NPDES PERMIT NO. NM0030414
STATEMENT OF BASIS

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT:

Rio Del Oro Wastewater Treatment Facility
401 Horner Street
Belen, NM 87002

ISSUING OFFICE:

U. S. Environmental Agency
Region 6
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Dallas, Texas 75202-2733

PREPARED BY:

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PERMIT ACTION: Proposed reissuance of the current National Pollutant Discharge Elimination System (NPDES) permit issued October 22, 2004, with an effective date of November 1, 2004 and an expiration date of October 31, 2009.

DATE PREPARED: November 30, 2009

40 CFR CITATIONS: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of November 16, 2009.

CERTIFICATION: The permit is in the process of certification by the State agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service; and to the National Marine Fisheries Service prior to the publication of that notice.

FINAL DETERMINATION: On the basis of preliminary staff review and after consultation with the State of New Mexico, the Environmental Protection Agency has made a tentative determination to reissue the permit for the discharge described in the application. The public notice describes the procedures for the formulation of final determinations.

I. PROPOSED CHANGES FROM PREVIOUS PERMIT

It is proposed that the current permit be reissued for a 5-year term.

The major changes from the current permit issued October 22, 2004, with an effective date of November 1, 2004, and an expiration date of October 31, 2009, are:

1. Delete final effluent limits for fecal coliform.
2. Add final effluent limits and monitoring frequency for E. coli.
3. Add aquatic toxicity testing.
4. Modify monitoring frequency for BOD, TSS, and TRC.
5. Modify limitation on minimum pH from 6.0 to 6.6 s.u.

II. DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

BAT - best available technology economically achievable
BMP – best management plan
BOD_5 – five-day biochemical oxygen demand
BPJ - best professional judgment
CD – critical dilution
CFR – Code of Federal Regulations, cfs – cubic feet per second
CIU - Categorical Industrial User's
COD – chemical oxygen demand
COE – United States Corp of Engineers
CWA – Clean Water Act
DMR – discharge monitoring report
EPA – United States Environmental Protection Agency
ESA - Endangered Species Act
FC- fecal coliform
FWS – United States Fish and Wildlife Service
MGD – million gallons per day
NMAC – New Mexico Administrative Code
NMED – New Mexico Environment Department
NMWQS - New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES – National Pollutant Discharge Elimination System
MQL - minimum quantification level
O&G – oil and grease
POTW – Publicly Owned Treatment Works
RP – reasonable potential
SIC - standard industrial classification
SIU - Significant Industrial User's, su – standard units
SWQB – Surface Water Quality Bureau
TDS – total dissolved solids
TMDL – total maximum daily load
TOC – total organic carbon
TRC – total residual chlorine
TSS – total suspended solids
UAA – use attainability analysis
WET - whole effluent toxicity
WQCC – New Mexico Water Quality Control Commission
WWTP – wastewater treatment plant.

III. APPLICANT ACTIVITY

Under the SIC Code 4952, the applicant operates a private wastewater treatment plant treating domestic waste only. The facility has a design flow capacity of 0.3 MGD. Additional increases above 0.3 MGD will require a permit modification.

The Rio del Oro extended aeration wastewater treatment facility was upgraded to a membrane bioreactor (MBR) facility in 2004. A description of the current flow path and treatment units is given in the following paragraphs.

Raw sewage is discharged into one of two (2) automatic fine bar screens (one on-line; one standby) that are provided with a common conveyor/washer/compactor (CWC). The CWC removes organics from the screenings and automatically dumps the washed and compacted screenings into a dumpster that is emptied at a landfill.

The effluent from the bar screen discharges into the pre-air basin to be mixed with the activated sludge (mixed liquor suspended solids). Not only are BOD and TSS are removed in the pre-aeration basin, nitrogen is also removed with alternating periods of aeration (nitrification) and anoxic mixing (denitrification).

Two (2) submersible pumps continuously pump the mixed liquor from the pre-aeration basin into each of the two (2) separate bioreactors. Each reactor is equipped with four (4) submerged membrane units (SMU) which have 200 flat plate filters in each unit. Facility effluent is withdrawn through the flat plate membranes (filtered) by permeate pumps (two on-line; one standby), disinfected with ultraviolet light, and discharged to a holding basin for irrigation reuse. Two (2) UV disinfection units are provided (one on-line; one standby). According to a New Mexico Water Service Company letter dated on April 11, 2008 from the Operations Manager Ron Hay, the ultraviolet disinfection for bacteria control began on March 14, 2008.

The excess mixed liquor suspended solids in the bioreactors automatically recycles back to the pre-aeration basin through telescoping valves. Waste activated sludge is removed from both bioreactors daily and is discharged into the sludge holding tank. Sludge is removed weekly from the holding tank and taken to the surface disposal site.

Air is supplied to the pre-aeration and bioreactor basins with two (2) separate aeration systems. Two (2) aeration blowers are provided for each system (one on-line; one standby). The MBR is monitored and controlled by a programmable logic controller (PLC) that also provides supervisory control and data acquisition for alarm notification. Operator control is provided through a human-machine interface that is simply a PC located in the admin/lab building. In the event of a failure of the PLC, the facility can also be operated manually.

Effluent is being re-used at this time by the Valley Improvement Association (VIA) for watering of their parks. This facility has a discharge permit from NMED (NMDP-1569) for re-use water, Class IA.

IV. DISCHARGE LOCATION

As described in the application, the facility is located at 1 PNM Access Road, Los Lunas in Section 26, Township 6 North Range 2 East, Valencia County, New Mexico. The discharge from Outfall 001 is to the arroyo named La Canada de la Loma de Arena thence to La Constancia Ditch, and it may never reach the Rio Grande River in segment number 20.6.4.105 of the Rio Grande Basin except for influence of precipitation of rain or snowmelt event flows. The discharge from the Outfall 001 is located on that water at Latitude 34° 43' 28.34'' North, Longitude 106° 42' 21.46'' West.

V. RECEIVING WATER USES

Segment number 20.6.4.105 encompasses the main stem of the Rio Grande from the headwater of Elephant Butte reservoir upstream to Alameda bridge (Corrales bridge) and intermittent water below the perennial reaches of the Rio Puerco that enters the main stem of the Rio Grande. The CWA sections 101(a)(2) and 303(c) require water quality standards to provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water, functions commonly referred to as "fishable/swimmable" uses. EPA's current water quality regulation effectively establishes a rebuttable presumption that "fishable/swimmable" uses are attainable and therefore should apply to a water body unless it can be demonstrated that such uses are not attainable. EPA does not expect the State to adopt uses for ephemeral waters that cannot be attained, but in those instances, the State must submit a UAA to support an aquatic life designation that does not meet the CWA §101(a)(2) objective as required by 40 CFR 131.10(j)(1).

Since the facility discharges into a non-classified water body and assuming its designated use is "fishable/swimmable' under the Clean Water Act unless a use attainability analysis demonstrates otherwise, designated uses are for aquatic life, livestock watering, wildlife habitat and primary contact. The determination of coldwater or warmwater aquatic uses is based on the first downstream designation from the stream segment.

VI. DISCHARGE DESCRIPTION AND OPERATIONS

The facility submitted information in its application that describes the nature of the permitted discharge. The following is a summarization of the information provided.

	Daily Avg *	Daily Max.
pH (s.u.)		7.78
BOD-5 (mg/l)	4.64	14.90
TSS (mg/l)	4.26	8.20
TRC (mg/l)	0.00	0.00
FC (#/100 ml)	2.00	3.28
O&G (mg/l)	5.00	5.00
Ammonia (mg/l)	0.25	0.36

Dissolved Oxygen (mg/l)	5.76	6.30
TKN (mg/l)	0.07	0.90
Nitrite (mg/l)	0.50	0.50
Nitrate (mg/l)	8.50	10.20
Total P (mg/l)	3.72	4.00

* avg value: Geometric mean

The effluent from the facility has been monitored under the conditions of the current permit with a November 1, 2004, effective date. The following is a summarization of the discharge monitoring reports (DMR) between January 2008 and December 2008. There were no values that exceed permit limits during this period.

	avg	max
Parameter	(mg/l unless noted)	
pH	7.22 su	7.78 su
Flow	0.16 MGD	0.2307 MGD
Biochemical Oxygen (BOD_5)	4.47	14.90
Total Suspended Solids (TSS)	4.09	8.20
TRC	0.00	0.00
Fecal Coliform	2.01	3.3 fcu/100

VII. PROPOSED PERMIT CONDITIONS

The specific effluent limitations and/or conditions will be found in the proposed permit.

VIII. DRAFT PERMIT RATIONALE

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other necessary explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under 40 CFR 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

REASON FOR PERMIT ACTION

The current permit was issued October 22, 2004, with an effective date of November 1, 2004 and an expiration date of October 31, 2009. The permit renewal application was received April 7, 2009.

It is proposed that the current permit be reissued for a 5-year term following regulations promulgated at 40 CFR 122.46(a).

TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at 40 CFR 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to 40 CFR 122.44(a) or on State water quality standards and requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

Technology-based effluent limitations are established in the proposed permit for the following pollutants: TSS and 5-day biochemical oxygen demand BOD.

