QUARTERLY MONITORING REPORT
JULY 2003

City of Patterson Wastewater Treatment Plant
Groundwater Monitoring Program

Conducted in Accordance with
Waste Discharge Requirements Order No. 5-00-146

Prepared by:

LEE & RO, Inc.
11060 White Rock Road, Suite 100
Rancho Cordova, California 95670-6046

Prepared for:

City of Patterson
Department of Public Works
33 South Del Puerto Avenue
Patterson, CA 95363

July 2003

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Patterson, CA 95363

July 2003

FIELD WORK CONDUCTED UNDER THE SUPERVISION OF AND REPORT PREPARED BY:

Tambrey Tosk 8-22-03

Tambrey A. Tosk (DATE)
Registered Geologist California No. 5848
Certified Hydrogeologist California No. HG 439
Registered Civil Engineer California No. C63813

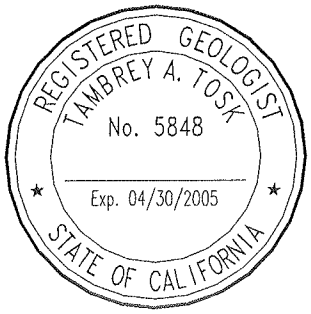


TABLE OF CONTENTS

Section Page
1. Introduction....1
2. Groundwater Monitoring Wells....1
3. Groundwater Elevations....2
4. Monitoring Well Sampling....2
5. Groundwater Quality Results....2

Appendices
A Well Purge Logs
B Laboratory Analytical Reports

LIST OF FIGURES

(Figures Follow Text)

Figure 1 San Joaquin River and Groundwater Elevations at Patterson
Figure 2A Groundwater Elevation Map, February 18, 2003
Figure 2B Groundwater Elevation Map, July 9, 2003

LIST OF TABLES

Table 1. Well Construction Summary....1
Table 2. 2003 Groundwater Elevations, Patterson WWTP Monitoring Wells....2
Table 3A Groundwater Analytical Results, February 2003....2
Table 3B. Groundwater Analytical Results, July 2003....3

1. INTRODUCTION

This Quarterly Groundwater Monitoring Report has been prepared in accordance with the Waste Discharge Requirements for the City of Patterson Wastewater Treatment Plant in the City of Patterson, Stanislaus County, California. The wells were installed as part of the groundwater monitoring program developed to determine if groundwater has been, or has the potential to be, adversely impacted by wastewater treatment and disposal operations. The monitoring program will include an assessment of background conditions and a determination if there has been any impact from wastewater disposal. The groundwater monitoring program consists of the construction and quarterly sampling of five monitoring wells.

The wells were constructed in March 2001 and samples have been collected on a quarterly basis since April 2001. This report presents the results of the quarterly samples collected July 9, 2003.

2. GROUNDWATER MONITORING WELLS

Two upgradient wells (MW-1 and MW-2) and three downgradient wells (MW-3, MW-4, and MW-5) are located at the plant site.

The wells have 15 feet of screen per well. The total depths range from 28 to 30 feet below ground surface (bgs). A summary of well characteristics is provided in **Table 1**.

Table 1
Well Construction Summary

	MW-1	MW-2	MW-3	MW-4	MW-5
Well Depth (ft)	28	29	28	30	29
Completion Type	Below	Above	Above	Above	Above
Slot Size (inch)	0.01	0.02	0.02	0.01	0.02
Elevation of Slab Surface	55.58	57.93	52.18	56.99	53.79
Elevation of Top of Casing	54.93	59.68	53.80	58.58	55.21
Northing	63170.83	65646.16	63426.28	64632.54	65640.07
Easting	27600.60	26971.88	29651.79	28630.20	28819.87

3. GROUNDWATER ELEVATIONS

Groundwater elevations measured to date are summarized in **Figure 1** along with the surface water elevations in the San Joaquin River for the same time period. Groundwater elevations measured in 2003 are presented in **Table 2** and contoured on the maps presented in **Figures 2A and 2B**.

