



Name of Facility: Union Pacific Railroad Company

Active Management Area: Tucson

Sub-basin: Upper Santa Cruz

Maximum annual withdrawals: 100 acre-feet per annum

Authorized Points of Withdrawal: As referenced in Tables 1 and 2

Authorized Place of Use  
for Groundwater Withdrawn: Section 12, Township 14 South, Range 13 East, and  
Sections 20 and 21, Township 14 South, Range 14 East of  
the GSRB&M.

Authorized Use of Groundwater: Water shall be reinjected to the subsurface to the maximum  
extent feasible for sites at 31<sup>st</sup> and 34<sup>th</sup> Street. For the  
Passenger Depot and 22<sup>nd</sup> Street sites, water will be  
discharged to a sanitary sewer system or reinjected into the  
subsurface.

Effective Date: June 1, 2007

Expiration Date: May 31, 2027

#### **Permit Conditions**

1. Poor quality groundwater may be withdrawn by the Permittee pursuant to individual remedial action plans, as approved by Arizona Department of Environmental Quality, which are related to the following seven sites: Passenger Depot Sites 1, 2, and 3; 22<sup>nd</sup> Street Site; 31<sup>st</sup> Street PFE and Mainline Sites; and 34<sup>th</sup> Street Site. The Arizona Department of Water Resources and the Permittee recognize that as a result of optimization of the ongoing remediation, withdrawal of poor quality groundwater may differ from the process currently specified in the ADEQ approved remedial action plans. To the extent that the withdrawal process of poor quality groundwater differs from the ADEQ approved remedial action plans, such withdrawal is permitted provided that the withdrawal is for remedial purposes and the Permittee timely requests approval from ADEQ of such amendment or modification.
2. For the purpose of this permit, poor quality groundwater is defined as groundwater that does not meet the state of Arizona Aquifer Water Quality Standards (AWQSs) or water withdrawn in the course of remediation of groundwater that does not meet AWQS or to minimize the spread of free product. For the purposes of this permit, the AWQSs do not constitute a remediation standard.

3. The issuance of this permit does not constitute endorsement of the assertions or findings of investigations and studies submitted by the Permittee as part of its applications, nor as part of its other efforts to date to delineate the area and extent of contamination or to delineate contamination source or responsibility.
4. This permit shall terminate when the activities performed pursuant to the remediation documents end. If the activities being performed will extend beyond the expiration date of this permit, the Permittee may submit an application to renew this permit within six months prior to the date of the expiration of this permit.
5. **Monitoring Requirements:**
  - a. **Groundwater Withdrawal Monitoring:**

For each site withdrawing groundwater listed in Permit Condition 1, the Permittee shall measure the volume of groundwater withdrawn with an approved water measuring device and method consistent with A.A.C. R12-15-903. The water quantity measuring devices and methods shall quantify flow accurately pursuant to A.A.C. R12-15-905.
  - b. **Groundwater Injection Monitoring:**

For each site injecting water listed in Permit Condition 1, the Permittee shall measure the volume of groundwater injected with an approved water measuring device and method consistent with A.A.C. R12-15-903. The water quantity measuring devices and methods shall quantify flow accurately pursuant to A.A.C. R12-15-905.
  - c. **Groundwater Quality Monitoring:**

The Permittee shall perform groundwater quality monitoring in accordance with the pertinent remedial action plans for the sites listed in Permit Condition No. 1 above. Monitoring results should allow ADWR to determine whether the groundwater withdrawn, because of its quality, has no other beneficial use. The Permittee shall notify ADWR of any changes to the groundwater quality data collection plans.
6. **Reporting Schedule**

The Permittee shall submit an "Annual Water Withdrawal and Use Report" as required under A.R.S. § 45-632, together with supplemental data reports described below, no later than March 31 following the end of each completed annual reporting period. The first reporting period shall be from the effective date of this permit through December 31, 2007. Subsequent reporting periods shall be from January 1 through December 31. Annual reports must be submitted regardless of whether groundwater has been withdrawn. If no groundwater is withdrawn during the reporting period, the Permittee

shall indicate that fact on the annual report and in the supplemental data report. **The Permittee shall send two (2) copies of all annual and supplemental data reports to the Information Management Unit, Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.**

7. Supplemental Data Reporting Requirements

The Permittee shall submit all monitoring data and analyses in the supplemental data reports as specified below. The supplemental data reports shall include:

a. Site Map:

The data reports shall include a site map showing the location of all monitoring points and relevant facility features such as extraction wells, injection wells, monitor wells, and water measurement devices. The site map shall include recent measured light non-aqueous phase liquid ("LNAPL") thicknesses relating to the known extent of LNAPL contamination. The data reports shall include the map data in electronic format.

b. Groundwater Withdrawal/Injection Data:

The data reports shall quantify all groundwater withdrawals and groundwater injections from the sites as specified in Permit Conditions 5.a and 5.b for the reporting period. The groundwater extraction data shall be presented in summary tables indicating the site (along with associated well registration numbers and the Permittee's well identifiers), beginning and ending flowmeter readings, and the volume of groundwater withdrawn in gallons and acre-feet. The groundwater injection data shall be presented in a summary table indicating the site, beginning and ending flowmeter readings and the volume of water injected in gallons and acre-feet for the reporting period. The data reports shall also include the data in electronic format such as a Microsoft Excel spreadsheet or Microsoft Access database.

c. Water Quality Monitoring Data:

The data reports shall contain all groundwater quality data collected pursuant to the remedial action plan for each site. The water quality data shall be presented in tables containing the following: monitoring point identifier, the sample date, the analyte, the laboratory method, the applicable regulatory level, and the sample result. Copies of the laboratory and supporting quality control reports shall be included in the data reports as an appendix and in electronic format such as a Microsoft Excel spreadsheet or Microsoft Access database.

8. General Provisions:

- a. The issuance of this permit does not waive compliance with any federal, state, county or local government statutes, rules or permits.
- b. All ADWR agency notifications, other than annual and supplemental data reports, shall be addressed to the Arizona Department of Water Resources, Tucson Active Management Area, 400 West Congress, Suite 518, Tucson, Arizona 85701-1374.

WITNESS my hand and seal of office this 1st day  
of June, 2007.

---

Sandra Fabritz-Whitney, Assistant Director

Table 1 - Extraction Wells

ADWR	Registration Number	Well Identifier	Township	Range	Section	10 Acre				40 Acre				160 Acre				Well Depth (feet bgs)	Screen Interval (feet bgs)
						SE	SW	NE	NW	SE	SW	NE	NW	SE	SW	NE	NW		
Passenger Depot - 1	55-574265	PT-1	14S	13E	12	NW	SW	SE	SE	83.5	63.5-83.5								
	55-574266	PT-2	14S	13E	12	NW	SW	SE	SE	80	65.0-80.0								
	55-574264	PT-3	14S	13E	12	NW	SW	SE	SE	82.5	62.5-82.5								
	55-583972	EW-PD-01	14S	13E	12	NW	NE	SW	SW	73.5	53.5 - 73.5								
	55-583971	EW-PD-02	14S	13E	12	NW	NE	SW	SW	74	54 - 74								
	55-583970	EW-PD-03	14S	13E	12	NW	NE	SW	SW	78	58 - 78								
	55-583969	EW-PD-04	14S	13E	12	NW	NE	SW	SW	82	62 - 82								
	55-583966	EW-PD-05	14S	13E	12	NW	NE	SW	SW	82	62 - 82								
	55-588782	EW-PD-06	14S	13E	12	NE	SW	SE	SE	83	63 - 83								
	55-588780	EW-PD-07	14S	13E	12	NE	SW	SE	SE	88.5	68.5 - 88.5								
	55-588779	EW-PD-08	14S	13E	12	NE	SW	SE	SE	89	69 - 89								
	55-593341	EW-PD-14	14S	13E	12	NW	SW	SE	SE	83	66 - 83								
	55-593342	EW-PD-15	14S	13E	12	NW	SW	SE	SE	84.5	69.5 - 84.5								
	55-593344	EW-PD-16	14S	13E	12	SE	SW	SE	SE	87.5	72.5 - 87.5								
	Passenger Depot - 2	55-590042	EW-PD-09	14S	13E	12	SW	SE	SE	SE	93	73 - 93							
55-590043		EW-PD-10	14S	13E	12	SW	SE	SE	SE	93	73 - 93								
55-590044		EW-PD-11	14S	13E	12	SW	SE	SE	SE	93	73 - 93								
55-590045		EW-PD-12	14S	13E	12	SW	SE	SE	SE	95	75 - 95								
55-590046		EW-PD-13	14S	13E	12	SW	SE	SE	SE	90	75 - 90								
55-587534		EW-22-15	14S	14E	20	NW	NW	NW	NW	129	109 - 129								
55-599670		EW-22-16	14S	14E	20	NW	NW	NW	NW	129	109 - 129								
55-599671		EW-22-17	14S	14E	20	NW	NW	NW	NW	129	109 - 129								
55-599672		EW-22-18	14S	14E	20	NW	NW	NW	NW	129	109 - 129								
55-599673		EW-22-19	14S	14E	20	NW	NW	NW	NW	129	109 - 129								
55-599674	EW-22-20	14S	14E	20	NW	NW	NW	NW	129	109 - 129									
55-599669	EW-22-21	14S	14E	20	NW	NW	NW	NW	129	109 - 129									
55-599666	EW-22-22	14S	14E	20	NW	NW	NW	NW	129	109 - 129									
55-599675	EW-22-23	14S	14E	20	NW	NW	NW	NW	129	109 - 129									
31st P.F.E.	55-586136	EW-31-01	14S	14E	20	SE	NE	SE	SE	149	129 - 149								

ADWR		Well Identifier	Township	Range	Section	10 Acre			160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
Registration Number	ADWR					SE	NE	SW			
55-586134	EW-31-02	14S	14E	20	SE	NE	SE	149	129 - 149		
55-585109	EW-31-03	14S	14E	20	SE	NE	SE	149	134 - 149		
55-900531	EW-31-04	14S	14E	21	NE	SW	SW	150	135 - 150		
55-572970	MW-34-08	14S	14E	21	SE	NE	SE	282	255-282		

Table 2 - Injection Wells

Injection Wells	ADWR	Registration Number	Well Identifier	Township	Range	Section	10 Acre			160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
							SE	NE	SW			
Passenger Depot - 1	55-583968	IW-PD-01	14S	13E	12	NW	NE	SW	77	22 - 52, 62 - 77		
	55-583967	IW-PD-02	14S	13E	12	NW	NE	SW	76	22 - 52, 61 - 76		
	55-588781	IW-PD-03	14S	13E	12	NE	SW	SE	86	26 - 56, 66 - 86		
Passenger Depot - 2	55-593343	IW-PD-06	14S	13E	12	SE	SW	SE	88	23 - 58, 68 - 88		
	55-590040	IW-PD-04	14S	13E	12	SW	SE	SE	93	73 - 93		
22nd Street	55-590041	IW-PD-05	14S	13E	12	SW	SE	SE	93	73 - 93		
	55-587535	IW-22-24	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129		
31st P.F.E.	55-599668	IW-22-25	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129		
	55-599667	IW-22-26	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129		
	55-585110	IW-31-02	14S	14E	20	SE	NE	SE	148.5	118.5 - 148.5		
31st Mainline	55-586135	IW-31-03	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149		
	55-585112	IW-31-01	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149		
34th Street	55-905288	IW-34-01	14S	14E	21	SE	NE	SE	98	18-98		
	55-905289	IW-34-02	14S	14E	21	SE	NE	SE	98	18-98		

ARIZONA DEPARTMENT OF WATER RESOURCES  
WATER MANAGEMENT DIVISION

3550 North Central Avenue, Phoenix, Arizona 85012  
Telephone 602 771-8585  
Fax 602 771-8688



Janet Napolitano  
Governor

Herbert R. Guenther  
Director

April 23, 2007

**VIA CERTIFIED MAIL 7000 0600 0023 6008 3139**

Union Pacific Railroad Company  
1400 Douglas Street, Stop #1030  
Omaha, NE 68179

**RE:** Decision of the Director to Grant Poor Quality Groundwater Withdrawal Permit No. 59-212083.0000 to Union Pacific Railroad Company

Dear Permittee:

This letter is the Decision of the Director of Water Resources to grant Permit to Withdraw Poor Quality Groundwater No. 59-212083.0000 to Union Pacific Railroad Company.

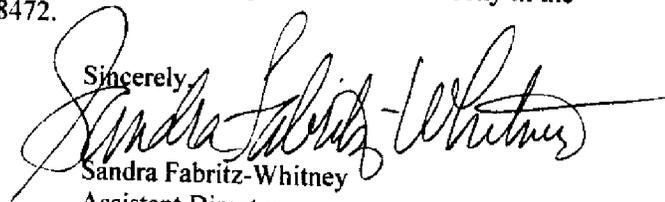
The Department's review of the relevant information establishes that all of the requirements for the issuance of a Poor Quality Groundwater Withdrawal Permit set forth in A.R.S. § 45-516 have been met. The Department has received no objections to your application.

This Decision of the Director to grant Permit No. 59-212083.0000 for a Poor Quality Groundwater Withdrawal is an appealable agency action. I have enclosed a copy of the Final Appealable Draft Permit. The Final Appealable Draft Permit will be the final form of your permit upon issuance.

You are entitled to appeal this decision. If you wish to appeal this action, you must file a written appeal within **thirty (30) days** from receipt of this letter. I am providing you with a summary of the appeal process and an appeal form, should you elect to pursue this option.

As no objections have been filed regarding your permit application, you may elect to complete and file the enclosed Appealable Agency Action Waiver Form, waiving your right to appeal the Director's Decision, so that your permit can be signed without delay. If the Appealable Agency Action Waiver is not filed, the permit will be signed and issued at the end of the 30-day appeal period, provided that you do not file a written appeal within that period.

Please direct any questions concerning the permit or the appeal process to Scott Deeny in the Department's Legal Division at 602-771-8472.

Sincerely,  
  
Sandra Fabritz-Whitney  
Assistant Director

Enclosures

cc: Scott Deeny, Legal Division  
Jeff Tannler, Tucson AMA  
David Christiana, ADWR WQARF Unit



Active Management Area: Tucson

Sub-basin: Upper Santa Cruz

Maximum annual withdrawals: 100 acre-feet per annum

Authorized Points of Withdrawal: As referenced in Tables 1 and 2

Authorized Place of Use  
for Groundwater Withdrawn: Section 12, Township 14 South, Range 13 East, and  
Sections 20 and 21, Township 14 South, Range 14 East of  
the GSRB&M.

Authorized Use of Groundwater: Water shall be reinjected to the subsurface to the maximum  
extent feasible for sites at 31<sup>st</sup> and 34<sup>th</sup> Street. For the  
Passenger Depot and 22<sup>nd</sup> Street sites, water will be  
discharged to a sanitary sewer system or reinjected into the  
subsurface.

Effective Date: **[Date of signature of this permit]**

Expiration Date: **[20 years from the Effective Date]**

**Permit Conditions**

1. Poor quality groundwater may be withdrawn by the Permittee pursuant to individual remedial action plans, as approved by Arizona Department of Environmental Quality, which are related to the following seven sites: Passenger Depot Sites 1, 2, and 3; 22<sup>nd</sup> Street Site; 31<sup>st</sup> Street PFE and Mainline Sites; and 34<sup>th</sup> Street Site. The Arizona Department of Water Resources and the Permittee recognize that as a result of optimization of the ongoing remediation, withdrawal of poor quality groundwater may differ from the process currently specified in the ADEQ approved remedial action plans. To the extent that the withdrawal process of poor quality groundwater differs from the ADEQ approved remedial action plans, such withdrawal is permitted provided that the withdrawal is for remedial purposes and the Permittee timely requests approval from ADEQ of such amendment or modification.
2. For the purpose of this permit, poor quality groundwater is defined as groundwater that does not meet the state of Arizona Aquifer Water Quality Standards (AWQSs) or water withdrawn in the course of remediation of groundwater that does not meet AWQS or to minimize the spread of free product. For the purposes of this permit, the AWQSs do not constitute a remediation standard.

3. The issuance of this permit does not constitute endorsement of the assertions or findings of investigations and studies submitted by the Permittee as part of its applications, nor as part of its other efforts to date to delineate the area and extent of contamination or to delineate contamination source or responsibility.

4. This permit shall terminate when the activities performed pursuant to the remediation documents end. If the activities being performed will extend beyond the expiration date of this permit, the Permittee may submit an application to renew this permit within six months prior to the date of the expiration of this permit.

5. Monitoring Requirements:

a. Groundwater Withdrawal Monitoring:

For each site withdrawing groundwater listed in Permit Condition 1, the Permittee shall measure the volume of groundwater withdrawn with an approved water measuring device and method consistent with A.A.C. R12-15-903. The water quantity measuring devices and methods shall quantify flow accurately pursuant to A.A.C. R12-15-905.

b. Groundwater Injection Monitoring:

For each site injecting water listed in Permit Condition 1, the Permittee shall measure the volume of groundwater injected with an approved water measuring device and method consistent with A.A.C. R12-15-903. The water quantity measuring devices and methods shall quantify flow accurately pursuant to A.A.C. R12-15-905.

c. Groundwater Quality Monitoring:

The Permittee shall perform groundwater quality monitoring in accordance with the pertinent remedial action plans for the sites listed in Permit Condition No. 1 above. Monitoring results should allow ADWR to determine whether the groundwater withdrawn, because of its quality, has no other beneficial use. The Permittee shall notify ADWR of any changes to the groundwater quality data collection plans.

6. Reporting Schedule

The Permittee shall submit an "Annual Water Withdrawal and Use Report" as required under A.R.S. § 45-632, together with supplemental data reports described below, no later than March 31 following the end of each completed annual reporting period. The first reporting period shall be from the effective date of this permit through December 31, 2007. Subsequent reporting periods shall be from January 1 through December 31. Annual reports must be submitted regardless of whether groundwater has been withdrawn. If no groundwater is withdrawn during the reporting period, the Permittee

shall indicate that fact on the annual report and in the supplemental data report. **The Permittee shall send two (2) copies of all annual and supplemental data reports to the Information Management Unit, Arizona Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.**

7. Supplemental Data Reporting Requirements

The Permittee shall submit all monitoring data and analyses in the supplemental data reports as specified below. The supplemental data reports shall include:

a. Site Map:

The data reports shall include a site map showing the location of all monitoring points and relevant facility features such as extraction wells, injection wells, monitor wells, and water measurement devices. The site map shall include recent measured light non-aqueous phase liquid ("LNAPL") thicknesses relating to the known extent of LNAPL contamination. The data reports shall include the map data in electronic format.

b. Groundwater Withdrawal/Injection Data:

The data reports shall quantify all groundwater withdrawals and groundwater injections from the sites as specified in Permit Conditions 5.a and 5.b for the reporting period. The groundwater extraction data shall be presented in summary tables indicating the site (along with associated well registration numbers and the Permittee's well identifiers), beginning and ending flowmeter readings, and the volume of groundwater withdrawn in gallons and acre-feet. The groundwater injection data shall be presented in a summary table indicating the site, beginning and ending flowmeter readings and the volume of water injected in gallons and acre-feet for the reporting period. The data reports shall also include the data in electronic format such as a Microsoft Excel spreadsheet or Microsoft Access database.

c. Water Quality Monitoring Data:

The data reports shall contain all groundwater quality data collected pursuant to the remedial action plan for each site. The water quality data shall be presented in tables containing the following: monitoring point identifier, the sample date, the analyte, the laboratory method, the applicable regulatory level, and the sample result. Copies of the laboratory and supporting quality control reports shall be included in the data reports as an appendix and in electronic format such as a Microsoft Excel spreadsheet or Microsoft Access database.

8. General Provisions:

- a. The issuance of this permit does not waive compliance with any federal, state, county or local government statutes, rules or permits.
- b. All ADWR agency notifications, other than annual and supplemental data reports, shall be addressed to the Arizona Department of Water Resources, Tucson Active Management Area, 400 West Congress, Suite 518, Tucson, Arizona 85701-1374.

WITNESS my hand and seal of office this \_\_\_th day  
of \_\_\_\_\_, 2007.

\_\_\_\_\_  
Sandra Fabritz-Whitney, Assistant Director

Table 1 - Extraction Wells

ADWR		Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
Registration Number	Extraction Wells									
<b>Passenger Depot - 1</b>										
55-574265	PT-1	14S	13E	12	NW	SW	SE	SE	83.5	63.5-83.5
55-574266	PT-2	14S	13E	12	NW	SW	SE	SE	80	65.0-80.0
55-574264	PT-3	14S	13E	12	NW	SW	SE	SE	82.5	62.5-82.5
55-583972	EW-PD-01	14S	13E	12	NW	NE	SW	SW	73.5	53.5 - 73.5
55-583971	EW-PD-02	14S	13E	12	NW	NE	SW	SW	74	54 - 74
55-583970	EW-PD-03	14S	13E	12	NW	NE	SW	SW	78	58 - 78
55-583969	EW-PD-04	14S	13E	12	NW	NE	SW	SW	82	62 - 82
55-583966	EW-PD-05	14S	13E	12	NW	NE	SW	SW	82	62 - 82
55-588782	EW-PD-06	14S	13E	12	NE	SW	SE	SE	83	63 - 83
55-588780	EW-PD-07	14S	13E	12	NE	SW	SE	SE	88.5	68.5 - 88.5
55-588779	EW-PD-08	14S	13E	12	NE	SW	SE	SE	89	69 - 89
55-593341	EW-PD-14	14S	13E	12	NW	SW	SE	SE	83	66 - 83
55-593342	EW-PD-15	14S	13E	12	NW	SW	SE	SE	84.5	69.5 - 84.5
55-593344	EW-PD-16	14S	13E	12	SE	SW	SE	SE	87.5	72.5 - 87.5
<b>Passenger Depot - 2</b>										
55-590042	EW-PD-09	14S	13E	12	SW	SE	SE	SE	93	73 - 93
55-590043	EW-PD-10	14S	13E	12	SW	SE	SE	SE	93	73 - 93
55-590044	EW-PD-11	14S	13E	12	SW	SE	SE	SE	93	73 - 93
55-590045	EW-PD-12	14S	13E	12	SW	SE	SE	SE	95	75 - 95
55-590046	EW-PD-13	14S	13E	12	SW	SE	SE	SE	90	75 - 90
<b>22nd Street</b>										
55-587534	EW-22-15	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599670	EW-22-16	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599671	EW-22-17	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599672	EW-22-18	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599673	EW-22-19	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599674	EW-22-20	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599669	EW-22-21	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599666	EW-22-22	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-599675	EW-22-23	14S	14E	20	NW	NW	NW	NW	129	109 - 129
55-586136	EW-31-01	14S	14E	20	SE	NE	SE	SE	149	129 - 149

ADWR		Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
Registration Number	Well Identifier									
55-586134	EW-31-02	14S	14E	20	SE	NE	SE	149	129 - 149	
55-585109	EW-31-03	14S	14E	20	SE	NE	SE	149	134 - 149	
55-900531	EW-31-04	14S	14E	21	NE	SW	SW	150	135 - 150	
55-572970	MW-34-08	14S	14E	21	SE	NE	SE	282	255-282	

Table 2 - Injection Wells

ADWR		Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
Registration Number	Well Identifier									
<b>Injection Wells</b>										
<b>Passenger Depot - 1</b>										
55-583968	IW-PD-01	14S	13E	12	NW	NE	SW	77	22 - 52, 62 - 77	
55-583967	IW-PD-02	14S	13E	12	NW	NE	SW	76	22 - 52, 61 - 76	
55-588781	IW-PD-03	14S	13E	12	NE	SW	SE	86	26 - 56, 66 - 86	
55-593343	IW-PD-06	14S	13E	12	SE	SW	SE	88	23 - 58, 68 - 88	
55-590040	IW-PD-04	14S	13E	12	SW	SE	SE	93	73 - 93	
55-590041	IW-PD-05	14S	13E	12	SW	SE	SE	93	73 - 93	
<b>22nd Street</b>										
55-587535	IW-22-24	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129	
55-599668	IW-22-25	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129	
55-599667	IW-22-26	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129	
<b>31st P.F.E.</b>										
55-585110	IW-31-02	14S	14E	20	SE	NE	SE	148.5	118.5 - 148.5	
55-586135	IW-31-03	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149	
<b>31st Mainline</b>										
55-585112	IW-31-01	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149	
<b>34th Street</b>										
55-905288	IW-34-01	14S	14E	21	SE	NE	SE	98	18-98	
55-905289	IW-34-02	14S	14E	21	SE	NE	SE	98	18-98	

Table 1 - Extraction Wells

Extraction Wells	ADWR Registration Number	Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)	
											13E
Passenger Depot - 1	55-574265	PT-1	14S	13E	12	NW	SW	SE	83.5	63.5-83.5	
	55-574266	PT-2	14S	13E	12	NW	SW	SE	80	65.0-80.0	
	55-574264	PT-3	14S	13E	12	NW	SW	SE	82.5	62.5-82.5	
	55-583972	EW-PD-01	14S	13E	12	NW	NE	SW	73.5	53.5 - 73.5	
	55-583971	EW-PD-02	14S	13E	12	NW	NE	SW	74	54 - 74	
	55-583970	EW-PD-03	14S	13E	12	NW	NE	SW	78	58 - 78	
	55-583969	EW-PD-04	14S	13E	12	NW	NE	SW	82	62 - 82	
	55-583966	EW-PD-05	14S	13E	12	NW	NE	SW	82	62 - 82	
	55-588782	EW-PD-06	14S	13E	12	NW	NE	SW	83	63 - 83	
	55-588780	EW-PD-07	14S	13E	12	NE	NE	SE	88.5	68.5 - 88.5	
	55-588779	EW-PD-08	14S	13E	12	NE	NE	SE	89	69 - 89	
	55-593341	EW-PD-14	14S	13E	12	NW	SW	SE	83	66 - 83	
	55-593342	EW-PD-15	14S	13E	12	NW	SW	SE	84.5	69.5 - 84.5	
	55-593344	EW-PD-16	14S	13E	12	SE	SW	SE	87.5	72.5 - 87.5	
	Passenger Depot - 2	55-590042	EW-PD-09	14S	13E	12	SW	SE	SE	93	73 - 93
		55-590043	EW-PD-10	14S	13E	12	SW	SE	SE	93	73 - 93
55-590044		EW-PD-11	14S	13E	12	SW	SE	SE	93	73 - 93	
55-590045		EW-PD-12	14S	13E	12	SW	SE	SE	95	75 - 95	
55-590046		EW-PD-13	14S	13E	12	SW	SE	SE	90	75 - 90	
55-587534		EW-22-15	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599670		EW-22-16	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599671		EW-22-17	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599672		EW-22-18	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599673		EW-22-19	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599674		EW-22-20	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599669		EW-22-21	14S	14E	20	NW	NW	NW	129	109 - 129	
55-599666		EW-22-22	14S	14E	20	NW	NW	NW	129	109 - 129	
31st P.F.E.	55-599675	EW-22-23	14S	14E	20	NW	NW	NW	129	109 - 129	
	55-586136	EW-31-01	14S	14E	20	SE	NE	SE	149	129 - 149	

ADWR		Registration Number	Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
		55-586134	EW-31-02	14S	14E	20	SE	NE	SE	149	129 - 149
		55-585109	EW-31-03	14S	14E	20	SE	NE	SE	149	134 - 149
		55-900531	EW-31-04	14S	14E	21	NE	SW	SW	150	135 - 150
		55-572970	MW-34-08	14S	14E	21	SE	NE	SE	282	255-282

Table 2 - Injection Wells

ADWR		Registration Number	Well Identifier	Township	Range	Section	10 Acre	40 Acre	160 Acre	Well Depth (feet bgs)	Screen Interval (feet bgs)
<b>Injection Wells</b>											
Passenger Depot - 1		55-583968	IW-PD-01	14S	13E	12	NW	NE	SW	77	22 - 52, 62 - 77
		55-583967	IW-PD-02	14S	13E	12	NW	NE	SW	76	22 - 52, 61 - 76
		55-588781	IW-PD-03	14S	13E	12	NE	SW	SE	86	26 - 56, 66 - 86
Passenger Depot - 2		55-593343	IW-PD-06	14S	13E	12	SE	SW	SE	88	23 - 58, 68 - 88
		55-590040	IW-PD-04	14S	13E	12	SW	SE	SE	93	73 - 93
22nd Street		55-590041	IW-PD-05	14S	13E	12	SW	SE	SE	93	73 - 93
		55-587535	IW-22-24	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129
31st P.F.E.		55-599668	IW-22-25	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129
		55-599667	IW-22-26	14S	14E	20	NW	NW	NW	129	24 - 99, 109 - 129
		55-585110	IW-31-02	14S	14E	20	SE	NE	SE	148.5	118.5 - 148.5
31st Mainline		55-586135	IW-31-03	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149
		55-585112	IW-31-01	14S	14E	20	SE	NE	SE	149	24 - 119, 129 - 149
34th Street		55-905288	IW-34-01	14S	14E	21	SE	NE	SE	98	18-98
		55-905289	IW-34-02	14S	14E	21	SE	NE	SE	98	18-98

**Appealable Agency Action Waiver**

I, \_\_\_\_\_, duly authorized by Union Pacific Railroad Company, Applicant for Poor Quality Groundwater Withdrawal Permit No. 59-212083.0000, assert that the Applicant has reviewed the Final Appealable Draft Permit of Application No. 59-212083.0000 and hereby waives all rights that the Applicant may have pursuant to Arizona Revised Statutes, Title 41, Chapter 6, Article 10, and Title 45, Chapter 2, Article 7, to administrative and judicial appeal, review or hearing concerning the issuance of the above listed Permit, including all limitations and conditions contained therein.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

---

**From:** David Christiana  
**To:** Tannler, Jeff  
**Date:** 2/23/07 1:30PM  
**Subject:** UPRR Injection Wells

Jeff,

I looked at the well tables that UPRR submitted with their application. The injection wells penetrate the aquifer. They are not vadose zone injection wells. Their concern about "subsurface" vs. "aquifer" is probably related to not wanting to be held to contributing to an aquifer. I suspect it would have no consequence to make the change as they request. That is not the intent of our use of the term "aquifer".

They may require a UIC permit from EPA though for these wells. They should consult with Region IX EPA. They may also contact Mason Bolitho at ADEQ for guidance. If EPA is concerned about regulating those wells, I suspect it would not matter whether they are injecting into the subsurface or an aquifer.

Dave C.

**IPR SUMMARY REVIEW SHEET**

Prepared by Linda Ingraham, Tucson AMA  
October 18, 2006

**APPLICANT:** Union Pacific Railroad Company  
**APPLICATION NO:** 59-212083.0000  
**APPLICATION TYPE:** Poor Quality Groundwater Withdrawal Permit

**Background Summary:** On April 27, 2006, ERM-West, Inc., on behalf of Union Pacific Railroad Company (UPRR), submitted an application for permit to withdraw poor quality groundwater, No. 59-212083.0000. UPRR has five ongoing remediation sites operated in accordance with the ADEQ leaking underground storage tank program. The poor quality water will be withdrawn from 51 existing wells, and one proposed horizontal well, all located within T14S R13E Sec 12 and T14S R14E Sec 20 and 21.

UPRR plans to extract up to 100 acre-feet per year of poor quality groundwater to recover #2 fuel oil on the perched groundwater aquifer under the sites. The groundwater/oil mixture will be pumped directly into an oil/water separator; the separated oil will be decanted into a storage tank. The groundwater treated at the sites has in the past been returned to the aquifer thru injection wells, and approximately 19 AFA will continue to be reinjected at three of the five sites. However, due to expansion of the remediation system and decreased efficiency of the injection wells over time, the remainder of the remediated water will be discharged to Pima County's Roger Road Wastewater Treatment Plant for treatment and reuse. Pursuant to IPR discussion on 1/19/06 and policy memo of 11/1/91, a beneficial end use plan and feasibility study are required for poor quality permit applications for 100 AFA or more and longer than five years, if water will be discharged to the sewer system. UPRR submitted this plan/study with the application, and also submitted copies of Pima County Water Wastewater Management discharge permits.

Hydrology and WQARF have reviewed the application and support issuance.

**Issues:**

1. The application is currently within the public notice period, which ends on November 2, 2006.
2. The applicant has requested a permit duration of 35 years. In the past, poor quality permits have been issued for up to 20 years.

**AMA Recommendations:** The Tucson AMA recommends that the permit be issued *conditionally* for 100 acre-feet per year for 20 years, provided that no objections are received to the application.

IPR Committee Comments:

IPR Committee Recommendations:

- Approve
- Deny
- Other (explanation) \_\_\_\_\_

Special Conditions to be included in permit:

  
\_\_\_\_\_  
IPR Chairperson

10-19-06  
\_\_\_\_\_  
Date



ARIZONA DEPARTMENT OF WATER RESOURCES  
PURCHASE REQUISITION/ORDER

P.O. # **34106**

**COPY**

October 5, 2006  
DATE

Patty Curtis 502-771-3585  
REQUESTOR PHONE EXT.

NOT VALID WITHOUT AUTHORIZED PROCUREMENT SIGNATURE

DELIVERIES ACCEPTED NOON - 4PM, MONDAY - FRIDAY  
INSIDE DELIVERY ONLY

VENDOR:  
Tucson Newspaper, Inc.  
Arizona Daily Star  
Legal Advertising  
P.O. Box 26887  
Tucson, Arizona 85726

SHIP TO / BILL TO:  
Arizona Dept. of Water Resources  
3550 North Central Avenue  
Phoenix, Arizona 85012

LINE	QTY	UNIT	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	1	each		Legal Publication Notice For: Union Pacific Railroad Co. DWR# 59-212083.0000 Type of Permit: Poor Quality Publication Dates: October 11, 2006 and October 18, 2006	(\$225.00)	225.00

REMARKS: (PROCUREMENT USE ONLY)

SUBTOTAL	225.00
TAX	3
FREIGHT	
TOTAL	225.00

AZ CONTRACT#

BATCH HEADER				BATCH HEADER				1860627850 005			
AGCY(3)	DATE(6)	TYPE(1)	NO(3)	AGCY(3)	DATE(6)	TYPE(1)	NO(3)	VENDOR(11)	MC(3)	DOC DATE(6)	EFF DATE(6)
WCA	10/19/06	3	730	WCA	11/1/06	4		136332843000+			
OUR DOC(8)	BFX(3)	REF DOC(8)	BFX(3)	MOD(1)	AGY(3)	TC(3)	INDEX(5)	PCA(5)	AY(2)	COMP OBJ(4)	AGY OBJ(4)
20734106	001	E0734106	001	F	WCA	225	48200		07		7461
AMOUNT \$ (11) # (2)	R(1)	DISC \$ (11) # (2)	PO(1)	PDT(2)	DOC AMT \$ (11) # (2)	CI(1)	PROP NO(10)				
235.40				RF	235.40						
INV NO(14)	DATE(6)	DESCRIPTION(30)	CONT NO(10)	WARRANT NO(8)	APPN NO(5)	FUND(4)					
072915133-0261	10/31/06	59-212083									
COMP GL(4)	AGY GL(8)	GRANT NO.(8)	PH(2)	PROJ NO(8)	PH(2)	MPCD(10)	AGY CD-1(4)	AGY CD-2(4)	AGY CD-3(8)		

I have examined this claim and certify that the expenditure is for a valid public purpose and that funds have been appropriated or are otherwise available for payment of this claim, and if the available funds are from federal grant contract or source, this claim is allowable under the terms of such grant, contract or source, and payment of the amount claimed is hereby approved.

Mark Frank

Printed Name

Signature

Date

I hereby certify under penalty of perjury that the items invoiced above have been received and inspected, that the quantities are as stated and the condition is satisfactory.

Printed Name

Signature

Date

WHITE - VENDOR GREEN - ACCOUNTING CANARY - ACCOUNTING PINK - RECEIVING

**ARIZONA DEPARTMENT OF WATER RESOURCES**

3550 North Central Avenue, Phoenix, Arizona 85012

Telephone 602 771-8585

Fax 602 771-8688



Janet Napolitano  
Governor

Herbert R. Guenther  
Director

October 3, 2006

Tucson Newspaper, Inc.  
Arizona Daily Star, Legal Advertising Department  
P. O. Box 26887  
Tucson, Arizona 85726

RE: Union Pacific Railroad Company, Poor Quality Application No. 59-212083.0000

Dear Ms. Janice:

The Department of Water Resources requests that the enclosed legal notice be published in your newspaper on the following dates:

October 11, 2006 and October 18, 2006

Please publish the notice per our purchase order number 34106. Please return two affidavits of publication, with your billing to the Department of Water Resources, to the attention of the Administration Division.

The Department of Water Resources is required to publish legal notice of the referenced application by statute. If for any reason the legal notice must be published on dates other than those requested, please notify me at once at 602-771-8585, as it will require a change in the text of the notice.

Thank you for your cooperation in this matter.

Sincerely,

Patty Curfis  
Administrative Assistant

Enclosure

cc: Jeff Tannler, Tucson Active Management Area  
Kathleen Donoghue, ADWR Legal Services  
File

**LEGAL NOTICE**  
**ARIZONA DEPARTMENT OF WATER RESOURCES**  
**BEFORE THE DIRECTOR**

In the matter of Application No. 59-212083.0000 for a permit to withdraw poor quality groundwater, located within the Upper Santa Cruz Sub-basin of the Tucson Active Management Area.

The Director gives notice that the Union Pacific Railroad Company has filed the above-referenced application for a permit to withdraw poor quality groundwater pursuant to Arizona Revised Statutes, Title 45, Chapter 2, Article 7, § 45-516. It is the applicant's intent to withdraw poor quality groundwater under this application for remediation. The applicant intends to withdraw water from 51 existing wells, and one proposed new well, located within T14S R13E Section 12, and T14S R14E Sections 20 and 21, GSRB&M. A total of 100.00 acre-feet per annum has been requested for a 35 year period.

Groundwater withdrawn under this permit will be remediated and discharged to the Pima County Roger Road Wastewater Treatment Plant. Copies of the application, including maps, are available for inspection in the Tucson Active Management Area office located at 400 West Congress, Suite 518, Tucson, Arizona 85701 and the Water Management Division of the Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.

Objections to the issuance of the permit may be filed by persons adversely affected by the project and must be filed, in writing, with the Docket Supervisor of the Department of Water Resources, Legal Division, 3550 North Central Avenue, Phoenix, Arizona 85012, within fifteen (15) days after the last day of publication of this notice.

For this application, the final date on which an objection may be filed is November 3, 2006. Objections are limited to whether the application meets the criteria of Arizona Revised Statutes § 45-516. An objection shall state the name and mailing address of the objector, be signed by the objector, his agent or attorney and must clearly set forth the reasons why the permit should not be issued.

Issued this 3rd day of October, 2006  
Herb Guenther  
Director

Publication Dates:

October 11, 2006 and October 18, 2006

**ARIZONA DEPARTMENT OF WATER RESOURCES  
PURCHASE REQUISITION/ORDER**

P.O. # **34106**

October 5, 2006  
DATE

NOT VALID WITHOUT AUTHORIZED PROCUREMENT SIGNATURE

Patty Curtis 602-771-8585  
REQUESTOR PHONE EXT.

DELIVERIES ACCEPTED NOON - 4PM. MONDAY - FRIDAY  
INSIDE DELIVERY ONLY

VENDOR:  
Tucson Newspaper, Inc.  
Arizona Daily Star  
Legal Advertising  
P.O. Box 26887  
Tucson, Arizona 85726

SHIP TO / BILL TO:  
Arizona Dept. of Water Resources  
3550 North Central Avenue  
Phoenix, Arizona 85012

LINE	QTY	UNIT	PART NO.	DESCRIPTION	UNIT PRICE	EXTENDED PRICE
1	1	each		Legal Publication Notice (\$225.00) For: Union Pacific Railroad Co. DWR# 59-212083.0000 Type of Permit: Poor Quality Publication Dates: October 11, 2006 and October 18, 2006		

REMARKS: (PROCUREMENT USE ONLY)  AZ CONTRACT#	SUBTOTAL	
	TAX	
	FREIGHT	
	TOTAL	

BATCH HEADER				BATCH HEADER				VENDOR(11)		MC(3)	DOC DATE(6)		EFF DATE (6)	
AGCY(3)	DATE(6)	TYPE(1)	NO(3)	AGCY(3)	DATE(6)	TYPE(1)	NO(3)				/ /		/ /	
CUR DOC (8)		SFX (3)	REF DOC (8)		SFX (3)	MOD(1)	AGY(3)	TC(3)	INDEX(5)	PCA(5)	AY(2)	COMP OBJ(4)	AGY OBJ(4)	
AMOUNT \$(11) (2)		R(1)	DISC \$(11) (2)		FO(1)	PDT(2)	DOC AMT \$(11) (2)		CI(1)	PROP NO(10)				
INV NO (14)		DATE(6)		DESCRIPTION (30)				CONT NO (10)		WARRANT NO (9)		APPN NO (5)		FUND (4)
/ /														
COMP GL (4)	AGY GL (8)		GRANT NO. (6)		PH(2)	PROJ NO (6)	PH(2)	MPCD (10)		AGY CD-1(4)	AGY CD-2(4)	AGY CD-3(6)		

I have examined this claim and certify that the expenditure is for a valid public purpose and that funds have been appropriated or are otherwise available for payment of this claim, and if the available funds are from federal grant contract or source, this claim is allowable under the terms of such grant, contract or source, and payment of the amount claimed is hereby approved.

Mark Frank Printed Name      Mark Frank 10/10/06 Signature      Date

I hereby certify under penalty of perjury that the items invoiced above have been received and inspected, that the quantities are as stated and the condition is satisfactory.

\_\_\_\_\_  
Printed Name      Signature      Date

**From:** Darlene Sumpter-King  
**To:** Legals@tucson.com  
**Date:** 10/3/06 5:47PM  
**Subject:** Re: Legal Notice for: Union Pacific Railroad Co.; DWR# 59-212083.0000. Please confirm receipt

**PRIOR TO PUBLISHING THIS NOTICE, PLEASE FAX A PROOF AND/OR REPLY TO THIS EMAIL.  
THANK YOU!**

ARIZONA DEPARTMENT OF WATER RESOURCES  
3550 North Central Avenue, Phoenix, Arizona 85012  
Telephone 602 771-8585  
Fax 602 771-8688  
Janet Napolitano  
Governor

Herbert R. Guenther  
Director

October 3, 2006

Tucson Newspaper, Inc.  
Arizona Daily Star, Legal Advertising Department  
P. O. Box 26887  
Tucson, Arizona 85726

RE: Union Pacific Railroad Company, Poor Quality Application No.  
59-212083.0000

Dear Ms. Janice:

The Department of Water Resources requests that the enclosed legal notice be published in your newspaper on the following dates:

**October 11, 2006 and October 18, 2006**

Please publish the notice per our purchase order number 34106. Please return two affidavits of publication, with your billing to the Department of Water Resources, to the attention of the Administration Division.

The Department of Water Resources is required to publish legal notice of the referenced application by statute. If for any reason the legal notice must be published on dates other than those requested, please notify me at once at 602-771-8585, as it will require a change in the text of the notice.

Thank you for your cooperation in this matter.

Sincerely,

Patty Curtis  
Administrative Assistant

Enclosure

cc: Jeff Tannler, Tucson Active Management Area  
Kathleen Donoghue, ADWR Legal Services

File

**LEGAL NOTICE**

ARIZONA DEPARTMENT OF WATER RESOURCES

BEFORE THE DIRECTOR

In the matter of Application No. 59-212083.0000 for a permit to withdraw poor quality groundwater, located within the Upper Santa Cruz Sub-basin of the Tucson Active Management Area.

The Director gives notice that the Union Pacific Railroad Company has filed the above-referenced application for a permit to withdraw poor quality groundwater pursuant to Arizona Revised Statutes, Title 45, Chapter 2, Article 7, § 45-516. It is the applicant's intent to withdraw poor quality groundwater under this application for remediation. The applicant intends to withdraw water from 51 existing wells, and one proposed new well, located within T14S R13E Section 12, and T14S R14E Sections 20 and 21, GSRB&M. A total of 100.00 acre-feet per annum has been requested for a 35 year period. Groundwater withdrawn under this permit will be remediated and discharged to the Pima County Roger Road Wastewater Treatment Plant. Copies of the application, including maps, are available for inspection in the Tucson Active Management Area office located at 400 West Congress, Suite 518, Tucson, Arizona 85701 and the Water Management Division of the Department of Water Resources, 3550 North Central Avenue, Phoenix, Arizona 85012.

Objections to the issuance of the permit may be filed by persons adversely affected by the project and must be filed, in writing, with the Docket Supervisor of the Department of Water Resources, Legal Division, 3550 North Central Avenue, Phoenix, Arizona 85012, within fifteen (15) days after the last day of publication of this notice.

For this application, the final date on which an objection may be filed is November 3, 2006. Objections are limited to whether the application meets the criteria of Arizona Revised Statutes § 45-516. An objection shall state the name and mailing address of the objector, be signed by the objector, his agent or attorney and must clearly set forth the reasons why the permit should not be issued.

Issued this 3rd day of October, 2006  
Herb Guenther  
Director

**Publication Dates:**

October 11, 2006 and October 18, 2006

**CC:** Jeff Tannler; Patty Curtis

ARIZONA DEPARTMENT OF WATER RESOURCES  
HYDROLOGY DIVISION

MEMORANDUM

---

**TO:** Jeff Tannler  
Linda Ingraham  
Tucson AMA

**FROM:** David Christiana, Supervisor  
Technical Support Unit

**DATE:** October 2, 2006

**SUBJECT:** Poor Quality Groundwater Withdrawal Permit – Union Pacific Railroad, Tucson

Hydrology has reviewed the applicant's response to ADWR comments pertaining to the application for a Poor Quality Groundwater Withdrawal Permit. The response is contained in a letter to ADWR dated August 18, 2006. All concerns by the Technical Support Unit, contained in a memorandum to the Tucson AMA on May 22, 2006 have been addressed. The Technical Support Unit has no objection to issuing this permit.

If you have any questions, please call me at extension 1-8548.

c: Darlene Sumpter-King, Phoenix AMA

**From:** Jeff Tannler  
**To:** Linda Ingraham  
**Date:** Wednesday, October 18, 2006 1:47:11 PM  
**Subject:** Fwd: Re: UPRR

>>> Carol Norton 09/28/06 10:22AM >>>

The Hydrology Division, Water Resources Section, supports issuance of this permit and drill card(s) with variance. 9/28/6

Carol Norton  
Hydrology Division

>>> Jeff Tannler 09/27/06 04:20PM >>>

Hi Carol and Dave,

Friendly reminder that I need signoffs from Hydro and WQARF on Union Pacific Railroad Poor Quality Permit 59-212083.0000, before I can send to public notice. On 9/7/06, I forwarded the info that UPRR submitted in response to the May 25th i&i letter that we had sent. Attached is the info again, if you need it.

The substantive and overall LTF is up on 10/28, and public noticing takes a month, so I'll need to get it to public notice quite soon.

thanks  
Jeff

>>> Darlene Sumpter-King 09/27/06 07:56AM >>>

No, other than their incomplete memos on 5/18 and 5/22/06.

>>> Jeff Tannler 09/26/06 05:58PM >>>

Hi,

Could you double check the UPRR file real quick, re-confirm that no signoffs from Dave or Carol? thanks  
JT

**Environmental  
Resources  
Management**

7272 E. Indian School Road  
Suite 100  
Scottsdale, AZ 85251  
(480) 998-2401  
(480) 998-2106 (fax)

18 August 2006

Mr. Jeff Tannler  
Arizona Department of Water Resources  
Tucson Active Management Area  
400 West Congress, Suite 518  
Tucson, Arizona 85701



**Subject: Transmittal of Additional Information for  
Application for Permit to Withdraw Poor Quality  
Groundwater within and Active Management Area  
Union Pacific Railroad Company  
Pima County, Tucson Active Management Area**

Dear Mr. Tannler:

On behalf of Union Pacific Railroad Company (UPRR), ERM - West, Inc. (ERM) submitted an application for a permit to withdraw poor quality groundwater within the Tucson Active Management Area to the Arizona Department of Water Resources (ADWR) on 25 April 2006. The ADWR reviewed the application and provided a list of additional information required to complete the application in a letter dated 25 May 2006.

This letter, with attachments, is intended to provide the additional information requested by the ADWR. The information requested by the ADWR on 25 May 2006 is listed below in italics followed by a brief description of the information provided to address ADWR's request.

1. *"In accordance with A.A.C.R12-15-811.B.4, all horizontal wells, to prevent leakage, shall be constructed with a surface seal consisting of steel casing and cement grout extending a minimum of ten feet into the land surface. Figure E-2 submitted with the application shows HDPE riser pipe in the upper 20 feet of the wall."*

As allowed by A.A.C. R12-15-820, ERM requested a variance for use of thermoplastic casing surface seal in lieu of steel casing and cement grout. A copy of the variance request with all additional required information is provided in Attachment A.



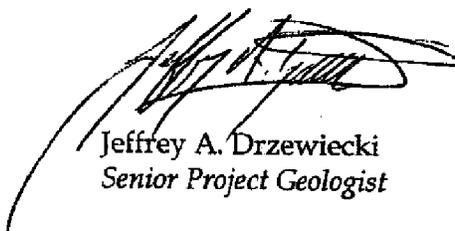
Mr. Jeff Tannler  
18 August 2006  
Page 3

Environmental  
Resources  
Management

Copies of Pima County Wastewater Management Department  
Industrial Wastewater Discharge permits are provided in  
Attachment C.

UPRR and ERM appreciate your continued support and assistance.  
Please contact Doug Shenk or myself if you have questions or require  
additional information.

Sincerely,



Jeffrey A. Drzewiecki  
*Senior Project Geologist*

JAD/djs/0020573/0020543

Attachments

cc Ed Honig, Union Pacific Railroad Company  
Gerry DaRosa, Bryan Cave LLP

**Environmental  
Resources  
Management**

7272 E. Indian School Road  
Suite 100  
Scottsdale, AZ 85251  
(480) 998-2401  
(480) 998-2106 (fax)

3 August 2006

Ms. Shannon Reif  
Arizona Department of Water Resources  
Groundwater Management Support Section  
3550 N. Central Avenue, Suite 200  
Phoenix, Arizona 85012



**Subject:** Submittal of Notice of Intent to Drill Environmental Well

Dear Shannon:

On behalf of Union Pacific Railroad Company (UPRR), ERM-West, Inc. (ERM) is submitting the enclosed Notice of Intent to Drill an Environmental Well form for a horizontal extraction / remediation well in Tucson, Arizona. Included with the Notice of Intent are the following:

- Copy of previously-submitted New Well Construction Supplement form with well construction schematics and location map;
- Remediation Well Certification of Compliance form with Arizona Department of Environmental Quality workplan approval letter; and
- A check in the amount of \$150.00 for payment.

As allowed by Arizona Administrative Code (AAC) R12-15-820, UPRR requests a variance to substitute the use of high-density polyethylene (HDPE) surface seal casing for the AAC R12-15-811(B)(4) requirement for horizontal wells to have a surface seal consisting of steel casing extending a minimum of ten feet into the land surface to prevent leakage.

Because there are elbowed transitions between the horizontal plane and riser portions of the well, the well material must be flexible to facilitate construction. As such, UPRR seeks the use of HDPE casing in lieu of steel for the upper ten feet of the well. The ends of the horizontal well will terminate in traffic-rated, tamper-resistant, water tight concrete vaults at the ground surface and annular space from the concrete vaults to a depth of approximately 70 feet below ground surface will filled (via tremmie pipe) with cement-bentonite grout to prevent leakage.



*Attachment B*  
*Remediation Well Data*

*Attachment C*  
*Pima County Industrial*  
*Wastewater Discharge Permits*

Mr. Edwin Honig  
**UNION PACIFIC RAILROAD COMPANY**  
June 9, 2006  
Page 2

If questions arise, or you wish to enroll in the Pollution Prevention School, please contact my staff in the Industrial Wastewater Control Group at (520) 579-5771. The Pima County Wastewater Management Department appreciates your cooperation in this effort to protect our groundwater and the public sanitary sewerage.

For the Director:



Jackson Jenkins  
Deputy Director - Treatment

JJ:klb  
Enclosures

**FACT SHEET FOR INDUSTRIAL WASTEWATER DISCHARGE**  
**PERMIT NO. 9F 12812**  
(Continued)

**II. INDUSTRIAL INFORMATION AND CLASSIFICATION (Continued)**

wastewater discharge has no potential for adversely affecting the operation of the POTW. The petition must be made in writing to the Director of the Pima County Wastewater Management Department.

This is the Permittee's first Permit.

**III. SELECTION OF SAMPLE LOCATION**

Samples shall be taken at the private control manhole located approximately 40 feet east of public manhole No. 8868-34.

- This location provides sampling prior to commingling of industrial and domestic wastestreams as required by Pima County Code 13.36.130.B.
- This location provides unrestricted physical access during operational hours as required by Pima County Code 13.36.130.C.

**IV. SELECTION OF POLLUTANT PARAMETERS**

**Receiving Stream: Santa Cruz River**

In order to protect the beneficial uses of surface waters, the State of Arizona has adopted water quality standards for different stream segments which depend on the level of protection required. Pima County Wastewater Management's Treatment Plants discharge to the Santa Cruz River. For this particular segment of the Santa Cruz River Basin (Roger Road Wastewater Treatment Plant Outfall to Baumgartner Road Crossing), the designated beneficial uses are: Aquatic and Wildlife effluent dependent water, and Partial Body Contact (A.A.C.R18-11-Appendix B: List of Surface Waters and Designated Uses).

**Rationale for Effluent Limitations:**

The Federal Water Pollution Control Act of 1972 states that Pretreatment Standards shall prevent the discharge to the POTW of any pollutant that may interfere with, pass through, or otherwise be incompatible with the POTW. The Clean Water Act of 1977 further stipulated that industrial discharges must not interfere with use and disposal of municipal sludges.

**FACT SHEET FOR INDUSTRIAL WASTEWATER DISCHARGE**  
**PERMIT NO. 9F 12812**  
(Continued)

**V. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS (Continued)**

- DM** = Allowable Daily Maximum concentration
- S.U.** = Standard Units
- \*** = Instantaneous or grab sample
- \*\*\*** = Monitoring and reporting required

**VI. REQUIREMENT TO CONTROL SLUG DISCHARGES**

On October 14, 2005, the Environmental Protection Agency adopted amendments to the General Pretreatment Regulations to enhance the control of toxic pollutants and hazardous wastes discharged to the POTWs. Discharges of this nature have been identified as causing POTW workers illness, actual or threatened explosions, upsets or inhibitions of biological treatment processes, toxic fumes, corrosion, and contamination of both sludges and receiving waters. The amendments address how business and industry control both spills and high strength batch discharges called slug discharges.

On March 15, 2006, the Permittee submitted a Requirement to Control Slug Discharges Plan that contains the minimum program elements required by 40 CFR 403.8(f)(2)(B)(6).

**VII. NOTIFICATION OF DISCHARGE OF HAZARDOUS WASTE**

The Permittee shall comply with 40 CFR 403.12(p), which sets forth reporting and notification requirements for the discharge into the POTW of a substance which, if otherwise disposed of, would be defined as a hazardous waste by 40 CFR 261.

**VIII. JUDICIAL PROCEEDINGS**

Statements of applicable civil and criminal penalties for violations of Pretreatment Standards and requirements are included in all Permits.

**IX. FEE CALCULATION**

A monthly fee shall be levied and collected from all users for the service of sanitary sewage collection, treatment, and disposal provided through the wastewater system. A rate of \$1.47 per 100 cubic feet (748 gallons) shall be assessed.

This document has important legal consequences. Read and understand all of the requirements and conditions stated herein.

Application No.: 01164  
Page 1 of 7  
Permit No.: 9F 12812



**PART I**

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT  
PIMA COUNTY WASTEWATER MANAGEMENT DEPARTMENT**

In compliance with the provisions of the Clean Water Act,  
as amended (33 U.S.C. 1251 et seq., the "Act"),

**UNION PACIFIC RAILROAD COMPANY**

is authorized to discharge industrial wastewater from the noted business located at:

**1255 South Campbell Avenue  
Tucson, Arizona**

to the Pima County public sanitary sewerage contributory to the Roger Road Wastewater Treatment Plant (POTW). This is in accordance with Pima County Code, Title 13, Chapter 36, effluent limitations, monitoring requirements and other conditions set forth herein, and in the attached fourteen pages of Pima County "Standard Permit Conditions," dated December 10, 1991.

This Permit is effective July 6, 2006.

This Permit, and the authorization to discharge industrial wastewaters, shall expire at midnight on July 5, 2009.

Signed this 9<sup>th</sup> day of June, 2006

A handwritten signature in cursive script that reads "Jackson Jenkins".

Jackson Jenkins  
Deputy Director - Treatment  
Pima County Wastewater Management Department

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

3. Discharge Limitations and Monitoring Requirements (Continued)

- (2) A composite sample is a combination of no fewer than eight individual portions obtained at equal time or flow intervals for 24 hours or for the duration of discharge, whichever is shorter.
  - (3) Shall be analyzed for those parameters specified in Appendix A.
  - (4) Flow measurement shall be based on the wastewater discharged through the Sample Location.
- b. All samples shall be collected, preserved, and analyzed using an appropriate EPA Method referenced in 40 CFR 136, unless otherwise noted.
  - c. Samples and measurements taken for the purpose of monitoring shall be representative of the permitted activity.

4. Other Monitoring Requirements

- a. Records of the sand and oil interceptor cleaning shall be kept on-site. Records shall include but not be limited to: the amount removed, the name of the company or individual collecting these wastes, and the date of the collection.
- b. Records shall be kept on-site of all flow monitoring measurements, and shall include documentation of instrument calibration and maintenance.
- c. Records shall be kept on-site showing collection of waste solvents, contaminated fuels, degreasers, oil, and grease including, but not limited to: the amounts, the name of the company or individual collecting these wastes, and the date of the collection.
- d. Samples shall be taken within one week prior to cleaning the sand and oil interceptor.
- e. All records, or copies thereof, kept under conditions of this Permit shall be available for inspection during normal business hours.

**D. JUDICIAL PROCEEDINGS**

**1. Initiation of Legal Action**

Whenever the Director finds that a USER has violated any of the provisions of Pima County's Industrial Wastewater Ordinance, Title 13 of the Pima County Code ("the Ordinance") as implemented in this PERMIT, the Director may ask the County Attorney to take appropriate legal action. This legal action may include, among other things, the following:

- a. Prohibitive injunctions;
- b. Mandatory injunctions for corrective action and cleanup;
- c. Civil penalties in accordance with the Ordinance;
- d. Criminal penalties set forth in County Ordinances adopted pursuant to A.R.S. § 11-251.05;
- e. Recovery of civil damages, penalties, and costs to the POTW.

**2. Civil and Criminal Penalties for Violation**

- a. The civil penalties for violation of any Article of the Ordinance, any Part of a PERMIT written and issued in compliance with this Ordinance and/or any requirement of a Notification of Violation written and issued in compliance with said Ordinance, shall not exceed twenty-five thousand dollars (\$25,000.00) for each violation. For continuing violations, each day may constitute a separate offense.
- b. The civil penalties for non-submittal of reports, noncompliance with the reporting and/or application requirements required in the Ordinance or the PERMIT, or failure to complete an increment of progress of a compliance schedule, shall not exceed one thousand dollars (\$1,000.00) for each day in which the requirements are not fulfilled.
- c. Any person who attempts to deceive a government agency by submitting documents to the agency or by making statements to a representative of the agency which they know to be false, or by destroying or concealing or refusing to deliver papers or records required by the agency to be kept for its information, is

**APPENDIX A**  
**VOLATILE ORGANICS LIST**

**Purgeable Halocarbons**

Bromodichloromethane  
Bromoform  
    (tribromomethane)  
Methyl bromide  
    (bromomethane)  
Carbon tetrachloride  
    (tetrachloromethane)  
Chlorobenzene  
Chloroethane  
2-Chloroethyl vinyl ether  
    (mixed)  
Chloroform  
    (trichloromethane)  
Methyl chloride  
    (chloromethane)  
Dibromochloromethane  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Dichlorodifluoromethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,1-Dichloroethene  
trans-1,2-Dichloroethene  
1,2-Dichloropropane  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Methylene chloride  
    (dichloromethane)  
1,1,2,2-Tetrachloroethane  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
Tetrachloroethene  
Trichlorofluoromethane  
Vinyl chloride  
    (chloroethylene)

**Purgeable Aromatics**

Benzene  
Chlorobenzene  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Ethylbenzene  
Toluene

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 2 of 14.

- b. Does not have adequate pretreatment facilities, personnel, safety procedures, or financial resources to otherwise ensure compliance with the requirement of this chapter.
2. Amount. In determining the amount of any bond which is to be required, the Director shall consider the:
    - a. Reasonable foreseeable injury to POTW facilities or personnel which could result from any discharge in violation of the requirements of this chapter.
    - b. Nature and extent of any previous violation by the USER of applicable Federal, State or local discharge requirements.
    - c. Extent to which the USER is reasonably deemed liable in accordance with section 13.36.210.

F. Combined Wastewater Formula.

1. Formula. The combined wastewater formula will be used by USERS that mix regulated wastewaters with other regulated or unregulated wastewaters prior to pretreatment.

$$C_T = \frac{\sum_{i=1}^N C_i F_i}{\sum_{i=1}^N F_i} \times \frac{F_T - F_D}{F_T}$$

The alternative discharge limits shall be derived using the following formula:

Where:

- $C_T$  = the alternative concentration limit for the combined wastestream.
- $C_i$  = the Categorical Pretreatment Standard concentration limit for a pollutant in the regulated stream  $i$ .
- $F_i$  = the average daily flow (at least a 30-day average) of stream  $i$  to the extent that it is regulated for such pollutant.

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 4 of 14.

K. Proper Operation and Maintenance.

The USER shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the USER to achieve compliance with the conditions of the PERMIT. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a USER only when the operation is necessary to achieve compliance with the conditions of the PERMIT.

L. Duty to Provide Information.

The USER shall furnish to the Director, within thirty days, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or to determine compliance with the PERMIT. The USER shall also furnish to the Director upon request, copies of records required to be kept by the PERMIT.

M. Inspection and Entry.

The USER shall allow the Director, upon the presentation of identification to:

1. Enter upon the USER's premises, at reasonable times, where a regulated facility or activity is located or conducted, or where records must be kept under conditions of the PERMIT;
2. Have access to and copy, at reasonable times, any records that must be kept under conditions of the PERMIT;
3. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the PERMIT; and
4. Sample or monitor at reasonable times, for the purposes of assuring PERMIT compliance or as otherwise authorized by the Ordinance, any substances or parameters at any location.

N. Monitoring and Records.

1. Samples and measurements taken for the purpose of monitoring shall be representative of the permitted activity.

PART II

Q. Reopener Clause.

The PERMIT shall be modified to incorporate an applicable standard or limitation which is promulgated or approved after the PERMIT is issued if that standard or limitation is more stringent than the limitation in the PERMIT, or controls a pollutant not limited in the PERMIT.

R. Modification of PERMIT.

The Director may modify a PERMIT to make the correction or allowances for changes in the permitted activity listed in this section. Any PERMIT modification not processed as a minor modification under this section must be made for cause. Minor modifications may only:

1. Correct typographical errors;
2. Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing PERMIT and does not interfere with attainment of the final compliance date requirement;
3. Allow for a change in ownership or operational control of a facility (after notice to the Director) where the Director determines that no other change in the PERMIT is necessary, provided that a written agreement containing a specific date for transfer of PERMIT responsibility, coverage, and liability between the current and new USER has been submitted to the Director; or
4. Implement the compliance schedule for a discharger which is a new source. No such change shall affect a discharger's obligation prior to discharge.

S. Termination of PERMITS.

The following are causes for terminating a PERMIT during its term, or for denying a PERMIT renewal application:

1. Significant noncompliance (As defined in section 13.36.170(F) of Article VI) by the USER with any condition of the PERMIT;
2. The USER's failure in the application or during the PERMIT issuance process to disclose fully all relevant facts, or the USER's misrepresentation of any relevant facts at any time;

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 8 of 14.

Y. Property Rights.

The PERMIT does not convey any property rights of any sort, or any exclusive privilege.

Z. Comment Period.

The PERMIT holder has 33 days from the date of the mailing of the PERMIT in which to make comment in writing to the Director.

AA. PERMIT Duration.

PERMITs shall be issued for a specified time period, not to exceed five years.

BB. Significant Industrial USER.

An industrial USER meeting the criteria in section 13.36.040(EE) and having no reasonable potential for adversely affecting the POTW'S operation or for violating any pretreatment standard or requirement, may petition the Control Authority for deletion from this requirement.

13.36.140 Discharge Requirement for Septage Haulers .

A. Discharge Requirements.

1. Use of Waste Tracking System. The hauler shall use the POTW septage tracking form specified in the PERMIT to record each load that is delivered to the POTW.
2. Sampling of Waste. Prior to discharge of septage, the hauler shall allow the Director to sample and analyze the contents to ensure compliance with discharge limits and requirements. The hauler shall provide a suitable sampling tap or equivalent appurtenance. The hauler may be required to suspend discharging septage until the analysis is complete. The Director shall refuse authorization to discharge any septage that does not provide for the protection of the POTW, groundwater resources, effluent and wastewater sludge disposal methods, and operating personnel.

B. Sanitation and Safety Standards.

It shall be the responsibility of the hauler to discharge wastes in such a manner as to keep the area clean and free from spills or other debris. Any spills shall be promptly cleaned up.



PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 12 of 14.

3. Conditions Necessary for a Demonstration of Upset. A USER who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the USER can identify the cause(s) of the upset.
  - b. The permitted facility was at the time being properly operated;
  - c. The USER submitted notice of the upset as required in paragraph A.1. of this section; and,
  - d. The USER complied with any remedial measures required under Section 13.36.130(J).
4. Burden of Proof. In any enforcement proceeding the USER seeking to establish the occurrence of an upset has the burden of proof.

**13.36.160 Reporting Requirements.**

**A. Planned Changes.**

The USER shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source. The term "new source" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307(c) of the Clean Water Act which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section;
2. Within 90 days following the date for final compliance with applicable categorical Pretreatment Standards or in the case of a New Source following commencement of the introduction of wastewater into the POTW, any USER subject to Categorical Pretreatment Standards and Requirements shall submit to the Director a report indicating the nature and concentration of all pollutants in the discharge from the regulated process.

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 14 of 14.

3. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the PERMIT.
4. A Significant Industrial USER shall submit to the POTW a periodic compliance report no less frequently than four times per year.

E. Compliance Schedules.

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the PERMIT shall be submitted no later than fourteen (14) days following each scheduled date.

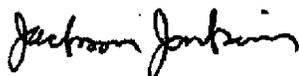
F. Intermittent Discharge Monitoring.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the USER shall monitor and record data for all the characteristics listed in the monitoring requirements, after which the frequencies of analysis listed in the monitoring requirements shall apply for the duration of each such intermittent discharge. The USER shall be required to monitor and record data at twice the frequencies listed in the monitoring requirements.

Mr. Edwin Honig  
**UNION PACIFIC RAILROAD COMPANY**  
August 11, 2006  
Page 2

If questions arise, or you wish to enroll in the Pollution Prevention School, please contact my staff in the Industrial Wastewater Control Group at (520) 579-5771. The Pima County Wastewater Management Department appreciates your cooperation in this effort to protect our groundwater and the public sanitary sewerage.

For the Director:



Jackson Jenkins  
Deputy Director - Treatment

JJ:klb  
Enclosures

**FACT SHEET FOR INDUSTRIAL WASTEWATER DISCHARGE  
PERMIT NO. 9F 12813  
(Continued)**

**II. INDUSTRIAL INFORMATION AND CLASSIFICATION (Continued)**

wastewater discharge has no potential for adversely affecting the operation of the POTW. The petition must be made in writing to the Director of the Pima County Wastewater Management Department.

This is the Permittee's first Permit.

**III. SELECTION OF SAMPLE LOCATION**

Samples shall be taken at the private control manhole located approximately 200 feet east of public manhole No. 5456-01.

- This location provides sampling prior to commingling of industrial and domestic wastestreams as required by Pima County Code 13.36.130.B.
- This location provides unrestricted physical access during operational hours as required by Pima County Code 13.36.130.C.

**IV. SELECTION OF POLLUTANT PARAMETERS**

**Receiving Stream: Santa Cruz River**

In order to protect the beneficial uses of surface waters, the State of Arizona has adopted water quality standards for different stream segments which depend on the level of protection required. Pima County Wastewater Management's Treatment Plants discharge to the Santa Cruz River. For this particular segment of the Santa Cruz River Basin (Roger Road Wastewater Treatment Plant Outfall to Baumgartner Road Crossing), the designated beneficial uses are: Aquatic and Wildlife effluent dependent water, and Partial Body Contact (A.A.C.R18-11-Appendix B: List of Surface Waters and Designated Uses).

**Rationale for Effluent Limitations:**

The Federal Water Pollution Control Act of 1972 states that Pretreatment Standards shall prevent the discharge to the POTW of any pollutant that may interfere with, pass through, or otherwise be incompatible with the POTW. The Clean Water Act of 1977 further stipulated that industrial discharges must not interfere with use and disposal of municipal sludges.

**FACT SHEET FOR INDUSTRIAL WASTEWATER DISCHARGE**  
**PERMIT NO. 9F 12813**  
(Continued)

**V. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS (Continued)**

All limits are based on composite samples, and are expressed in mg/l, unless otherwise noted.

**DM** = Allowable Daily Maximum concentration  
**S.U.** = Standard Units  
**\*** = Instantaneous or grab sample  
**\*\*\*** = Monitoring and reporting required

**VI. REQUIREMENT TO CONTROL SLUG DISCHARGES**

On October 14, 2005, the Environmental Protection Agency adopted amendments to the General Pretreatment Regulations to enhance the control of toxic pollutants and hazardous wastes discharged to the POTWs. Discharges of this nature have been identified as causing POTW workers illness, actual or threatened explosions, upsets or inhibitions of biological treatment processes, toxic fumes, corrosion, and contamination of both sludges and receiving waters. The amendments address how business and industry control both spills and high strength batch discharges called slug discharges.

On March 15, 2008, the Permittee submitted a Requirement to Control Slug Discharges Plan that contains the minimum program elements required by 40 CFR 403.8(f)(2)(B)(8).

**VII. NOTIFICATION OF DISCHARGE OF HAZARDOUS WASTE**

The Permittee shall comply with 40 CFR 403.12(p), which sets forth reporting and notification requirements for the discharge into the POTW of a substance which, if otherwise disposed of, would be defined as a hazardous waste by 40 CFR 261.

**VIII. JUDICIAL PROCEEDINGS**

Statements of applicable civil and criminal penalties for violations of Pretreatment Standards and requirements are included in all Permits.

**IX. FEE CALCULATION**

A monthly fee shall be levied and collected from all users for the service of sanitary sewage collection, treatment, and disposal provided through the wastewater system. A rate of \$1.47 per 100 cubic feet (748 gallons) shall be assessed.

This document has important legal consequences. Read and understand all of the requirements and conditions stated herein.

Application No.: 01164A  
Page 1 of 7  
Permit No.: 9F 12813



**PART I**

**INDUSTRIAL WASTEWATER DISCHARGE PERMIT  
PIMA COUNTY WASTEWATER MANAGEMENT DEPARTMENT**

In compliance with the provisions of the Clean Water Act,  
as amended (33 U.S.C. 1251 et seq., the "Act"),

**UNION PACIFIC RAILROAD COMPANY**

is authorized to discharge industrial wastewater from the noted business located at:

**260 East 8<sup>th</sup> Street  
Tucson, Arizona**

to the Pima County public sanitary sewerage contributory to the Roger Road Wastewater Treatment Plant (POTW). This is in accordance with Pima County Code, Title 13, Chapter 36, effluent limitations, monitoring requirements and other conditions set forth herein, and in the attached fourteen pages of Pima County "Standard Permit Conditions," dated December 10, 1991.

This Permit is effective September 13, 2006.

This Permit, and the authorization to discharge industrial wastewaters, shall expire at midnight on September 12, 2011.

Signed this 11<sup>th</sup> day of August, 2006

A handwritten signature in cursive script that reads "Jackson Jenkins".

Jackson Jenkins  
Deputy Director - Treatment  
Pima County Wastewater Management Department

Part I  
Page 3 of 7  
Permit No.: 9F 12813

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

3. Discharge Limitations and Monitoring Requirements (Continued)

- (1) A grab sample is any individual (discrete) sample collected over a period of time, not to exceed 15 minutes.
  - (2) A composite sample is a combination of no fewer than eight individual portions obtained at equal time or flow intervals for 24 hours or for the duration of discharge, whichever is shorter.
  - (3) Shall be analyzed for those parameters specified in Appendix A.
  - (4) Flow measurement shall be based on the wastewater discharged through the Sample Location.
- b. All samples shall be collected, preserved, and analyzed using an appropriate EPA Method referenced in 40 CFR 136, unless otherwise noted.
  - c. Samples and measurements taken for the purpose of monitoring shall be representative of the permitted activity.

4. Other Monitoring Requirements

- a. Records of the sand and oil interceptor cleaning shall be kept on-site. Records shall include but not be limited to: the amount removed, the name of the company or individual collecting these wastes, and the date of the collection.
- b. Records shall be kept on-site of all flow monitoring measurements, and shall include documentation of instrument calibration and maintenance.
- c. Records shall be kept on-site showing collection of waste solvents, contaminated fuels, degreasers, oil, and grease including, but not limited to: the amounts, the name of the company or individual collecting these wastes, and the date of the collection.

Part I  
Page 5 of 7  
Permit No.: 9F 12813

**B. REPORTING REQUIREMENTS (Continued)**

The Permittee shall comply with 40 CFR 63.132(g) which sets forth written certification and notification requirements to the Pima County Wastewater Management Department 90 days prior to the Permittee's initiation of off-site disposal of a *NESHAP* waste stream to the POTW.

**C. REQUIREMENT TO CONTROL SLUG DISCHARGES**

The Permittee shall comply with the Requirement to Control Slug Discharges Plan submitted to and accepted by Pima County on March 15, 2006, and hereby incorporated by reference and made part of this Permit.

**D. JUDICIAL PROCEEDINGS**

**1. Initiation of Legal Action**

Whenever the Director finds that a USER has violated any of the provisions of Pima County's Industrial Wastewater Ordinance, Title 13 of the Pima County Code ("the Ordinance") as implemented in this PERMIT, the Director may ask the County Attorney to take appropriate legal action. This legal action may include, among other things, the following:

- a. Prohibitive injunctions;
- b. Mandatory injunctions for corrective action and cleanup;
- c. Civil penalties in accordance with the Ordinance;
- d. Criminal penalties set forth in County Ordinances adopted pursuant to A.R.S. § 11-251.05;
- e. Recovery of civil damages, penalties, and costs to the POTW.

**2. Civil and Criminal Penalties for Violation**

- a. The civil penalties for violation of any Article of the Ordinance, any Part of a PERMIT written and issued in compliance with this Ordinance and/or any requirement of a Notification of Violation written and issued in compliance with said Ordinance, shall not exceed twenty-five thousand dollars (\$25,000.00) for each violation. For continuing violations, each day may constitute a separate offense.

Part I  
Page 7 of 7  
Permit No.: 9F 12813

**APPENDIX A****VOLATILE ORGANICS LIST****Purgeable Halocarbons**

Bromodichloromethane  
Bromoform  
(tribromomethane)  
Methyl bromide  
(bromomethane)  
Carbon tetrachloride  
(tetrachloromethane)  
Chlorobenzene  
Chloroethane  
2-Chloroethyl vinyl ether  
(mixed)  
Chloroform  
(trichloromethane)  
Methyl chloride  
(chloromethane)  
Dibromochloromethane  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Dichlorodifluoromethane  
1,1-Dichloroethane  
1,2-Dichloroethane  
1,1-Dichloroethene  
trans-1,2-Dichloroethene  
1,2-Dichloropropane  
cis-1,3-Dichloropropene  
trans-1,3-Dichloropropene  
Methylene chloride  
(dichloromethane)  
1,1,2,2-Tetrachloroethane  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
Tetrachloroethene  
Trichlorofluoromethane  
Vinyl chloride  
(chloroethylene)

**Purgeable Aromatics**

Benzene  
Chlorobenzene  
1,2-Dichlorobenzene  
1,3-Dichlorobenzene  
1,4-Dichlorobenzene  
Ethylbenzene  
Toluene

## PART II

## PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 2 of 14.

- b. Does not have adequate pretreatment facilities, personnel, safety procedures, or financial resources to otherwise ensure compliance with the requirement of this chapter.
2. Amount. In determining the amount of any bond which is to be required, the Director shall consider the:
    - a. Reasonable foreseeable injury to POTW facilities or personnel which could result from any discharge in violation of the requirements of this chapter.
    - b. Nature and extent of any previous violation by the USER of applicable Federal, State or local discharge requirements.
    - c. Extent to which the USER is reasonably deemed liable in accordance with section 13.36.210.

F. Combined Wastewater Formula.

1. Formula. The combined wastewater formula will be used by USERS that mix regulated wastewaters with other regulated or unregulated wastewaters prior to pretreatment.

$$C_T = \frac{\sum_{i=1}^N C_i F_i}{\sum_{i=1}^N F_i} \times \frac{F_T - F_D}{F_T}$$

The alternative discharge limits shall be derived using the following formula:

Where:

- $C_T$  = the alternative concentration limit for the combined wastestream.
- $C_i$  = the Categorical Pretreatment Standard concentration limit for a pollutant in the regulated stream  $i$ .
- $F_i$  = the average daily flow (at least a 30-day average) of stream  $i$  to the extent that it is regulated for such pollutant.

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 4 of 14.

K. Proper Operation and Maintenance.

The USER shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the USER to achieve compliance with the conditions of the PERMIT. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a USER only when the operation is necessary to achieve compliance with the conditions of the PERMIT.

L. Duty to Provide Information.

The USER shall furnish to the Director, within thirty days, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or to determine compliance with the PERMIT. The USER shall also furnish to the Director upon request, copies of records required to be kept by the PERMIT.

M. Inspection and Entry.

The USER shall allow the Director, upon the presentation of identification to:

1. Enter upon the USER's premises, at reasonable times, where a regulated facility or activity is located or conducted, or where records must be kept under conditions of the PERMIT;
2. Have access to and copy, at reasonable times, any records that must be kept under conditions of the PERMIT;
3. Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the PERMIT; and
4. Sample or monitor at reasonable times, for the purposes of assuring PERMIT compliance or as otherwise authorized by the Ordinance, any substances or parameters at any location.

N. Monitoring and Records.

1. Samples and measurements taken for the purpose of monitoring shall be representative of the permitted activity.

## PART II

## PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 6 of 14.

Q. Reopener Clause.

The PERMIT shall be modified to incorporate an applicable standard or limitation which is promulgated or approved after the PERMIT is issued if that standard or limitation is more stringent than the limitation in the PERMIT, or controls a pollutant not limited in the PERMIT.

R. Modification of PERMIT.

The Director may modify a PERMIT to make the correction or allowances for changes in the permitted activity listed in this section. Any PERMIT modification not processed as a minor modification under this section must be made for cause. Minor modifications may only:

1. Correct typographical errors;
2. Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing PERMIT and does not interfere with attainment of the final compliance date requirement;
3. Allow for a change in ownership or operational control of a facility (after notice to the Director) where the Director determines that no other change in the PERMIT is necessary, provided that a written agreement containing a specific date for transfer of PERMIT responsibility, coverage, and liability between the current and new USER has been submitted to the Director; or
4. Implement the compliance schedule for a discharger which is a new source. No such change shall affect a discharger's obligation prior to discharge.

S. Termination of PERMITS.

The following are causes for terminating a PERMIT during its term, or for denying a PERMIT renewal application:

1. Significant noncompliance (As defined in section 13.36.170(F) of Article VI) by the USER with any condition of the PERMIT;
2. The USER's failure in the application or during the PERMIT issuance process to disclose fully all relevant facts, or the USER's misrepresentation of any relevant facts at any time;

## PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 8 of 14.

Y. Property Rights.

The PERMIT does not convey any property rights of any sort, or any exclusive privilege.

Z. Comment Period.

The PERMIT holder has 33 days from the date of the mailing of the PERMIT in which to make comment in writing to the Director.

AA. PERMIT Duration.

PERMITS shall be issued for a specified time period, not to exceed five years.

BB. Significant Industrial USER.

An industrial USER meeting the criteria in section 13.36.040(EE) and having no reasonable potential for adversely affecting the POTW'S operation or for violating any pretreatment standard or requirement, may petition the Control Authority for deletion from this requirement.

13.36.140 Discharge Requirement for Septage Haulers .

A. Discharge Requirements.

1. Use of Waste Tracking System. The hauler shall use the POTW septage tracking form specified in the PERMIT to record each load that is delivered to the POTW.
2. Sampling of Waste. Prior to discharge of septage, the hauler shall allow the Director to sample and analyze the contents to ensure compliance with discharge limits and requirements. The hauler shall provide a suitable sampling tap or equivalent appurtenance. The hauler may be required to suspend discharging septage until the analysis is complete. The Director shall refuse authorization to discharge any septage that does not provide for the protection of the POTW, groundwater resources, effluent and wastewater sludge disposal methods, and operating personnel.

B. Sanitation and Safety Standards.

It shall be the responsibility of the hauler to discharge wastes in such a manner as to keep the area clean and free from spills or other debris. Any spills shall be promptly cleaned up.



## PART II

## PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 12 of 14.

3. Conditions Necessary for a Demonstration of Upset. A USER who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the USER can identify the cause(s) of the upset.
  - b. The permitted facility was at the time being properly operated;
  - c. The USER submitted notice of the upset as required in paragraph A.1. of this section; and,
  - d. The USER complied with any remedial measures required under Section 13.36.130(J).
4. Burden of Proof. In any enforcement proceeding the USER seeking to establish the occurrence of an upset has the burden of proof.

13.36.160 Reporting Requirements.A. Planned Changes.

The USER shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source. The term "new source" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307(c) of the Clean Water Act which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section;
2. Within 90 days following the date for final compliance with applicable categorical Pretreatment Standards or in the case of a New Source following commencement of the introduction of wastewater into the POTW, any USER subject to Categorical Pretreatment Standards and Requirements shall submit to the Director a report indicating the nature and concentration of all pollutants in the discharge from the regulated process.

PART II

PIMA COUNTY - STANDARD PERMIT CONDITIONS - DECEMBER 10, 1991 Page 14 of 14.

3. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the PERMIT.
4. A Significant Industrial USER shall submit to the POTW a periodic compliance report no less frequently than four times per year.

E. Compliance Schedules.

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the PERMIT shall be submitted no later than fourteen (14) days following each scheduled date.

F. Intermittent Discharge Monitoring.

If the discharge is intermittent rather than continuous, then on the first day of each such Intermittent discharge, the USER shall monitor and record data for all the characteristics listed in the monitoring requirements, after which the frequencies of analysis listed in the monitoring requirements shall apply for the duration of each such Intermittent discharge. The USER shall be required to monitor and record data at twice the frequencies listed in the monitoring requirements.

Environmental  
Resources  
Management

7272 E. Indian School Road  
Suite 100  
Scottsdale, AZ 85251  
(480) 998-2401  
(480) 998-2106 (fax)

3 August 2006

Ms. Shannon Reif  
Arizona Department of Water Resources  
Groundwater Management Support Section  
3550 N. Central Avenue, Suite 200  
Phoenix, Arizona 85012



Subject: Submittal of Notice of Intent to Drill Environmental Well

Dear Shannon:

On behalf of Union Pacific Railroad Company (UPRR), ERM-West, Inc. (ERM) is submitting the enclosed ~~Notice of Intent to Drill an Environmental Well~~ form for a horizontal extraction / remediation well in Tucson, Arizona. Included with the Notice of Intent are the following:

- Copy of previously-submitted New Well Construction Supplement form with well construction schematics and location map;
- Remediation Well Certification of Compliance form with Arizona Department of Environmental Quality workplan approval letter; and
- ~~A check in the amount of \$150.00 for payment.~~

As allowed by Arizona Administrative Code (AAC) R12-15-820, UPRR requests a variance to substitute the use of high-density polyethylene (HDPE) surface seal casing for the AAC R12-15-811(B)(4) requirement for horizontal wells to have a surface seal consisting of steel casing extending a minimum of ten feet into the land surface to prevent leakage.

Because there are elbowed transitions between the horizontal plane and riser portions of the well, the well material must be flexible to facilitate construction. As such, UPRR seeks the use of HDPE casing in lieu of steel for the upper ten feet of the well. The ends of the horizontal well will terminate in traffic-rated, tamper-resistant, water tight concrete vaults at the ground surface and annular space from the concrete vaults to a depth of approximately 70 feet below ground surface will filled (via tremmie pipe) with cement-bentonite grout to prevent leakage.

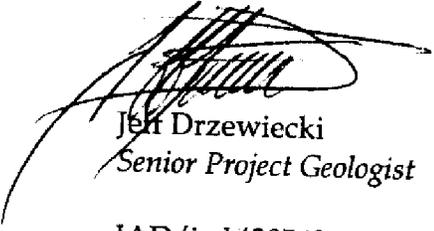
*NOI returned to  
applicant w/ check .  
55-90, diagram,  
map added to  
Poor Quality permit  
file 59-212083  
with this letter request  
variance .  
S.T. 8/8/06*

Ms. Shannon Reif  
3 August 2006  
Page 2

Environmental  
Resources  
Management

If you have any questions or need to obtain further information, please contact me at (480) 998-2401.

Sincerely,



Jeff Drzewiecki  
*Senior Project Geologist*

JAD/jad/20543.40  
enclosures

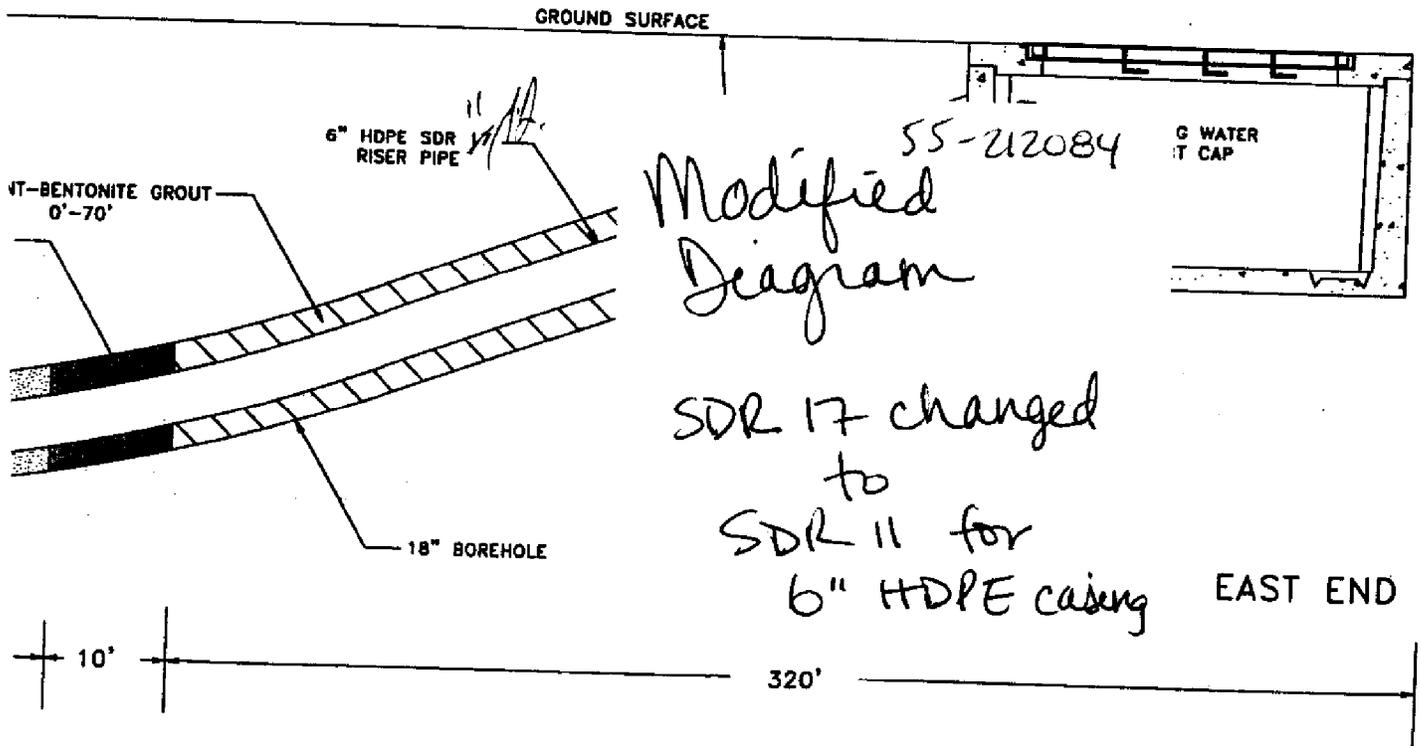
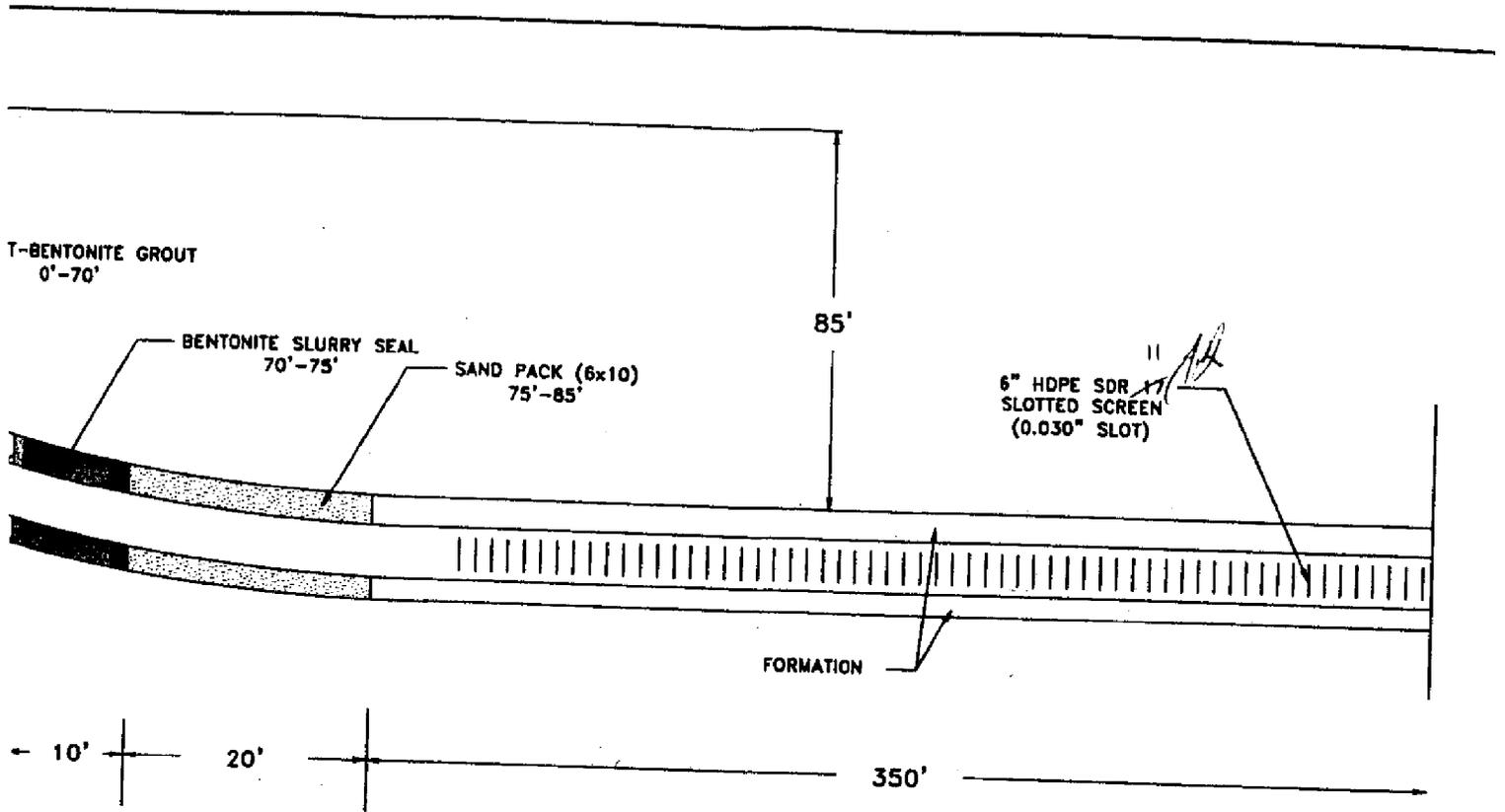


Figure E-2  
Horizontal Boring Well Construction Plan  
Passenger Depot Site  
Union Pacific Railroad Company  
Tucson, Arizona

Exhibit E  
**ARIZONA DEPARTMENT OF WATER RESOURCES** PD-HEW-1  
**WATER MANAGEMENT DIVISION**  
 3550 North Central Avenue, Phoenix, Arizona 85012  
 Phone (602) 771-8585 Fax (602) 771-8688

**NEW WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)**

Horizontal Extraction Well Well Registration Number 55- \_\_\_\_\_  
 (FOR DEPARTMENT USE ONLY)

1. Well Location:

NE 1/4 of the SW 1/4 of the SE 1/4, Sec. 12, Township 19S Range 13E  
 10AC 40AC 160AC

2. Position Location of the Well:

Entrance Latitude 32° 13' 29.55" Longitude 110° 58' 4.66"  
 Exit Latitude 32° 21' 21.13" Longitude 110° 57' 51.95"  
 3. County Pima Co.

4. Date construction to start: July 1, 2006

5. Time period well will remain in use: 30 Years

6. Is pump equipment to be installed? Yes If so, design pump capacity: 30 GPM.

7. Well construction plan: See Attached Drawings E-1 & E-2 Horizontal Directionally

a. Drilling method (mud rotary, hollow-stem auger, etc.) Drilled w/ mud rotary

b. Borehole diameters 18 inches from 0 feet to 85 feet, depth.  
18 inches from 0 feet to 1,400 feet, lineal.

c. Casing materials High-Density Polyethylene Plastic (HDPE)

d. Method of well development (bail, air lift, surge, etc.) air lift and pump

e. Will surface or conductor casing extend above grade? No

8. Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 et. seq. Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

Neat Cement w/ removal of top 20 feet.

10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? \_\_\_ Yes  No

11. Is this well to monitor existing contamination? \_\_\_ Yes  No

Potential contamination?  Yes \_\_\_ No If yes, please provide explanation: Free-Phase Hydrocarbons Present. ADEQ Facility ID# 0-008574/LOST # 3953

12. Will the proposed well be a replacement well in the same location (A.R.S. §§ 45-596 and 45-597, A.A.C. R12-15-840)? A replacement well is one located no more than 660 feet from the original well that it is replacing, and which is not expected to withdraw on an annual basis more groundwater than historical annual withdrawals from the original well. \_\_\_ Yes  No

If yes then indicate the following:

(a) Record the registration number for the well that will be replaced: 55- N/A

(b) Will the original well to be replaced be N/A Capped, N/A Abandoned N/A Other.

If Other, please explain: N/A

13. Name of Consulting firm, if any: ERM-West, INC.

7272 E. Indian School Rd., Suite 100, Scottsdale, AZ 85251  
Address City State Zip

Contact Person: Jeff Drzewiecki Telephone Number 480-498-2401

14. Drilling firm To be determined.

DWR License Number: \_\_\_\_\_ ROC License Category: \_\_\_\_\_

15. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: \_\_\_\_\_

I (we), Jeffrey A. Drzewiecki hereby swear that all information provided in this application is true and correct to the best of my/our knowledge and belief.  
(print name) for Ed Hawig

Signature of Applicant [Signature] Date 4/21/06

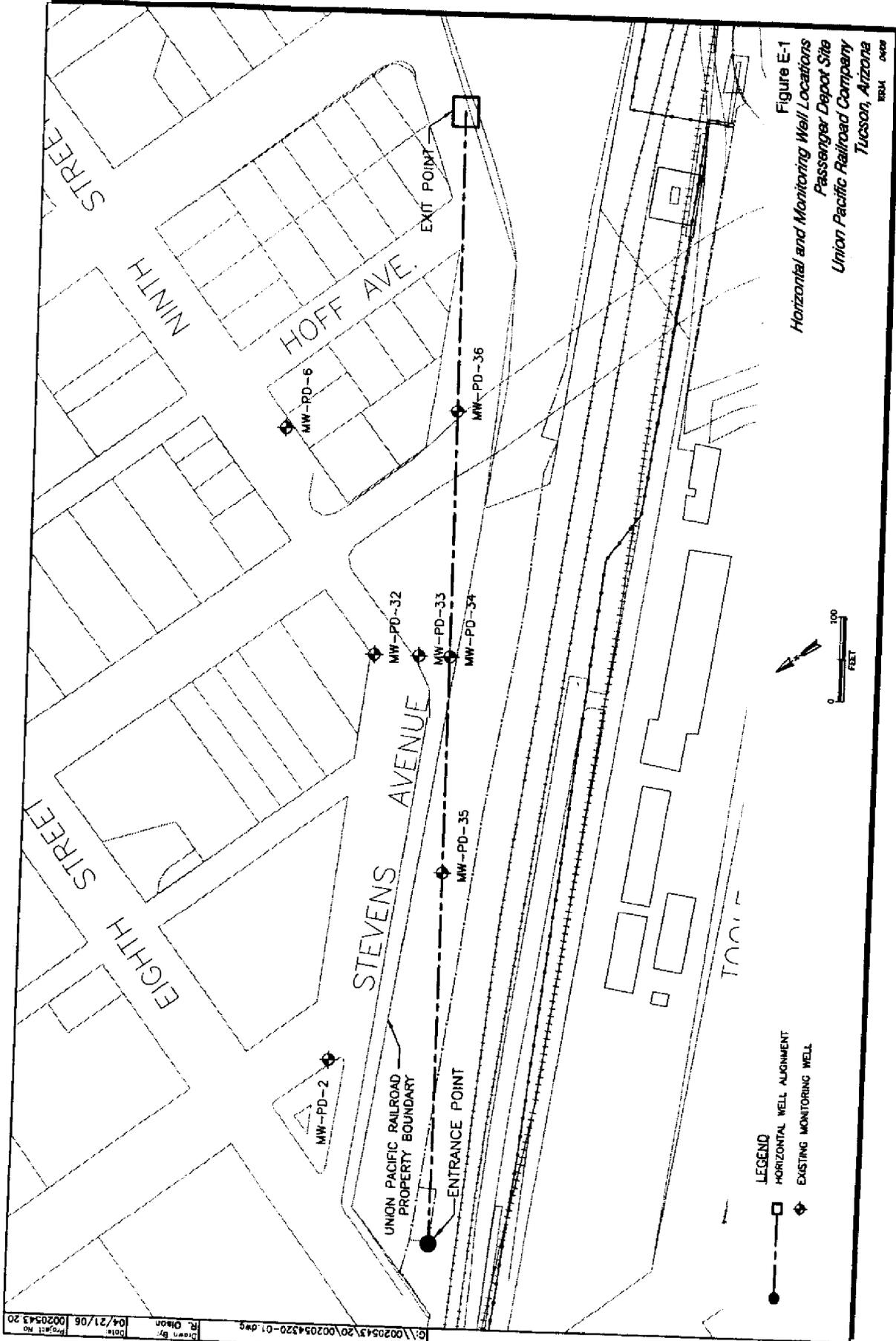


Figure E-1  
 Horizontal and Monitoring Well Locations  
 Passenger Depot Site  
 Union Pacific Railroad Company  
 Tucson, Arizona  
 BULK 0409

G:\020543\20\02054320-01.dwg  
 Drawn By: R. Olson  
 Date: 04/21/06  
 Project No: 0020543 20

**ARIZONA DEPARTMENT OF WATER RESOURCES**

Tucson Active Management Area  
400 W. Congress, Suite 518 • Tucson, Arizona 85701  
Telephone (520) 770-3800 • Fax (520) 628-6759



Janet Napolitano  
Governor

Herbert R. Guenther  
Director

May 25, 2006

Union Pacific Railroad Company  
Attn: Edward Honig  
1400 Douglas Street, Stop # 1030  
Omaha, NE 68179

RE: Application for Permit to Withdraw Poor Quality Groundwater  
Application Number 59-212083.0000

Dear Mr. Honig:

The Department of Water Resources has reviewed the above-referenced application for administrative completeness. Pursuant to A.R.S. § 41-1074(B), the Department has determined the application is incomplete. The following information must be submitted before the Department can continue its completeness review and find the application complete:

1. In accordance with A.A.C. R12-15-811.B.4, all horizontal wells, to prevent leakage, shall be constructed with a surface seal consisting of steel casing and cement grout extending a minimum of ten feet into the land surface. Figure E-2 submitted with the application shows HDPE riser pipe in the upper 20 feet of the well.
2. In conversations with the consulting firm on this project, it was discussed that the remediated water is currently being reinjected back to the aquifer. Please confirm whether any of the water to be remediated in the future is to be reinjected; if so, please identify the well(s) to be used for injection and the specifications under which the water will be injected.
3. In the beneficial end use feasibility study, one option that was not addressed is delivering the remediated water to Tucson Water's reclaimed water system. Please provide documentation to show why this option is not feasible.
4. Please provide documentation of a wastewater disposal permit from Pima County for the portion of the remediated water that will be discharged to the sewer system.

Please submit the above-referenced information within 60 days. Failure to submit the information requested within 60 days may result in the denial of the application. The Department's administrative completeness review time frame for the above-referenced

Union Pacific Railroad  
May 25, 2006  
Page 2 of 2

hydrologic testing permit application is suspended until all of the requested information is provided.

If you have any general questions about this permit application, please call Linda Ingraham of the Tucson AMA at 520-770-3800.

Sincerely,



Jeff Tannier  
Water Resources Supervisor  
Tucson AMA office, ADWR

cc: Linda Ingraham, Tucson AMA office  
Jeff Drzewiecki, ERM-West  
Carol Norton, ADWR Hydrology  
David Christiana, ADWR WQARF  
Darlene Sumpter-King, ADWR Phoenix AMA

ARIZONA DEPARTMENT OF WATER RESOURCES  
HYDROLOGY DIVISION

MEMORANDUM

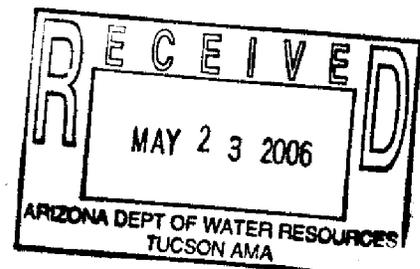
**TO:** Jeff Tannler  
Linda Ingraham  
Tucson AMA  
**FROM:** David Christiana, Supervisor *DC*  
Technical Support Unit  
**DATE:** May 22, 2006  
**SUBJECT:** Poor Quality Groundwater Withdrawal Permit – Union Pacific Railroad, Tucson

Hydrology has reviewed the application for a Poor Quality Groundwater Withdrawal Permit and has the following concerns:

1. A letter requesting a variance from minimum well construction standards is required for the construction of the horizontal well, ADWR registration #55-212084. Figure E-2 shows HDPE riser pipe in the upper 20 feet of the well. Minimum construction standards specify steel casing. The variance request must describe the variance, why the variance is necessary, and explain how the construction will be protective of the aquifer.
2. The applicant must meter all points of withdrawal. Please provide a listing of meters for all points of withdrawal and their specifications. Include the applicant's identifier for each meter. Injection wells must also be metered. All metering devices and methods shall quantify flow accurately pursuant to A.A.C. R12-15-905.
3. If the applicant intends to do any injection, the application should specify what wells will be used and the circumstances in which it will be done. Injections wells will be listed on the permit.
4. The applicant must provide documentation of a wastewater disposal permit from Pima County.

If you have any questions, please call me at extension 1-8548.

c: Darlene Sumpter-King, Phoenix AMA



**DEPARTMENT OF WATER RESOURCES  
 WATER MANAGEMENT SUPPORT SECTION  
 MAIL TO: P.O. BOX 458, PHOENIX, ARIZONA 85001-0458  
 500 North Third Street, Phoenix, Arizona 85004-3903  
 Phone (602) 417-2470 Fax (602) 417-2422**

**COPY**

**APPLICATION FOR PERMIT TO WITHDRAW  
 POOR QUALITY GROUNDWATER WITHIN AN  
 ACTIVE MANAGEMENT AREA (A.R.S. § 45-516)**

RECEIVED  
 APR 27 2006  
 PHOENIX AMA

FOR DEPARTMENT USE ONLY  
 Application/Permit No. 59-213083-000  
 Filed 4/27/2006  
 AMA TUCSON  
 S/B 16 W/S 09

**I. INSTRUCTIONS**

1. COMPLETE ALL APPROPRIATE ITEMS ON THIS APPLICATION AND SIGN IN DESIGNATED PLACE.
2. Mail to P.O. Box 458, Phoenix, Arizona 85001-0458 or deliver in person to the above address.
3. Pursuant to A.R.S. § 45-113, the application fee is \$150.00, and the permit fee is \$50.00. You may submit both checks at the time of filing the application.
4. Use explanatory section on back for clarification if necessary.
5. This application should be used to obtain a permit to:
  - a. Withdraw poor quality groundwater to fill or refill a body of water (an Application for Permit to Use Water to Fill or Refill a Body of Water, DWR form 55-98, is also required).
  - b. Withdraw poor quality groundwater which, because of its quality, has no other beneficial use.
6. Withdrawal of groundwater must be consistent with the management plan of the Active Management Area.

**II. GENERAL DATA:**

Please check one:

- New Application  
 Renewal or  Modification of Permit No. 59-\_\_\_\_\_

RECEIVED  
 MAY - 4 2006  
 ARIZONA DEPT OF WATER RESOURCES  
 TUCSON AMA

**1. NAME OF APPLICANT:**

Union Pacific Railroad Company 1-402-544-5979  
 Name Telephone Number

1400 Douglas St, Stop #1030 Omaha NE 68179  
 Mailing Address City State Zip Code

Contact Person Edwin H. Honig, P.E.; Manager of Site Remediation

**2. NAME OF LANDOWNER where groundwater will be withdrawn:**

Union Pacific Railroad Company (1) same as above  
 Name Telephone Number

same as above  
 Mailing Address City State Zip Code

Contact Person same as above

**3. Groundwater will be withdrawn within the Upper Santa Cruz sub-basin of the Tucson Active Management Area.**

**4. NAME OF OWNER OF WELL(S):**

Union Pacific Railroad Company same as above  
 Name Telephone Number

same as above  
 Mailing Address City State Zip Code

Contact Person same as above

5. Name of facility or body of water where water will be used (if applicable) not applicable
6. State the specific purpose for which groundwater will be withdrawn: Groundwater & Free Product Remediation
7. Location of facility or body of water (if applicable) \_\_\_ 1/4 \_\_\_ 1/4 \_\_\_ 1/4 Section \_\_\_ Township \_\_\_ Range \_\_\_ Tucson AMA.
8.  (Check) Order for remedial action attached. (See attached Exhibit A)

EPA Identification No: \_\_\_\_\_ EPA Program Name: \_\_\_\_\_

Contract No: \_\_\_\_\_ (Federal) \_\_\_\_\_ (State) LUST/VRP

Other identification: (See attached Exhibit B)

9. Groundwater to be withdrawn by means of: (See attached Exhibits C & D & E)

A. WELLS ALREADY IN EXISTENCE:

Registration No.	Location	Depth	Diameter of Casing	Case Type
55- _____	_____	_____	_____	_____
55- _____	_____	_____	_____	_____

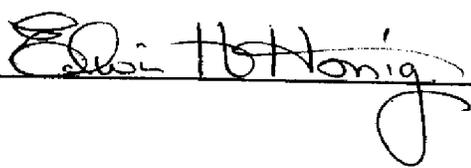
B. WELLS TO BE NEWLY CONSTRUCTED: (Exhibit E)  
 Complete and attach New Well Construction Supplement, DWR form 55-90, for each new well to be drilled.

10.  (Check) Test results attached that show that water is of such poor quality that it cannot be used for another beneficial use without treatment.
11.  (Check) Result of economic feasibility study attached to show that it is not economically feasible to treat water and transport it for another beneficial use.
12. Explain applicant's plans to beneficially use the water: (See attached Exhibit F)

13. Explain how the withdrawal of groundwater under this application is consistent with the management plan for the Active Management Area:  
(See attached Exhibit F)

14. Estimated quantity of the source of poor quality groundwater: Unknown acre-feet.
15. Annual amount of poor quality groundwater to be withdrawn: 100 (see attached Exhibit G) acre-feet.
16. Request is for 35 years (maximum 35 years subject to earlier termination by the Department).

I (we), Edwin H. Honig hereby swear that all information provided in this application is true and

Signature of Applicant(s)  Date 4/18/2006

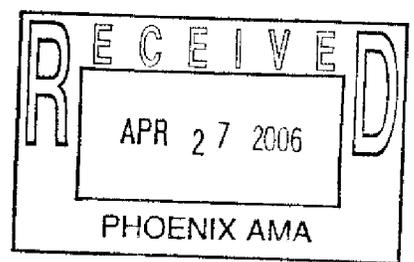


Exhibit E  
**ARIZONA DEPARTMENT OF WATER RESOURCES** PD-HEW-1  
**WATER MANAGEMENT DIVISION**  
 3550 North Central Avenue, Phoenix, Arizona 85012  
 Phone (602) 771-8585 Fax (602) 771-8688

**NEW WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)**

Horizontal Extraction Well Well Registration Number 55- 212084  
 (FOR DEPARTMENT USE ONLY)

1. Well Location:

NE 1/4 of the SW 1/4 of the SE 1/4, Sec. 12, Township 19S Range 13E  
 10AC 40AC 160AC

2. Position Location of the Well:

Entrance Latitude 32° 13' 29.55" Longitude 110° 58' 4.66"  
 Exit Latitude 32° 21' 21.13" Longitude 110° 57' 51.95"  
 3. County PIMA CO.

4. Date construction to start: July 1, 2006

5. Time period well will remain in use: 30 Years

6. Is pump equipment to be installed? Yes If so, design pump capacity: 30 GPM.

7. Well construction plan: See Attached Drawings E-1 & E-2

a. Drilling method (mud rotary, hollow-stem auger, etc.) Horizontal Directionally Drilled w/ Mud rotary

b. Borehole diameters 18 inches from 0 feet to 85 feet, depth,  
18 inches from 0 feet to 1,400 feet, lineal.

c. Casing materials High-Density Polyethylene Plastic (HDPE)

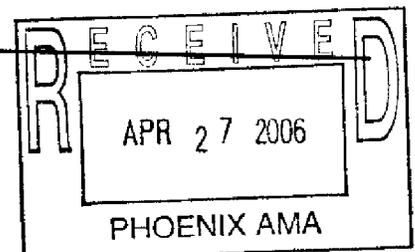
d. Method of well development (bail, air lift, surge, etc.) air lift and pump

e. Will surface or conductor casing extend above grade? No

8. Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 et. seq. Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.

9. Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):

Neat Cement w/ removal of top 20 feet.



10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? \_\_\_ Yes  No

11. Is this well to monitor existing contamination? \_\_\_ Yes  No

Potential contamination?  Yes \_\_\_ No If yes, please provide explanation: \_\_\_\_\_

Free-Phase Hydrocarbons Present. ADEQ Facility ID# 0-008574/LOST # 3953

12. Will the proposed well be a replacement well in the same location (A.R.S. §§ 45-596 and 45-597, A.A.C. R12-15-840)? A replacement well is one located no more than 660 feet from the original well that it is replacing, and which is not expected to withdraw on an annual basis more groundwater than historical annual withdrawals from the original well. \_\_\_ Yes  No

If yes then indicate the following:

(a) Record the registration number for the well that will be replaced: 55- N/A

(b) Will the original well to be replaced be N/A Capped, N/A Abandoned N/A Other.

If Other, please explain: N/A

13. Name of Consulting firm, if any : ERM-West, INC.

7272 E. Indian School Rd., Suite 100, Scottsdale, AZ 85251  
Address City State Zip

Contact Person: Jeff Drzewiecki Telephone Number 480-498-2401

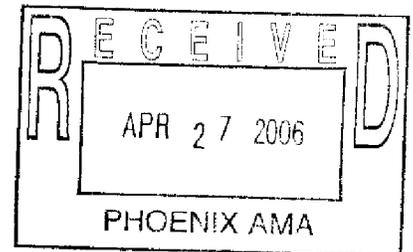
14. Drilling firm To be determined.

DWR License Number: \_\_\_\_\_ ROC License Category: \_\_\_\_\_

15. Special construction standards, if any, required pursuant to A.A.C. R12-15-821: \_\_\_\_\_

I (we), Jeffrey A. Drzewiecki hereby swear that all information provided in this application is true and correct to the best of my/our knowledge and belief.  
(print name) for Ed Hanig

Signature of Applicant [Signature] Date 4/21/06

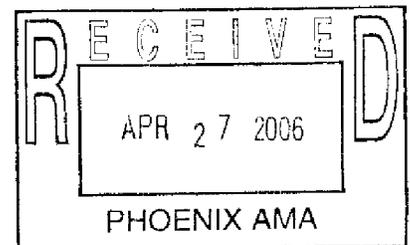


**EXHIBIT A**

**DWR FORM 516  
APPLICATION FOR PERMIT TO WITHDRAW  
POOR QUALITY WATER WITHIN AN  
ACTIVE MANAGEMENT AREA (A.R.S. § 45-516)**

**FACILITY LOCATION SUPPLEMENTAL DETAIL**

- 1) PASSENGER DEPOT SITE - Township 14 South, Range 13 East, Section 12
- 2) 22<sup>ND</sup> STREET FUELING FACILITY SITE- Township 14 South, Range 14 East, Section 20
- 3) 31<sup>ST</sup> STREET SITE- Township 14 South, Range 14 East, Section 20
- 4) 34<sup>TH</sup> STREET SITE - Township 14 South, Range 14 East, Section 21



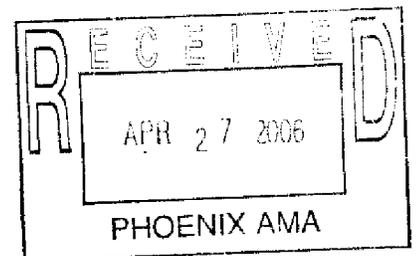
**EXHIBIT B**

**DWR FORM 516  
APPLICATION FOR PERMIT TO WITHDRAW  
POOR QUALITY WATER WITHIN AN  
ACTIVE MANAGEMENT AREA (A.R.S. § 45-516)**

**STATE REGULATORY PROGRAM SUPPLEMENTAL DETAIL**

Remedial action at Passenger Depot Site is performed in accordance with the Arizona Department of Environmental Quality (ADEQ) leaking underground storage tank program. Remedial actions at 22<sup>nd</sup> Street Fueling Facility, 31<sup>st</sup> Street, and 34<sup>th</sup> Street Sites are performed in accordance with the ADEQ volunteer remediation program. ADEQ site identification numbers are:

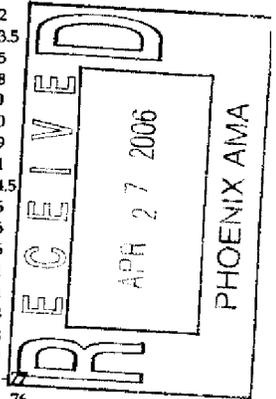
- 1) PASSENGER DEPOT SITE - ADEQ Facility # 0-008574/LUST File #3953.03
- 2) 22<sup>ND</sup> STREET FUELING FACILITY SITE - ADEQ VRP Site Code #501994-00
- 3) 31<sup>ST</sup> STREET SITE - ADEQ VRP Site # 502305-00
- 4) 34<sup>TH</sup> STREET SITE - ADEQ VRP Site Code # 502304-00





**EXHIBIT D**  
**Remediation and Monitoring Well Data**  
**Union Pacific Railroad Company**  
**Tucson, Arizona**

Site	Well ID	ADWR Req. #	Township	Range	Section	10 Acre	40 Acre	160 Acre	Casing Diameter (inches)	Casing Type	Well Depth (feet bgs)	Screen Interval (feet bgs)
Passenger Depot Site	MW-PD-1	55-571702	14 S	13 E	12	NW	NW	SE	4	PVC	69.5	49.5 - 69.5
	MW-PD-2	55-571705	14 S	13 E	12	SE	NW	SE	4	PVC	70.5	50.5 - 70.5
	MW-PD-3	55-571703	14 S	13 E	12	SE	NE	SW	4	PVC	68	53 - 68
	MW-PD-4	55-571710	14 S	13 E	13	NE	NE	NE	4	PVC	85	70 - 85
	MW-PD-5	55-571709	14 S	13 E	12	NE	SE	SE	4	PVC	86	66 - 86
	MW-PD-6	55-571707	14 S	13 E	12	NW	SE	SE	4	PVC	88	58 - 88
	MW-PD-7	55-571704	14 S	13 E	12	SW	NE	SE	4	PVC	79	59 - 79
	MW-PD-8	55-571713	14 S	13 E	13	SW	NE	NE	4	PVC	98	73 - 98
	MW-PD-9	55-571712	14 S	13 E	13	SE	NE	NE	4	PVC	90.5	75.5 - 90.5
	MW-PD-10	55-571706	14 S	13 E	12	NW	SW	SE	4	PVC	85	65 - 85
	MW-PD-11	55-571711	14 S	13 E	13	NE	NW	NE	4	PVC	91.5	71.5 - 91.5
	MW-PD-12	55-575075	14S	13E	12	NW	SW	SE	4	PVC	85.5	65.5 - 85.5
	MW-PD-13	55-575616	14S	13E	12	NW	NE	SW	4	PVC	78	58 - 78
	MW-PD-14	55-576297	14S	13E	12	SE	NW	SE	4	PVC	82	52 - 82
	MW-PD-15	55-576300	14S	13E	12	NE	NE	SW	4	PVC	76	51 - 76
	MW-PD-16	55-576298	14S	13E	12	SE	NE	SW	4	PVC	82	57 - 82
	MW-PD-17	55-576299	14S	13E	12	SE	NW	SE	4	PVC	81	51 - 81
	MW-PD-18	55-578710	14S	13E	12	NW	SE	SW	4	PVC	82.5	57.5 - 82.5
	MW-PD-19	55-581740	14S	13E	12	SE	NW	SE	5	PVC	193	153 - 193
	MW-PD-20	55-902365	14S	13E	12	SW	SW	SE	4	PVC	97.5	67.5 - 97.5
	MW-PD-21	55-902366	14S	13E	12	SE	SE	SW	4	PVC	90	60 - 90
	MW-PD-22	55-902368	14S	13E	12	SW	SE	SW	4	PVC	83	53 - 83
	MW-PD-23	55-902369	14S	13E	12	NW	SE	SW	4	PVC	82	62 - 82
	MW-PD-24	55-902371	14S	13E	12	SW	NE	SW	4	PVC	84.5	63.5 - 84.5
	MW-PD-25	55-902372	14S	14E	7	SW	SW	SW	4	PVC	95	70 - 95
	MW-PD-26	55-902374	14S	14E	18	NW	NW	NW	4	PVC	98	73 - 98
	MW-PD-27	55-902375	14S	13E	12	NE	SE	SE	4	PVC	90	70 - 90
	MW-PD-28	55-902376	14S	13E	12	SW	NE	SE	4	PVC	90	70 - 90
	MW-PD-29	55-902377	14S	13E	12	SE	NW	SE	4	PVC	89	59 - 89
	MW-PD-30	55-902378	14S	13E	12	NW	NW	SE	4	PVC	81	61 - 81
	MW-PD-31	55-902379	14S	13E	12	NW	NE	SW	4	PVC	84.5	64.5 - 84.5
	MW-PD-32	55-904282	14S	13E	12	NE	SW	SE	4	PVC	86	66 - 86
	MW-PD-33	55-904283	14S	13E	12	NE	SW	SE	4	PVC	86	66 - 86
	MW-PD-34	55-904284	14S	13E	12	NE	SW	SE	4	PVC	86	66 - 86
	MW-PD-35	55-904285	14S	13E	12	NE	SW	SE	4	PVC	91	71 - 91
	MW-PD-36	55-904286	14S	13E	12	NW	SE	SE	4	PVC	91	71 - 91
PT-1	55-574265	14S	13E	12	NW	SW	SE	4	PVC	78	63 - 78	
PT-2	55-574266	14S	13E	12	NW	SW	SE	4	PVC	78	63 - 78	
PT-3	55-574264	14S	13E	12	NW	SW	SE	4	PVC	78	63 - 78	
IW-PD-01	55-583968	14S	13E	12	NW	NE	SW	4	PVC	77	22 - 52, 62	
IW-PD-02	55-583967	14S	13E	12	NW	NE	SW	4	PVC	76	22 - 52, 61 - 76	
IW-PD-03	55-588781	14S	13E	12	NE	SW	SE	4	PVC	86	26 - 56, 66 - 86	
IW-PD-04	55-590040	14S	13E	12	SW	SE	SE	4	PVC	93	73 - 93	
IW-PD-05	55-590041	14S	13E	12	SW	SE	SE	4	PVC	93	73 - 93	
IW-PD-06	55-593343	14S	13E	12	SE	SW	SE	4	PVC	88	23 - 58, 68 - 88	
EW-PD-01	55-583972	14S	13E	12	NW	NE	SW	4	PVC	73.5	53.5 - 73.5	
EW-PD-02	55-583971	14S	13E	12	NW	NE	SW	4	PVC	74	54 - 74	
EW-PD-03	55-583970	14S	13E	12	NW	NE	SW	4	PVC	78	58 - 78	
EW-PD-04	55-583969	14S	13E	12	NW	NE	SW	4	PVC	82	62 - 82	
EW-PD-05	55-583966	14S	13E	12	NW	NE	SW	4	PVC	82	62 - 82	
EW-PD-06	55-588782	14S	13E	12	NE	SW	SE	4	PVC	83	63 - 83	
EW-PD-07	55-588780	14S	13E	12	NE	SW	SE	4	PVC	88.5	68.5 - 88.5	
EW-PD-08	55-588779	14S	13E	12	NE	SW	SE	4	PVC	89	69 - 89	
EW-PD-09	55-590042	14S	13E	12	SW	SE	SE	4	PVC	93	73 - 93	
EW-PD-10	55-590043	14S	13E	12	SW	SE	SE	4	PVC	93	73 - 93	
EW-PD-11	55-590044	14S	13E	12	SW	SE	SE	4	PVC	93	73 - 93	
EW-PD-12	55-590045	14S	13E	12	SW	SE	SE	4	PVC	95	75 - 95	
EW-PD-13	55-590046	14S	13E	12	SW	SE	SE	4	PVC	90	75 - 90	
EW-PD-14	55-593341	14S	13E	12	NW	SW	SE	4	PVC	83	66 - 83	
EW-PD-15	55-593342	14S	13E	12	NW	SW	SE	4	PVC	84.5	69.5 - 84.5	
EW-PD-16	55-593344	14S	13E	12	SE	SW	SE	4	PVC	87.5	72.5 - 87.5	
SP-MW-1	55-571702	14S	13E	12	NW	NW	SE	4	PVC	69	49 - 69	
MW-22-1	55-571740	14 S	14 E	20	SW	NW	NW	4	PVC	131.5	111.5 - 131.5	
MW-22-2	55-571716	14 S	14 E	18	SE	SE	SE	4	PVC	127.5	107.5 - 127.5	
MW-22-3	55-571739	14 S	14 E	20	SE	NW	NW	4	PVC	117.5	97.5 - 117.5	
MW-22-4	55-571715	14 S	14 E	18	SW	SE	SE	4	PVC	129.5	109.5 - 129.5	
MW-22-5	55-571718	14 S	14 E	19	NE	SE	NE	4	PVC	141	116 - 141	



**Remediation and Monitoring Well Data  
Union Pacific Railroad Company  
Tucson, Arizona**

Site	Well ID	ADWR Reg. #	Township	Range	Section	10 Acre	40 Acre	160 Acre	Casing Diameter (inches)	Casing Type	Well Depth (feet bgs)	Screen Interval (feet bgs)	
22nd Street Fueling Facility Site	MW-22-6	55-571738	14 S	14 E	20	NW	NE	NW	4	PVC	135	105 - 135	
	MW-22-7	55-571714	14 S	14 E	17	SW	SW	SW	4	PVC	117	97 - 117	
	MW-22-8	55-572872	14 S	14 E	20	NW	NW	NW	4	PVC	113	98 - 113	
	MW-22-9	55-574978	14S	14E	19	NE	NE	NE	4	PVC	130.5	110.5 - 130.5	
	MW-22-10	55-576423	14S	14E	19	NW	NW	NW	4	PVC	126.5	101.5 - 126.5	
	MW-22-11	55-578713	14S	14E	19	NW	NW	NE	4	PVC	121.5	106.5 - 121.5	
	MW-22-12	55-578714	14S	14E	19	SW	NW	NE	4	PVC	122	102 - 122	
	MW-22-13	55-578715	14S	14E	19	SE	SW	NE	4	PVC	121.5	101.5 - 121.5	
	MW-22-14	55-581741	14S	14E	20	NW	NE	NW	5	PVC	266	226 - 266	
	EW-22-15	55-587534	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-16	55-599670	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-17	55-599671	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-18	55-599672	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-19	55-599673	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-20	55-599674	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-21	55-599669	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-22	55-599666	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	EW-22-23	55-599675	14S	14E	20	NW	NW	NW	4	PVC	129	109 - 129	
	IW-22-24	55-587535	14S	14E	20	NW	NW	NW	4	PVC	129	24 - 99, 109 - 129	
	IW-22-25	55-599668	14S	14E	20	NW	NW	NW	4	PVC	129	24 - 99, 109 - 129	
	IW-22-26	55-599667	14S	14E	20	NW	NW	NW	4	PVC	129	24 - 99, 109 - 129	
	MW-22-27	55-902344	14S	14E	20	NW	SW	NW	4	PVC	132.5	112.5 - 132.5	
	MW-22-28	55-902347	14S	14E	20	SW	NE	NW	4	PVC	127	107 - 127	
	MW-22-29	55-902348	14S	14E	20	NE	NW	NW	4	PVC	124.5	104 - 124.5	
	MW-22-30	55-904280	14S	14E	20	NE	NW	NW	4	PVC	127	107 - 127	
	MW-22-31	55-902349	14S	14E	19	NE	NE	NE	4	PVC	137	112 - 137	
	MW-22-32	55-902350	14S	14E	19	NW	NE	NE	4	PVC	135	105 - 135	
	MW-22-33	55-902351	14S	14E	19	NW	SE	NE	4	PVC	126	106 - 126	
	MW-22-34	55-902352	14S	14E	19	SW	NE	NE	4	PVC	124	104 - 124	
	MW-22-35	55-902353	14S	14E	19	SW	NE	NE	4	PVC	127	102 - 127	
	MW-22-36	55-902354	14S	14E	19	NW	NW	NE	4	PVC	128	108 - 128	
	MW-22-37	55-902355	14S	14E	19	NW	NW	NE	4	PVC	130	105 - 130	
	MW-22-38	55-902356	14 S	14 E	18	SE	SW	SE	4	PVC	118	103 - 118	
	MW-22-39	55-902357	14 S	14 E	18	SW	SE	SE	4	PVC	137	112 - 137	
	MW-22-40	55-902359	14 S	14 E	18	SE	SW	SE	4	PVC	125	100 - 125	
	MW-22-41	55-902360	14S	14E	19	NW	NW	NE	4	PVC	125	105 - 125	
	MW-22-42	55-902364	14S	14E	19	NW	NW	NE	4	PVC	124	104 - 124	
	MW-22-43	55-904281	14S	14E	19	SW	SE	NE	4	PVC	142	122 - 142	
	31st Street Site	MW-31-1	55-570912	14 S	14 E	20	SE	NE	SE	4	PVC	143	123 - 143
		MW-31-2	55-572756	14 S	14 E	20	NE	NW	SE	4	PVC	140	120-140
		MW-31-3	55-572758	14 S	14 E	20	SE	NE	SE	4	PVC	147.5	127.5-147.5
		MW-31-4	55-575619	14 S	14 E	20	NE	NW	SE	2	steel	273	243-273
		MW-31-5	55-571634	14 S	14 E	20	SW	SW	NE	4	PVC	148	118-148
MW-31-6		55-572757	14 S	14 E	20	SE	NE	SE	4	PVC	150.5	130.5 - 150.5	
MW-31-9		55-572754	14 S	14 E	20	NE	NW	SE	4	PVC	145.5	125.5 - 145.5	
MW-31-12		55-572753	14 S	14 E	20	SW	NE	SE	4	PVC	158.5	128.5 - 158.5	
MW-31-13		55-575617	14 S	14 E	20	NE	NW	SE	2	steel	278	248 - 278	
MW-31-14		55-575618	14 S	14 E	20	NE	NW	SE	2	steel	272.5	242.5 - 272.5	
MW-31-16		55-585114	14S	14E	20	SE	NE	SE	4	PVC	145	123 - 145	
MW-31-17		55-585111	14S	14E	20	SE	NE	SE	4	PVC	148	128 - 148	
IW-31-1		55-585112	14S	14E	20	SE	NE	SE	4	PVC	149	24 - 119, 129 - 149	
IW-31-2		55-585110	14S	14E	20	SE	NE	SE	4	PVC	148.50	118.5 - 148.5	
IW-31-3		55-586135	14S	14E	20	SE	NE	SE	4	PVC	149	24 - 119, 129 - 149	
EW-31-1		55-586136	14S	14E	20	SE	NE	SE	4	PVC	149	129 - 149	
EW-31-2	55-586134	14S	14E	20	SE	NE	SE	4	PVC	149	129 - 149		
EW-31-3	55-585109	14S	14E	20	SE	NE	SE	4	PVC	149	134 - 149		
EW-31-4	55-900531	14S	14E	21	NE	SW	SW	4	PVC	150	135 - 150		
34th Street Site	MW-34-1	55-570911	14 S	14 E	21	SE	SW	SW	2	steel	270.5	240.5 - 270.5	
	MW-34-4	55-572972	14 S	14 E	21	NE	SW	SW	2	steel	285	255 - 285	
	MW-34-6	55-572974	14 S	14 E	21	SW	SW	SW	2	steel	285	255 - 285	
	MW-34-8	55-572970	14 S	14 E	21	SE	SW	SW	5	PVC	282	252 - 282	
	MW-34-9	55-572971	14 S	14 E	21	NW	SE	SW	5	PVC	282	252 - 282	
MW-34-11	55-900530	14S	14E	21	NE	SW	SW	4	PVC	286.5	256.5 - 286.5		

**RECEIVED**  
 APR 27 2006  
 PHOENIX AMA

Note EW = Extraction Well      bgs = below ground surface  
 IW = Injection Well              PVC = polyvinyl chloride  
 HEW = Horizontal Extraction Well      HDPE = high-density polyethylene



**Arizona Department of Water Resources**  
 Water Management Support Section  
 3550 N. Central Ave. Suite 200, Phoenix, Az 85012  
 (602) 771 8500 — (800) 352-8488  
 www.water.az.gov

**Certification to the Notice of Intention to Drill a Remediation Well within an Active Management Area Pursuant to A.R.S. § 45-454(C) & (F)**

**Remediation Well Certification of Compliance with A.R.S. § 45-454(C) or Request for Exemption Pursuant to A.R.S. § 45-454(F)**

FILE NUMBER
WELL REGISTRATION NUMBER 55 -

Effective January 1, 2006, Arizona Revised Statute (A.R.S.) § 45-454(C) prohibits the drilling of an exempt well (a well that has a maximum pump capacity of not more than thirty-five gallons per minute and that is used only for non-irrigation purposes) on land if any part of the land is within 100 feet of the operating water distribution system of a municipal water provider that has an assured water supply designation (designated water provider) within the boundaries of an Active Management Area (AMA) as shown on a digitized service area map provided to the Director by the municipal provider and updated by the municipal provider as specified by the Director.

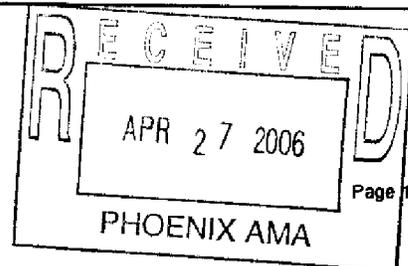
A remediation well drilled for the purpose of remediating groundwater (a monitor or environmental well with an anticipated level of production high enough to require establishing an end use, for example a pump and treat or plume control operation) is exempt from A.R.S. § 45-454(C) if it meets one of the following exemptions under A.R.S. § 45-454(F):

1. The remediation well is for an approved Department of Environmental Quality or United States Environmental Protection Agency remediation program.
2. A registered geologist certifies that the remediation well is for the purpose of remediation.

In order to obtain authority to drill an exempt for the purpose of remediating groundwater within an AMA, you must fill out the appropriate box below certifying compliance with A.R.S. § 45-454(C) or requesting an exemption pursuant to A.R.S. § 45-454(F).

CERTIFICATION OF COMPLIANCE WITH A.R.S. § 45-454(C)	
<input checked="" type="checkbox"/>	I certify that no portion of the land on which the proposed exempt well is to be drilled is within one hundred feet of the operating water distribution system of a municipal water provider with an assured water supply designation as shown on the provider's most recent digitized service area map on file with the Arizona Department of Water Resources. I understand that this condition may change prior to the commencement of well drilling and that if, at the time drilling is to commence, the land is within one hundred feet of the operating water distribution system of a municipal water provider with an assured water supply designation as shown on the provider's most recent digitized service area map on file with the Department, the well may not be drilled unless I apply for and am granted an exemption pursuant to A.R.S. § 45-454(F). <i>(If your exempt well falls into this category, complete "Signature" and submit the form)</i>

Continued on Reverse



REQUEST FOR EXEMPTION PURSUANT TO A.R.S. § 45-454(B)

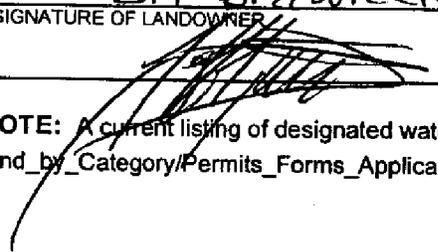
The land on which the proposed exempt well is to be drilled is within one hundred feet of the operating water distribution system of a municipal water provider with an assured water supply designation as shown on the most recent service area map provided by the municipal provider to the Director of the Arizona Department of Water Resources. Name of municipal provider: \_\_\_\_\_

In accordance with A.R.S. § 45-454(F), I am requesting exemption #   pursuant to A.R.S. § 45-454(F)(1) (Check One) or (2) as applicable. I certify that I meet the requirements for the exemption.

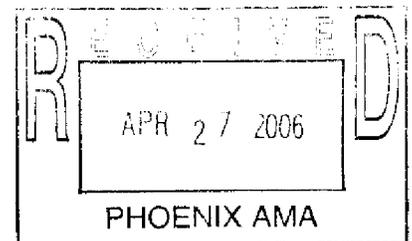
**NOTE:** You must attach to this form evidence of the applicability of the exemption as follows:

Exemption #1: Documentation demonstrating that the well is for an approved Department of Environmental Quality or United States Environmental Protection Agency remediation program.

Exemption #2: A copy of a registered geologist's certification that the well is for the purpose of remediation.

SIGNATURE	
TYPE OR PRINT NAME OF LANDOWNER	
JEFF DRAPEWIECKI for Union Pacific Railroad Co.	
SIGNATURE OF LANDOWNER	DATE SIGNED
	4/21/06

**NOTE:** A current listing of designated water providers may be found at: [http://www.azwater.gov/dwr/Content/Find\\_by\\_Category/Permits\\_Forms\\_Applications/Files/AssuredWaterSupply/List\\_of\\_Designated\\_Providers\\_2005.pdf](http://www.azwater.gov/dwr/Content/Find_by_Category/Permits_Forms_Applications/Files/AssuredWaterSupply/List_of_Designated_Providers_2005.pdf).



CAD File: G:\0020543\22\002054322-09.dwg  
 Drawn By: A. GRIEGO  
 Date: 04/20/06  
 Project No: 0020543.22

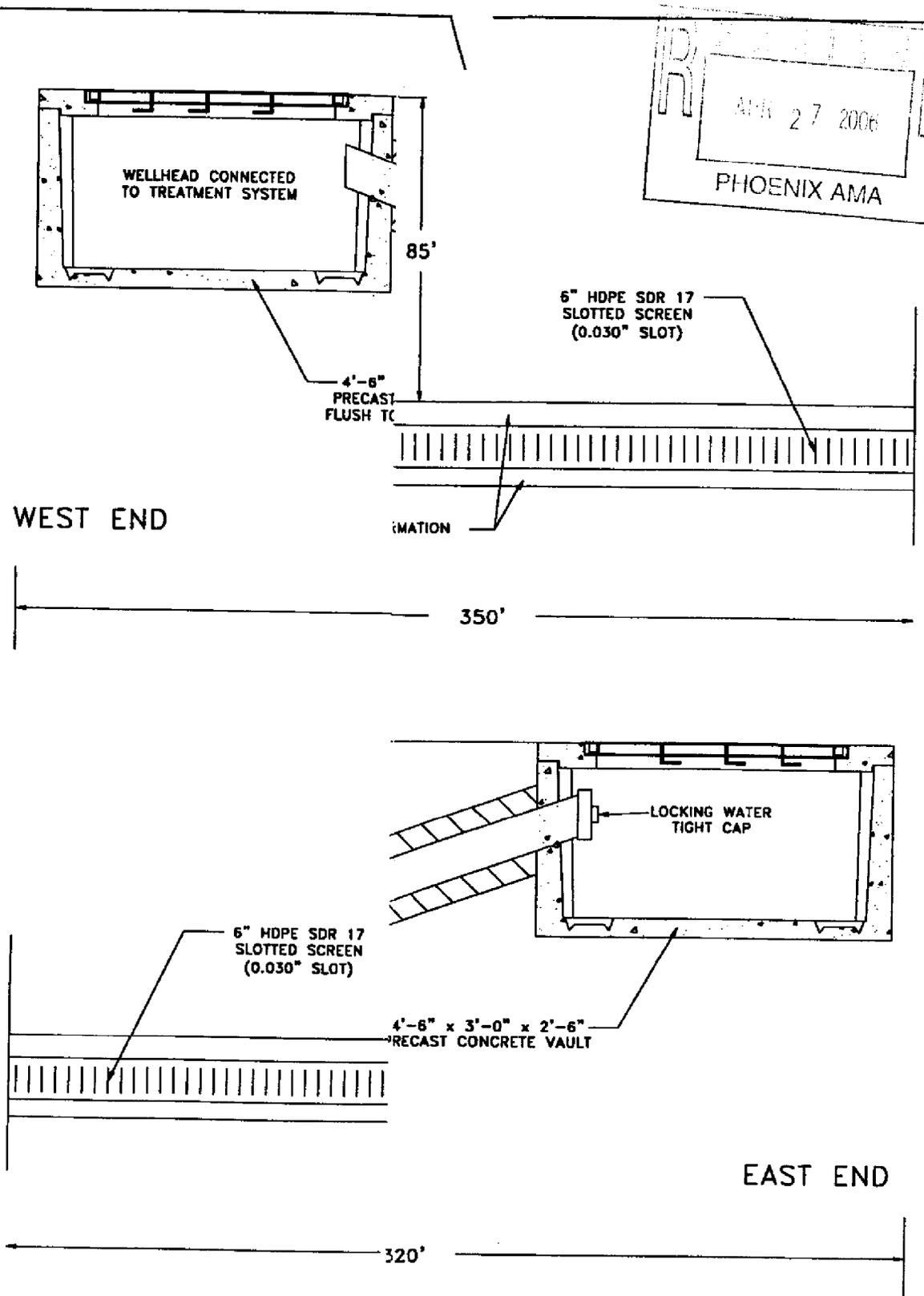
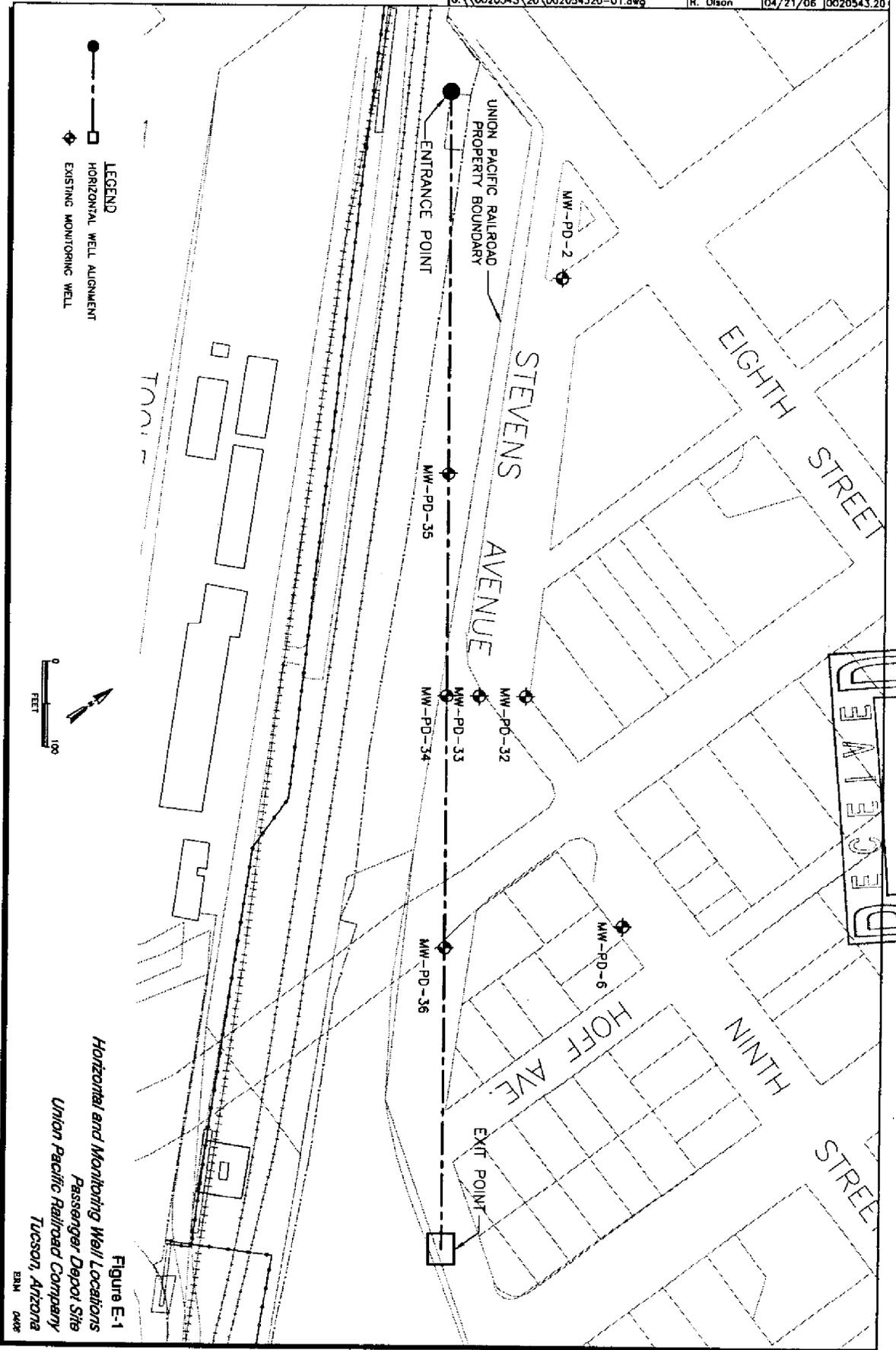


Figure E-2  
 Horizontal Boring Well Construction Plan  
 Passenger Depot Site  
 Union Pacific Railroad Company  
 Tucson, Arizona



**Figure E-1**  
 Horizontal and Monitoring Well Locations  
 Passenger Depot Site  
 Union Pacific Railroad Company  
 Tucson, Arizona  
 ENM 0405

UNION PACIFIC RAILROAD COMPANY  
ENVIRONMENTAL MANAGEMENT

R. M. (Bob) Grimails  
Assistant Vice President-Environmental  
(402) 271-4344

L. A. (Lanny) Schmid  
Director Environmental Field Operations  
(402) 271-2262

J. R. (Joel) Strafelda  
Program Manager-Site Remediation  
(402) 271-6572



Mailing Address:  
Room 930  
1416 Dodge Street  
Omaha, NE 68179  
Fax: (402) 271-4461

R. L. (Rick) Eades  
Director Environmental Field Ops-North  
(402) 661-6825

G. (Glenn) Thomas  
Director Environmental Field Ops-South  
(281) 350-7542

B. A. (Brock) Nelson  
Director Environmental Field Ops-West  
(916) 786-6370

Arizona Department of Water Resources  
Groundwater Management Support Section  
Notice of Intent Unit  
500 North 3<sup>rd</sup> Street  
Phoenix, AZ 85004-3921

RE: Delegation of Signature Authorization

Dear Department of Water Resources:

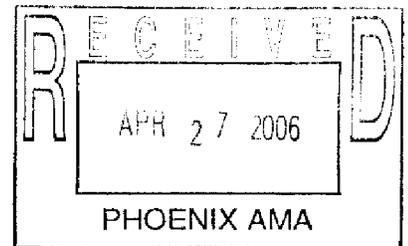
This letter confirms that Union Pacific Railroad Company has given its signature authority to Environmental Resources Management (ERM) for the purpose of well permitting.

If you have any questions, please do not hesitate to contact me.

Sincerely Yours,

A handwritten signature in black ink, appearing to read "Edwin H. Honig".

Edwin H. Honig P.E.  
Project Manager  
Union Pacific Railroad



## Exhibit F

### *No Other Beneficial Use and Consistency with Management Plan Demonstration*

---

#### **NO OTHER PRESENT BENEFICIAL USE**

Pursuant to the permit sought in this Application, UPRR plans to extract up to 100 acre-feet per year of groundwater as a part of remedial actions to recover mobile light nonaqueous-phase liquid (LNAPL), also referred to as #2 fuel oil, from the Tucson AMA. UPRR is unaware of a present beneficial use for this groundwater other than the beneficial use for which UPRR intends it, as discussed below.

#### **CONSISTENCY WITH MANAGEMENT PLAN**

UPRR's withdrawal of the groundwater is consistent with the Tucson AMA's Third Management Plan because this remedial method is the most efficient in these circumstances and because the withdrawn groundwater has a beneficial end use.

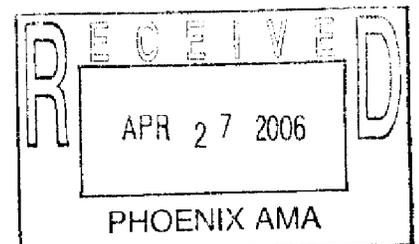
#### **Background Regarding the Remedial Method: Multi-Phase Extraction (MPE)**

On behalf of UPRR, ERM evaluated and selected the most technically and economically feasible remedial actions to remediate mobile LNAPL at UPRR's Passenger Depot, 22<sup>nd</sup> Street, and 31<sup>st</sup> Street Sites. The remedial action objectives (RAOs) at these sites are to:

- Protect the perched groundwater zone as a beneficial resource;
- Mitigate the spreading of LNAPL to non-impacted subsurface media; and
- Recover LNAPL to the maximum extent practicable.

A remedial alternatives evaluation was conducted to identify the three most promising remedial alternatives. The remedial action alternatives retained for full evaluation were:

- Treatment via LNAPL skimming;
- Treatment via multi-phase extraction (MPE); and
- Treatment via dual-pump recovery.



Based on the evaluation, MPE was determined to be the most effective remedial alternative to meet the RAOs, and therefore, MPE remediation systems were installed and are operating at the Passenger Depot, 22<sup>nd</sup> Street, and 31<sup>st</sup> Street sites with the primary purpose of reducing LNAPL impacts in the source. The current MPE systems (systems) include a series of multi-use extraction/injection wells and centralized remediation compounds.

Multi-use extraction/injection wells were generally installed with approximately 150-foot centers. Extraction and injection wells are constructed of 4-inch diameter poly vinyl chloride (PVC) materials and installed to varying depths depending on the site location.

Extraction wells are connected to underground conveyance piping to convey recovered fluids to centralized remediation compounds. At each centralized remediation compound, the extracted fluids (LNAPL, groundwater, and vapor) are passed through a vapor/liquid separator. Groundwater and LNAPL are further transferred to an oil/water separator to separate LNAPL from the groundwater. Recovered LNAPL is temporarily stored in a double-walled fuel holding tank and is periodically removed by a licensed oil recycler. Recovered groundwater is currently reinjected into the aquifer within the radius of influence of the extraction well field.

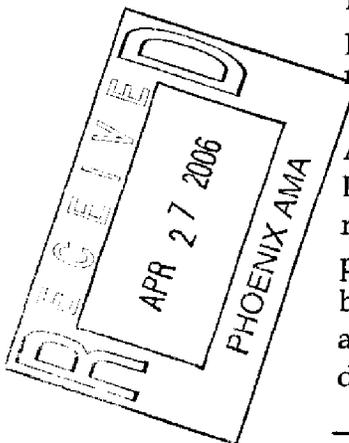
#### **Future Remediation Activities**

UPRR has plans to install additional groundwater remediation systems at the Passenger Depot and 34<sup>th</sup> Street Sites.

##### *Passenger Depot Site*

As part of UPRR's cleanup strategy to address LNAPL within off-property areas, UPRR is implementing a pilot study to evaluate horizontal extraction well technology. The pilot study evaluation will provide information regarding LNAPL recovery rate, site-specific design parameters, and feasibility data with respect to project site operations, regulatory acceptance, and cost.

An electric submersible pump will be used to extract groundwater and LNAPL from the horizontal recovery well to an aboveground, centralized remediation compound. The groundwater/LNAPL mixture will be pumped directly into an oil/water separator. The separated LNAPL will be decanted into a storage tank and the extracted water will be directed to a clean water tank where it will be discharged to the sanitary sewer, as discussed below.



### 34<sup>th</sup> Street Site

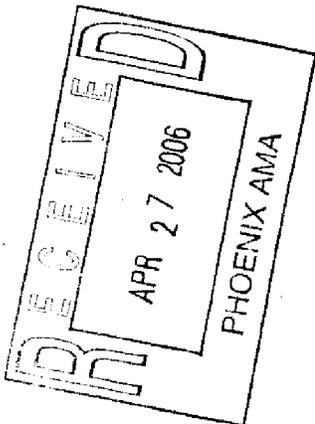
Planned remediation activities include the conversion of existing well MW-34-8 from a monitoring well to a groundwater and LNAPL extraction well and the installation of an aboveground, centralized remediation compound. Implementation of remedial actions at the 34<sup>th</sup> Street Site will be consistent with the RAO criteria listed above except that the remedial action will protect the regional aquifer (not the perched).

### Beneficial End Use

Currently, the groundwater treated at the sites is returned to the aquifer via injection wells. Since the remedial alternatives evaluation was conducted, however, UPRR has determined that aquifer injection is no longer a feasible alternative for the following reasons:

- Injection well efficiency has decreased significantly over time despite significant injection well maintenance. The current injection well configuration no longer has the capacity to accept the volume of effluent water generated by the systems. This decrease in efficiency has resulted in increasing system down time and, consequently, a decrease in the systems' capacities to recover LNAPL.
- Additional remediation systems (horizontal extraction well pilot study) with treatment capacities greater than the existing systems are scheduled for construction. The number and size of injection wells required to reinject the effluent water from these systems is not feasible.
- Additional extraction wells will be added to the existing systems to increase the areal extent of LNAPL recovery. This will increase the volume of effluent water generated, which necessitates the need for an alternate method of disposition.
- Injecting effluent water hinders the systems' ability to recover LNAPL to the maximum extent practicable.

After an examination of disposal alternatives, including a beneficial end use plan/feasibility study presented below, UPRR plans to discharge to Pima County's Roger Road Wastewater Treatment Plant (Roger Road WWTP) located on the eastern bank of the Santa Cruz River, west of Interstate-10 on Roger Road. According to the most recently published Pima County Effluent Generation and Utilization Report (2005), the Roger Road WWTP received 40,957.80 (+/- 5%) acre-feet (AF) water in 2004, is



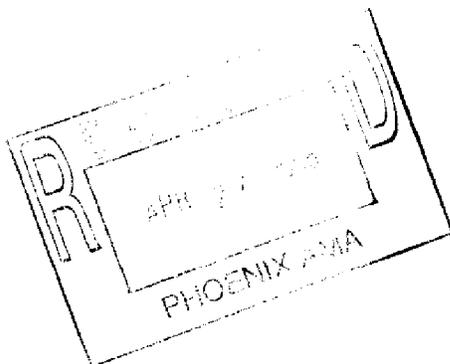
capable of treating 41 million gallons per day (MGD), and received daily average flows of approximately 36 MGD (Pima County, 2005).

Treated effluent from this facility is utilized for plant irrigation, recharge into the aquifer through the base of the Santa Cruz River, and the City of Tucson reclaimed water system. Specifically in 2004, 4.81 AF of effluent were used for plant irrigation; 26,985.10 AF of effluent were discharged into the Santa Cruz River for storage in the two managed groundwater recharge projects (upper and lower Santa Cruz managed recharge); and 12,101.39 AF of effluent were diverted to the City of Tucson's Sweetwater Facility for use at the Kino Environmental Restoration Project. The remaining 533.50 AF were used for irrigation at the Silverbell Golf Course (Pima County, 2005).

The portion of the effluent attributable to UPRR's sewer discharge is neutral to the groundwater basin, as it adds to the aquifer through the Santa Cruz recharge basins and replaces an existing groundwater use in the same AMA. Therefore, the water that UPRR discharges to the Roger Road WWTP will have a beneficial end use.

#### **Beneficial End Use/Feasibility Study**

ERM performed a feasibility study to evaluate and select the best effluent water disposition alternative. Several alternatives to perched aquifer zone injection were evaluated based on cost, effectiveness and performance (short- and long-term), implementability, risk (potentially impacting previously non-impacted surface and subsurface media), and if there was a recognized beneficial end use within the Tucson AMA. The alternatives included discharging to local storm drains after obtaining a stormwater discharge (AZPDES) permit, constructing and discharging to an evaporation pond, constructing and discharging to dry wells, constructing and discharging to a wetland, injecting to a deep (>2,000 feet) poor quality aquifer, and discharge to Pima County sewer system. Results of the evaluation are summarized in table E-1.



*Table F-1 Evaluation of Effluent Water Disposition Alternatives*

Evaluation Criteria	Effluent Water Disposition Alternatives					
	A1	A2	A3	A4	A5	A6
Cost	⊗	∅	•	∅	∅	⊗
Long-Term Effectiveness and Performance	⊗	⊗	∅	⊗	⊗	•
Short-Term Effectiveness and Performance	⊗	⊗	⊗	⊗	•	•
Implementability	∅	∅	•	∅	⊗	•
Risk	∅	∅	⊗	∅	∅	•
Beneficial use in AMA	⊗	∅	•	•	∅	•

Notes:

Relative performance of alternatives:

- = alternative adequately satisfies criterion
- ⊗ = alternative moderately satisfies criterion
- ∅ = alternative poorly satisfies criterion

Alternative 1 (A1) - Discharge to Storm Drain / AZPDES Permit

Alternative 2 (A2) - Evaporation Pond

Alternative 3 (A3) - Dry Wells

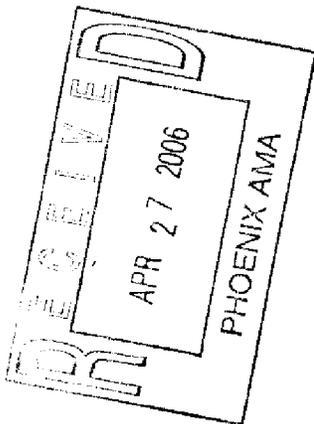
Alternative 4 (A4) - Wetlands

Alternative 5 (A5) - Injection to deep poor quality aquifer

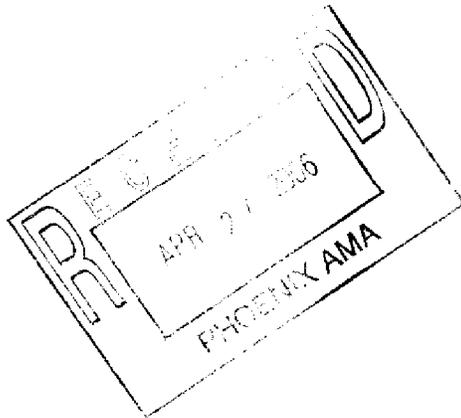
Alternative 6 (A6) - Discharge to Pima County Sewer

All but one of the alternatives were eliminated due to their high cost, poor effectiveness or performance, complex implementability, and high risk. Discharging treated effluent water to the Roger Road WWTP was determined to be the best alternative due to its effectiveness, relative ease of implementation, and low risk. Additionally, as noted, the water that UPRR will discharge will have a beneficial end use within the Tucson AMA.

In sum, due to the poor efficiency, complex implementability, high risk, and cost ineffectiveness of on-site effluent water disposition alternatives, UPRR has determined the most practical, economically feasible, and the disposal alternative resulting in the most beneficial end use of its effluent water is to discharge it to the Roger Road WWTP for treatment and reuse.



Reference: Pima County, 2005. The Pima County Effluent Generation and Utilization Report, 2004. Pima County Water Management Department.



## EXHIBIT G

### *Poor Quality Groundwater Estimates*

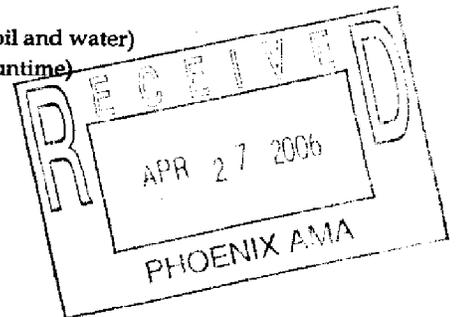
ERM calculated the projected groundwater withdrawal volumes for the existing and proposed remediation systems (Table 1). Input parameters for the calculations were based on historical withdraw flow rates, volumes, and operation times recorded during ERM's standard operation and maintenance activities, which are conducted weekly at each system. The existing systems have maximum flow rates of 5 to 15 gallons per minute with average yearly operation times of 75% to 90%, which includes periodic system shut down for maintenance, repair, and adjustment.

As indicated in Table 1, UPRR seeks to be permitted to withdraw 100 acre-feet per year of poor quality groundwater.

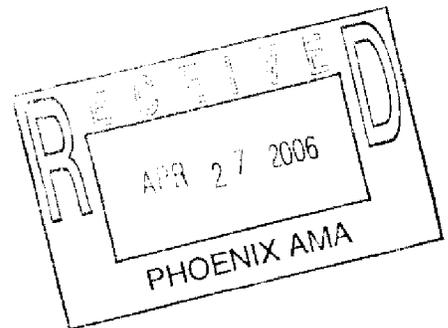
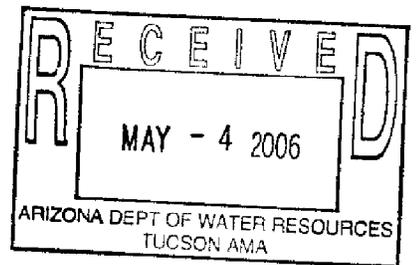
**Table 1 - Projected Groundwater Withdrawal Volumes**

	System Design (gpm)	System Design (ac-ft)	Expected Maximum (gpm)	Expected Maximum (ac-ft)/year	Yearly Operation Time	Projected Withdraw (ac-ft)/year
<b>Existing Systems</b>						
Passenger Depot 1	30	48	15	24	75%	18
Passenger Depot 2	15	24	10	16	75%	12
31 <sup>st</sup> Street PFE	10	16	5	8	75%	6
31 <sup>st</sup> Street Mainline	5	8	5	8	90%	7
22 <sup>nd</sup> Street	25	40	10	16	75%	12
					<b>Subtotal</b>	<b>55</b>
<b>Proposed Systems</b>						
Passenger Depot 3 - HWELL	35	56	30	48	80%	39
34 <sup>th</sup> Street	15	24	5	8	80%	6
					<b>Subtotal</b>	<b>45</b>
					<b>Total Projected Withdrawal</b>	<b>100</b>

System Design = system's designed maximum capacity to recover total fluids (#2 fuel oil and water)  
 Expected Maximum = system's maximum capacity to recover water (assuming 100% runtime)  
 gpm = gallons per minute  
 ac-ft/year = acre-feet per year  
 HWELL = Horizontal extraction well.



*Attachment B  
Horizontal Directionally Drilled  
Extraction Well Supplemental  
Detail*



## ATTACHMENT B

DWR FORM 516  
APPLICATION FOR PERMIT TO WITHDRAW  
POOR QUALITY WATER WITHIN AN  
ACTIVE MANAGEMENT AREA (A.R.S. § 45-516)

HORIZONTAL DIRECTIONALLY DRILLED  
EXTRACTION WELL  
SUPPLEMENTAL DETAIL

### Project scope

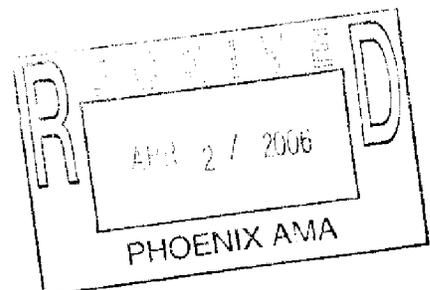
The continuous HDD well will consist of the following:

- The 700-foot well screen will be constructed from SDR 17 HDPE pipe with 0.030 inch sized slots arranged in three rows and separated by 0.5 inches; and
- Two 350-foot riser pipes will be constructed from SDR 17 HDPE pipe.

The CONTRACTOR will undertake the following steps prior to commencing drilling operations in a location that might contain underground facilities:

- Contact the utility location/notification service, if available, for the construction area;
- Positively locate and stake all existing lines, cables, or other underground facilities including exposing any facilities which are located within 10 feet of the designed drilled path;
- Modify drilling practices and downhole assemblies to prevent damage to existing facilities; and
- CONTRACTOR shall be responsible for locating any and all underground facilities regardless of UPRR's previous efforts in this regard.
- CONTRACTOR shall be responsible for all losses and repairs occasioned by damage to underground facilities resulting from drilling operations.

The well installation will consist of four phases:



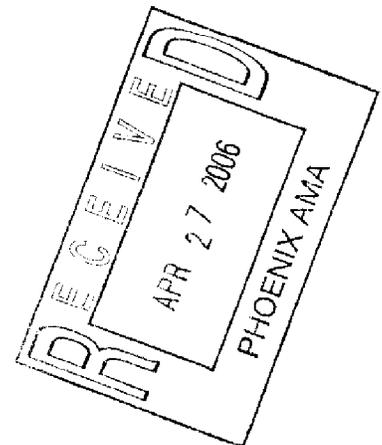
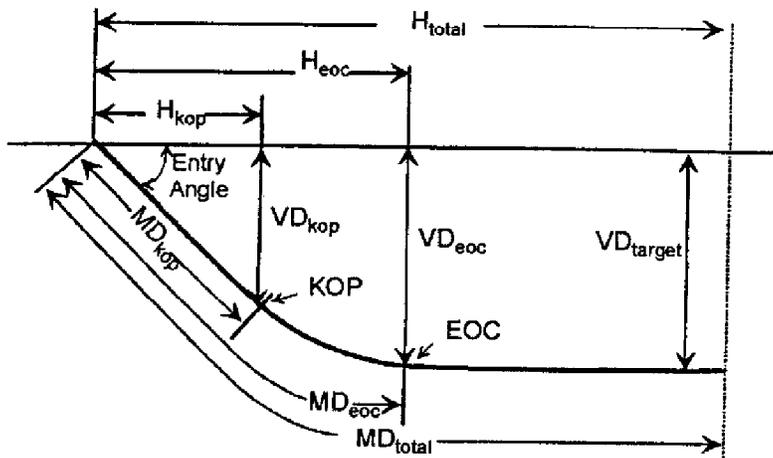
**Phase I**

The CONTRACTOR will drill a 9-inch diameter pilot hole along a designed directional path. The path specifications are contained in the following table.

Given	Entrance	Exit	
Entry Angle (°)	20	20	
Final Angle(°)	0	0	
Rad. of Curve (ft)	600	600	
BUR (°/100 ft)	9.55	9.55	
VD <sub>target</sub> (ft)	80	80	
HD <sub>target</sub> (ft)	700		
<b>Entrance (all units in feet)</b>			
VD <sub>kop</sub>	43.8		
MD <sub>kop</sub>	128.1	HD <sub>kop</sub>	120.4
MD <sub>eoc</sub>	337.5	HD <sub>eoc</sub>	325.6
L <sub>c</sub>	209.4		
MD <sub>eoh</sub>	1037.5	HD <sub>eoh</sub>	1025.6
<b>Exit (all units in feet)</b>			
VD <sub>kop</sub>	43.8		
MD <sub>kop</sub>	128.1	HD <sub>kop</sub>	120.4
MD <sub>eoc</sub>	337.5	HD <sub>eoc</sub>	325.6
L <sub>c</sub>	209.4		
<b>Total (all units in feet)</b>			
MD <sub>tot</sub>	1375	HD <sub>tot</sub>	1351

Where:

- bur Build Up Rate
- VD- Vertical Depth
- MD- Measured Depth
- HD- Horizontal Distance
- L<sub>c</sub>- Length of Curve
- kop- Kick-off-Point
- eoc- End of Curve
- target- Target Zone



The CONTRACTOR will utilize a HDD rig with a minimum thrust/pullback of 90,000 lbs, a mud recycling unit, a downhole mud motor or similar device, the drilling fluid will be BIO-BORE from Baroid IDP and a wireline guidance system. The pilot hole will be located at ±2 ft of the vertical depth. The CONTRACTOR shall at all times provide and maintain instrumentation which will accurately locate the pilot hole.

The wellbore curves shall be drilled at a radius equal to or greater than that of the plan. The drilled radius will be calculated over any three joint (range 2 drill pipe) segments using the following formula:

$$R_{drilled} = (L_{drilled}/A_{avg}) * 57.32$$

Where:  $R_{drilled}$  = drilled radius over  $L_{drilled}$

$L_{drilled}$  = length drilled, no less than 75 feet and no greater than 100 feet

Avg = total change in angle over  $L_{drilled}$

At the completion of pilot hole drilling, the CONTRACTOR will provide a tabulation of coordinates, referenced to the drilled entry point, which accurately describe the location of the pilot hole.

### ***Phase II***

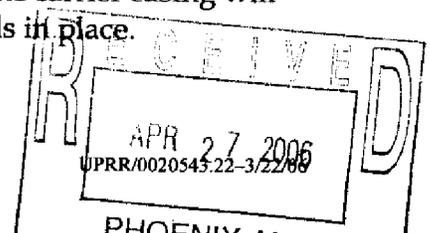
The CONTRACTOR will pre-ream the pilot hole to a diameter of approximately 16 inches, larger than the pilot hole and smaller than the final diameter of approximately 18 inches. There is sufficient room at the exit area to perform a push ream.

### ***Phase III***

The well materials will be constructed during the pilot hole drilling and the pre-ream. The well materials will be placed in a 10-inch diameter SDR 17 HDPE carrier casing of approximately 1,700 ft in length. There is sufficient room at the exit area to stage the complete carrier casing for installation. This method is patent protected and has the trade name of *SchumaFlow* and requires a site license that amounts to \$12/ft for total measure drilled distance.

### ***Phase IV***

Consists of a final reaming and pulling the carrier casing with the well materials into the enlarged hole. Once in place, the carrier casing will be filled with a solution of calcium hypochlorite and Aqua Clear MDA. The carrier casing will then be pulled from the wellbore, leaving the well materials in place.

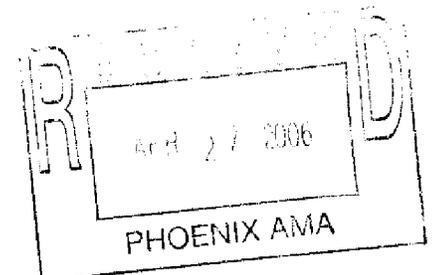


**Phase V**

The CONTRACTOR will inject cement into the annular space around the well screen to a distance of at least 60 ft of measured distance from the entrance and exit pits.

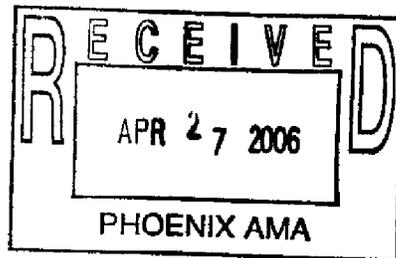
The CONTRACTOR shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, the CONTRACTOR shall take steps to restore circulation. If inadvertent surface returns of drilling fluids occur, they shall be immediately contained with hand placed barriers (i.e. hay bales, sands bags, silt fences, etc.) and collected using pumps as practical. If the amount of the surface return is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the surface return exceeds that which can be contained with hand placed barriers, small collection sumps (less than 5 cubic yards) may be used. If the amount of the surface return exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes can be brought under control. A boring log from a nearby well is provided in Appendix A. During final design, additional vertical wells will be installed along the horizontal well alignment to help define the horizontal well target depth target.

Disposal of excess drilling fluids is the responsibility of Union Pacific and shall be conducted in compliance with all environmental regulations, right-of-way and workspace agreements, and permit requirements. The CONTRACTOR shall be responsible for loading, transport, and unloading at the designated staging area.



**Environmental  
Resources  
Management**

7272 E. Indian School Rd.  
Suite 100  
Scottsdale, AZ 85251  
(480) 998-2401  
(480) 998-2106 (fax)



25 April 2006

Ms. Stella Murillo  
Arizona Department of Water Resources  
Water Management Support Section  
3550 N. Central Avenue  
Phoenix, AZ 85012

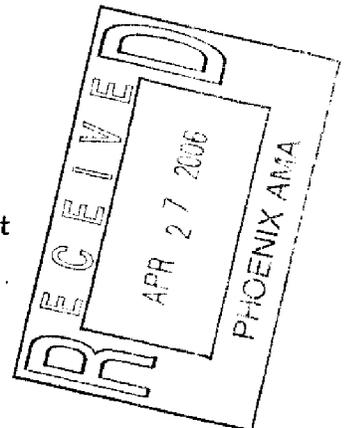


**Subject: Application for Permit to Withdraw Poor Quality  
Groundwater within an Active Management Area  
Union Pacific Railroad Company  
Pima County, Tucson Active Management Area**

Dear Ms. Murillo:

On behalf of Union Pacific Railroad Company (UPRR), ERM-West, Inc. (ERM) is pleased to submit UPRR's Application for Permit to Withdraw Poor Quality Groundwater within an Active Management Area (Application). UPRR seeks the permit to withdraw poor quality groundwater at remediation sites located within the Tucson Active Management Area (AMA). The following documents are included with this submittal:

- Site Figures 1 through 5
- Attachment A - Completed Application for Permit to Withdraw Poor Quality Groundwater Within an Active Management Area
  - Exhibit A - DWR Form 516-Facility Location Supplemental Detail
  - Exhibit B - DWR Form 516-State Regulatory Program Supplemental Detail
  - Exhibit C - Remediation Well Data
  - Exhibit D - Existing Remediation and Monitoring Well Data
  - Exhibit E - DWR Form 55-90-New Well Construction Supplement with Remediation Well Certification of Compliance with A.R.S. § 45-454(C) Form
  - Exhibit F - No Other Beneficial Use and Consistency with Management Plan Demonstration
  - Exhibit G - Poor Quality Groundwater Withdrawal Estimates



- Attachment B – Horizontal Directionally Drilled Extraction Well Supplemental Detail

### ***Introduction***

The Application concerns groundwater withdrawals at four individual remediation sites referred to as Passenger Depot Site, 22<sup>nd</sup> Street Fueling Facility Site, 31<sup>st</sup> Street Site, and 34<sup>th</sup> Street Site. UPRR is conducting remediation activities at these sites with oversight by the Arizona Department of Environmental Quality (ADEQ).

ERM currently operates five groundwater remediation systems to recover #2 fuel oil floating on the perched groundwater aquifer at three of these sites. These five groundwater remediation systems are referred to as follows:

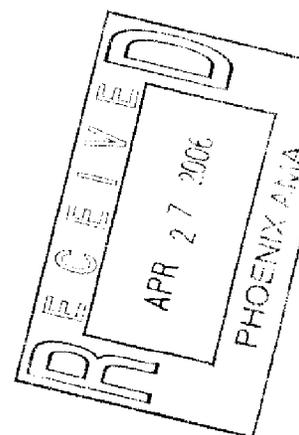
- PD-1 System – Passenger Depot Site;
- PD-2 System – Passenger Depot Site;
- 22<sup>nd</sup> Street System – 22<sup>nd</sup> Street Fueling facility Site;
- 31<sup>st</sup> Street PFE System – 31<sup>st</sup> Street Site; and
- 31<sup>st</sup> Street Mainline System – 31<sup>st</sup> Street Site.

In addition to these existing groundwater remediation systems, UPRR plans to construct two more systems as follows:

- PD-3 Horizontal Recovery Well System – Passenger Depot Site; and
- 34<sup>th</sup> Street System – 34<sup>th</sup> Street Site.

### ***Background***

UPRR has owned the property that encompasses the sites listed above since a 1997 merger with Southern Pacific Transportation Company, which had owned and operated the property since the late 19<sup>th</sup> Century. UPRR began investigation and remediation activities at the sites in 1998. Currently, 123 groundwater monitoring wells are used to monitor the presence of #2 fuel oil on the perched groundwater aquifer under the sites. (Attachment A, Exhibit D) The releases of #2 fuel oil are attributed to locomotive fueling activities, including leaking underground storage tanks and underground pipelines.



### *Passenger Depot Site*

The Passenger Depot Site is situated in downtown Tucson and includes 56 monitoring, extraction, and injection wells and two remediation systems (Figure 1). The Passenger Depot Site is in the ADEQ Tanks Division Program (UST Facility ID # 0-008574). UPRR plans to install a single horizontal extraction/remediation well, which will be operated as a third remediation system.

### *22<sup>nd</sup> Street Fueling Facility Site*

The 22<sup>nd</sup> Street Fueling Facility Site is located in the vicinity of 22<sup>nd</sup> Street and Campbell Avenue and includes 42 monitoring, extraction, and injection wells and one remediation system (Figure 2). The 22<sup>nd</sup> Street Site is in the ADEQ Voluntary Remediation Program (VRP Site ID # 501994-00).

### *31<sup>st</sup> Street Site*

The 31<sup>st</sup> Street Site is located within UPRR's Tucson Yard and includes 19 monitoring, extraction, and injection wells and two groundwater remediation systems (Pacific Fruit Express (PFE) and Main Line), as shown on Figure 3. The 31<sup>st</sup> Street Site is in the ADEQ Voluntary Remediation Program (VRP Site ID # 502305-00).

### *34<sup>th</sup> Street Site*

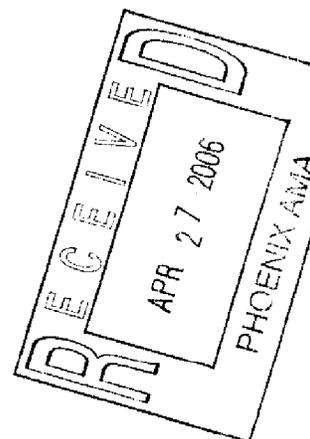
The 34<sup>th</sup> Street Site is located within UPRR's Tucson Yard and includes six groundwater monitoring wells (Figure 4). The 34<sup>th</sup> Street Site is in the ADEQ Voluntary Remediation Program (VRP Site ID # 502304-00).

### *Future Remediation Activities*

UPRR has plans to install two additional groundwater remediation systems: one at the Passenger Depot Site and another at the 34<sup>th</sup> Street Site.

### *Passenger Depot Site*

UPRR plans to install a single horizontal remediation well at the Passenger Depot Site, as shown on Figure 5. The horizontal remediation well will be installed and operated as a third remediation system to recover groundwater and #2 fuel oil. Attachment B details the construction and drilling plan for the horizontal recovery well pilot study. A completed



Ms. Stella Murillo  
25 April 2006  
Page 4

ADWR form 55-90, New Well Construction Supplement, for the horizontal recovery well is included with Attachment A (Exhibit E).

*34<sup>th</sup> Street Site*

Planned remediation activities include the conversion of existing well MW-34-8 from a monitoring well to a groundwater and #2 fuel oil extraction well and the installation of one remediation system.

ERM and UPRR appreciate your time to review the permit application. Please contact me or Doug Shenk with any questions or if you need additional information.

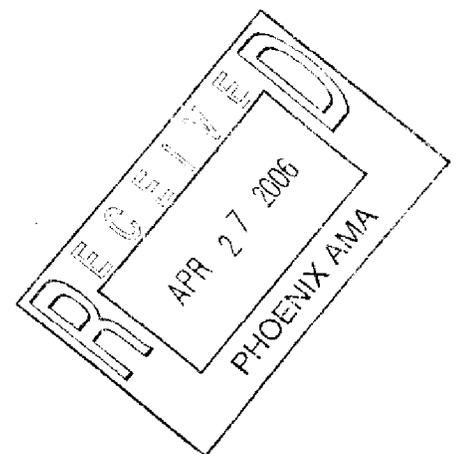
Sincerely,



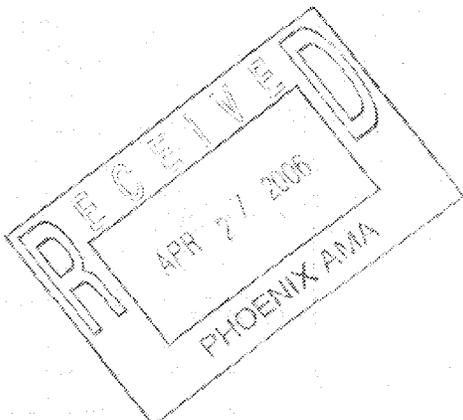
Jeff Drzewiecki  
*Senior Project Geologist*

JAD/djs/0020543/0020573/0020550  
Attachments

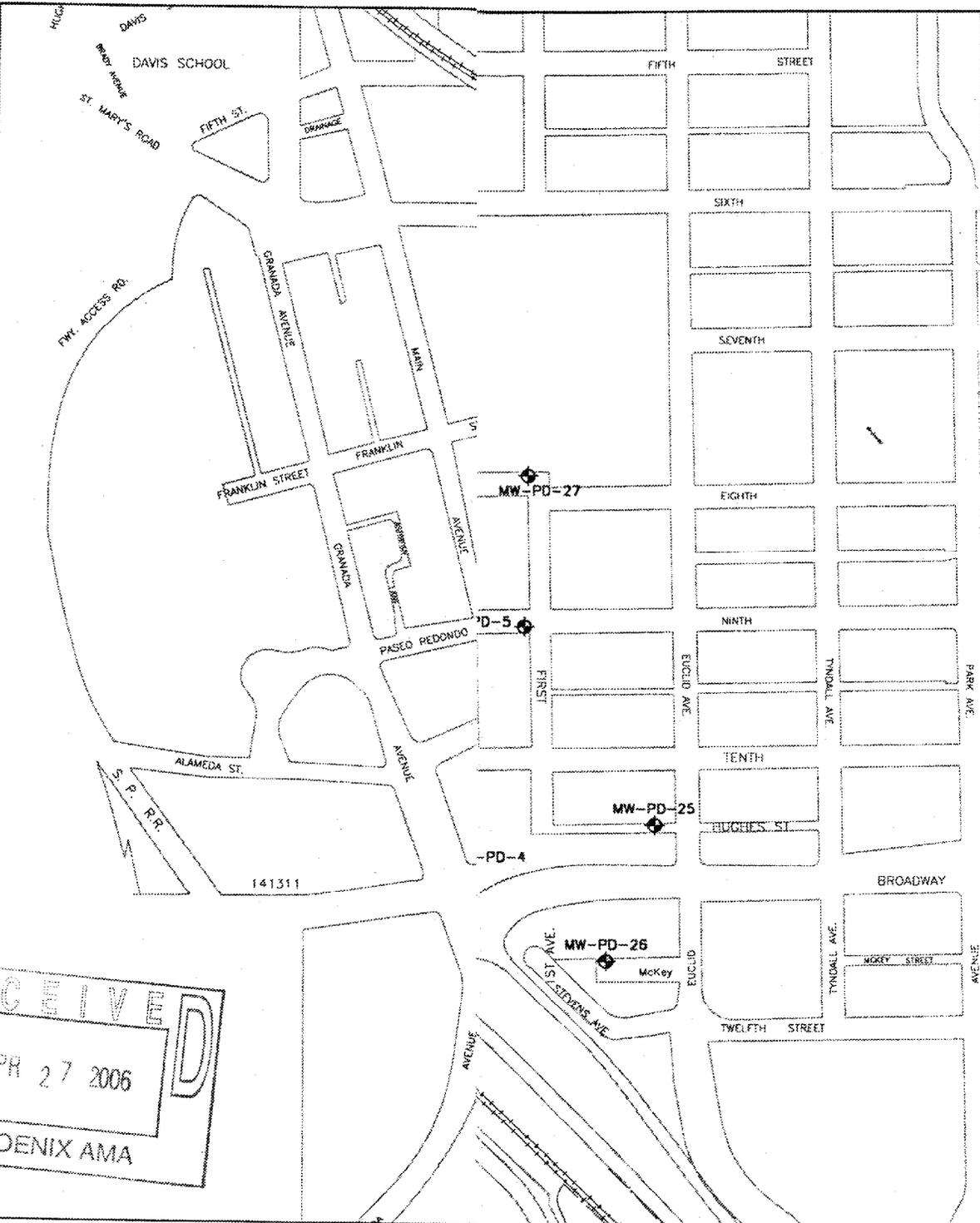
cc Ed Honig, Union Pacific Railroad Company  
Shannon Reif, Arizona Department of Water Resources (Exhibit E only)



*Figures*



CAD File: G:\0020543\16\002054316-02.dwg  
 Drawn By: R. Olson  
 Date: 04/05/06  
 Project No: 0020543.16



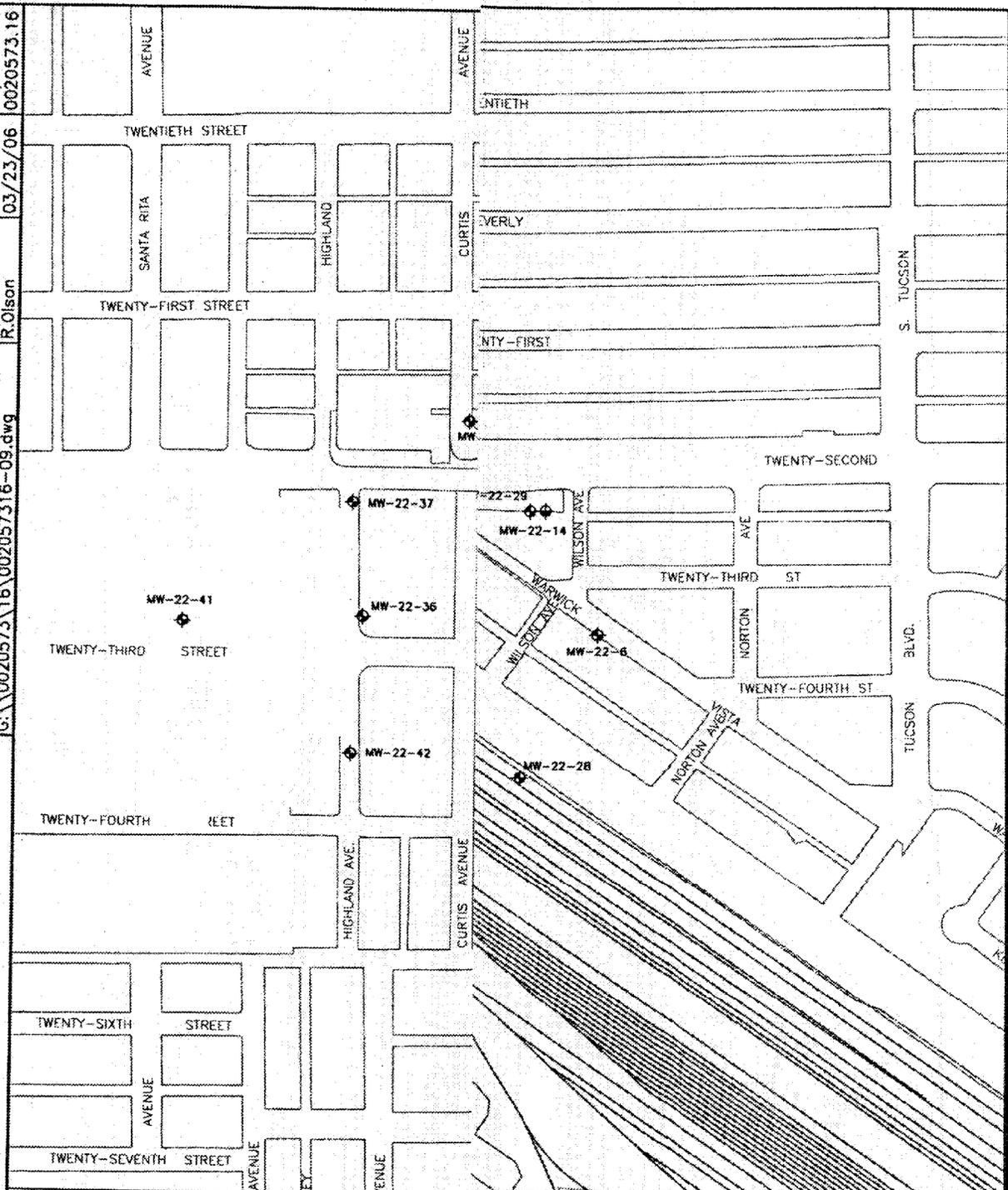
**RECEIVED**  
 APR 27 2006  
 PHOENIX AMA

**LEGEND**

- ◆ Perched Groundwater Zone Monitoring Well Lacc
- ◆ Existing Monitoring Well Location (Installed by c  
 TW=Trailways Well  
 YC=Yellow Cab Well  
 AZDEQ=Arizona Department of Environmental  
 Regional Aquifer Monitoring Well Location

**Figure 1**  
**Site Map**  
*Passenger Depot Site*  
*Union Pacific Railroad Company*  
*Tucson, Arizona*

CAD File: G:\0020573\16\002057316-09.dwg  
 Drawn By: R. Olson  
 Date: 03/23/06  
 Project No: 0020573.16



- LEGEND**
- ◆ Perched Groundwater Zone Monitoring Well
  - ⊕ Regional Aquifer Monitoring Well Location
  - ⊛ Extraction Well
  - ⊛ Injection Well

RECEIVED  
 APR 27 2006

Figure 2  
 22nd Street Site  
 Union Pacific Railroad Company  
 Tucson, Arizona

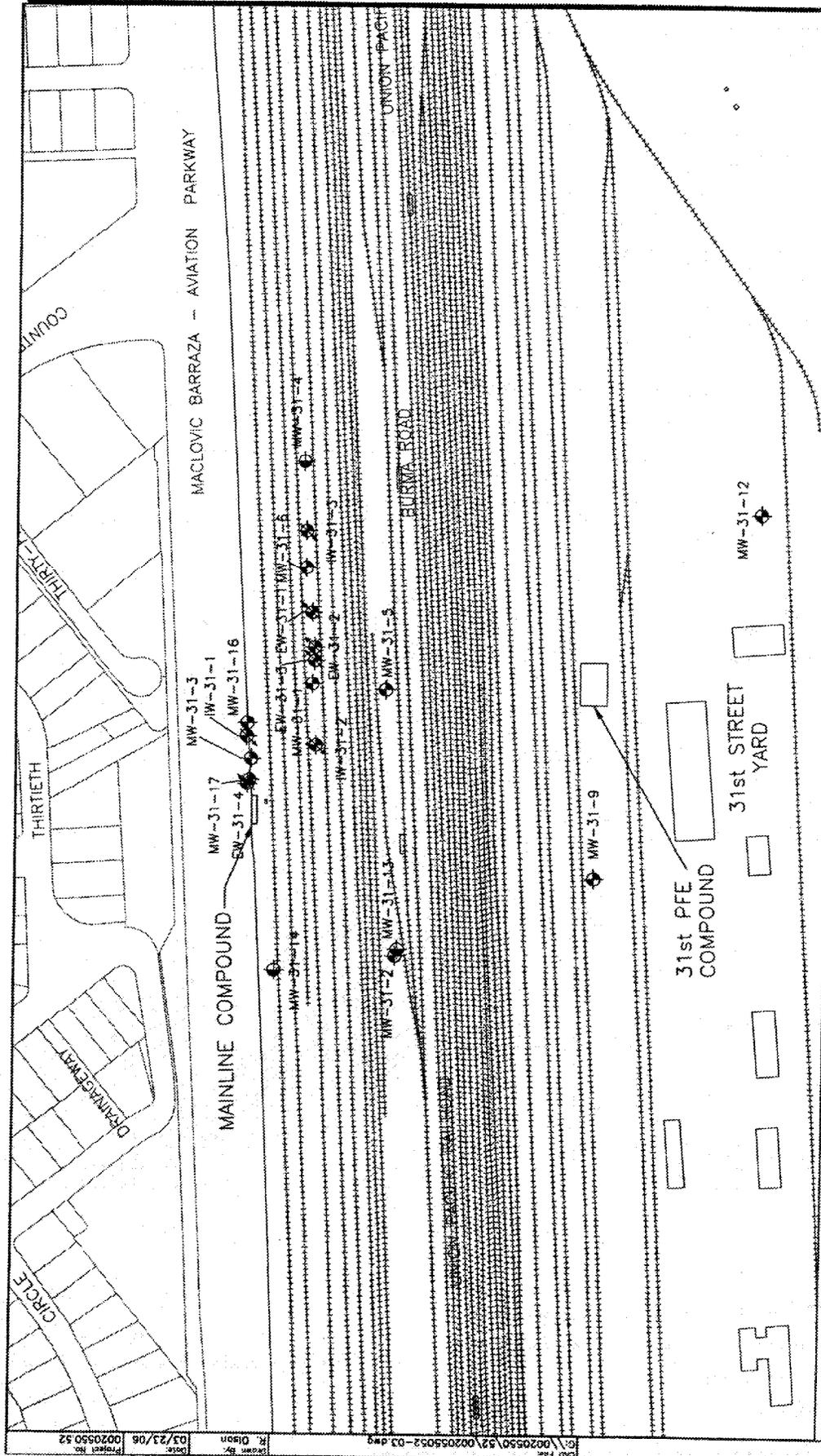
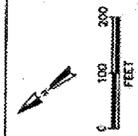


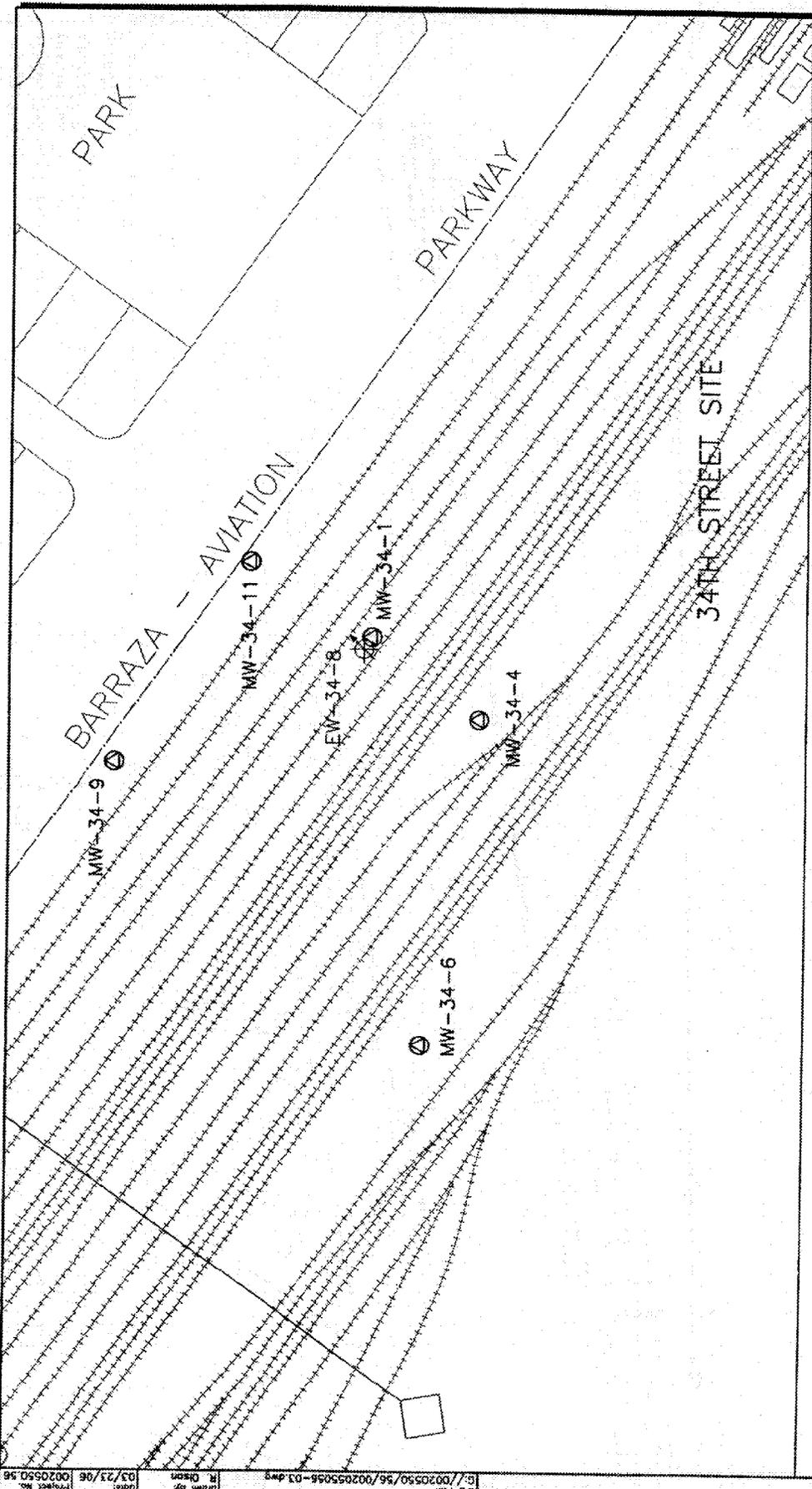
Figure 3  
 31st Street Site  
 Union Pacific Railroad Company  
 Tucson, Arizona  
 BRNA GROUP

RECEIVED  
 APR 27 2006  
 PHOENIX AMA



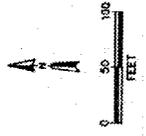
- LEGEND
- ◆ PERCHED GROUNDWATER ZONE MONITORING WELL
  - ◊ REGIONAL AQUIFER MONITORING WELL
  - ⊕ EXTRACTION WELL
  - # INJECTION WELL

03/23/06  
 Project No. 002055052  
 Date: 03/23/06  
 Drawn By: R. Olson  
 Scale: 1" = 100'



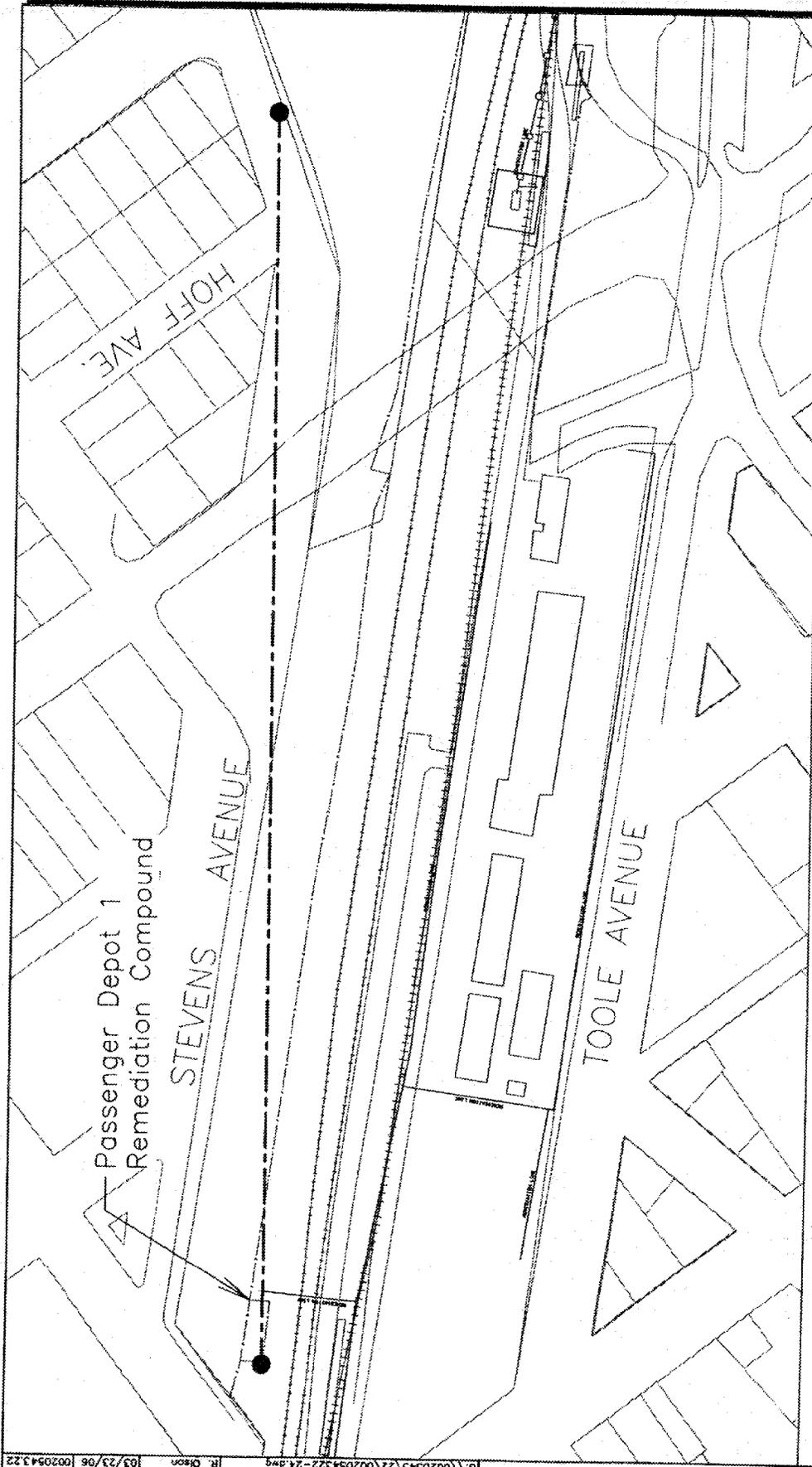
03/23/06  
 00205056  
 Project No.  
 03/23/06  
 00205056  
 Project No.  
 03/23/06  
 00205056  
 Project No.

**LEGEND**  
 Railroad Tracks  
 Regional Aquifer  
 Monitoring Well Location  
 Extraction Well



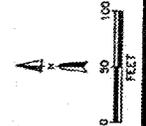
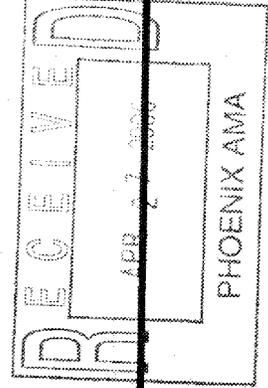
**RECEIVED**  
 APR 27 2006  
 PHOENIX AIA

Figure 4  
 34th Street Site  
 Union Pacific Railroad Company  
 Tucson, Arizona  
 ERM 04/06



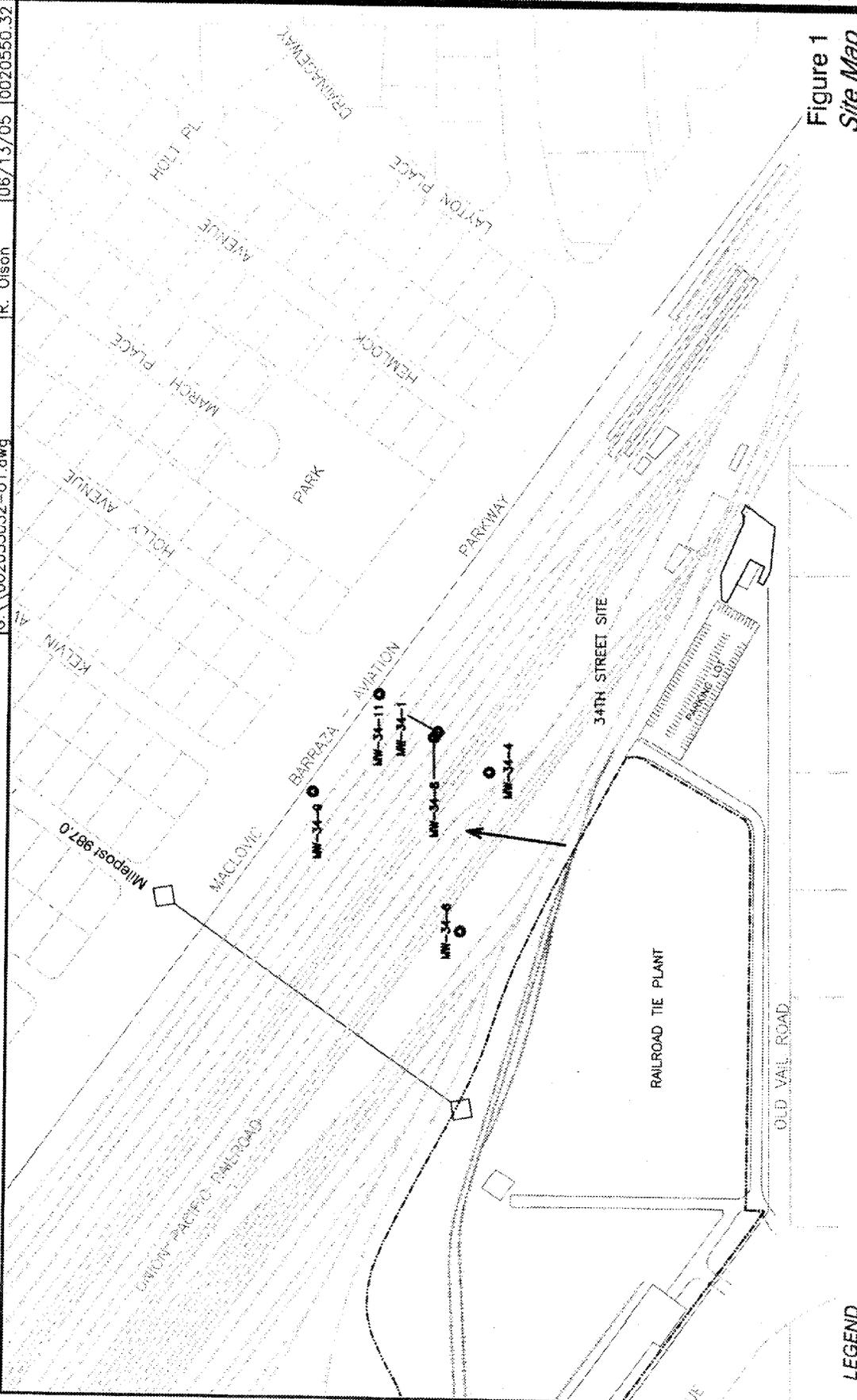
CD # 1020543\21\002054322-24.dwg  
 Drawn By: R. Olson  
 Date: 03/23/06  
 Project No: 0020543.22

Figure 5  
 Horizontal Boring Alignment  
 Passenger Depot Site  
 Union Pacific Railroad Company  
 Tucson, Arizona  
 BOM 0302



*Attachment A  
Poor Quality Water Permit  
Application*

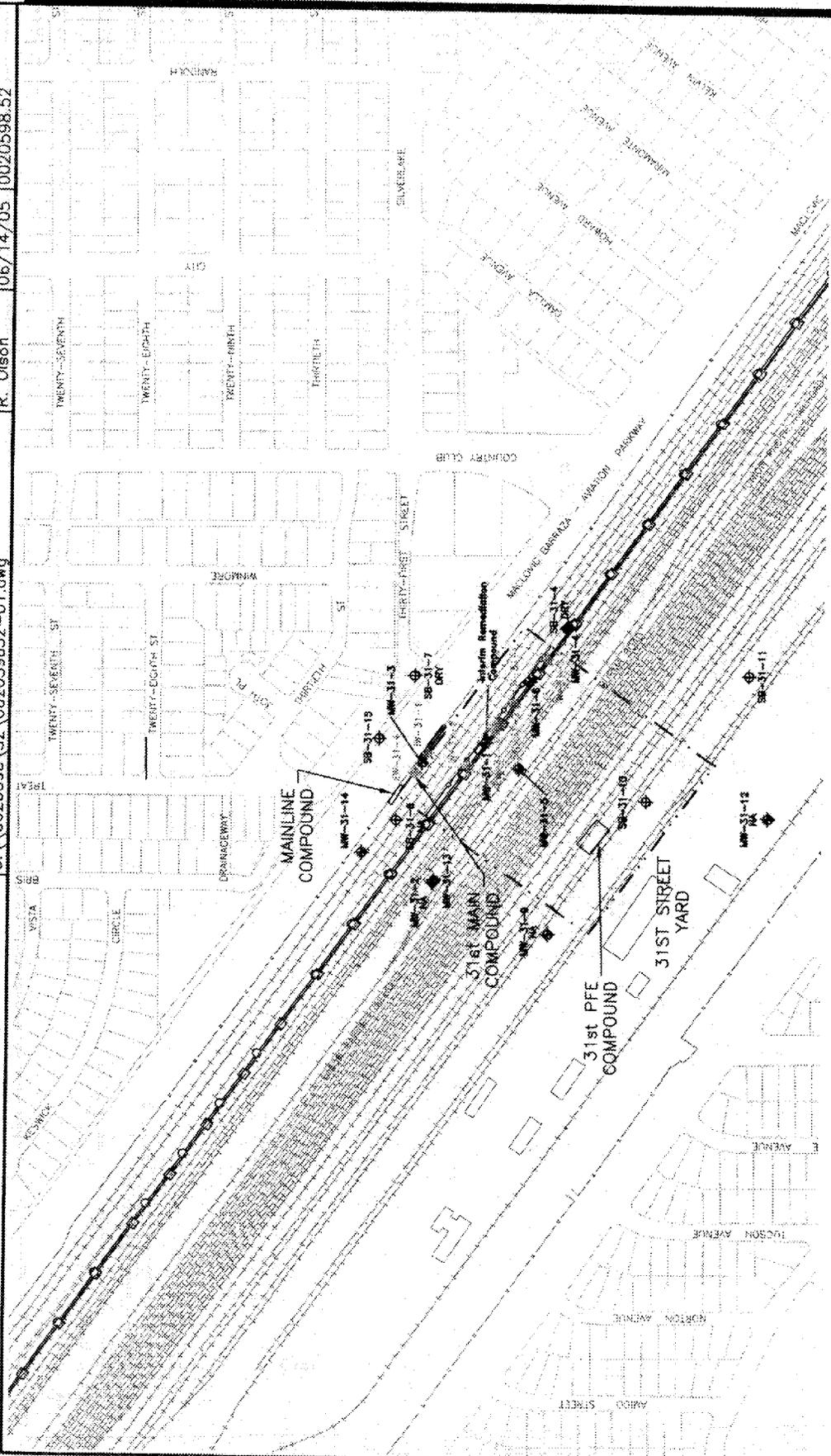
CAD File: G:\002055052-01.dwg  
 Drawn By: R. Olson  
 Date: 06/13/05  
 Account No: 0020550.32



**Figure 1**  
**Site Map**  
**34th Street Site**  
**Union Pacific Railroad Company**  
**Tucson, Arizona**

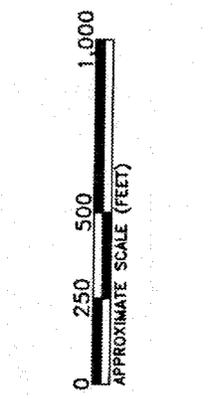
ERM 06/05

CAD File: C:\0020598\52\002059832-01.dwg  
 Drawn By: R. Olson  
 Date: 06/14/05  
 Project No: 0020598.52

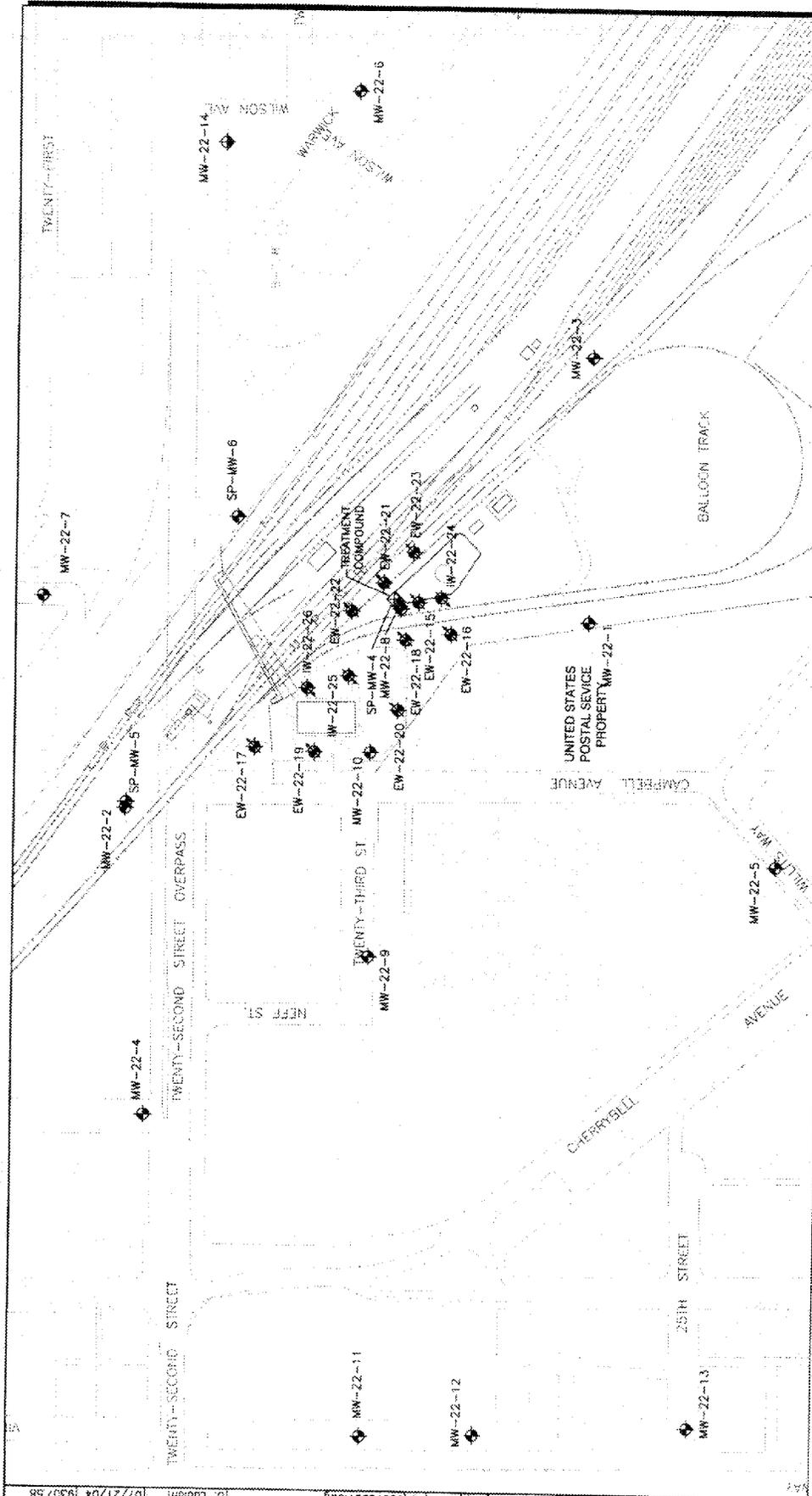


**Figure 1**  
**Site Plan**  
**31st Street Fueling Site**  
**Union Pacific Railroad Company**  
**Tucson, Arizona**

ERM 06/05



- LEGEND**
- Site Boundary
  - Monitoring Well Phase II
  - ⊕ Extraction Well
  - ⊖ Injection Well
  - ⊙ Soil Boring Location
  - NA No Free Phase Diesel Present in Well

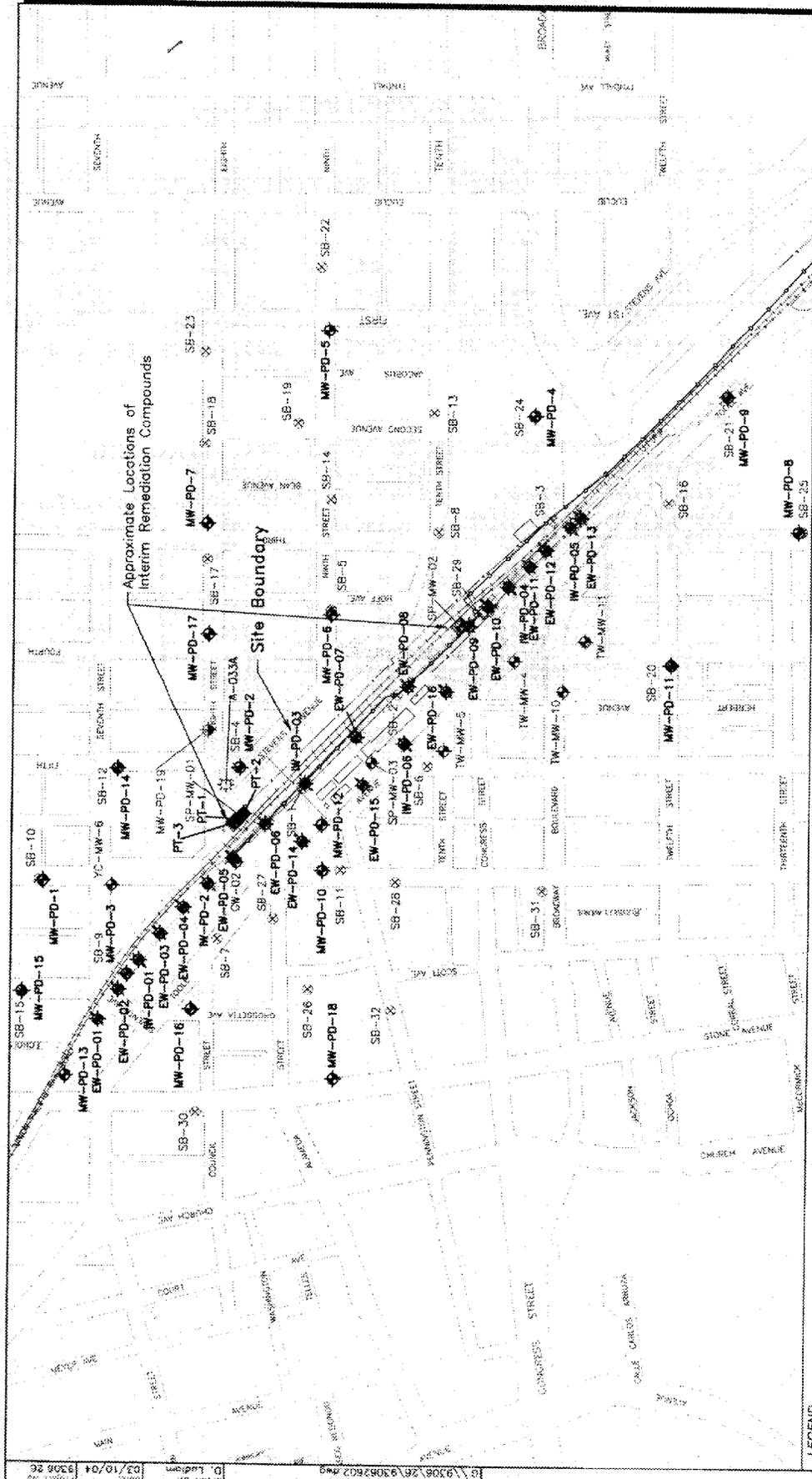


**Figure 2**  
**Well Location Map**  
**22nd Street Site**  
 Union Pacific Railroad Company  
 Tucson, Arizona

EDM 280.7

- LEGEND**
- ◆ Perched Groundwater Zone Monitoring Well Location
  - ◇ Regional Aquifer Monitoring Well Location
  - Former City of Tucson Regional Aquifer Well (Abandoned)
  - ✱ Extraction Well
  - ✱ Injection Well

0:\930758\93075801.dwg  
 D:\930758\93075801.dwg  
 07/21/04 9:30:58  
 D:\930758\93075801.dwg



**Figure 1-3**  
**Soil Boring and Well Location Map**  
 Passenger Depot Site  
 Union Pacific Railroad Company  
 Tucson, Arizona

ERM 08/07

- LEGEND**
- ⊗ Approximate Location of Former Fuel Pipeline
  - ◆ Soil Boring/Temporary Observation Point (ERM)
  - ◆ Existing Monitoring Well Location (Installed by others)
  - ◆ TW=Trailways Well
  - ◆ YC=Yellow Cab Well
  - ◆ Regional Aquifer Monitoring Well Location
  - ◆ Former City of Tucson Regional Aquifer Well (Abandoned)
  - ◆ Extraction Well
  - ◆ Injection Well



02/10/04  
 9308 26  
 9308 26  
 9308 26

**YEARLY WITHDRAWALS (gal)**

	1999	2000	2001	2002	2003
Passenger Depot 1	45,436	506,606	1,636,501	1,809,417	0
Passenger Depot 2	NA	NA	NA	NA	1,170
31st Street PFE	NA	NA	NA	22,227	17,623
31st Street Mainline	NA	9,020	20,640	31,437	17,623
22nd Street	NA	NA	42,400	94,560	55,440
<b>Total gallons</b>	<b>45,436</b>	<b>515,626</b>	<b>1,699,541</b>	<b>1,957,641</b>	<b>91,856</b>
<b>Total acre-feet</b>	<b>0.139447464</b>	<b>1.582505905</b>	<b>5.21605518</b>	<b>6.008190191</b>	<b>0.281914306</b>

**PROJECTED FUTURE WITHDRAWALS (MAXIMUM)**

System	System Design Flow Rate (gpm)	System Design (ac-ft)	Expected	Expected	Average Run-time Per Year
			Maximum (gpm)	Maximum (ac-ft)	
<b>Existing Systems</b>					
Passenger Depot 1	30	48.39	15	24.20	75%
Passenger Depot 2	15	24.20	10	16.13	75%
31st Street PFE	10	16.13	5	8.07	75%
31st Street Mainline	5	8.07	5	8.07	90%
22nd Street	25	40.33	10	16.13	75%
	<b>85</b>	<b>137.11</b>	<b>45</b>	<b>72.59</b>	
<b>Proposed Systems</b>					
PD Horizontal Well	35	56.46	30	48.39	80%
34th Street	15	24.20	5	8.07	80%

2004	(To date) 2005
29,153	49,006
151,650	387,870
22,457	7,069
22,457	2,462
14,631	35,547
<b>240,348</b>	<b>481,954</b>
<b>0.737649649</b>	<b>1.479162677</b>

**Projected  
Extraction  
Max. (ac-ft)**

18.15

12.10

6.05

7.26

12.10

**55.65**

38.71

6.45

**45.17**

<b>100.82</b>
---------------