Water quality-based effluent limitations are established in the proposed permit for the following pollutants: pH, E-coli and TRC.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

Regulations promulgated at 40 CFR 122.44(a) require technology-based effluent limitations to be placed in NPDES permits based on effluent limitations guidelines where applicable, on BPJ in the absence of guidelines, or on a combination of the two.

2. Final Effluent Limits 0.3 MGD design flow

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			
	lbs/Day		mg/l (unless noted)	
Parameter	30-Day Avg.	7-Day Avg.	30-Day Avg.	7-Day Avg.
Flow	N/A	N/A	Measure MGD	Measure MGD
BOD_5	75	113	30	45
TSS	75	113	30	45

Loading in lbs/day = pollutant concentration in mg/L * 8.345 lbs/gal * design flow in MGD

3. Monitoring Frequencies for Limited Parameters

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity 40 CFR 122.48(b) and to assure compliance with permit limitations contained in 40 CFR 122.44(i)(1). The monitoring frequencies are based on *the Procedures for Implementing NPDES Permits in New Mexico*, taking into account the nature of the facility and its design flow and the previous permit. Flow shall be monitored continuously any instantaneous measurement. BOD_5 and TSS shall be measured three (3) times per month by 3-hour composite sample.

WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

Effluent limitations and/or conditions established in the draft permit are in compliance with State water quality standards and the applicable water quality management plan.

The WQCC adopted new WQS for the State of New Mexico. The revised WQS as amended through August 1, 2007 are available on the NMED's website at: http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf . The WQCC established the revised WQS in accordance with, and under authority of, the NM Water Quality Act [Chapter 74, Article 6, NMSA 1978 Annotated]. The WQS have been approved by EPA in accordance with Section 303 of the CWA.

As stated above, the designated uses of the receiving stream are irrigation, marginal warmwater aquatic life, livestock watering, wildlife habitat and secondary contact.

(a) Bacteria

The previous permit had limits for fecal coliform bacteria (FCB). Since the previous permit issuance, New Mexico has adopted *E. coli* as the State bacteria standard in lieu of FCB. The draft permit will replace FCB with E. coli. Since there is no required construction activity to add bacteria control technology, no compliance schedule will be granted in the draft permit for the change from FCB to *E. coli* limits.

New Mexico stream segment specific WQS require *E. coli* of 126 cfu/100 ml monthly geometric mean and 410 cfu/100 ml daily maximum, end-of-pipe. The draft permit will propose *E. coli* limitations based on WQS of 126 cfu/100 ml monthly geometric mean and 410 cfu/100 ml single sample maximum.

(b) Total Residue Chorine

Information submitted in the application indicates that the facility replaced the chlorine by UV for bacteria control. If during the term of this permit the minimum quantification level for TRC becomes less than 11 ug/l (from previous permit requirements), then 11 ug/l shall become the effluent limitation whenever chlorine is used as described above. The effluent limitation for TRC is the instantaneous maximum and can not be averaged for reporting purposes.

(c) pH

Limitations for pH are based on the WQS. The WQCC has adopted a more stringent WQS for minimum pH of 6.6 s.u., therefore, the draft permit includes a minimum pH of 6.6 s.u.

2. Implementation

The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

3. Aquatic Toxicity Testing

The State has established narrative criteria, which in part, state that: "Surface waters of the State shall be free of toxic substances attributable to discharges in amounts, concentrations or combinations which affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms;..." (NM Standards 20.6.4.13 .F)

WET permit procedures are contained in the July 2009, Procedures for Implementing NPDES Permits in New Mexico (NMIP). Table 11 of Section V of the NMIP outlines the type of WET testing for different types of discharges. There is no prior history of WET testing and no known operational issues that would indicate significant potential to exert toxicity in the receiving stream, therefore it is assumed that there is no reasonable potential to exceed WQS at this time. The design flow of the facility is 0.3 MGD and the 4Q3 of the receiving water; an ephemeral waterbody, is zero cfs. Based on the nature of the discharge, POTW; the design flow, 0.3 MGD; the nature of the receiving water, ephemeral; and the critical dilution, 100%, Table 11 provides that the WET test to be a 48-Hour acute test using Daphnia pulex. Further, Table 11 directs that the first test be conducted in the first year of the permit and the second test shall be in the third year of the permit. The test series will be 0% (control), 32%, 42%, 56%, 75%, and 100%.

Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE 30-DAY AVG MINIMUM	MONITORING 48-Hr. MINIMUM
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) *1		
Daphnia pulex	REPORT	REPORT

EFFLUENT CHARACTERISTIC	MONITORING FREQUENCY	REQUIREMENTS TYPE
Whole Effluent Toxicity Testing		

(48 Hr. Static Renewal) *1

Daphnia pulex	1/ 1st year *2	24-Hr. Composite
	2/ 3rd year *2	24-Hr. Composite

* 1 Monitoring and reporting requirements begin on the effective date of this permit. See Part II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions

* 2 The first test shall be conducted in the first year of the permit and the second test shall be in the third year of the permit. The tests should occur in winter or springtime when most sensitive juvenile life forms are likely to be present in receiving water and colder ambient temperatures might adversely affect treatment processes. This will generally be defined as between November 1 and April 30.

4. Schedule of Compliance

No compliance schedule is proposed.

5. Monitoring Frequencies for Limited Parameters

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity 40 CFR 122.48(b) and to assure compliance with permit limitations 40 CFR 122.44(i)(1). *E. coli* shall be sampled and reported three (3) times per month by grab. When a backup chlorinated disinfection system is used as a bacteria control chemical for the effluent, monitoring for TRC shall be measured and reported one (1) per day. pH shall be measured and reported one (1) per day, by grab sample.

IX. IMPAIRED WATER- 303(D) LIST

None of the receiving waters are on the current "2008-2010 State of New Mexico 303(d) List for Assessed River/Stream reaches Requiring Total maximum Daily Loads (TMDLs)." If at a later time the segment is determined to be impaired, and/or a TMDL is done, or a TMDL is completed, the standard reopener clause will allow additional limitations to be placed in the permit.

X. ANTIDEGRADATION

The New Mexico 20.6.4.8 NMAC "Antidegradation Policy and Implementation Plan" sets forth the requirements to protect designated uses through implementation of the State water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the State water quality standards and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters. The permit requirements are protective of the assimilative capacity of the receiving waters, and are protective of the designated uses of that water.

XI. ANTIBACKSLIDING

The proposed permit is consistent with the requirements to meet Antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR 122.44(l)(2)(i)(B), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless information is available which was not available at the time of permit issuance. The change in bacteria monitoring is consistent with a change of WQS and does not constitute antibacksliding since one indicator bacteria, FCB, has been replaced by a different one; E. coli. All of the changes represent permit requirements that are consistent with the States WQS and WQMP. The WQCC has promulgated a more stringent WQS for minimum pH, therefore, the proposed permit has changed minimum pH from 6.0 to 6.6. su's. The change in minimum pH does not constitute antbacksliding since a more restrictive value has been adopted.

XII. HISTORICAL AND ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological since no construction activities are authorized by its issuance.

XIII. ENDANGERED SPECIES

The FWS New Mexico Ecological Services Field Office lists three endangered species and one threatened species in Valencia County as shown on FWS' website http://www.fws.gov/southwest/es/NewMexico/SBC.cfm and they are the black-footed ferret, Mexican spotted owl, Rio Grande silvery minnow and southwestern willow flycatcher. Southwestern willow flycatcher, Mexican spotted owl and Rio Grande silvery minnow have designated critical habitats in the county.

In accordance with requirements under section 7(a)(2) of the Endangered Species Act, EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. After review, EPA has determined that the reissuance of this permit will have "no effect" on listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. EPA determined a "No effect" during previous permit, issued October 22, 2004.
2. Except for the bald eagle which was delisted in 2007 from the US FWS list of threatened and endangered species, no additional changes have been made to the US FWS list of threatened and endangered species and critical habitat designation in the area of the discharge since prior issuance of the permit.

3. EPA has received no additional information since November 1, 2004, previous permit effective date, which would lead to revision of its determinations.

4. EPA determines that Items 1, 2, and 3 result in no change to the environmental baseline established by the previous permit, therefore, EPA concludes that reissuance of this permit will have “no effect” on listed species and designated critical habitat.

XIV. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit in accordance with the provisions of 40 CFR 124.5.

XV. VARIANCE REQUESTS

No variance requests have been received.

XVI. ADMINISTRATIVE RECORD

The following section is a list of the fact sheet citations to applicable statutory or regulatory provisions and appropriate supporting references to the administrative record required by 40 CFR 124.9:

A. PERMIT(S)

NPDES Permit No. NM0030414 issued October 22, 2004, with an effective date of November 1, 2004, and an expiration date of October 31, 2009.

B. APPLICATION(S)

EPA Application Consolidated Forms 1 and 2E received April 7, 2009.

C. STATE WATER QUALITY REFERENCES

The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, amended through August 1, 2007).

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, July 2009.