

**QUARTERLY MONITORING REPORT  
APRIL 2005 SAMPLING**

**City of Patterson Wastewater Treatment Plant  
Groundwater Monitoring Program**

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

*Prepared by:*



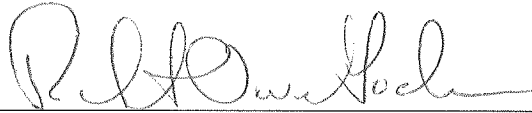
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*Prepared for:*

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

APRIL 2005

**REPORT PREPARED BY:**



5.2-5

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Robert Owen Godwin  
Registered Civil Engineer

(DATE)  
California No. C48045



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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 ten monitoring wells.

Monitoring wells MW-1 to MW-5 were constructed in March 2001. Samples have been collected on a quarterly basis since April 2001. In conjunction with the 1.25 mgd wastewater treatment plant expansion, five new monitoring wells were constructed between the months of July and August of 2004. These wells have been sampled twice for the Quarterly Monitoring Report since being constructed.

This report presents the results of the quarterly samples collected on April 5, 2005 for all ten monitoring wells. Included in this report will be groundwater elevation summaries and contour maps.

## 2. GROUNDWATER MONITORING WELLS

**Figure 1** shows the monitoring well locations.

All ten wells have 15 feet of screen with total depths ranging from 28 to 31.5 feet below ground surface (bgs). A summary of well characteristics is provided in **Table 1**.

The location of monitoring well MW-9 has been disputed by the neighboring landowners. The City has plans to abandon this well next month. Alternate locations for a new monitoring well will be proposed in the next quarterly report.

## 3. GROUNDWATER ELEVATIONS

Groundwater elevations measured to date are summarized in **Figure 2**.

Groundwater elevations measured in this sampling round are presented in **Table 1** and contoured on the map presented in **Figure 3**.

#### 4. MONITORING WELL SAMPLING

The wells were purged and sampled on April 5, 2005 in accordance with the procedures specified in the workplan. Sampling was conducted by Richard Chrun of GeoAnalytical Laboratories. Purge logs are presented in **Appendix A**.

#### 5. GROUNDWATER QUALITY RESULTS

The samples were analyzed by GeoAnalytical Laboratories, a state-certified environmental laboratory. Analytical results for the quarterly samples are summarized in **Table 2**. Laboratory reports for the April 2005 samples are presented in **Appendix B**.

The results in **Table 2** indicate high detection levels of coliform found within MW-6. During the last quarterly sample, the total coliform result for MW-6 was less than 2. This monitoring well is located near an existing alfalfa field. Currently, there is no available lock on this monitoring well, and therefore the well could have been contaminated prior to sampling. Another possible solution to the current high level result could be contamination during the sampling procedures. The monitoring well may not have been properly purged prior to sampling.

**Table 1**

**Well Construction Summary**

|              | <b>Well Depth<br/>(ft)</b> | <b>Completion<br/>Type</b> | <b>Slab Surface<br/>Elevation</b> | <b>Top of Casing<br/>Elevation</b> | <b>Water Elevation 04/05/05<br/>(ft msl)</b> |
|--------------|----------------------------|----------------------------|-----------------------------------|------------------------------------|--|
| <b>MW-1</b>  | 27.5                       | Below                      | 55.58                             | 54.93                              | 40.03  |
| <b>MW-2</b>  | 29.0                       | Above                      | 57.93                             | 59.68                              | 38.87  |
| <b>MW-3</b>  | 28.0                       | Above                      | 52.18                             | 53.80                              | 39.47  |
| <b>MW-4</b>  | 30.0                       | Above                      | 56.99                             | 58.58                              | 39.58  |
| <b>MW-5</b>  | 29.0                       | Above                      | 53.79                             | 55.21                              | 39.58  |
| <b>MW-6</b>  | 30.0                       | Above                      | 51.81                             | 55.23                              | 39.15  |
| <b>MW-7</b>  | 31.5                       | Above                      | 54.62                             | 58.04                              | 40.13  |
| <b>MW-8</b>  | 29.5                       | Above                      | 55.91                             | 59.33                              | 40.20  |
| <b>MW-9</b>  | 30.0                       | Below                      | 53.84                             | 53.63                              | 39.36  |
| <b>MW-10</b> | 30.0                       | Below                      | 58.33                             | 58.12                              | 39.85  |

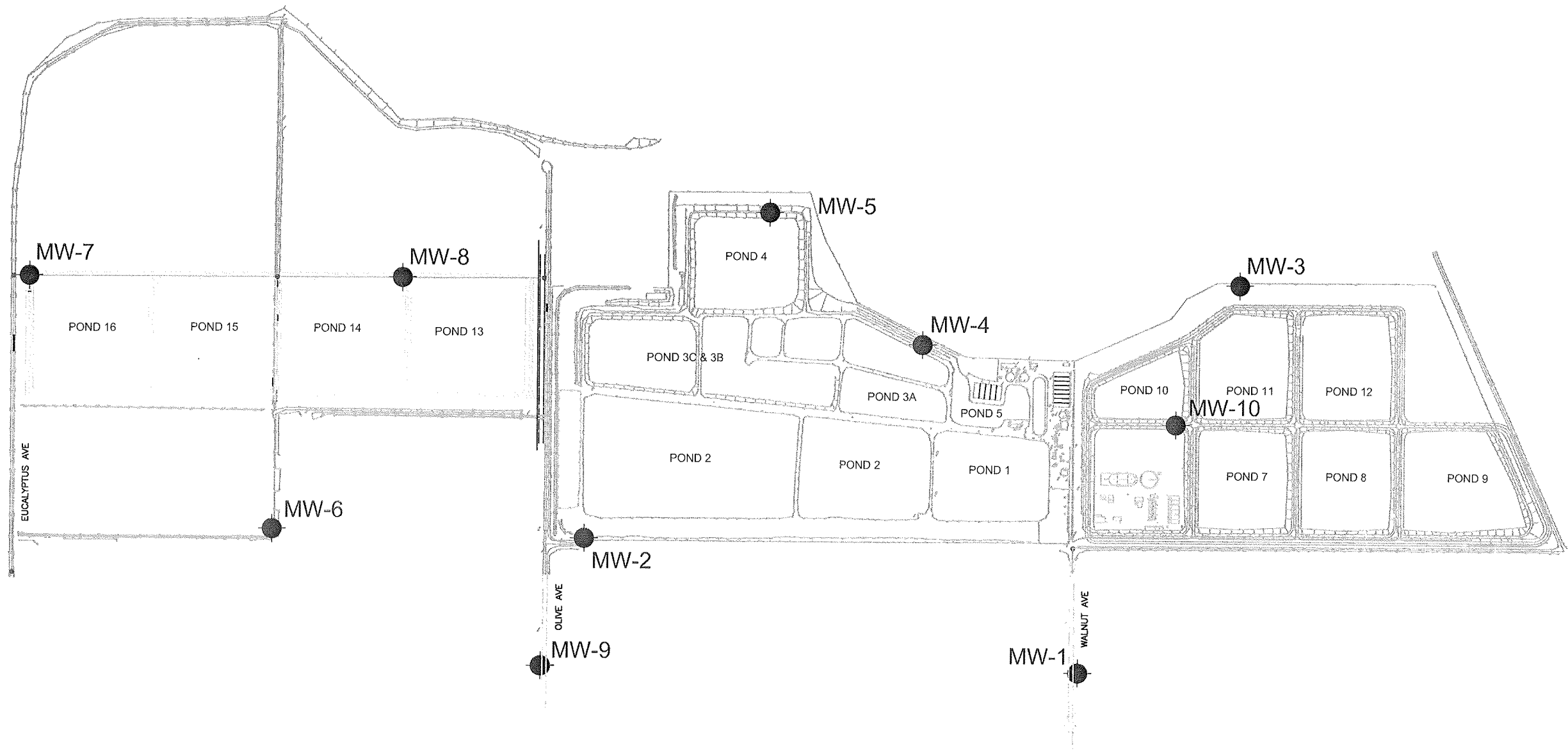
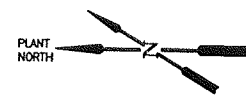
Table 2

## April 2005 Analytical Results

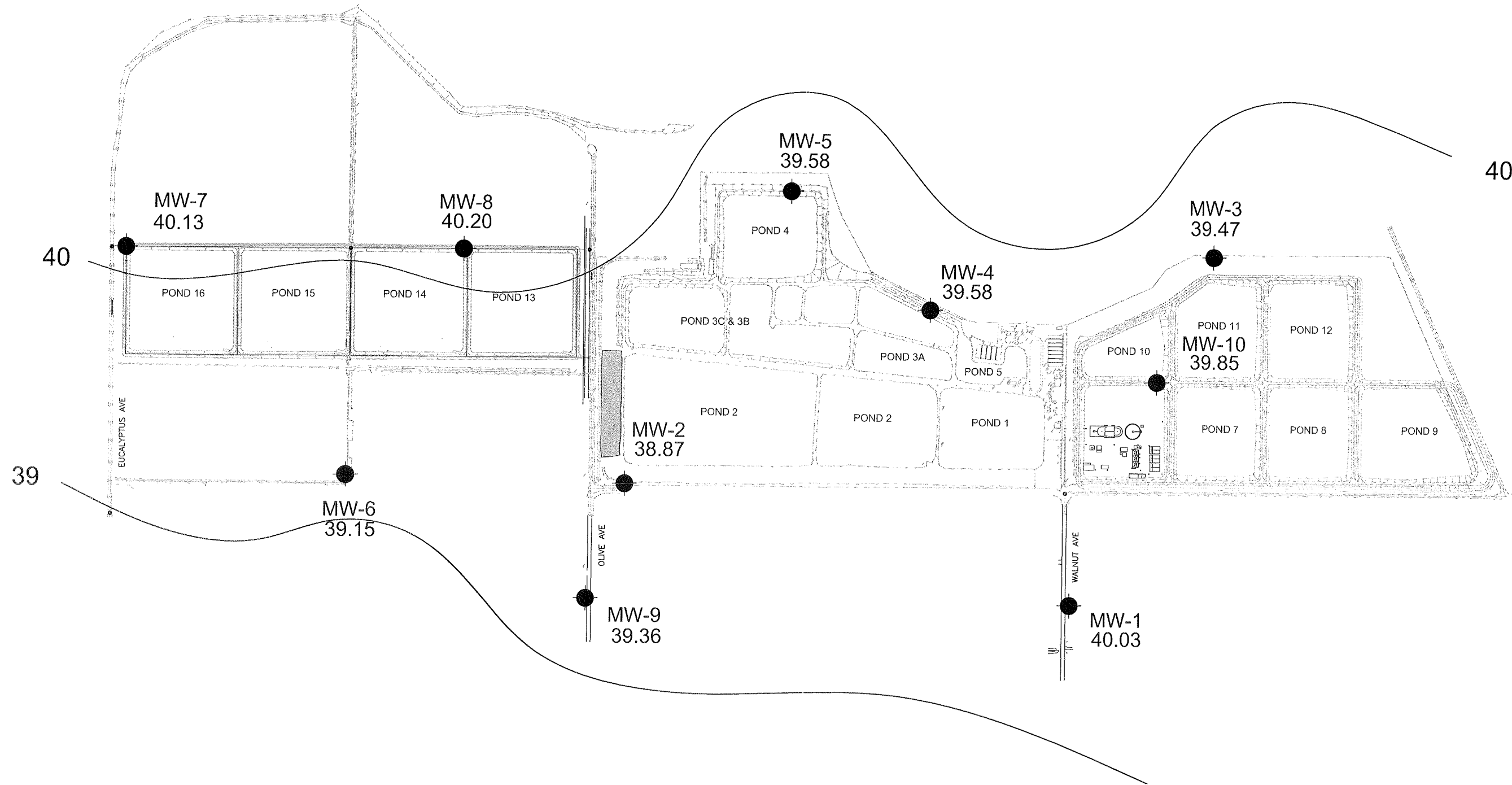
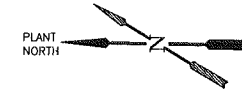
|       | PH<br>Method 150.1<br>(Std. Units) | Electric<br>Conductivity<br>Method 120.1<br>(umhos/cm) | Total<br>Dissolved<br>Solids<br>Method 160.1<br>(mg/L) | Nitrate as Nitrogen<br>Method 300.0<br>(mg/L) | Coliform Organisms                              |   |
|-------|------------------------------------|--|--|---|---|---|
|       |                                    |  |  |   | Total Coliform<br>Method 9221B,C<br>(MPN/100ml) | Fecal Coliform<br>Method 9221E,C<br>(MPN/100ml) |
| MW-1  | 7.4                                | 2590   | 1720   | 17.0  | <2  | NT  |
| MW-2  | 7.3                                | 2950   | 1910   | 8.6   | <2  | NT  |
| MW-3  | 7.2                                | 3870   | 2440   | 12.0  | <2  | NT  |
| MW-4  | 6.9                                | 2200   | 1500   | 26.0  | <2  | NT  |
| MW-5  | 6.7                                | 2070   | 1280   | 10.0  | <2  | NT  |
| MW-6  | 7.3                                | 1990   | 1270   | 1.5   | >1600   | >1600   |
| MW-7  | 7.2                                | 2070   | 1300   | 5.9   | <2  | NT  |
| MW-8  | 7.0                                | 3090   | 1960   | 7.0   | <2  | NT  |
| MW-9  | 7.4                                | 2030   | 1310   | 19.0  | <2  | NT  |
| MW-10 | 7.1                                | 2670   | 1870   | 9.3   | 2   | <2  |

ND = Not Detected

NT = Not Tested







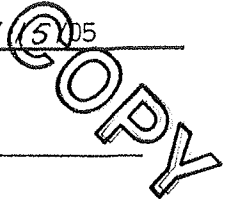
**APPENDIX A  
PURGE LOGS**



Report # R095-12

### Field Log / Groundwater Sampling Form

Date 4/5/05



Client City of Patterson

Well Name MW-1

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other

Consultant \_\_\_\_\_

Sampler Richard Chron

Proj. Manager Richard Chron

#### WELL PURGING

##### Purge Method

- Bailer - Type \_\_\_\_\_
- Pump - Type 2"
- Other \_\_\_\_\_

##### Purge Volume

- Well Casing Diameter \_\_\_\_\_ Well Volume Purged \_\_\_\_\_
- 2 - inch
  - 4 - inch
  - other \_\_\_\_\_
  - 3 volumes
  - 4 volumes
  - other \_\_\_\_\_

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

Total Well Depth 27.50

Depth to Water 14.90

Water Column Length 12.60

Length 12.60 X 0.6527 X 3 = 24.67

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

24.67 / 2.5 = 9.86

Purge Vol Purge Rate TOTAL PURGE TIME  
9.86 / 3 = 3.28

Total Purge Time# Volumes PURGE TIME/VOL.

| Actual Values       |            |
|---------------------|------------|
| Purge Time /Vol.    | <u>4</u>   |
| X No. Volumes       | <u>3</u>   |
| = Total Purge Time  | <u>12</u>  |
| X Purge Rate        | <u>2.5</u> |
| = Actual Purge Vol. | <u>30</u>  |

#### GROUNDWATER/PARAMETER MEASUREMENTS

|       | Time         | Gallons   | pH          | Conductivity<br>µmhos/cm | Temp.<br><input checked="" type="checkbox"/> deg C <input type="checkbox"/> deg F | ID | ORP | Color / Odor        |
|-------|--------------|-----------|-------------|--------------------------|---|----|-----|---------------------|
| Start | <u>10:50</u> | -         | -           | -                        | -   | -  | -   | -                   |
| Vol 1 | <u>10:54</u> | <u>10</u> | <u>7.62</u> | <u>2.80ms</u>            | <u>21.3</u>   |    |     | <u>clear / none</u> |
| Vol 2 | <u>10:58</u> | <u>20</u> | <u>7.60</u> | <u>2.78ms</u>            | <u>21.2</u>   |    |     | <u>"</u>            |
| Vol 3 | <u>11:02</u> | <u>30</u> | <u>7.58</u> | <u>2.77ms</u>            | <u>21.2</u>   |    |     | <u>"</u>            |
| Vol 4 |              |           |             |                          |   |    |     |                     |
| Vol 5 |              |           |             |                          |   |    |     |                     |

Meter Type \_\_\_\_\_

##### 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 |
|----------------|-------------|----------|-----|-------|-------|----------------------|----------------------|--------------|
| <u>11:02am</u> | <u>MW-1</u> | <u>X</u> |     |       |       | <u>Pl Litre</u>      | <u>1</u>             | <u>4°C</u>   |
|                |             |          |     |       |       | <u>100ml sterile</u> | <u>1</u>             | <u>4°C</u>   |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

**Field Log / Groundwater Sampling Form**

Date 4/5/05

Client City of Patterson

Well Name MW-3

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager Richard Chron

Sampler Richard Chron

**WELL PURGING**

**Purge Method**

- Bailer - Type \_\_\_\_\_
- Pump - Type 2"
- Other \_\_\_\_\_

**Purge Volume**

- Well Casing Diameter \_\_\_\_\_ Well Volume Purged \_\_\_\_\_
- 2 - inch
  - 4 - inch
  - other \_\_\_\_\_
  - 3 volumes
  - 4 volumes
  - other \_\_\_\_\_

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

Total Well Depth 31.00

Depth to Water 14.33

Water Column Length 16.67

$16.67 \times 0.6527 \times 3 = 32.64$

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

$32.64 / 2.5 = 13.05$

Purge Vol / Purge Rate TOTAL PURGE TIME

$13.05 / 3 = 4.35$

Total Purge Time Volumes PURGE TIME/VOL

| Actual Values       |             |
|---------------------|-------------|
| Purge Time /Vol.    | <u>5</u>    |
| X No. Volumes       | <u>3</u>    |
| = Total Purge Time  | <u>15</u>   |
| X Purge Rate        | <u>2.5</u>  |
| = Actual Purge Vol. | <u>37.5</u> |

**GROUNDWATER PARAMETER MEASUREMENTS**

|       | Time         | Gallons     | pH          | Conductivity<br>µmhos/cm | Temp.       |         | ID | ORP | Color / Odor      |
|-------|--------------|-------------|-------------|--------------------------|-------------|---------|----|-----|-------------------|
|       |              |             |             |                          | ° deg C     | ° deg F |    |     |                   |
| Start | <u>11:10</u> | -           | -           | -                        | -           | -       | -  | -   | -                 |
| Vol 1 | <u>11:15</u> | <u>12.5</u> | <u>7.27</u> | <u>3.79 ms</u>           | <u>20.0</u> |         |    |     | <u>Clear/none</u> |
| Vol 2 | <u>11:20</u> | <u>25.0</u> | <u>7.32</u> | <u>3.80 ms</u>           | <u>19.7</u> |         |    |     | <u>"</u>          |
| Vol 3 | <u>11:25</u> | <u>37.5</u> | <u>7.36</u> | <u>3.81 ms</u>           | <u>19.7</u> |         |    |     | <u>"</u>          |
| Vol 4 |              |             |             |                          |             |         |    |     |                   |
| Vol 5 |              |             |             |                          |             |         |    |     |                   |

Meter Type \_\_\_\_\_

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 |
|----------------|-------------|----------|-----|-------|-------|----------------------|----------------------|--------------|
| <u>11:25am</u> | <u>MW-3</u> | <u>X</u> |     |       |       | <u>Pl Litre</u>      | <u>1</u>             | <u>4°C</u>   |
|                |             |          |     |       |       | <u>100ml sterile</u> | <u>1</u>             | <u>4°C</u>   |
|                |             |          |     |       |       |                      |                      |              |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

### Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-10

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager \_\_\_\_\_

Sampler Richard Churn

#### WELL PURGING

##### Purge Method

- Bailer - Type \_\_\_\_\_
- Pump - Type 2"
- Other \_\_\_\_\_

##### Purge Volume

- Well Casing Diameter \_\_\_\_\_ Well Volume Purged \_\_\_\_\_
- 2 - inch  3 volumes
  - 4 - inch  4 volumes
  - other \_\_\_\_\_  other \_\_\_\_\_

##### Multiplier

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

Total Well Depth 30.00

Depth to Water 18.27

Water Column Length 11.73

Length 11.73 X 0.1632 X 3 = 5.74

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

5.74 / 2.5 = 2.29

Purge Vol / Purge Rate TOTAL PURGE TIME

2.29 / 3 = 0.76

Total Purge Time# Volumes PURGE TIME/VOL.

##### Actual Values

|                   |            |
|-------------------|------------|
| Purge Time /Vol.  | <u>1</u>   |
| X                 |            |
| No. Volumes       | <u>3</u>   |
| =                 |            |
| Total Purge Time  | <u>3</u>   |
| X                 |            |
| Purge Rate        | <u>2.5</u> |
| =                 |            |
| Actual Purge Vol. | <u>7.5</u> |

#### GROUNDWATER PARAMETER MEASUREMENTS

|       | Time         | Gallons    | pH          | Conductivity<br>µmhos/cm | Temp.<br>° deg C ° deg F | ID | ORP | Color / Odor        |
|-------|--------------|------------|-------------|--------------------------|--------------------------|----|-----|---------------------|
| Start | <u>11:42</u> | -          | -           | -                        | -                        | -  | -   | -                   |
| Vol 1 | <u>11:43</u> | <u>2.5</u> | <u>7.46</u> | <u>3.45 ms</u>           | <u>21.0</u>              |    |     | <u>Brown / none</u> |
| Vol 2 | <u>11:44</u> | <u>5.0</u> | <u>7.48</u> | <u>2.18 ms</u>           | <u>20.5</u>              |    |     | <u>"</u>            |
| Vol 3 | <u>11:45</u> | <u>7.5</u> | <u>7.37</u> | <u>2.94 ms</u>           | <u>20.8</u>              |    |     | <u>"</u>            |
| 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 |
|------|--------------|----------|-----|-------|-------|----------------------|----------------------|--------------|
|      | <u>MW-10</u> | <u>X</u> |     |       |       | <u>Pl Litre</u>      | <u>1</u>             | <u>4°C</u>   |
|      |              |          |     |       |       | <u>100ml sterile</u> | <u>1</u>             | <u>4°C</u>   |
|      |              |          |     |       |       |                      |                      |              |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

### Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-2

Project Name Quarterly Monitoring Wells

Well Type :  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager Richard Chron

Sampler Richard Chron

#### 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 31.40

Depth to Water 20.81

Water Column Length 10.59

Length 10.59 x 0.6527 x 3 = 20.73

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

20.73 / 2.5 = 8.29

Purge Vol / Purge Rate TOTAL PURGE TIME

8.29 / 3 = 2.76

Total Purge Time# Volumes PURGE TIME/VOL.

##### Actual Values

Purge Time /Vol. 3

No. Volumes 3

Total Purge Time 9

Purge Rate 2.5

Actual Purge Vol. 22.5

#### GROUNDWATER PARAMETER MEASUREMENTS

|       | Time  | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.   |         | ID | CRP | Color / Odor  |
|-------|-------|---------|------|--------------------------|---------|---------|----|-----|---------------|
|       |       |         |      |                          | ° deg C | ° deg F |    |     |               |
| Start | 12:06 | -       | -    | -                        | -       | -       | -  | -   | -             |
| Vol 1 | 12:09 | 7.5     | 7.57 | 3.12 ms                  | 21.1    |         |    |     | Clear / none  |
| Vol 2 | 12:12 | 15      | 7.55 | 3.16 ms                  | 20.7    |         |    |     | Turbid / none |
| Vol 3 | 12:15 | 22.5    | 7.59 | 3.12 ms                  | 21.5    |         |    |     | "             |
| Vol 4 |       |         |      |                          |         |         |    |     |               |
| Vol 5 |       |         |      |                          |         |         |    |     |               |

Meter Type \_\_\_\_\_

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 |
|---------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 12:15pm | MW-2      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|         |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

# Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-5

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager Richard Chron

Sampler Richard Chron

## WELL PURGING

### Purge Method

- Bailer - Type \_\_\_\_\_
- Pump - Type 2"
- Other \_\_\_\_\_

### Purge Volume

- Well Casing Diameter \_\_\_\_\_ Well Volume Purged \_\_\_\_\_
- 2 - inch
  - 4 - inch
  - other \_\_\_\_\_
- 3 volumes
  - 4 volumes
  - other \_\_\_\_\_

### Multiplier

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

Total Well Depth 31.00

Depth to Water 15.63

Water Column Length 15.37

Length 15.37 x 0.6527 x 3 = 30.09

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

30.09 / 2.5 = 12.03

Purge Vol Purge Rate TOTAL PURGE TIME

12.03 / 3 = 4.01

Total Purge Time Volumes PURGE TIME/VOL.

### Actual Values

|                   |            |
|-------------------|------------|
| Purge Time /Vol.  | <u>4</u>   |
| X                 |            |
| No. Volumes       | <u>3</u>   |
| =                 |            |
| Total Purge Time  | <u>12</u>  |
| X                 |            |
| Purge Rate        | <u>2.5</u> |
| =                 |            |
| Actual Purge Vol. | <u>30</u>  |

## GROUNDWATER PARAMETER MEASUREMENTS

|       | Time         | Gallons   | pH          | Conductivity<br>µmhos/cm | Temp.<br>✓ deg C o deg F | ID | ORP | Color / Odor        |
|-------|--------------|-----------|-------------|--------------------------|--------------------------|----|-----|---------------------|
| Start | <u>12:38</u> | -         | -           | -                        | -                        | -  | -   | -                   |
| Vol 1 | <u>12:42</u> | <u>10</u> | <u>7.13</u> | <u>2.11 ms</u>           | <u>18.4</u>              |    |     | <u>clear / none</u> |
| Vol 2 | <u>12:46</u> | <u>20</u> | <u>7.05</u> | <u>2.23 ms</u>           | <u>17.7</u>              |    |     | <u>"</u>            |
| Vol 3 | <u>12:50</u> | <u>30</u> | <u>7.01</u> | <u>2.22 ms</u>           | <u>18.5</u>              |    |     | <u>"</u>            |
| Vol 4 |              |           |             |                          |                          |    |     |                     |
| Vol 5 |              |           |             |                          |                          |    |     |                     |

Meter Type \_\_\_\_\_

### 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 |
|-----------------|-------------|----------|-----|-------|-------|----------------------|----------------------|--------------|
| <u>12:50 pm</u> | <u>MW-5</u> | <u>X</u> |     |       |       | <u>Pl Litre</u>      | <u>1</u>             | <u>4°C</u>   |
|                 |             |          |     |       |       | <u>100ml sterile</u> | <u>1</u>             | <u>4°C</u>   |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

### Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-4

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager Richard Chron

Sampler Richard Chron

#### WELL PURGING

##### Purge Method

- Bailer - Type \_\_\_\_\_
- Pump - Type 2"
- Other \_\_\_\_\_

##### Purge Volume

- Well Casing Diameter \_\_\_\_\_ Well Volume Purged
- 2 - inch
  - 4 - inch
  - other \_\_\_\_\_
- 3 volumes
  - 4 volumes
  - other \_\_\_\_\_

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

Total Well Depth 31.00

Depth to Water 19.00

Water Column Length 12.00

Length 12.00 X 0.6527 X 3 = 23.49

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

23.49 / 2.5 = 9.39

Purge Vol / Purge Rate TOTAL PURGE TIME

9.39 / 3 = 3.13

Total Purge Time# Volumes PURGE TIME/VOL.

| Actual Values     |            |
|-------------------|------------|
| Purge Time /Vol.  | <u>4</u>   |
| X<br>No. Volumes  | <u>3</u>   |
| =                 |            |
| Total Purge Time  | <u>12</u>  |
| X<br>Purge Rate   | <u>2.5</u> |
| =                 |            |
| Actual Purge Vol. | <u>30</u>  |

#### GROUNDWATER PARAMETER MEASUREMENTS

|       | Time | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.                                     |                                | ID | CRP | Color / Odor |
|-------|------|---------|------|--------------------------|---|--------------------------------|----|-----|--------------|
|       |      |         |      |                          | <input checked="" type="checkbox"/> deg C | <input type="checkbox"/> deg F |    |     |              |
| Start | 1:05 | -       | -    | -                        | -   | -                              | -  | -   | -            |
| Vol 1 | 1:09 | 10      | 7.35 | 2.42 ms                  | 20.2                                      |                                |    |     | clear / none |
| Vol 2 | 1:13 | 20      | 7.33 | 2.36 ms                  | 19.6                                      |                                |    |     | "            |
| Vol 3 | 1:17 | 30      | 7.28 | 2.31 ms                  | 20.7                                      |                                |    |     | "            |
| Vol 4 |      |         |      |                          |   |                                |    |     |              |
| Vol 5 |      |         |      |                          |   |                                |    |     |              |

Meter Type \_\_\_\_\_

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 |
|---------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 1:17 pm | MW-4      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|         |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_ **Field Log / Groundwater Sampling Form** Date 4/5/05

Client City of Patterson

Well Name MW-9

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Sampler Richard Chron

Proj. Manager \_\_\_\_\_

**WELL PURGING**

|   |  |  |   |
|---|--|--|---|
| <b>Purge Method</b>                                       |  | <b>Purge Volume</b>                          |   |
| <input type="checkbox"/> Bailer - Type _____              |  | Well Casing Diameter                         | Well Volume Purged                            |
| <input checked="" type="checkbox"/> Pump - Type <u>2"</u> |  | <input checked="" type="checkbox"/> 2 - inch | <input checked="" type="checkbox"/> 3 volumes |
| <input type="checkbox"/> Other _____                      |  | <input type="checkbox"/> 4 - inch            | <input type="checkbox"/> 4 volumes            |
|   |  | <input type="checkbox"/> other _____         | <input type="checkbox"/> other _____          |

|                                  |  |                        |         |
|----------------------------------|--|------------------------|---------|
| Total Well Depth <u>30.70</u>    |  | <b>Multiplier</b>      |         |
| Depth to Water <u>14.27</u>      |  | Well Casing I.D. (in.) | Gal/Ft. |
| Water Column Length <u>16.43</u> |  | 2.0                    | 0.1632  |
|                                  |  | 4.0                    | 0.6527  |
|                                  |  | 6.0                    | 1.4686  |

|                     |   |            |   |             |   |                       |
|---------------------|---|------------|---|-------------|---|-----------------------|
| Length <u>16.43</u> | X | 0.1632     | X | 3           | = | <u>8.04</u>           |
| Water column length |   | Multiplier |   | No. Volumes |   | CALCULATED Purge Vol. |

|                  |   |            |   |                  |
|------------------|---|------------|---|------------------|
| <u>8.04</u>      | / | <u>2.5</u> | = | <u>3.21</u>      |
| Purge Vol        |   | Purge Rate |   | TOTAL PURGE TIME |
| <u>3.21</u>      | / | <u>3</u>   | = | <u>1.07</u>      |
| Total Purge Time |   | # Volumes  |   | PURGE TIME/VOL.  |

| Actual Values     |            |
|-------------------|------------|
| Purge Time / Vol. | <u>2</u>   |
| No. Volumes       | <u>3</u>   |
| Total Purge Time  | <u>6</u>   |
| Purge Rate        | <u>2.5</u> |
| Actual Purge Vol. | <u>15</u>  |

**GROUNDWATER PARAMETER MEASUREMENTS**

|       | Time | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.<br>° deg C o deg F | ID | ORP | Color / Odor |
|-------|------|---------|------|--------------------------|--------------------------|----|-----|--------------|
| Start | 1:30 | -       | -    | -                        | -                        | -  | -   | -            |
| Vol 1 | 1:32 | 5       | 7.88 | 1.99 ms                  | 20.0                     |    |     | Brown Iron   |
| Vol 2 | 1:34 | 10      | 7.79 | 2.16 ms                  | 21.0                     |    |     | "            |
| Vol 3 | 1:36 | 15      | 7.76 | 2.20 ms                  | 19.5                     |    |     | "            |
| 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 |
|---------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 1:36 pm | MW-9      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|         |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

### Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-8

Project Name Quarterly Monitoring Wells

Well Type : o Monitor o Extraction o Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager \_\_\_\_\_

Sampler Richard Chron

#### 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 30.70

Depth to Water 19.13

Water Column Length 11.57

Length 11.57 X 0.1632 X 3 = 5.66

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

5.66 / 2.5 = 2.26

Purge Vol Purge Rate TOTAL PURGE TIME

2.26 / 3 = 0.75

Total Purge Time# Volumes PURGE TIME/VOL.

##### Actual Values

Purge Time /Vol. 1

No. Volumes 3

Total Purge Time 3

Purge Rate 2.5

Actual Purge Vol. 7.5

#### GROUNDWATER PARAMETER MEASUREMENTS

|       | Time | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.   |         | ID | ORP | Color / Odor  |
|-------|------|---------|------|--------------------------|---------|---------|----|-----|---------------|
|       |      |         |      |                          | o deg C | o deg F |    |     |               |
| Start | 1:55 | -       | -    | -                        | -       | -       | -  | -   | -             |
| Vol 1 | 1:56 | 2.5     | 7.26 | 3.00 ms                  | 19.2    |         |    |     | turbid / none |
| Vol 2 | 1:57 | 5.0     | 7.27 | 3.04 ms                  | 19.7    |         |    |     | "             |
| Vol 3 | 1:58 | 7.5     | 7.28 | 3.06 ms                  | 19.5    |         |    |     | "             |
| 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 |
|--------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 1:58pm | MW-8      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|        |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

Report # \_\_\_\_\_

### Field Log / Groundwater Sampling Form

Date 4/5/05

Client City of Patterson

Well Name MW-7

Project Name Quarterly Monitoring Wells

Well Type:  Monitor  Extraction  Other \_\_\_\_\_

Consultant \_\_\_\_\_

Proj. Manager \_\_\_\_\_

Sampler Richard 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 31.00

Depth to Water 17.91

Water Column Length 13.09

$13.09 \times 0.1632 \times 3 = 6.40$

Water column length Multiplier No. Volumes CALCULATED. Purge Vol.

$6.40 / 2.5 = 2.56$

Purge Vol / Purge Rate TOTAL PURGE TIME

$2.56 / 3 = 0.85$

Total Purge Time# Volumes PURGE TIME/VOL.

##### Actual Values

|                   |            |
|-------------------|------------|
| Purge Time /Vol.  | <u>1</u>   |
| X                 |            |
| No. Volumes       | <u>3</u>   |
| =                 |            |
| Total Purge Time  | <u>3</u>   |
| X                 |            |
| Purge Rate        | <u>2.5</u> |
| =                 |            |
| Actual Purge Vol. | <u>7.5</u> |

#### GROUNDWATER PARAMETER MEASUREMENTS

|       | Time | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.   |         | ID | ORP | Color / Odor |
|-------|------|---------|------|--------------------------|---------|---------|----|-----|--------------|
|       |      |         |      |                          | ° deg C | ° deg F |    |     |              |
| Start | 2:10 | -       | -    | -                        | -       | -       | -  | -   | -            |
| Vol 1 | 2:11 | 2.5     | 7.49 | 2.23                     | 18.7    |         |    |     | Brown / none |
| Vol 2 | 2:12 | 5.0     | 7.49 | 2.24                     | 18.8    |         |    |     | "            |
| Vol 3 | 2:13 | 7.5     | 7.50 | 2.24                     | 18.9    |         |    |     | "            |
| 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 |
|---------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 2:13 pm | MW-7      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|         |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

Client City of Patterson  
 Project Name Quarterly Monitoring Wells  
 Consultant \_\_\_\_\_  
 Proj. Manager \_\_\_\_\_

Well Name MW-6  
 Well Type:  Monitor  Extraction  Other \_\_\_\_\_  
 Sampler Richard Chron

**WELL PURGING**

**Purge Method**  
 Bailer - Type \_\_\_\_\_  
 Pump - Type 2"  
 Other \_\_\_\_\_

**Purge Volume**  
 Well Casing Diameter \_\_\_\_\_ Well Volume Purged  
 2 - inch  3 volumes  
 4 - inch  4 volumes  
 other \_\_\_\_\_  other \_\_\_\_\_

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

Total Well Depth 29.20  
 Depth to Water 16.08  
 Water Column Length 13.12

$13.12 \times 0.1632 \times 3 = 6.42$   
 Water column length Multiplier No. Volumes CALCULATED. Purge Vol.  
 $6.42 / 2.5 = 2.56$   
 Purge Vol / Purge Rate TOTAL PURGE TIME  
 $2.56 / 3 = 0.85$   
 Total Purge Time# Volumes PURGE TIME/VOL.

| Actual Values       |            |
|---------------------|------------|
| Purge Time /Vol.    | <u>1</u>   |
| X No. Volumes       | <u>3</u>   |
| = Total Purge Time  | <u>3</u>   |
| X Purge Rate        | <u>2.5</u> |
| = Actual Purge Vol. | <u>7.5</u> |

**GROUNDWATER PARAMETER MEASUREMENTS**

|       | Time | Gallons | pH   | Conductivity<br>µmhos/cm | Temp.<br>deg C o deg F | DO | ORP | Color / Odor |
|-------|------|---------|------|--------------------------|------------------------|----|-----|--------------|
| Start | 2:45 | -       | -    | -                        | -                      | -  | -   | -            |
| Vol 1 | 2:46 | 2.5     | 7.68 | 2.25 ms                  | 20.1                   |    |     | Brown / none |
| Vol 2 | 2:47 | 5.0     | 7.72 | 2.21 ms                  | 20.0                   |    |     | "            |
| Vol 3 | 2:48 | 7.5     | 7.71 | 2.18 ms                  | 20.0                   |    |     | "            |
| 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 |
|---------|-----------|-----|-----|-------|-------|----------------|----------------------|--------------|
| 2:48 pm | MW-6      | X   |     |       |       | Pl Litre       | 1                    | 4°C          |
|         |           |     |     |       |       | 100ml sterile  | 1                    | 4°C          |

COMMENTS/sampling: \_\_\_\_\_

**APPENDIX B**  
**LABORATORY ANALYTICAL REPORT**

# GeoAnalytical Laboratories, Inc.

COPY

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

## CERTIFICATE OF ANALYSIS

Report # R095-12

Date: 4/11/05

City of Patterson  
 33 S. Del Puerto  
 Patterson CA 95363

Project: Quarterly Monitong Wells

Date Rec'd: 4/05/05  
 Date Started: 4/05/05  
 Date Completed: 4/08/05

PO#

Date Sampled: 4/05/05  
 Time:  
 Sampler: R. Chrun (Geo)

| Sample ID | Lab ID  | RL   | Method | Analyte                   | Results | Units      |
|-----------|---------|------|--------|---------------------------|---------|------------|
| W - 1     | R302153 | NA   | 150.1  | pH                        | 7.4     | Std. Units |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2590    | µmhos/cm   |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1720    | mg/L       |
|           |         | 0.25 | 300.0  | Nitrate as N              | 17      | mg/L       |
| W - 2     | R302154 | NA   | 150.1  | pH                        | 7.3     | Std. Units |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2950    | µmhos/cm   |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1910    | mg/L       |
|           |         | 0.25 | 300.0  | Nitrate as N              | 8.6     | mg/L       |
| MW - 3    | R302155 | NA   | 150.1  | pH                        | 7.2     | Std. Units |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 3870    | µmhos/cm   |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 2440    | mg/L       |
|           |         | 0.25 | 300.0  | Nitrate as N              | 12      | mg/L       |
| MW - 4    | R302156 | NA   | 150.1  | pH                        | 6.9     | Std. Units |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2200    | µmhos/cm   |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1500    | mg/L       |
|           |         | 0.25 | 300.0  | Nitrate as N              | 26      | mg/L       |
| W - 5     | R302157 | NA   | 150.1  | pH                        | 6.7     | Std. Units |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2070    | µmhos/cm   |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1280    | mg/L       |
|           |         | 0.25 | 300.0  | Nitrate as N              | 10      | mg/L       |

K. Bombaywala

Kellif Bombaywala  
 Inorganic Supervisor

Certification # 2585

Donna Keller

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 # R095-12

Date: 4/11/05

City of Patterson  
33 S. Del Puerto  
Patterson CA 95363

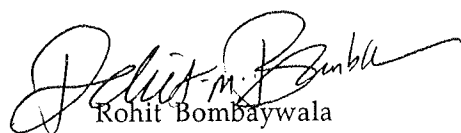
Project: Quarterly Monitong Wells

Date Rec'd: 4/05/05  
Date Started: 4/05/05  
Date Completed: 4/08/05


PO#

Date Sampled: 4/05/05  
Time:  
Sampler: R. Chrun (Geo)

| Sample ID | Lab ID  | RL   | Method | Analyte                   | Results | Units         |
|-----------|---------|------|--------|---------------------------|---------|---------------|
| AW - 6    | R302158 | NA   | 150.1  | pH                        | 7.3     | Std. Units    |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 1990    | $\mu$ mhos/cm |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1270    | mg/L          |
|           |         | 0.25 | 300.0  | Nitrate as N              | 1.5     | mg/L          |
| AW - 7    | R302159 | NA   | 150.1  | pH                        | 7.2     | Std. Units    |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2070    | $\mu$ mhos/cm |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1300    | mg/L          |
|           |         | 0.25 | 300.0  | Nitrate as N              | 5.9     | mg/L          |
| MW - 8    | R302160 | NA   | 150.1  | pH                        | 7.0     | Std. Units    |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 3090    | $\mu$ mhos/cm |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1960    | mg/L          |
|           |         | 0.25 | 300.0  | Nitrate as N              | 7.0     | mg/L          |
| MW - 9    | R302161 | NA   | 150.1  | pH                        | 7.4     | Std. Units    |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2030    | $\mu$ mhos/cm |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1310    | mg/L          |
|           |         | 0.25 | 300.0  | Nitrate as N              | 19      | mg/L          |
| AW - 10   | R302162 | NA   | 150.1  | pH                        | 7.1     | Std. Units    |
|           |         | 1.0  | 120.1  | Specific Conductance (EC) | 2670    | $\mu$ mhos/cm |
|           |         | 10   | 160.1  | TDS (Filterable Residue)  | 1870    | mg/L          |
|           |         | 0.25 | 300.0  | Nitrate as N              | 9.3     | mg/L          |

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 2585

  
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 # R095-12

Date: 4/11/05

City of Patterson  
33 S. Del Puerto  
Patterson CA 95363

Project: Quarterly Monitong Wells

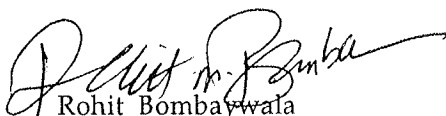
Date Rec'd: 4/05/05  
Date Started: 4/05/05  
Date Completed: 4/08/05

PO#


Date Sampled: 4/05/05  
Time:  
Sampler: R. Chrun (Geo)

| Sample ID       | Lab ID  | RL   | Method | Analyte                   | Results | Units         |
|-----------------|---------|------|--------|---------------------------|---------|---------------|
| Mitigation Well | R302163 | NA   | 150.1  | pH                        | 7.2     | Std. Units    |
|                 |         | 1.0  | 120.1  | Specific Conductance (EC) | 2360    | $\mu$ mhos/cm |
|                 |         | 10   | 160.1  | TDS (Filterable Residue)  | 1530    | mg/L          |
|                 |         | 0.25 | 300.0  | Nitrate as N              | 1.3     | mg/L          |

RECEIVED  
APR 14 2005  
BY: *Jim*

  
Rohit Bombaywala  
Inorganic Supervisor

Certification # 2585

  
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 # R095-12

Date: 4/11/05

City of Patterson  
33 S. Del Puerto  
Patterson CA 95363

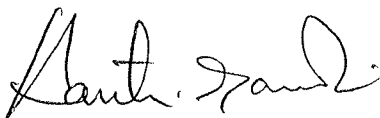
Project: Quarterly Monitong Wells

PO#

Date Rec'd: 4/05/05  
Date Started: 4/05/05  
Date Completed: 4/08/05

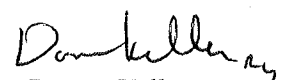
Date Sampled: 4/05/05  
Sampler: R. Chrun (Geo)

| Sample ID | Lab ID  | Time     | RL | Method  | Analyte        | Results | Units     |
|-----------|---------|----------|----|---------|----------------|---------|-----------|
| W - 1     | R302153 | 11:02 am | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| W - 2     | R302154 | 12:51 pm | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| MW - 3    | R302155 | 11:25 am | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| MW - 4    | R302156 | 1:17 pm  | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| W - 5     | R302157 | 12:50 pm | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| W - 6     | R302158 | 2:48 pm  | 2  | 9221B,C | Total Coliform | >1600   | MPN/100ml |
|           |         |          | 2  | 9221E,C | Fecal Coliform | >1600   | MPN/100ml |
| MW - 7    | R302159 | 2:13 pm  | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| MW - 8    | R302160 | 1:58 pm  | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| W - 9     | R302161 | 1:36 pm  | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |
| W - 10    | R302162 | 11:45 am | 2  | 9221B,C | Total Coliform | 2       | MPN/100ml |
|           |         |          | 2  | 9221E,C | Fecal Coliform | <2      | MPN/100ml |



Kanti Gandhi  
Chemist

Certification # 2585



Donna Keller  
Laboratory Director

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Patterson CA 95363

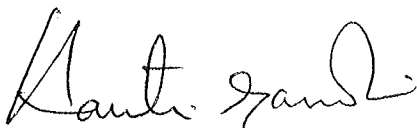
Project: Quarterly Monitong Wells

PO#

Date Rec'd: 4/05/05  
Date Started: 4/05/05  
Date Completed: 4/08/05

Date Sampled: 4/05/05  
Sampler: R. Chrun (Geo)

| Sample ID          | Lab ID  | Time     | RL | Method  | Analyte        | Results | Units     |
|--------------------|---------|----------|----|---------|----------------|---------|-----------|
| Investigation Well | R302163 | 12:30 pm | 2  | 9221B,C | Total Coliform | <2      | MPN/100ml |



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Donna Keller  
Laboratory Director

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## QC REPORT

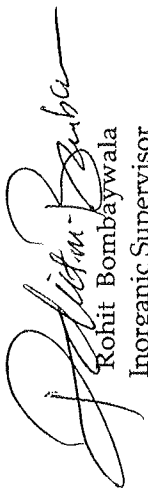
Report# R095-12

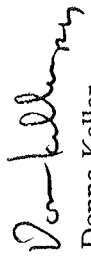
City of Patterson  
33 S. Del Puerto  
Patterson

CA 95363

| Analyte                   | Method | Batch # | Dates Analyzed | Orig. | Dupl. | MS %Rec | MSD %Rec | RPD | LCS %Rec | Blank | Comments  |
|---------------------------|--------|---------|----------------|-------|-------|---------|----------|-----|----------|-------|---|
| pH                        | 150.1  | IO1916  | 4/11/05        | 7.4   | 7.4   |         |          | 0.0 |          | NA    |   |
| Specific Conductance (EC) | 120.1  | IO1850  | 4/07/05        | 2590  | 2590  |         |          | 0.0 |          | ND    |   |
| IDS (Filterable Residue)  | 160.1  | IO1838  | 4/06/05        | 1710  | 1720  |         |          | 0.6 |          | ND    |   |
| Nitrate as N              | 300.0  | IO1844  | 4/6/05         |       |       | 92.0    | 90.0 *   | 2.2 |          | ND    | Sample analyte concentration too high to spike. |

\* LCS/LCSD (see comments)

  
Rohit Bombaywala  
Inorganic Supervisor

  
Donna Keller  
Laboratory Director

Certification # 2585

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## QC REPORT

Report# R095-12

City of Patterson  
33 S. Del Puerto  
Patterson

CA 95363

| Analyte        | Method  | Batch # | Dates Analyzed    | Orig. | Dupl. | MS %Rec | MSD %Rec | RPD | LCS %Rec | Blank | Comments |
|----------------|---------|---------|-------------------|-------|-------|---------|----------|-----|----------|-------|----------|
| Total Coliform | 9221B,C | B0124   | 04/05/05-04/09/05 | >1600 | >1600 |         |          | 0.0 |          | <2    |          |

\* LCS/LCSD (see comments)

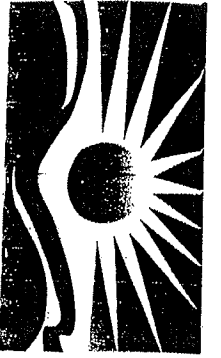


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Chemist



Donna Keller  
Laboratory Director

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1405 Kansas Avenue  
Modesto, CA 95351

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

Lab Report # R695-12  
Regulatory  Yes  No CC:  Yes  No  
Regulator: \_\_\_\_\_

Client: City of Patterson

Address: 33 S. Del Puente

City: Patterson, CA

Zip: \_\_\_\_\_

### CHAIN OF CUSTODY

EDF  EDT

FIELD LOGS

Phone: (209) 892-8886

Fax: (209) 892-8993

Original To: Joel Cockrell

C.C To: Bob Goodwin

Project ID Quarterly Monitoring Wells

Sampled By

(Print Name)

Richard Chan

(Signature)

Richard Chan

Date Time

4/5/05 11:02 am

Sample type

Grab

Comp

Matrix

Sample ID

MW-1

MW-2

MW-3

MW-4

MW-5

MW-6

MW-7

MW-8

MW-9

MW-10

Container

Type

Size

Litre

100ml

No. Of Containers

2

2

2

2

2

2

2

2

2

2

2

ANALYSIS  
 PH, EC, TD5  
 NO3 as N  
 Bacteria (MPN)

Remarks

Lab ID #

R362153

R362154

R362155

R362156

R362157

R362158

R362159

R362160

R362161

R362162

R362163

Lab Use Only

Preservative

Remarks

Mitigation Well

Relinquished by (Signature)

Richard Chan

Relinquished by (Signature)

Richard Chan

Date 4-5-05

Time 3:30 pm

Received by (Signature)  
[Signature]

Date 4-5-05

Time 3:30 pm

Received by (Signature)  
[Signature]

\* Fax a copy to Bob Goodwin  
of Lee & Co. @ 916-631-0292

Preservative:

1 49°C  2 HCL  3 NaOH  4 Na2S2O3  5 HNO3  6 H2SO4  7 Other

DW

Drinking Water

WW

Waste Water

HWW

Hazardous Waste (Water)

S

Soil/Solid

Bailers 55 Gallon Drums

Pump Truck

Time 1 day

Mileage 27 miles

