QUARTERLY MONITORING REPORT
OCTOBER 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

October 2003

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Patterson, CA 95363

October 2003

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

Tambrey Tosk 11/5/03

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

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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 October 8, 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 through 2C**.

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
Water Elevation 10/8/03 (ft msl)	37.93	37.99	33.97	35.40	34.80

4. MONITORING WELL SAMPLING

The wells were purged and sampled according to the procedures specified in the workplan. Sampling was conducted by Ray Azevedo and Rich Chrun of GeoAnalytical Laboratories under the general supervision of Tambrey Tosk, RG, of LEE & RO, Inc. Purge logs are presented in **Appendix A**.

5. GROUNDWATER QUALITY RESULTS

The samples were analyzed by GeoAnalytical Laboratories, a state-certified environmental laboratory. Laboratory reports for the October 2003 quarterly samples are presented in **Appendix B**. Analytical results for the 2003 quarterly samples are presented in **Tables 3A through 3C**.

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

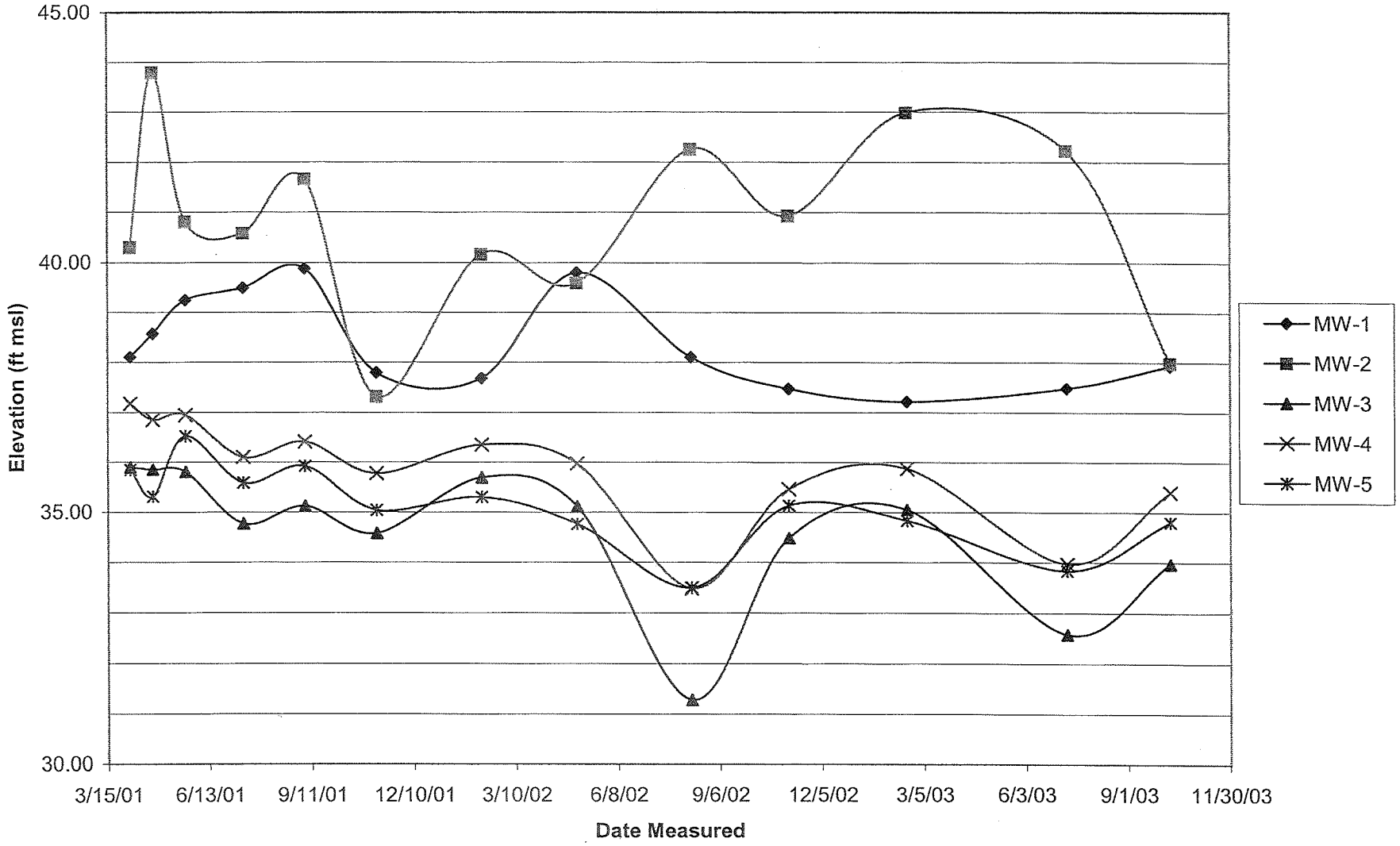
Table 3B
Groundwater Analytical Results
July 2003