Table 2
2003 Groundwater Elevations
Patterson WWTP Monitoring Wells

	MW-1	MW-2	MW-3	MW-4	MW-5
Water Elevation 2/18/03 (ft msl)	37.22	42.99	35.05	35.87	34.50
Water Elevation 7/9/03 (ft msl)	37.48	42.23	32.58	33.97	33.83

4. MONITORING WELL SAMPLING

The wells were purged and sampled according to the procedures specified in the workplan each quarter. Purge logs are presented in **Appendix A**.

5. GROUNDWATER QUALITY RESULTS

Laboratory reports for the July 2003 quarterly samples are presented in **Appendix B**. Analytical results for the 2003 quarterly samples are presented in **Tables 3A and 3B**.

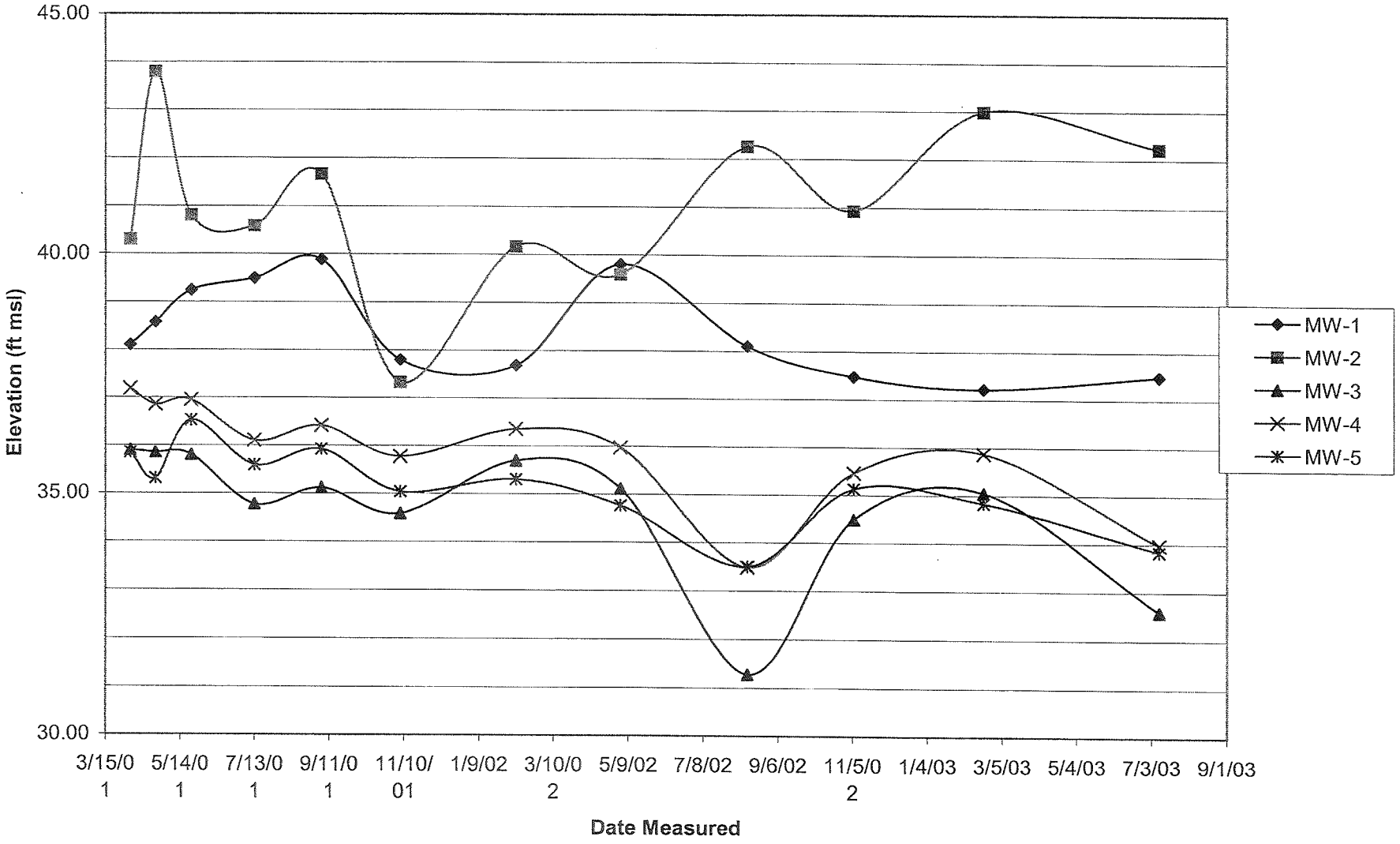
Table 3A
Groundwater Analytical Results
February 2003

	Unit	MW-1	MW-2	MW-3	MW-4	MW-5
pH	Unit	7.6	7.3	7.3	7.1	7.1
Electrical Conductivity	uS/cm	3,650	4,100	4,280	1,960	323
Total Dissolved Solids	mg/L	1,950	1,580	2,360	1,120	1,570
Nitrate as Nitrogen	mg/L	23	8.8	16	0.58	6.8
Total Coliform Organisms	MPN/100 mL	2	<2	2	<2	<2
Fecal Coliform Organisms	MPN/100 mL	<2	<2	<2	<2	<2

Table 3B
Groundwater Analytical Results
July 2003

	Unit	MW-1	MW-2	MW-3	MW-4	MW-5
pH	Unit	7.3	7.2	7.1	6.9	6.7
Electrical Conductivity	uS/cm	2,950	3,720	4,500	3,280	2,800
Total Dissolved Solids	mg/L	1,410	1,690	2,290	1,540	1,270
Nitrate as Nitrogen	mg/L	13	7.1	13	0.31	6.5
Total Coliform Organisms	MPN/100 mL	<2	<2	<2	<2	<2
Fecal Coliform Organisms	MPN/100 mL	<2	<2	<2	<2	<2

Figure 1
Groundwater Elevations in Patterson WWTP Monitoring Wells



PLANT NORTH

SCALE: 1"=400'

0 100 200 300 400
SCALE IN FEET

34.83
MW-5

35
36
37
38
39
40
41
42

POND 4

AIPS TREATMENT SYSTEM

35.87
MW-4

CHLORINE CONTACT TANK

SECONDARY CLARIFIERS

ACTIVATED SLUDGE

35.05
MW-3

35

PERCOLATION PONDS

POND 10 POND 11 POND 12

POND 3C & 3B

EFFLUENT PUMPING STATION

POND 3A

POND 5

SLUDGE DRYING BEDS

SLUDGE DRYING BEDS

36

POND 2

POND 1

POND 6 POND 7 POND 8 POND 9

INFLUENT PUMPING STATION

42.99
MW-2

POPLAR AVE

WALNUT AVE

42 41 40 39

MW-1
37.22

37

38

N:\PROJ\715\FIGURES\FIGURE3.DWG

FIGURE 2A
GROUNDWATER ELEVATION MAP
FEBRUARY 18, 2003

PLANT NORTH

SCALE: 1"=400'

0 100 200 300 400
SCALE IN FEET

33.83
MW-5
34
35
36
37
38
39
40
41
42
POND 4
POND 3C & 3B
EFFLUENT PUMPING STATION
POND 3A
POND 5
SLUDGE DRYING BEDS
POND 2
POND 1
INFLUENT PUMPING STATION
AIPS TREATMENT SYSTEM
33.97
MW-4
CHLORINE CONTACT TANK
33
SECONDARY CLARIFIERS
ACTIVATED SLUDGE
32.58
MW-3
PERCOLATION PONDS
33
POND 10
POND 11
POND 12
34
SLUDGE DRYING BEDS
POND 6
POND 7
POND 8
POND 9
35
POPLAR AVE
36
WALNUT AVE
37
MW-1
37.48
38
42.23
MW-2
42
41
40
39

N:\PROJ\715\FIGURES\FIGURE3.DWG

FIGURE 2B
GROUNDWATER ELEVATION MAP
July 9, 2003

APPENDIX A
PURGE LOGS

Measurement of Groundwater Levels

Project Name	Patterson WWTP	**Project No.**	721
		Recorded By	Ray Azevedo/GeoAnalytical
Location	Monitoring Wells	**Date**	7/9/03
Equipment Type	Solinst Water Level Meter	**Checked By**	Tambrey Tosk
Equipment No.	1	**Date**	8/20/03

Well Number	Time	Reference Point	Reference Elevation	Depth to Water	Water Elevation	Product Thickness	Product Elevation	Adjusted Water Elevation	Depth to Well Bottom	Notes (add below)
MW-1	8:00 AM	TOC	54.93	17.45	37.48	-	-	-	27.52	
MW-2	9:30 AM	TOC	59.68	17.45	42.23	-	-	-	31.28	
MW-3	8:35 AM	TOC	53.80	21.22	32.58	-	-	-	30.88	
MW-4	9:00 AM	TOC	58.58	24.61	33.97	-	-	-	31.64	
MW-5	9:15 AM	TOC	55.21	21.38	33.83	-	-	-	30.50	

Notes:

Report # P190-05 **Field Log / Groundwater Sampling Form** Date 7/9/03

Client City of Patterson Well Name MW-1

Project Name Quarterly GroundwaterMonitoring Well Type: ☞ Monitor ☐ Extraction ☐ Other

Consultant

Proj. Manager Joel Cockrell Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method
- ☐ Bailer - Type
- ☒ Pump - Type 2"
- ☐ Other

Multiplier

Well Casing I.D. (in.)	Gal/Ft.
2.0	0.1632
(4.0)	0.6527
6.0	1.4686

Purge Volume
Well Casing Diameter
- ☒ 2 - inch
- ☒ 4 - inch
- ☐ other

Well Volume Purged
- ☒ 3 volumes
- ☐ 4 volumes
- ☐ other

Total Well Depth 27.5
Depth to Water 17.45
Water Column Length 10.05

10.05 (Water column length) X 0.6527 (Multiplier) X 3 (No. Volumes) = 19.75 (CALCULATED. Purge Vol.)

19.75 (Purge Vol) / 2.5 (Purge Rate) = 7.87 (TOTAL PURGE TIME)

7.87 (Total Purge Time) / 3 (# Volumes) = 2.62 (PURGE TIME/VOL.)

Actual Values

Purge Time /Vol.	3
X	
No. Volumes	3
=	
Total Purge Time	9
X	
Purge Rate	2.5
=	
Actual Purge Vol.	22.5

GROUNDWATER PARAMETER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	8:00	-	-	-	-	-	-
Vol 1	8:03	7.5	8.0	1845	22.2		Clear.
Vol 2	8:06	15	7.7	1805	22.3		"
Vol 3	8:09	22.5	7.6	1827	21.9		"
Vol 4							
Vol 5							

Meter Type IQ Scientific

Purge Water Storage / Disposal
- ☐ Drummed onsite
- ☒ Onsite Treatment System
- ☐ Other

COMMENTS/purge:

WELL SAMPLING

Sampling Method
- ☐ Bailer - Type
- ☒ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
8:09	MW-1						2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1167

Phone: (209) 572-0900
Fax: (209) 572-0916

Report # P190-05

Field Log / Groundwater Sampling Form

Date 7/9/03

Client City of Patterson

Well Name MW-2

Project Name Quarterly GroundwaterMonitoring

Well Type: ☛ Monitor ☐ Extraction ☐ Other

Consultant

Proj. Manager Joel Cockrell

Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

- ☐ Bailer - Type
- ☒ Pump - Type 2"
- ☐ Other

Multiplier

Well Casing I.D. (in.)	Gal/Ft.
2.0	0.1632
(4.0)	0.6527
6.0	1.4686

Purge Volume

Well Casing Diameter
- ☐ 2 - inch
- ☒ 4 - inch
- ☐ other

Well Volume Purged
- ☒ 3 volumes
- ☐ 4 volumes
- ☐ other

Total Well Depth 31.0

Depth to Water 17.45

Water Column Length 13.55

13.55 (Water column length) X 0.6527 (Multiplier) X 3 (No. Volumes) = 26.53 (CALCULATED. Purge Vol.)

26.53 (Purge Vol) / 2.5 (Purge Rate) = 10.61 (TOTAL PURGE TIME)

10.61 (Total Purge Time) / 3 (# Volumes) = 3.53 (PURGE TIME/VOL.)

Actual Values

Purge Time /Vol.	4
X No. Volumes	3
= Total Purge Time	12
X Purge Rate	2.5
= Actual Purge Vol.	30

GROUNDWATER PARAMETER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	9:25	-	-	-	-	-	-
Vol 1	9:29	10	7.2	1997 us	21.9		Clear.
Vol 2	9:33	20	7.1	1983	20.6		"
Vol 3	9:37	30	7.0	1980	21.1		"
Vol 4							
Vol 5							

Meter Type IQ Scientific

Purge Water Storage / Disposal
- ☐ Drummed onsite
- ☒ Onsite Treatment System
- ☐ Other

COMMENTS/purge:

WELL SAMPLING

Sampling Method
- ☐ Bailer - Type
- ☐ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
9:37	MW-2						2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave,
Modesto, CA 95351

GeoAnalytical Laboratories, inc.
Cert# 1157

Phone: (209) 572-0900
Fax: (209) 572-0916

Report # P190-05

Field Log / Groundwater Sampling Form

Date 1 /02

Client City of Patterson

Well Name MW 3

Project Name Quarterly GroundwaterMonitoring

Well Type: ☛ Monitor ☐ Extraction ☐ Other

Consultant

Proj. Manager Joel Cockrell

Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

- ☐ Bailer - Type
- ☒ Pump - Type 2"
- ☐ Other

Total Well Depth 31.0

Depth to Water 21.22

Water Column Length 9.78

Multiplier

Well Casing I.D. (in.)	Gal/Ft.
~~2.0~~	0.1632
(4.0)	0.6527
6.0	1.4686

Purge Volume

Well Casing Diameter
- ☒ 2 - inch
- ☐ 4 - inch
- ☐ other

Well Volume Purged
- ☒ 3 volumes
- ☐ 4 volumes
- ☐ other

9.78 (Water column length) X 0.6527 (Multiplier) X 3 (No. Volumes) = 19.15 CALCULATED. Purge Vol.

19.15 (Purge Vol) / 2.5 (Purge Rate) = 7.67 TOTAL PURGE TIME

7.67 (Total Purge Time) / 3 (# Volumes) = 2.55 PURGE TIME/VOL.

Actual Values

Purge Time /Vol.	3
X	
No. Volumes	3
=	
Total Purge Time	9
X	
Purge Rate	2.5
=	
Actual Purge Vol.	22.5

GROUNDWATER PARAMETER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☒ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	8:37	-	-	-	-	-	-
Vol 1	8:40	7.5	7.1	1 MS	21.1		
Vol 2	8:43	15.0	7.0	1 MS	20.0		
Vol 3	8:46	22.5	7.2	1 MS	19.9		
Vol 4							
Vol 5							

Meter Type IQ Scientific

Purge Water Storage / Disposal
- ☐ Drummed onsite
- ☒ Onsite Treatment System
- ☐ Other

COMMENTS/purge:

WELL SAMPLING

Sampling Method
- ☐ Bailer - Type
- ☐ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
8:46	MW 3						2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

Phone: (209) 572-0900
Fax: (209) 572-0916

Report # P190-05

Field Log / Groundwater Sampling Form

Date 7/9/03

Client City of Patterson

Project Name Quarterly GroundwaterMonitoring

Consultant

Proj. Manager Joel Cockrell

Well Name MW 4

Well Type: ☞ Monitor ☐ Extraction ☐ Other

Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

- ☐ Bailer - Type
- ☒ Pump - Type 2"
- ☐ Other

Multiplier

Well Casing I.D. (in.)	Gal/Ft.
2.0	0.1632
(4.0)	0.6527
6.0	1.4686

Purge Volume

Well Casing Diameter
- ☐ 2 - inch
- ☒ 4 - inch
- ☐ other

Well Volume Purged
- ☒ 3 volumes
- ☐ 4 volumes
- ☐ other

Total Well Depth 31.0

Depth to Water 24.61

Water Column Length 6.39

6.39 (Water column length) x 0.6527 (Multiplier) x 3 (No. Volumes) = 12.51 (CALCULATED. Purge Vol.)

12.51 (Purge Vol) / 2.5 (Purge Rate) = 5.00 (TOTAL PURGE TIME)

5.00 (Total Purge Time) / 3 (# Volumes) = 1.67 (PURGE TIME/VOL.)

Actual Values

Purge Time /Vol.	2
X No. Volumes	3
= Total Purge Time	6
X Purge Rate	2.5
= Actual Purge Vol.	15

GROUNDWATER PARAMETER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	8:55	-	-	-	-	-	-
Vol 1	8:57	5	7.0	1745	23.2		Clear
Vol 2	8:59	10	7.0	1897	21.7		
Vol 3	9:01	15	6.9	1928	21.2		
Vol 4							
Vol 5							

Meter Type IQ Scientific

Purge Water Storage / Disposal
- ☐ Drummed onsite
- ☒ Onsite Treatment System
- ☐ Other

COMMENTS/purge:

WELL SAMPLING

Sampling Method
- ☐ Bailer - Type
- ☐ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
9:01	MW 4						2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

Phone: (209) 572-0900
Fax: (209) 572-0916

WELL PERMIT APPLICATION - NON-PRODUCTION WELLS

VATER & SEWAGE / MOUNTAIN & RURAL PROGRAMS - ENVIRONMENTAL HEALTH DIVISION
5050 COMMERCE DRIVE, BALDWIN PARK, CA 91706 (626) 430-5380 FAX (626) 813-3016

DATE:

____ NEW WELL CONSTRUCTION	____ MONITORING	____ HEAT EXCHANGE
____ RECONSTRUCTION OR RENOVATION	____ CATHODIC	____ OTHER (Specify) :
____ DECOMMISSIONING	____ INJECTION	
____ OTHER:_____	____ EXTRACTION	_____

WELL LOCATION

SITE ADDRESS	CITY	ZIP CODE

Township	Range	Section	Map Book Page/ Grid

NO. OF WELLS IN EACH PARCEL: **Attach site map with well locations**

WELL STRUCTURE

Type and Size of Production Casing	
Sanitary / Annular Sealing Material	
Depth of Sanitary / Annular Seal	
Conductor Casing Seal	

CONSULTANT

Company	
Contact Person	
Address	
City , State Zip	
Telephone	

OWNER / DRILLER INFORMATION

Well Owner	
Address	
City / Zip Code	
Telephone	
Well Driller	
Address	
City / Zip Code	
C-57 License No.	
Telephone	

WELL DECOMMISSIONING

Well Depth log / records	
Method of Well Assessment	
Depth and Number of Perforations	
Type of Perforator Size of Perforations	
Type and Amount of Sealant	
Method of Upper Seal Pressure Application	

IF WELL AND GEOLOGIC CONDITIONS ENCOUNTERED IN THE FIELD ARE FOUND TO DIFFER FROM THE SCOPE OF WORK PRESENTED TO THIS OFFICE, WORK PLAN MODIFICATIONS MAY BE REQUIRED

DISPOSITION OF PERMIT (Department Use Only)
THIS PERMIT IS CONSIDERED COMPLETE WHEN THE WORK PLAN IS APPROVED AND WHEN THE WELL COMPLETION LOG IS RECEIVED. NO WELL CONSTRUCTION OR DECOMMISSIONING CAN BE INITIATED WITHOUT THE WORK PLAN APPROVAL FROM THIS DEPARTMENT.

WORK PLAN APPROVAL
This Approval is Valid for 180 Days

Date	REHS

Conditions

I hereby agree to comply in every respect with all the regulations of the County Environmental Health Division and with all ordinances and laws of the County of Los Angeles and the State of California pertaining to well construction, reconstruction and decommissioning. Upon completion of the well and within thirty days thereafter, I will furnish the Environmental Health office with a completion log of the well giving date drilled, depth of the well, perforations in the casing, and any other data deemed necessary by County Environmental Health Division.

_____
Applicant's Signature

Applicant Name: (PRINT)
Telephone:

FINAL INSPECTION

Date	REHS

PERMIT ISSUED
The well log must be submitted to this Department prior to issuance of the final approval

Date	REHS

Report # P190-05

Field Log / Groundwater Sampling Form

Date 7/9/03

Client City of Patterson

Well Name MW 5

Project Name Quarterly GroundwaterMonitoring

Well Type: ☛ Monitor ☐ Extraction ☐ Other

Consultant

Proj. Manager Joel Cockrell

Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

- ☐ Bailer - Type
- ☒ Pump - Type 2"
- ☐ Other

Multiplier

Well Casing I.D. (in.)	Gal/Ft.
2.0	0.1632
(4.0)	0.6527
6.0	1.4686

Purge Volume

Well Casing Diameter
- ☒ 2 - inch
- ☒ 4 - inch
- ☐ other

Well Volume Purged
- ☒ 3 volumes
- ☐ 4 volumes
- ☐ other

Total Well Depth 31.0

Depth to Water 21.38

Water Column Length 9.62

9.62 (Water column length) x 0.6527 (Multiplier) x 3 (No. Volumes) = 18.37 (CALCULATED, Purge Vol.)

18.37 (Purge Vol) / 2.5 (Purge Rate) = 7.53 (TOTAL PURGE TIME)

7.53 (Total Purge Time) / 3 (# Volumes) = 2.51 (PURGE TIME/VOL.)

Actual Values

Purge Time /Vol.	3
X No. Volumes	3
= Total Purge Time	9
X Purge Rate	2.5
= Actual Purge Vol.	22.5

GROUNDWATER PARAMETERS STABILIZED

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	9:10	-	-	-	-	-	-
Vol 1	9:13	7.5	6.9	1470	23.2		CLEAR
Vol 2	9:16	15	6.8	1786	22.0		"
Vol 3	9:19	22.5	6.7	1808	21.4		"
Vol 4							
Vol 5							

Meter Type IQ Scientific

Purge Water Storage / Disposal
- ☐ Drummed onsite
- ☒ Onsite Treatment System
- ☐ Other

COMMENTS/purge:

WELL SAMPLING

Sampling Method
- ☐ Bailer - Type
- ☐ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
9:19	MW 5						2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave,
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

Phone: (209) 572-0900
Fax: (209) 572-0916

APPENDIX B
LABORATORY ANALYTICAL REPORT

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report # P190-05

Date: 7/15/03

City of Patterson
33 So. Del Puerto Ave.
Patterson CA 95363

Project: Quarterly - Monitoring Wells

PO#

Date Rec'd: 7/09/03
Date Started: 7/10/03
Date Completed: 7/14/03

Date Sampled: 7/09/03
Time:
Sampler: R. Chrun (Geo)

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
MW - 1	P306460	NA	150.1	pH	7.3	Std. Units
		1.0	120.1	Specific Conductance (EC)	2950	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1410	mg/L
		0.25	300.0	Nitrate as N	13	mg/L
MW - 2	P306461	NA	150.1	pH	7.2	Std. Units
		1.0	120.1	Specific Conductance (EC)	3720	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1690	mg/L
		0.25	300.0	Nitrate as N	7.1	mg/L
MW - 3	P306462	NA	150.1	pH	7.1	Std. Units
		1.0	120.1	Specific Conductance (EC)	4500	µmhos/cm
		10	160.1	TDS (Filterable Residue)	2290	mg/L
		0.25	300.0	Nitrate as N	13	mg/L
MW - 4	P306463	NA	150.1	pH	6.9	Std. Units
		1.0	120.1	Specific Conductance (EC)	3280	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1540	mg/L
		0.25	300.0	Nitrate as N	0.31	mg/L
MW - 5	P306464	NA	150.1	pH	6.7	Std. Units
		1.0	120.1	Specific Conductance (EC)	2800	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1270	mg/L
		0.25	300.0	Nitrate as N	6.5	mg/L

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue Modesto, CA 95351 Phone (209) 572-0900 Fax (209) 572-0916

CERTIFICATE OF ANALYSIS

Report# P190-05 Date: 7/14/03

City of Patterson
33 So. Del Puerto Ave.
Patterson CA 95363

Project: Quarterly - Monitoring Wells

PO#

Date Rec'd: 7/09/03
Date Started: 7/09/03
Date Completed: 7/11/03

Date Sampled: 7/09/03
Time:
Sampler: R. Chrun (Geo)

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
MW - 1	P306460	2	9221B,C	Total Coliform	<2	MPN/100ml
MW - 2	P306461	2	9221B,C	Total Coliform	<2	MPN/100ml
MW - 3	P306462	2	9221B,C	Total Coliform	<2	MPN/100ml
MW - 4	P306463	2	9221B,C	Total Coliform	<2	MPN/100ml
MW - 5	P306464	2	9221B,C	Total Coliform	<2	MPN/100ml

Kanti Gandhi
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

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Report# P190-05

QC REPORT

City of Patterson
33 So. Del Puerto Ave.
Patterson CA 95363

Analyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec	RPD	LCS %Rec	Blank	Comments
otal Coliform	9221B,C	B00377	7/09/03-7/11/03	<2	<2			0.0		<2	

* LCS/LCSD (see comments)

Kanti Gandhi
Chemist

Certification # 1157

Donna Keller
Laboratory Director

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Report# P190-05

QC REPORT

City of Patterson
33 So. Del Puerto Ave.
Patterson CA 95363

Analyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec	RPD	LCS %Rec	Blank	Comments
pH	150.1	104601	7/09/03	7.3	7.3			0.0		NA	
Specific Conductance (EC)	120.1	104654	7/10/03	760	760			0.0		ND	
TDS (Filterable Residue)	160.1	104649	7/10/03-7/11/03	1400	1410			0.7		ND	
Nitrate as N	300.0	104699	7/10/03-7/11/03			86.9	85.9 *	1.2		ND	Sample analyte concentration too high to spike.

* LCS/LCSD (see comments)

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

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Fax: (209) 572-0916

CHAIN OF CUSTODY

Lab Report # P190-05
Regulatory ☐ Yes ☐ No CC: ☐ Yes ☐ No
Regulator:
Phone: ( ) 892-8886
Fax: ( )
Original To: Ignacio Lopez

Client: City Of Patterson
Address: P.O. Box 667
City Patterson, CA Zip 95363

Project ID Quarterly-Monitoring Wells

Sampled By (Print Name) Richard Chavez
(Signature) Richard Chavez

Analysis: pH, EC, TDS; Nitrates (BN); Bacti

Date	Time	Grab	Comp	Matrix	Sample ID	Container Type	Container Size	No. Of Containers	pH, EC, TDS	Nitrates	Bacti	Remarks	Lab ID #	Preservative
7-9-03	8:05	X		WW	MW-1	P/g	Asort	2	✓	✓	✓		P306460	
	9:37	X		WW	MW-2	P/g	Asort	2	✓	✓	✓		P306461	
	8:46	X		WW	MW-3	P/g	Asort	2	✓	✓	✓		P306462	
	9:01	X		WW	MW-4	P/g	Asort	2	✓	✓	✓		P306463	
	9:15	X		WW	MW-5	P/g	Asort	2	✓	✓	✓		P306464	

Remarks (NO BARRELS – NO BAILERS)

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
Richard Chavez	7-9-03	10:30	M. Hagans	7/9/03	10:30
Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time

Preservative: ① 4°C ② HCL ③ NaOH ④ $Na_2S_2O_3$ ⑤ HNO_3 ⑥ H_2SO_4 ⑦ Other ______

Matrix: DW Drinking Water WW Waste Water HWW Hazardous Waste (Water) ⑤ Soil/Solid

Site Time: Start: Finish: Total Hours: Driving Time: Start: Site Arrival: Pump truck Today x2=Total: Time 5 HRS Total Mileage 37

Turnaround Time ☐ Standard ☐ Silver Rush ☐ Gold Rush ☐ Platinum Rush ☐ Other:

Approved By: