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ARIZONA POLLUTANT DISCHARGE ELIMINATION SYSTEM (AZPDES) FACT SHEET

This document gives pertinent information concerning the issuance of the AZPDES permit listed below. This Green Valley BNROD is an extension of the Green Valley Wastewater Treatment Facility. The facility is a POTW with a design capacity of 4.1 MGD, and thus is considered to be a major facility under the AZPDES regulations. The effluent limitations contained in this permit will maintain the Water Quality Standards listed in Arizona Administrative Code (AAC.) R18-11-101 et. seq. Because this is a new permit, this permit is proposed to be issued for a term of **5 years**. The term of any subsequent renewal permit may be shortened to coincide with the Santa Cruz Watershed Basin schedule.

Permittee's Name: Pima County Wastewater Management Department
Mailing Address: 201 North Stone, 8th Floor
Tucson, Arizona 85701
Plant Location: 2201 North Nogales Highway
Tucson, Arizona 85614
Contact Person(s): Byron F Gaines, Deputy Director - Treatment Division
520-744-4236
AZPDES Permit No. AZ0024937
Inventory No. 100629

I. STATUS OF PERMIT(s)

Pima County has applied for a new Arizona Pollutant Discharge Elimination System (AZPDES) permit to allow the discharge of treated effluent from the Green Valley BNROD to Santa Cruz, a water of the United States.

The Green Valley BNROD is an extension of the Green Valley WWTF. The Green Valley WWTF has been issued: on 03/29/00 a Reclaimed Wastewater Reuse Permit (Permit# 100629) for beneficial irrigation; on 12/01/94 an Aquifer Protection Permit which was modified on 05/29/01. The reclaimed wastewater may be used as needed to irrigate approximately 228 acres of landscape located to the south and southeast of the treatment facility as delineated in the permit. The Permittee submitted an AZPDES permit application on 6/11/02.

During the review for 208 consistency, it was determined that an amendment of the Pima Association of Governments' Water Quality Management Plan would be necessary before an AZPDES permit could be issued to the Green Valley BNROD. The amendment has been approved and a finding of consistency with the 208 plan, as amended, was made on October 10, 2002.

II. GENERAL FACILITY INFORMATION

The original WWTF was constructed in December 1964 and expanded in July 1972. The treatment facility was again expanded and modified during 1980 through 1981 to accommodate increased flows. The present configuration is known as the Green Valley WWTF. The design of the new Biological Nutrient Removal Oxidation Ditch that parallels the treatment train has been completed. The BNROD will increase the capacity from 2.1 mgd (million gallons per day) to 4.1 mgd. The facility has a design capacity of 15,521.27 m³/day (4.1 mgd). Treatment includes aeration, clarification, sand filtration (tertiary), and disinfection of final effluent by chlorination. This permit requires effluent to be dechlorinated before discharge to the Santa Cruz River. Sludge is held in a tank for transport to one of three land application fields. The facility serves Green Valley, Sahuarita, and Amado with a total service population of approximately 20,700 people.

Currently, all effluent from the Green Valley WWTF is being reused. Green Valley future plans are discharge to the Santa Cruz River located in the river reach between the Tubac Bridge to Roger Road WWTP outfall. The Green Valley WWTF is located 250 feet to the east and southeast of the Santa Cruz River. The intent of the proposed AZPDES permit is to allow for continued operation of the Green Valley BNROD at a design flow rate of 4.1 mgd, with effluent discharge to the Santa Cruz River Basin. Green Valley has in place a Pretreatment Program with nine businesses permitted under Pima County, but all nine are non significant industrial users / categorical industrial users.

III. RECEIVING WATER

The State of Arizona has adopted water quality standards to protect the designated uses of its surface waters. Streams have been divided into segments and designated uses assigned to these segments. The water quality standards vary by designated use depending on the level of protection required to maintain that use.

The receiving water for Green Valley BNROD Outfall 001 is the Santa Cruz between the Tubac Bridge to Roger Road WWTP outfall in the Santa Cruz River Basin.

Outfall 001 is located at: Township 18 South , Range 13 East , Section 36
Latitude 31° 54' 7.2" N , Longitude 110° 58' 21.8" W

This receiving water is not on the 303(d) list and there are no TMDL issues associated. The outfall discharges to, or the discharge may reach, a surface water listed in Appendix B of A.A.C. Title 18, Chapter 11, Article 1.

The receiving water has the following designated uses:

Aquatic and Wildlife effluent dependant waters(A&Wedw)
Partial Body Contact (PBC)
Agricultural Livestock watering (AgL)

Given the uses stated above, the applicable narrative water quality standards are described in A.A.C. R18-11-108 and the applicable numeric water quality standards are listed in A.A.C. R18-11-109, and in Appendix A thereof. There are two standards for the Aquatic and Wildlife uses, acute and chronic. The standards for all applicable designated use are compared and the most stringent standard is applied, thus protecting for all applicable designated uses. However, since this discharge of effluent

is to an ephemeral water, this permit has been written with the application of effluent-dependent waters standards per R18-11-113(E).

IV. DESCRIPTION OF DISCHARGE

The existing facility has been in operation while the new Biological Nutrient Removal Oxidation Ditch is in the last stages of completion. During this time, no discharge has yet been made to the Santa Cruz River, and insufficient effluent monitoring data is available from the treatment plant. The following is the anticipated effluent quality based on the Pima County subregional area around Green Valley, Amado, and portions of the Town of Sahuarita, as outlined in the Green Valley BNROD application dated 5/2/02.

Parameters	Units	Influent Avg	Influent Max	Effluent Avg	Effluent Max
BOD	mg/L	210	270	10	< 30
TSS	mg/L	230	290	10	< 30
TKN	mg/L	39	44	4	< 8
Turbidity	NTU	--	--	<2.0	< 5
Fecal Coliform	# / 100 mL	--	--	Non Detect	Non Detect

The application indicates that the design removal rate for: BOD is 95%, TSS is 96%, and N is 90%.

V. DETERMINATION OF EFFLUENT LIMITATIONS

When determining what parameters need monitoring and or limits included in the draft Green Valley BNROD permit, both technology-based and water quality-based criteria were compared and the more stringent criteria applied.

Technology-based Limitations: As outlined in 40 CFR Part 133:

The regulations found at 40 CFR §133 require that publicly owned treatment works achieve specified treatment standards for BOD, TSS, and pH based on the type of treatment technology available.

Numeric Water Quality Standards: As outlined in A.A.C. R18-11-109 and Appendix A:

Per 40 CFR 122.44(d)(1)(ii), (iii) and (iv), limits have been included in the permit for parameters with ‘reasonable potential’, that is, those known to be or expected to be present in the effluent at a level that could potentially cause any applicable numeric water quality standard to be exceeded. The procedures used to determine reasonable potential are outlined in the *Technical Support Document for Water Quality-based Toxics Control (TSD)* (EPA/505/2-90-001).

Monitoring for these pollutants is required and action levels are established to alert the permitting authority if the discharge may have the potential to exceed water quality criteria. In such a case, the permit could be reopened and modified to include limit(s) if RP is shown. In any event, RP will be re-evaluated based on the collected data before a renewal of this permit could be issued in the future.

The proposed permit limits and/or action levels were established using a methodology developed by EPA. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect all uses. This methodology takes into account criteria, effluent variability, and the number of observations taken to determine compliance with the limit and is described in Chapter 5 of the TSD.

The limits and action levels in this permit were determined without the use of a mixing zone. Arizona state water quality rules require that water quality standards be achieved without mixing zones unless the permittee applies for and is approved for a mixing zone. Since a mixing zone was not applied for or granted, all water quality criteria are applied at end-of-pipe.

Permit Limitations:

The tables that follow summarize parameters limited in the permit, the regulatory justification for their inclusion, and the associated monitoring. Also included are some parameters that require monitoring without any limitations or that have not been included in the permit at all and the basis for that decision.

Parameter	Basis	Proposed Monitoring Requirement
Flow		It is proposed that flow be monitored on a continual basis using a flow meter.
BOD & Suspended Solids	<p>Concentration Limits The concentration limits for both effluent biochemical oxygen demand (BOD) and suspended solids are: 30-day average - 30 mg/l 7-day average - 45 mg/l 30-day average percent removal: minimum 85% These technology-based limits are included in the draft permit in accordance with Secondary Treatment Standards for an activated sludge POTW found in 40 CFR §133.102.</p> <p>Mass Limits The mass limits for both BOD and suspended solids are: 30-day average - 465.56 kg/day 7-day average - 698.33 kg/day These limits are included in the draft permit per 40 CFR § 122.45(d) & (f) and were calculated based on the design flow as follows: Kilograms per day = 3.785 x design flow in MGD x concentration limit in mg/L. [3.785 is the weight of one gallon of water in kilograms.] 30-day average = 3.785 * 4.1 MGD * 30 mg/L = 465.56 kg/day 7-day average = 3.785 * 4.1 MGD * 45 mg/L = 698.33 kg/day</p>	Monitoring for influent and effluent BOD and TSS to be conducted once every two weeks using composite samples of the influent and the effluent. The sample type required was chosen to be representative of the discharge. The requirement to monitor influent BOD and suspended solids is included to assess compliance with the 85% removal requirement in this permit. At least one sample per quarter must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected.
pH	<p>pH limits are included in the draft permit to protect for the designated uses of A&Wedw, PBC, and AgL, in accordance with A.A.C. R18-11-109(D). The proposed limits are: Minimum: 6.5 Maximum: 9.0 Maximum change due to discharge: 0.5</p>	pH is to be monitored once per week using a grab sample of the effluent. 40 CFR Part 136 specifies that grab samples must be collected for pH. At least one sample per quarter must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected. pH sampling must also coincide with ammonia sampling when required.
E. Coli	<p>Limits for <i>E. coli</i> are included in the draft permit to protect for the designated use of PBC of the receiving water in accordance with A.A.C. R18-11-109(C). The proposed limits are: 30-day geometric mean: 126 cfu /100 mL (4 sample minimum) Single sample maximum: 576 cfu /100 mL</p>	<i>E. coli</i> is to be monitored four times per month using a grab sample of the effluent. The specified monitoring frequency is the minimum required to ensure compliance with the 30-day geometric mean water quality standards. 40 CFR Part 136 specifies that grab samples must be collected for coliform bacteria. At least one sample per quarter

Parameter	Basis	Proposed Monitoring Requirement
		must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected.
Total Residual Chlorine	<p>Limits for total residual chlorine (TRC) are included in the draft permit to protect for the designated uses of PBC and A&Wedw. Because chlorine will be used by Green Valley BNROD to disinfect the effluent and the standards for TRC are so low, reasonable potential exists for an exceedance of the standard. Long Term Averages (LTA) were calculated for each designated use and the lowest LTA was used to calculate the average monthly limit (AML) and maximum daily limit (MDL) necessary to protect both uses. This method of limit determination is outlined in Chapter 5 of the TSD. The Arizona water quality standards for TRC are located in A.A.C. R18-11-Appendix A. The TRC water quality standards for A&Wedw are 5.0 ug/L chronic and 11 ug/L acute and the A&Wedw chronic standard resulted in the lowest LTA for permit limit development. The proposed TRC limits are:</p> <p>Monthly average: 4.08 ug/L and 63.46 kg/day Maximum: 8.19 ug/L and 127.33 kg/day</p> <p>Mass TRC limits are included in the draft permit in accordance with 40 CFR §122.45(d) & (f) and were calculated as follows:</p> <p>Kilograms per day = 3.785 x design flow in MGD x concentration limit in mg/L. [3.785 is the weight of one gallon of water in kilograms].</p> <p>Monthly average = 3.785 * 4.1 MGD * 0.005 mg/L = 0.08 kg/day Maximum = 3.785 * 4.1 MGD * 0.011 mg/L = 0.17 kg/day</p>	TRC is to be monitored at least once / week as a grab sample. 40 CFR Part 136 specifies that grab samples must be collected for chlorine. At least one sample per quarter must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected

Trace Substances:

The following table shows the 17 trace substances included in the draft permit and their 30-day average and maximum action levels in both mass and concentration. An *Action Level* differs from other limits in that an exceedance of an action level is not a permit violation. **Instead, Action Levels serve as triggers, alerting the permitting authority when there is cause for re-evaluation of RP for exceeding a water quality standard, which may result in new permit limitations.** RPs were not determined for trace substances because this is a new discharge and insufficient effluent data is available. A reopener clause is included in the draft permit should future monitoring data indicate water quality standards are being exceeded.

TRACE SUBSTANCES

Parameter	ACTION LEVELS (1) (4)				Basis	Proposed Monitoring Requirement
	Mass (2)		Concentration (2)			
	Monthly Avg (kgms/day)	Daily Max (kgms/day)	Monthly Avg (µg/L)	Daily Max (µg/L)		
Antimony	7615.81	8701.84	490.11	560	A&Wedw chronic	Monitoring for trace substances is to be conducted quarterly using either composite samples or grab samples as indicated in Table 4 of the draft permit. The sample types required were chosen to be representative of the discharge while taking into consideration the nature of the samples. 40 CFR
Arsenic	2411.67	3107.8	155.2	200	PBC	
Beryllium	67.27	134.98	4.32	8.68	PBC	
Boron	---	776.95	---	50	AgL	

Cadmium	32.49	65.19	2.09	4.19 (3)	A&Wedw chronic
Chromium III	1092.23	2191.52	70.29	141.03 (3)	A&Wedw chronic
Chromium VI	123.7	248.2	7.96	15.97	A&Wedw acute
Copper	123.31	247.42	7.93	15.92 (3)	A&Wedw acute
Cyanide	123.7	247.03	7.92	15.89	A&Wedw chronic
Lead	38.8	77.93	2.49	5.01 (3)	A&Wedw chronic
Mercury	2.53	5.09	0.16	0.32	A&Wedw chronic
Nickel	770.21	1545.39	49.56	99.45 (3)	A&Wedw chronic
Selenium	25.38	50.93	1.63	3.2	A&Wedw chronic
Silver	36.49	73.22	2.34	4.71 (3)	A&Wedw acute
Sulfides	773.14	1551.27	49.75	99.83	A&Wedw acute
Thallium	1903.95	3820.19	122.52	245.8	PBC
Zinc	1057.27	2121.36	68.04	136.5	A&Ww acute
Hardness (3) (CaCO ₃)	---	---	Report	Report	(3)

Part 136 specifies that grab samples must be collected for cyanide, sulfides, and chromium VI. Also, at least one sample per quarter must coincide with WET testing to aid in the determination of the cause of toxicity if toxicity is detected.

Footnotes:

1. Exceedances of these values will trigger an evaluation of reasonable potential and the permit may be reopened and modified to include limitations if necessary. Monitoring and reporting required.
2. µg/L = Micrograms per liter = parts per billion; Kgms = Kilograms
3. Action levels listed are based on a hardness of 120 mg/L as CaCO₃. The effluent must be tested for hardness at the same time that these metal samples are taken
4. Per EPA Technical Support Document (TSD) 5.7.3, effluent limitations assume a 1:1 relationship between total recoverable and dissolved metals unless a site-specific translator study is proposed.

The requirement to monitor for these trace substances is included in the draft permit according to A.A.C. R18-11-109 (A) and Appendix A. Action Levels (ALs) listed for each parameter were calculated in the same manner that a limit would have been calculated if it was determined that there was RP. Long Term Averages (LTAs) were calculated for each applicable designated use on a parameter by parameter basis. In each case, the lowest LTA was used to calculate the maximum daily action level. If the lowest LTA was not based on a human health or agricultural designated use criteria, then an average monthly action level was also calculated. Average monthly action levels were not calculated when the lowest LTA was based on human health or agricultural standards because the numeric standards to protect these uses are not to be exceeded at the outfall.

The permittee is required to sample hardness as CaCO₃ at the same time the trace metals are sampled

because the water quality standards for some metals are calculated using the water hardness values. The hardness value of 120 mg/L was used to calculate the action levels for cadmium, copper, lead, nickel, and silver.

The following trace substances were not included in the draft permit due to a lack of RP based on best professional judgement (BPJ): barium, nitrates and manganese. The applicable numeric standards for these pollutants are well above what would be expected from a POTW discharge.

Note: The trace substances Action Levels expressed as mass are included in the draft permit per 40 CFR § 122.45(d) & (f) and were calculated as follows:

Kilograms per day = 3.785 x design flow in MGD x concentration limit in mg/L.
3.785 is the weight of one gallon of water in kilograms.

For example: Antimony daily maximum: $3.785 * 4.1 \text{ MGD} * .04917 \text{ mg/L} = 0.76 \text{ kg/day}$

Whole Effluent Toxicity:

The permit requires semi-annual monitoring for both acute and chronic whole effluent toxicity. WET testing is required in the permit to implement the narrative toxic standard in A.A.C. R18-11-108(A)(5) and to satisfy the requirement for all major POTWs to report WET test results on their permit applications. The required WET monitoring frequency is less than that suggested in ADEQ's NPDES Process Guidance Document for this facility's design flow. Semi-annual monitoring was chosen over monthly monitoring because this facility is anticipating infrequent discharge. The draft permit requires WET test results to be submitted with the discharge monitoring reports that are due following receipt of each WET test result.

Due to the fact that the permit allows the permittee to discharge up to the facility design flow continuously, chronic WET testing is required in order to protect for potential chronic effects on aquatic life in the receiving water. However, the requirements to monitor for chronic WET for the species *Ceriodaphnia dubia* and *Pimephales promelas* is contingent upon the discharge duration lasting a minimum of four consecutive days. A discharge duration of four days is deemed sufficient to acquire the necessary samples to conduct the chronic WET test on these species.

Acute WET testing is also required in order to protect for potential acute effects on aquatic life in the receiving water. The permit requires the permittee to conduct the 96 hour static renewal acute toxicity test. This test may be completed as the 48 hour static non-renewal acute test if a second sample for renewal can not be taken due to a cessation of the discharge.

***Both* acute and chronic WET testing are included because of the potential variation in discharge frequency, duration, and magnitude. An acute action level may not protect for potential chronic effects and a short discharge duration may not allow for completion of the chronic test.**

The Action levels or “triggers” for WET included in the draft permit were calculated in accordance with the methods specified in the *TSD* and *Regions 9 and 10 Guidance For*

Implementing Whole Effluent Toxicity Testing Programs. The permit allows *Daphnia magna* for acute testing, requested by the permittee and allowed by the test methods.

Parameter	Proposed Monitoring Requirement
Whole Effluent Toxicity (WET)	<p>WET testing for acute and chronic toxicity shall be conducted semi-annually. A more frequent sampling requirement is triggered (if applicable due to discharges greater than four consecutive days) if any of the WET action levels listed in the permit are exceeded.</p> <p>Three 24-hour composite samples are required to complete one chronic WET test. WET sampling must coincide with testing for all the parameters in Tables 1, 2 and 4 of the draft permit to aid in the determination of the cause of toxicity if toxicity is detected. Additional procedural requirements for the WET test are included in the proposed permit.</p>

VI. NARRATIVE WATER QUALITY STANDARDS

All applicable narrative limitations in A.A.C. R-11-108 are included in Part I, Sections F,G,I, J,K and L of the draft permit.

VII. MONITORING REQUIREMENTS

Section 308 of the Clean Water Act and 40 CFR Part 122.44(i) require that monitoring be included in permits to determine compliance with effluent limitations. Additionally, monitoring may be required to gather data for future effluent limitations or to monitor effluent impacts on receiving water quality.

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. The permittee is responsible for conducting and reporting results to ADEQ and on DMRs or otherwise specified in the permit.

For the purposes of this permit, a "composite" sample has been defined as a flow-proportioned mixture of not less than eight discrete aliquots obtained at three hour intervals for the duration of the discharge or over a period of 24 hours, whichever is shorter. The volume of each aliquot shall be directly proportional to the discharge flow rate at the time of sampling.

Grab samples are specified in the permit for parameters that for varying reasons are not amenable to compositing.

VIII. BIOSOLIDS REQUIREMENTS

Standard requirements for the monitoring, reporting, record keeping, and handling of biosolids, as well as minimum treatment requirements for biosolids according to 40 CFR Part 503 are incorporated in the draft permit.

IX. SPECIAL CONDITIONS

Toxicity Identification Evaluation (TIE) and Toxicity Reduction Evaluation (TRE)

Processes:

Requirements for follow-up testing if the WET trigger of 1.64 chronic toxic units is exceeded for any of the three test species and the development of a TRE and/or TIE to identify, control or eliminate the cause of toxicity within an approved time-frame are included in the draft permit. These special conditions are required to ensure that toxicants are not discharged in amounts that are toxic to organisms [A.A.C. R18-11-108(A)(5)]. **A reopener clause is included in accordance with 40 CFR Parts 122 and 124.**

Reapplication Requirements:

Samples required to be reported in a reapplication for continued discharge after the expiration date of this permit have been included in the permit. A list of required pollutants to be sampled, sample type, how many samples must be taken, and the required time frame for taking these samples is explained. This information is included in the permit to help ensure that the application requirements in 40 CFR Part 122 are met and will be used in future RP determination efforts.

X. REOPENER

This permit may be modified in accordance with requirements set forth at 40 CFR Parts 122 and 124; to include appropriate conditions or limits to address demonstrated effluent toxicity based on newly available information; to implement any EPA approved new State water quality standards; or to re-evaluate reasonable potential (RP), if Action Levels in this permit are exceeded.

XI. STANDARD CONDITIONS

Conditions applicable to all AZPDES permits are included in accordance with 40 CFR, Part 122.

XII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-A907)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft AZPDES permit or other significant action with respect to an AZPDES permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-A908)

Rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C. R18-9-A908(B))

A public hearing may be requested in writing by any interested party. The request should state the

nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

EPA Review (A.A.C. R18-9-A908(C))

A copy of this draft permit and any revisions made to this draft as a result of public comments received, will be sent to EPA Region 9 for review. If EPA objects to a provision of the draft, ADEQ will not issue the permit until the objection is resolved.

XIII. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:

ADEQ
Water Quality Division- Surface Water Permits Unit Mailcode: 5415B-3
Attn: Manuel Padilla
1110 W. Washington St.
Phoenix, Arizona 85007

Or, by contacting Manuel Padilla at (602) 771-4371

XIV. INFORMATION SOURCES

While developing effluent limitations, monitoring requirements and special conditions for the draft permit, the following information sources were used:

1. NPDES Permit Application Form 1, 2A, and 2S received June 11, 2002 and along with supporting data, facility diagram and maps submitted by the applicant with the application forms.
2. Supplemental information to the application received by ADEQ on January 15, 2003.
3. ADEQ files on Green Valley WWTF.
4. Arizona Water Quality Standards for Surface Waters, Title 18, Chapter 11, Article 1. Adopted March, 2002
5. Title 18, Chapter 9, Article 9. Arizona Pollutant Discharge Elimination System rules.
6. 40 CFR Parts 122, 124 and 133.
7. 40 CFR, Part 503, Sludge Regulations.
8. EPA Technical Support Document for Water Quality-based Toxics Control dated March, 1991

9. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/600/4-91/002, July, 1994).
10. Letter dated July 18, 2002 (received 07/22/02) from John Kennedy, Arizona Game and Fish Department to Manuel Padilla, ADEQ.
11. Phone conversation between B.J. Vocal, Pima County and Manuel Padilla on 12/30/02.
12. U.S. EPA NPDES Permit Writers' Manual, December 1996.
13. Memo dated October 10, 2002 from Julie Finke , ADEQ to Manuel Padilla.
14. U.S.G.S. National Mapping Information Website