	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

Table 3C
Groundwater Analytical Results
October 2003

	Unit	MW-1	MW-2	MW-3	MW-4	MW-5
PH	Unit	7.2	7.2	7.2	6.8	6.9
Electrical Conductivity	uS/cm	2,270	3,020	3,600	2,750	2,710
Total Dissolved Solids	mg/L	1,320	1,700	2,290	1,550	1,360
Nitrate as Nitrogen	mg/L	11	6.8	14	3.3	8.1
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 3C & 3B

EFFLUENT PUMPING STATION

POND 3A

POND 5

POND 10

POND 11

POND 12

SLUDGE DRYING BEDS

POND 2

POND 1

INFLUENT PUMPING STATION

SLUDGE DRYING BEDS

36

POND 6

POND 7

POND 8

POND 9

POPLAR AVE

42.99
MW-2

42

41

40

39

MW-1

37.22

37

WALNUT AVE

38

N:\PROJ\715\FIGURES\FIGURE2.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
POND 2
SLUDGE DRYING BEDS
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
SLUDGE DRYING BEDS
POND 6
34
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:\FRDA\715\FIGURES\FIGURE3.DWG

FIGURE 2B
GROUNDWATER ELEVATION MAP
July 9, 2003

PLANT NORTH

SCALE: 1"=400'

0 100 200 300 400
SCALE IN FEET

34.80
MW-5
35
34
33.97
MW-3
POND 4
AIPS TREATMENT SYSTEM
35.40
MW-4
SECONDARY CLARIFIERS
36
CHLORINE CONTACT TANK
ACTIVATED SLUDGE
PERCOLATION PONDS
34
POND 3C & 3B
EFFLUENT PUMPING STATION
POND 10
POND 11
POND 12
POND 3A
POND 5
37
SLUDGE DRYING BEDS
35
SLUDGE DRYING BEDS
POND 6
POND 7
POND 8
POND 9
POND 2
POND 1
INFLUENT PUMPING STATION
37.99
MW-2
POPLAR AVE
36
37
WALNUT AVE
MW-1
37.93

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

FIGURE 2C
GROUNDWATER ELEVATION MAP
October 8, 2003

APPENDIX A
PURGE LOGS

Measurement of Groundwater Levels

Project Name Patterson WWTP

Location Monitoring Wells
Equipment Type Solinst Water Level Meter
Equipment No. 1

Project No. 721
Recorded By Ray Azevedo/GeoAnalytical
Date 10/8/03
Checked By Tambrey Tosk
Date 11/5/03

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	3:30 PM	TOC	54.93	17.00	37.93	-	-	-	27.52	
MW-2	4:05 PM	TOC	59.68	21.69	37.99	-	-	-	31.28	
MW-3	4:50 PM	TOC	53.80	19.83	33.97	-	-	-	30.88	
MW-4	4:34 PM	TOC	58.58	23.18	35.40	-	-	-	31.64	
MW-5	4:18 PM	TOC	55.21	20.41	34.80	-	-	-	30.50	

Notes:

Client: City of Patterson | Well Name: MW-1

Project Name: Quarterly-Groundwater Monitoring | Well Type: ☒ Monitor ☐ Extraction ☐ Other

Consultant:

Proj. Manager: Joel Cockrell/Rich Chrun(Geo) | Sampler: Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

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

Total Well Depth: 27.5

Depth to Water: 17.0

Water Column Length: 10.5

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

10.5 (Water column length) x .6527 (Multiplier) x 3 (No. Volumes) = 20.56 (CALCULATED. Purge Vol.)

20.56 (Purge Vol) / 2.5 (Purge Rate) = 8.22 (TOTAL PURGE TIME)

8.22 (Total Purge Time) / 3 (# Volumes) = (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 MEASUSREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NIU	Color / Odor
Start	3:30	-	-	-	-	-	-
Vol 1	3:33	7.5	7.9	1365	23.9		CLEAR
Vol 2	3:36	15.0	7.8	1349	22.8		"
Vol 3	3:39	22.5	7.7	1338	22.6		"
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
3:40	MW-1	x				Ltr, 100ml	2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

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

Client: City of Patterson | Well Name: MW-2

Project Name: Quarterly-Groundwater Monitoring | Well Type: ☒ Monitor ☐ Extraction ☐ Other

Consultant:

Proj. Manager: Joel Cockrell/Rich Chrun (Geo) | Sampler: Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

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

Total Well Depth: 31.0

Depth to Water: 21.69

Water Column Length: 9.31

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

9.31 (Water column length) x .6527 (Multiplier) x 3 (No. Volumes) = 18.23 (CALCULATED. Purge Vol.)

18.23 (Purge Vol) / 2.5 (Purge Rate) = 7.29 (TOTAL PURGE TIME)

7.29 (Total Purge Time) / 3 (# Volumes) = 2.43 (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 PARAMATER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NIU	Color / Odor
Start	4:05	-	-	-	-	-	-
Vol 1	4:07	5	7.4	1559	22.5		Clear
Vol 2	4:09	10	7.3	1556	21.4		(Turbidity)
Vol 3	4:11	15	7.2	1568	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
4:12	MW-2	x				Ltr, 100ml	2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

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

Client: City of Patterson | Well Name: MW-3

Project Name: Quarterly-Groundwater Monitoring | Well Type: ☒ Monitor ☐ Extraction ☐ Other

Consultant:

Proj. Manager: Joel Cockrell/Rich Chrun (Geo) | Sampler: Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

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

Total Well Depth: 31.0

Depth to Water: 19.83

Water Column Length: 11.17

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

11.17 (Water column length) x .6527 (Multiplier) x 3 (No. Volumes) = 21.87 (CALCULATED. Purge Vol.)

21.87 (Purge Vol) / 2.5 (Purge Rate) = 8.75 (TOTAL PURGE TIME)

8.75 (Total Purge Time) / 3 (# Volumes) = 2.91 (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 MEASUSREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	4:50	-	-	-	-	-	-
Vol 1	4:53	7.5	7.4	1662	21.8		CLEAR
Vol 2	4:56	15.0	7.3	1668	20.6		"
Vol 3	4:59	22.5	7.2	1687	20.4		"
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
5:00	MW 3	x				Ltr, 100ml	2	4degrees C

COMMENTS/sampling:

1405 Kansas Ave.
Modesto, CA 95351

GeoAnalytical Laboratories, Inc.
Cert# 1157

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

Client: City of Patterson | Well Name: MW-4

Project Name: Quarterly-Groundwater Monitoring | Well Type: ☒ Monitor ☐ Extraction ☐ Other

Consultant:

Proj. Manager: Joel Cockrell/Rich Chrun (Geo) | 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: 25.18

Water Column Length: 7.82

7.82 (Water column length) x .6527 (Multiplier) x 3 (No. Volumes) = 15.31 (CALCULATED. Purge Vol.)

15.31 (Purge Vol) / 2.5 (Purge Rate) = 6.12 (TOTAL PURGE TIME)

6.12 (Total Purge Time) / 3 (# Volumes) = 2.04 (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 PARAMATER MEASUSREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☒ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	4:34	-	-	-	-	-	-
Vol 1	4:36	5	7.0	1432	22.4		Clear
Vol 2	4:38	10	7.1	1496	20.7		"
Vol 3	4:40	15	7.1	1513	20.5		"
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
4:41	MW-4	x				Ltr, 100ml	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 # P281-20 **Field Log / Groundwater Sampling Form** Date 10-8-03

Client City of Patterson Well Name MW 5

Project Name Quarterly-Groundwater Monitoring Well Type : ☒Monitor ☐ Extraction ☐ Other

Consultant

Proj. Manager Joel Cockrell/Rich Chrun(Geo) Sampler Ray Azevedo/Rich Chrun

WELL PURGING

Purge Method

- ☐ Baller - 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 20.41

Water Column Length 10.59

10.59 (Water column length) x .6527 (Multiplier) x 3 (No. Volumes) = 20.74 (CALCULATED. Purge Vol.)

20.74 (Purge Vol) / 2.5 (Purge Rate) = 8.29 (TOTAL PURGE TIME)

8.29 (Total Purge Time) / 3 (# Volumes) = 2.76 (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 PARAMATER MEASUREMENTS

	Time	Gallons	pH	Conductivity µmhos/cm	Temp. ☐ deg C ☐ deg F	Turbidity NTU	Color / Odor
Start	4:18	-	-	-	-	-	-
Vol 1	4:21	7.5	6.9	1497	22.8		Clear
Vol 2	4:24	15	6.8	1515	22.2		"
Vol 3	4:27	22.5	6.7	1532	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

- ☐ Baller - Type
- ☒ Pump - Type
- ☐ Other

Time	Sample ID	Org	Dup	Split	Blank	Container Type	Number of Containers	Preservative
4:28	MW 5	x				Ltr, 100ml	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

eport # P281-20

Date: 10/13/03

City of Patterson
3 So. Del Puerto Ave.
atterson CA 95363

Project: Quarterly Monitoring Wells

PO#

Date Rec'd: 10/08/03
Date Started: 10/10/03
Date Completed: 10/13/03

Date Sampled: 10/08/03
Time:
Sampler: R. Azevedo (Geo)/ R.

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
W - 1	P309128	NA	150.1	pH	7.2	Std. Units
		1.0	120.1	Specific Conductance (EC)	2270	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1320	mg/L
		0.25	300.0	Nitrate as N	11	mg/L
W - 2	P309129	NA	150.1	pH	7.2	Std. Units
		1.0	120.1	Specific Conductance (EC)	3020	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1700	mg/L
		0.25	300.0	Nitrate as N	6.8	mg/L
W - 3	P309130	NA	150.1	pH	7.2	Std. Units
		1.0	120.1	Specific Conductance (EC)	3600	µmhos/cm
		10	160.1	TDS (Filterable Residue)	2290	mg/L
		0.25	300.0	Nitrate as N	14	mg/L
W - 4	P309131	NA	150.1	pH	6.8	Std. Units
		1.0	120.1	Specific Conductance (EC)	2750	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1550	mg/L
		0.25	300.0	Nitrate as N	3.3	mg/L
W - 5	P309132	NA	150.1	pH	6.9	Std. Units
		1.0	120.1	Specific Conductance (EC)	2710	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1360	mg/L
		0.25	300.0	Nitrate as N	8.1	mg/L

Rohit Bombaywala
Inorganic Supervisor

Certification # 1157

Donna Keller
Laboratory Director

002

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

CERTIFICATE OF ANALYSIS

Report # P281-20

Date: 10/13/03

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

Project: Quarterly Monitoring Wells

PO#

Date Rec'd: 10/08/03
Date Started: 10/10/03
Date Completed: 10/13/03

Date Sampled: 10/08/03
Time: 3:50pm
Sampler: R. Azevedo (Geo)/ R.

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
ltigation Well	P309133	NA	150.1	pH	7.4	Std. Units
		1.0	120.1	Specific Conductance (EC)	2700	µmhos/cm
		10	160.1	TDS (Filterable Residue)	1580	mg/L
		0.25	300.0	Nitrate as N	5.5	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 # P281-20

Date: 10/14/03

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

Project: Quarterly Monitoring Wells

PO#

Date Rec'd: 10/08/03
Date Started: 10/08/03
Date Completed: 10/10/03

Date Sampled: 10/08/03
Time:
Sampler: R. Azevedo (Geo)/ R.

Sample ID	Lab ID	RL	Method	Analyte	Results	Units
MW - 1	P309128	2	9221B,C	Total Coliform	< 2	MPN/100ml
MW - 2	P309129	2	9221B,C	Total Coliform	< 2	MPN/100ml
MW - 3	P309130	2	9221B,C	Total Coliform	< 2	MPN/100ml
MW - 4	P309131	2	9221B,C	Total Coliform	< 2	MPN/100ml
MW - 5	P309132	2	9221B,C	Total Coliform	< 2	MPN/100ml
Mitigation Well	P309133	2	9221B,C	Total Coliform	< 2	MPN/100ml

Kanti Gandhi
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

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

ıort# P281-20

QC REPORT

y of Patterson
3o. Del Puerto Ave.
terson CA 95363

ılyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec		RPD	LCS %Rec	Blank	Comments
	150.1	I06683	10/08/03	7.7	7.7				0.0		NA	
: Conductance (EC)	120.1	I06723	10/09/03	740	750				1.3		NA	
lterable Residue)	160.1	I06768	10/10/03-10/13/03	2290	2260				1.3		ND	
as N	300.0	I06787	10/10/03			84.0	86.0	*	2.4		ND	Sample analyte concentration too high to spike.

CS/LCSD (see comments)

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

QC REPORT

ort# P281-20

of Patterson
. Del Puerto Ave.
erson CA 95363

lyte	Method	Batch #	Dates Analyzed	Orig.	Dupl.	MS %Rec	MSD %Rec	RPD	LCS %Rec	Blank	Comments
iform	9221B,C	B00572	10/08/03-10/10/03	<2	<2			0.0		<2	

CS/LCSD (see comments)

Kanti Gandhi
Chemist

Certification # 1157

Donna Keller
Laboratory Director

GeoAnalytical Laboratories, Inc.

1405 Kansas Avenue
Modesto, CA 95351

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

Lab Report # P281-20

Regulatory ☐Yes ☐No CC: ☐Yes ☐No

Regulator:

Phone: (209) 892-8886

Fax: (209) 892-8993

Original To: Joel Cockrell

C.C To:

ient: City of Patterson

ldress: 33 S. Del Puerto Ave.

ty Patterson, CA Zip 95363

CHAIN OF CUSTODY

☐EDF ☐EDT

☒ FIELD LOGS

'roject ID Quarterly Monitoring Wells

Sampled By (Print Name) Rob Azevedo / Rich Chrisman

(Signature)

Date	Time	Sample type Grab	Sample type Comp	Matrix	Sample ID	Container Type	Container Size	No. Of Containers	ANALYSIS Total Coli/EColi Perm (MPN)	pH, EC, TDS	Nitrate as N					Remarks	Lab Use Only Lab ID #	Preservative
10-8-03	5:40	X		WW	MW-1	P	Assor	2	X	X	X						P309128	
	4:12	X		WW	MW-2	P	Assor	2	X	X	X						P309129	
	5:00	X		WW	MW-3	P	Assor	2	X	X	X						P309130	
	4:41	X		WW	MW-4	P	Assor	2	X	X	X						P309131	
	4:28	X		WW	MW-5	P	Assor	2	X	X	X						P309132	
	3:50	X			MITIGATION WELL	P		2	X	X	X						P309133	

emarks

Fax results to Bob Goodwin (916)631-0292

elinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time
	10-8-03	5:16		10-8-03	5:16
elinquished 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) S Soil/Solid

illers 55 Gallon Drums

Pump Truck ☒ Time 5 day Mileage 37

Approved By: