.5	Pumping
257	Gage #66-1	1/5/2004	107.40	1044.85	937.45	Static
644	Gage #92-1	1/5/2004	140.30	1047.78	907.48	Static
641	Gage #92-2	1/5/2004	193.90	1053.38	859.48	Pumping
642	Gage #92-3	1/5/2004	232.90	1058.78	825.88	Pumping
3091	Gage #98-1	1/5/2004	210.20	1058.78	848.58	Pumping
City of Riverside (Waterman System)						
273	Hunt #6	NM	NM	1015.5	NM	Static
271	Hunt #10	NM	NM	1017	NM	Static
272	Hunt #11	NM	NM	1015.7	NM	Static
City of Redlands						
542	COR Church St	1/2/2004	NM	1344.8	NM	Static
29	COR Orange St	1/2/2004	143.0	1282	1139	Pumping
74	COR Rees	1/2/2004	278.0	1490	1212	Static
1029	COR Mission	1/2/2004	NM	1130	NM	Static
65	COR #31A	1/2/2004	195.0	1319	1124	Static
265	COR #34	1/2/2004	137.0	1090	953	Static
71	COR #35	1/2/2004	230.0	1395	1165	Static
75	COR #37	1/2/2004	130.0	1435	1305	Static
2673	COR #38	1/2/2004	NM	1220	NM	Static
81	COR #41	1/2/2004	179.0	1312	1133	Static

Notes:

All measurements reported in feet below measuring point (ft-bmp)

Water level measurements for all City of Loma Linda, City of Riverside, and City of Redlands wells were obtained by purveyor personnel.

Elevations given in feet above mean sea level (ft-msl)

NM = Not measured

NA = Data not available

Static water levels were allowed to recover a minimum of 30 minutes to obtain a static water level measurement

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
JANUARY 2004 SAMPLE IDENTIFICATIONS

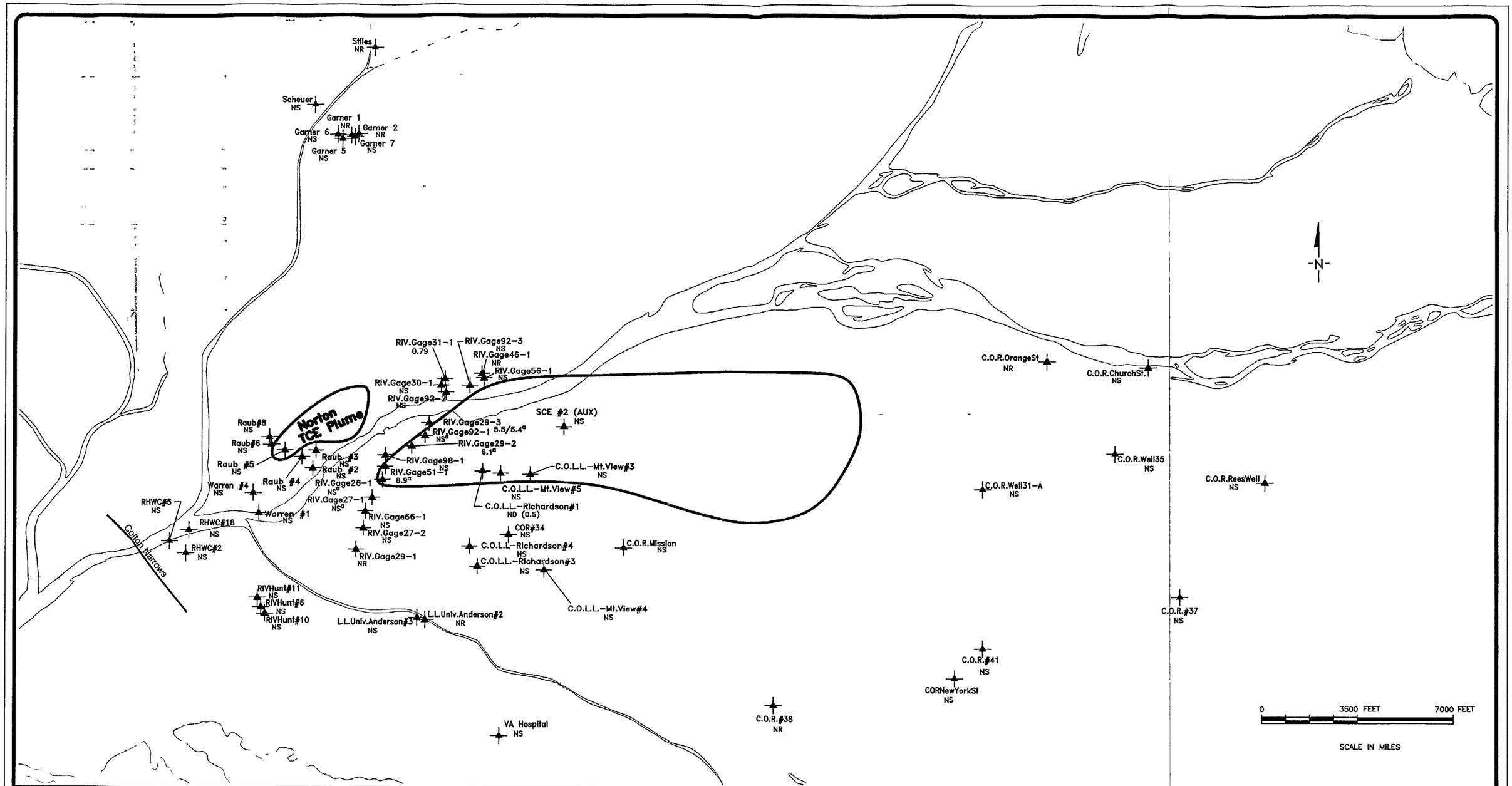
Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Loma Linda						
3106	Mountain View #3	NS	NS	NS	NS	NS
3171	Mountain View #4	NS	NS	NS	NS	NS
693	Richardson #1	1/2/2004	14:20	GW-1-7	Yes	Yes
707	Richardson #3	NS	NS	NS	NS	NS
3132	Richardson #4	NS	NS	NS	NS	NS
City of Loma Linda Water System Sampling Points						
2967	Mountain View Blend - Lawton	1/2/2004	15:25	GW-1-9	Yes	Yes
2968	Richardson Blend	1/2/2004	15:00	GW-1-8	Yes	Yes
Mountain View Power						
554	SCE #2 (AUX)	NS	NS	NS	NS	NS
Loma Linda University						
267	LL Univ Anderson #2	1/6/2004	13:35	GW-1-20	Yes	NR
717	LL Univ Anderson #3	NS	NS	NS	NS	NS
City of Riverside (Gage System)						
252	Gage #26-1	NS	NS	NS	NS	NS
258	Gage #27-1	NS	NS	NS	NS	NS
259	Gage #27-2	NS	NS	NS	NS	NS
260	Gage #29-1	1/6/2004	14:30	GW-1-21	Yes	NR
219	Gage #29-2	1/2/2004	11:25	GW-1-2	Yes	Yes
220	Gage #29-3	1/2/2004	12:25	GW-1-3	Yes	Yes
220	Gage #29-3 (Duplicate)	1/2/2004	12:30	GW-1-4	Yes	Yes
218	Gage #30-1	NS	NS	NS	NS	NS
214	Gage #31-1	1/2/2004	13:20	GW-1-6	NR	Yes
215	Gage #46-1	1/2/2004	13:05	GW-1-5	Yes	NR
253	Gage #51-1	1/2/2004	10:30	GW-1-1	Yes	Yes
216	Gage #56-1	NS	NS	NS	NS	NS
257	Gage #66-1	NS	NS	NS	NS	NS
644	Gage #92-1	NS	NS	NS	NS	NS
641	Gage #92-2	NS	NS	NS	NS	NS
642	Gage #92-3	NS	NS	NS	NS	NS
3091	Gage #98-1	NS	NS	NS	NS	NS
City of Riverside (Waterman System)						
273	Hunt #6	NS	NS	NS	NS	NS
271	Hunt #10	NS	NS	NS	NS	NS
272	Hunt #11	NS	NS	NS	NS	NS
285	Garner #1	1/6/2004	10:45	GW-1-16	Yes	NR
286	Garner #2	1/6/2004	11:00	GW-1-17	Yes	NR
284	Garner #5	NS	NS	NS	NS	NS
1908	Garner #6	NS	NS	NS	NS	NS
2576	Garner #7	NS	NS	NS	NS	NS
254	Raub #2	NS	NS	NS	NS	NS
224	Raub #3	NS	NS	NS	NS	NS
255	Raub #4	NS	NS	NS	NS	NS
222	Raub #5	NS	NS	NS	NS	NS
666	Raub #6	NS	NS	NS	NS	NS
665	Raub #8	NS	NS	NS	NS	NS
202	Scheuer	NS	NS	NS	NS	NS
282	Stiles	1/6/2004	11:25	GW-1-18	Yes	NR
249	Warren #1	NS	NS	NS	NS	NS
247	Warren #4	NS	NS	NS	NS	NS
City of Riverside Water System Sampling Points						
2946	Iowa Booster (Waterman)	1/6/2004	9:10	GW-1-14	Yes	Yes
2946	Iowa Booster (Waterman) Duplicate	1/6/2004	9:15	GW-1-15	Yes	Yes
2947	Gage Delivery (Gage)	1/6/2004	8:40	GW-1-13	Yes	Yes
2948	7th & Chicago (Reservoir)	1/6/2004	8:20	GW-1-12	Yes	Yes
3018	Gage Arlington	1/6/2004	7:40	GW-1-11	Yes	NR

TABLE 3

WSCP PRODUCTION WELL SAMPLING PROGRAM
JANUARY 2004 SAMPLE IDENTIFICATIONS

Well Number	Well Name	Sample Date	Sample Time	Sample Number Identification	Analyzed for Perchlorate	Analyzed for TCE
City of Redlands						
542	COR Church St	NS	NS	NS	NS	NS
29	COR Orange St	1/6/2004	12:15	GW-1-19	Yes	NR
74	COR Rees	NS	NS	NS	NS	NS
1029	COR Mission	NS	NS	NS	NS	NS
65	COR #31A	NS	NS	NS	NS	NS
265	COR #34	NS	NS	NS	NS	NS
71	COR #35	NS	NS	NS	NS	NS
75	COR #37	NS	NS	NS	NS	NS
2673	COR #38	1/2/2004	16:00	GW-1-10	Yes	NR
Riverside Highlands						
1354	RHWC #2	NS	NS	NS	NS	NS
1361	RHWC #5	NS	NS	NS	NS	NS
383	RHWC #18	NS	NS	NS	NS	NS
Other Wells - Agricultural						
82	New York Street	NS	NS	NS	NS	NS
81	COR #41	NS	NS	NS	NS	NS
3174	VA Hospital Well	NS	NS	NS	NS	NS

FIGURES



EXPLANATION

- Wells currently sampled under the existing WSCP Sampling Program
- 3.2 TCE results (µg\L)
- a TCE treatment is installed
- ND(0.5) Not detected at indicated Detection Limit
- NS Could not be sampled in January
- NR Not scheduled to be sampled for TCE in January

TCE Plume footprint (5 µg/L) (Tetra Tech March 2004 interpretation)

Blending Point Sampling Data

ND (0.5)	C.O.L.L. Mountain View Blend – Lawton
ND (0.5)	C.O.L.L. Richardson Blend
ND (0.5)/ND (0.5)	Riv. Iowa Booster (Waterman)
ND (0.5)	Riv. Gage Delivery (Gage)
ND (0.5)	Riv. 7th + Chicago (Reservoir)
NR	Gage Arlington

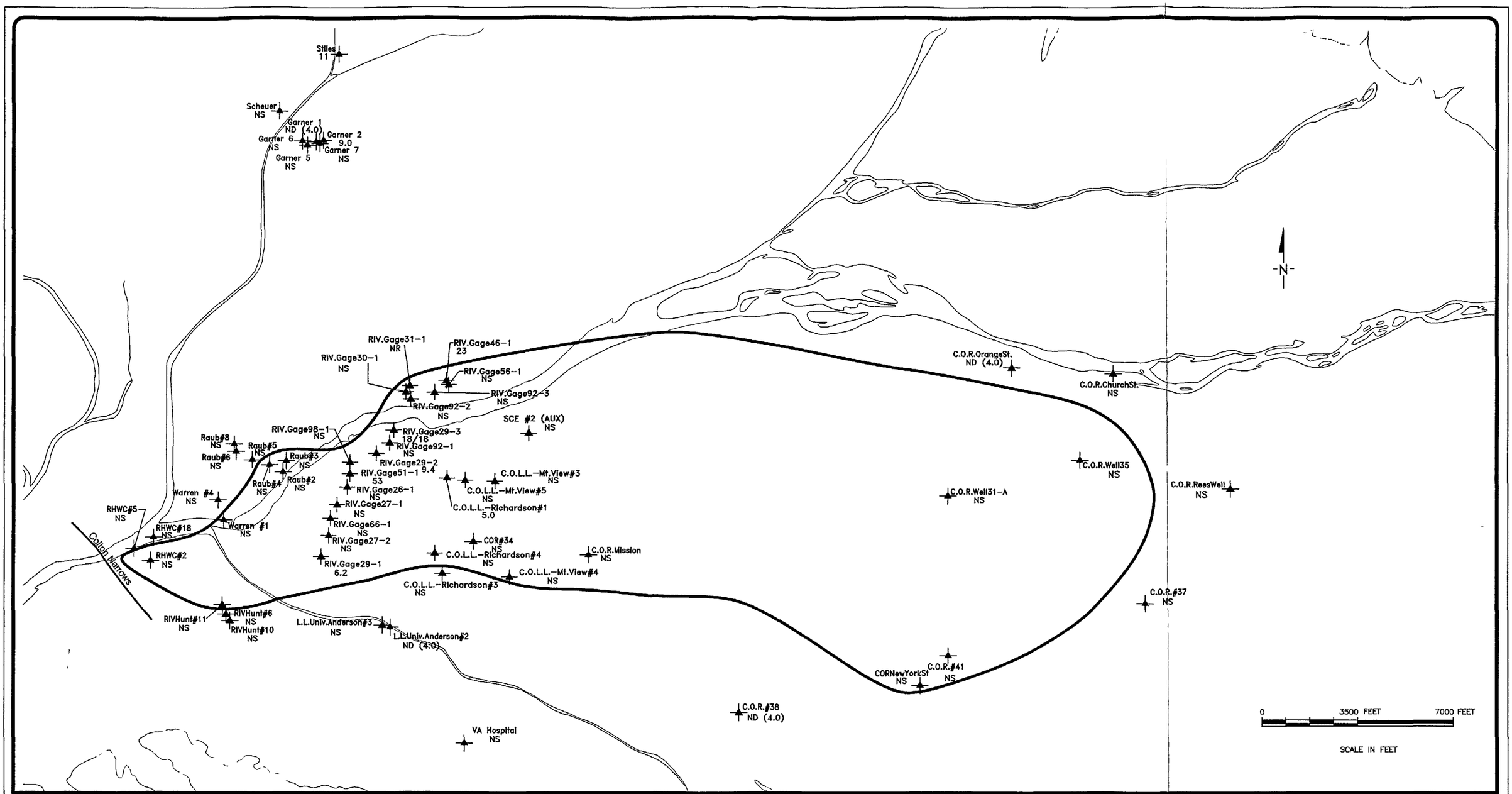
File G \us\LongBeachCA\work\Remediation\LMC Riverside POP\WSCP\cad\Monthly Report\04 Reports\January 04 TCE Report dwg Time Mar 30, 2004 – 8 37am

TITLE WSCP Production Well Sampling Program
TCE Data Results January 2004

LOCATION LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

CHECKED	Liles Cobb	FIGURE
DRAFTED	Jeffrey Waugen	1
PROJ	52773	
DATE	03/30/04	



EXPLANATION

- Wells currently sampled under the existing WSCP Sampling Program
- 46 Perchlorate results (µg/L)
- ND(4.0) Not detected at indicated Detection Limit
- NS Could not be sampled in January
- NR Not scheduled to be sampled for Perchlorate in January
- Perchlorate Plume footprint (6 µg/L) (Tetra Tech March 2004 interpretation)

Blending Point Sampling Data

ND (4.0)	C.O.L.L. Mountain View Blend – Lawton
ND (4.0)	C.O.L.L. Richardson Blend
ND (4.0)/ND (4.0)	Riv. Iowa Booster (Waterman)
ND (4.0)	Riv. Gage Delivery (Gage)
ND (4.0)	Riv. 7th + Chicago (Reservoir)
4.0	Gage Arlington

File: G:\us\LongBeachCA\work\Remediation\LMC Riverside POP\WSCP\cad\Monthly Report\04 Reports\January 04 Perchlorate Report.dwg Time: Mar 30, 2004 – 8:36am

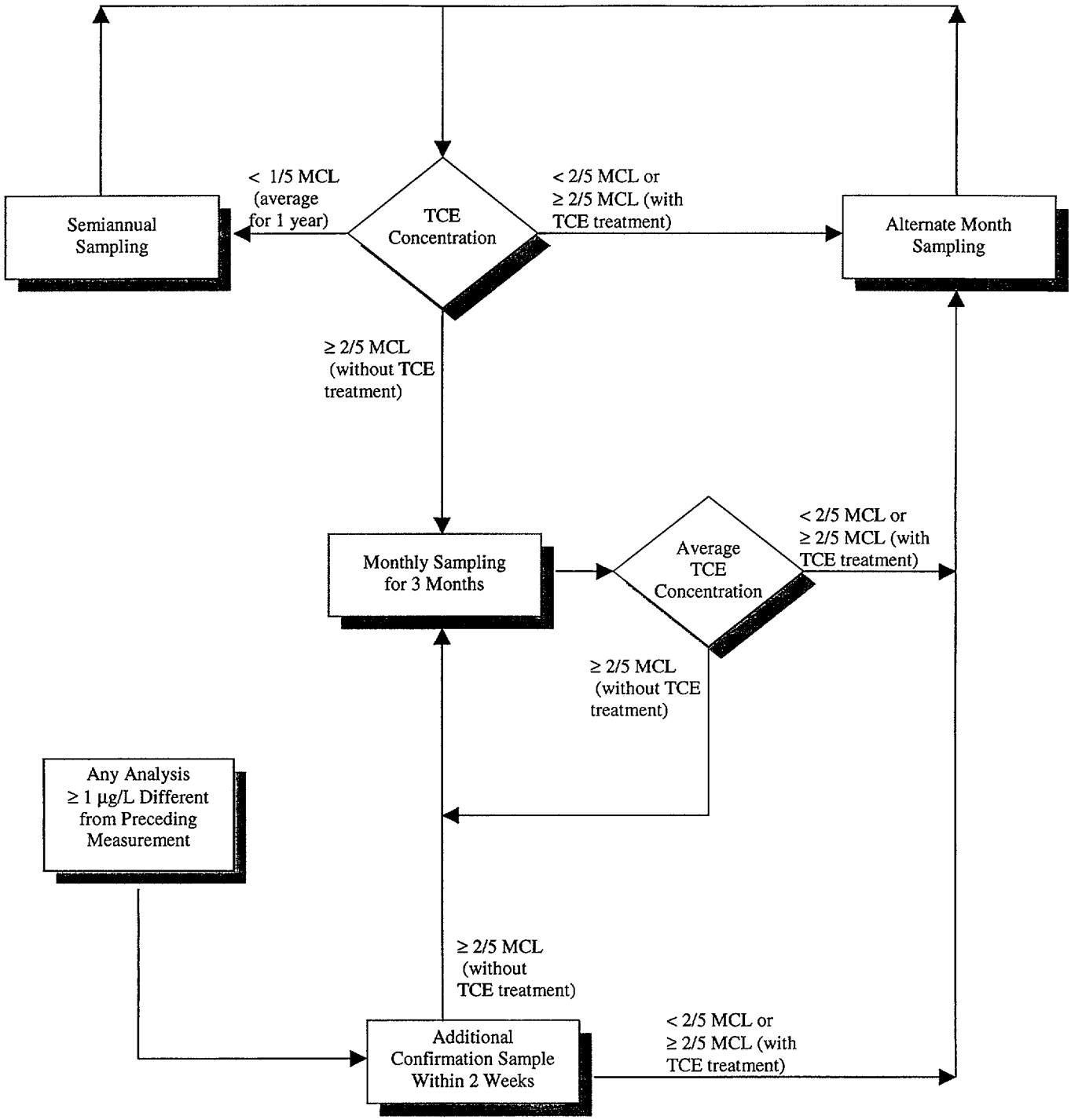
TITLE: WSCP Production Well Sampling Program
Perchlorate Data Results January 2004

LOCATION: LOCKHEED MARTIN
REDLANDS, CALIFORNIA

EARTH TECH
A TYCO INTERNATIONAL LTD. COMPANY

CHECKED:	Liles Cobb
DRAFTED:	Jeffrey Waugen
PROJ.:	52773
DATE:	03/30/04

FIGURE: 2



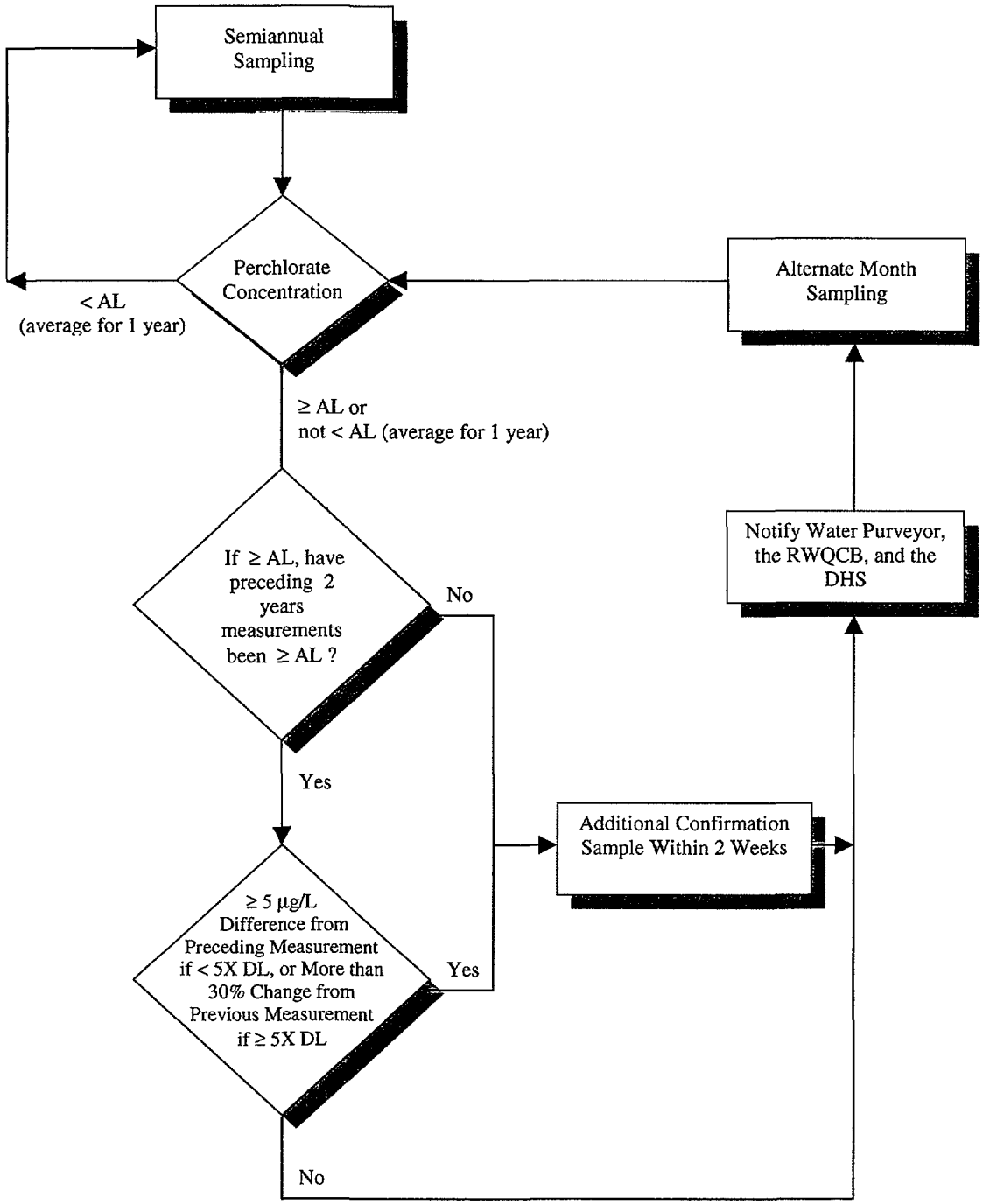
Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of TCE is less than 5 µg/L.

TCE Maximum Contaminant Level (MCL) = 5 µg/L (California Regulations, Title 22, Division 4, Chapter 15, Section 64444)

Decision Matrix for Sampling Production Wells for TCE

Date 02-02	Lockheed Martin Corp.	Figure 3
Project No 52773 0304	EARTH TECH A TYCO INTERNATIONAL LTD. COMPANY	



Footnote:

Blending points for finished water will be monitored monthly to ensure the concentration of perchlorate is less than 6 µg/L.

Perchlorate Action Level (AL) = 6 µg/L (California Department of Health Services, March 2004)

Decision Matrix for Sampling Production Wells for Perchlorate

Date 03-04	Lockheed Martin Corp.	Figure 4
Project No. 52773.0304	EARTH TECH A Tyco INTERNATIONAL LTD COMPANY	

ATTACHMENT A

FIELD SAMPLE FORMS
(Available Upon Request)

ATTACHMENT B

CHAIN-OF-CUSTODY RECORDS AND LABORATORY DATA SHEETS AND LEVEL III MODIFIED QUALITY ASSURANCE/QUALITY CONTROL DOCUMENTATION

(Available Upon Request)

Lockheed Martin Corporation
Corporate Energy, Environment, Safety & Health
7921 Southpark Plaza, Suite 210 · Littleton, CO 80120

LOCKHEED MARTIN

Via Federal Express
BUR0304/060 WBS#48

March 30, 2004

Mr. Gerard J. Thibeault
Executive Officer
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, California 92501-3339

RE: January 2004 Production Well Sampling Report,
Crafton-Redlands Plume Project
RWQCB Cleanup and Abatement Orders 94-37 and 97-58

Dear Mr. Thibeault:

In accordance with the approved Water Supply Contingency Plan, enclosed is one copy of the January 2004 production well sampling report prepared by Earth Tech for Lockheed Martin Corporation. This report presents results from samples collected at Bunker Hill Basin production wells in January 2004.

Should you have any questions or comments, please contact Bob Simpson at 818-847-0584.

Sincerely,

Thomas D. Blackman, R.G., C.H.G.
Technical Project Manager

TB:bs

Attachment

c: See Distribution List

Distribution List

(Abbreviated Report without Attachments "A" & "B", which are available upon request)

Department of Health Services (San Bernardino)
William Bryden, City of San Bernardino
Tom Crowley, San Bernardino Valley Water Conservation District
Douglas Headrick, City of Redlands
Don Hough, Riverside Highland Water Company
Ross Lewis, Gage Canal Company
Owen Lu, City of Riverside
Steve Mains, Western Municipal Water District
Dana Beaman, Loma Linda University
Phil Mook, Department of the Air Force, AFBCA
Kevin Mayer, US EPA (Region IX)
Cindy Norried, City of Riverside
Bob Reiter, San Bernardino Valley Municipal Water District
Steve Williams, Department of Health Services (San Diego)
Alain Sharp, Earth Technology Corporation
Greg Snyder, City of Loma Linda
Glen Thomas, Mountain View Power Company
Dieter Wirtzfeld, City of Riverside

bc: Gallop, Johnson & Neuman
101 S. Hanley Road
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Attn: Michael Re

Highland Supply Corporation
111 Sixth Street
Highland, IL 62249
Attn: Donald E. Weder

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bc w/attach:

Doug Goins, LMC-Legal (Bethesda)
Ron Helgerson, LMC-CEESH (Bethesda)
Jim Norman, HSI/Tetra Tech
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Bob Simpson, LMC (Burbank)
Matt Werner, Earth Tech (Long Beach)