



NEW MEXICO  
ENVIRONMENT DEPARTMENT



*Surface Water Quality Bureau*

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Secretary  
RAJ SOLOMOM, P.E.  
Deputy Secretary

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**Certified Mail - Return Receipt Requested**

March 24, 2011

Mr. Amos Torres, Public Utilities Director  
Town of Taos  
Taos Municipal Building  
400 Camino De La Placitas  
Taos, NM 87571

**RE: Major Municipal; SIC 4952; NPDES Compliance Evaluation Inspection; Town of Taos Waste Water Treatment Plant; NM0024066; March 4, 2011**

Dear Mr. Torres:

Enclosed, please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Problems noted during this inspection are discussed in the attached further explanations. You are encouraged to review the inspection report; and required to correct any problems noted during the inspection and to modify your operational and/or administrative procedures, as appropriate.

I wish to thank you for your cooperation and the cooperation of the Town of Taos representatives, Mr. Jeff Burkett, Ms. Celsa Vigil, Mr. Terry Sheldon, and Mr. Jerome Salazar during this inspection.

If you have any questions, please feel free to contact me at the above address or by telephone at (505) 827-0212.

Sincerely,

*/s/Barbara Cooney*

Barbara Cooney  
Surface Water Quality Bureau

CC:

Marcia Gail Adams, USEPA (6EN-AS) by e-mail  
Samuel Bates, EPA (6EN-AS) by e-mail  
Carol Peters-Wagnon, USEPA (6EN-WM) by e-mail  
Diana McDonald, USEPA (6EN-WM) by e-mail  
Larry Giglio, USEPA (6WQ-PP) by e-mail  
NMED, District II by email



Form Approved  
OMB No. 2040-0003  
Approval Expires 7-31-85

### NPDES Compliance Inspection Report

#### Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspec. Type	Inspector	Fac Type
1 N 2 5 3 N M 0 0 2 4 0 6 6 11 12 1 1 0 3 0 4 17 18 C 19 S 20 1					
Remarks					
T O W N O F T A O S W W T P M A J O R M U N I C I					
Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved	
67 1 69	70 2	71 N 72 N 73	74 75	80	

#### Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) Town of Taos WWTP: 182 Los Cordovas Road ( Physical Location Not Mailing Address) Driving Directions: On Hwy 68 travel north to Ranchitos Road in the center of Town – Turn Left and go approx. 2.3 miles to Las Cordovas Road – Turn Right and go approximately 1.8 miles to WWTP	Entry Time /Date 13:30 hours March 4, 2011	Permit Effective Date August 1, 2006
	Exit Time/Date 17:30 hours March 4, 2011 Exit Interview prior to departing WWTP	Permit Expiration Date July 31, 2011
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Mr. Jeff Burkett - Operation Manager for OMI contractor 575-758-8401 Ms. Celsa Vigil - Laboratory Analyst for OMI contractor 575-758-8401 Mr. Terry Sheldon - Operator 575-758-8401	Other Facility Data  LAT 36° 22' 24.21" N LONG -105° 39' 21.38" W	
Name, Address of Responsible Official/Title/Phone and Fax Number  Amos Torres - Taos, Public Utilities Director 575-751-2047  Taos Municipal Building 400 Camino De La Placitas Taos, NM 87571	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	SIC Code: 4952

#### Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	S	Flow Measurement	U	Operations & Maintenance	N	CSO/SSO
U	Records/Reports	S	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
U	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	S	Laboratory	N	Storm Water	N	Other:

#### Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

See Further Explanations Section Of This Report

Name(s) and Signature(s) of Inspector(s) /s/ Barbara Cooney	Agency/Office/Telephone/Fax NMED/SWQB 505-827-0212	Date 3-24-2011
Signature of Management or QA Reviewer /s/ Richard Powell	Agency/Office/Phone and Fax Numbers NMED/SWQB 505-827-0187	Date 3-24-2011

SECTION A - PERMIT VERIFICATION

PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes\_\_)

DETAILS:

1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE  Y  N  NA

2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES  Y  N  NA

3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT  Y  N  NA

4. ALL DISCHARGES ARE PERMITTED  Y  N  NA

SECTION B - RECORDKEEPING AND REPORTING EVALUATION

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT.  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes\_\_)

DETAILS:

1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs.  Y  N  NA

2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE. Sampling for TRC does not include all information Other Samples are OK  S  M  U  NA

a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING  Y  N  NA

b) NAME OF INDIVIDUAL PERFORMING SAMPLING  Y  N  NA

c) ANALYTICAL METHODS AND TECHNIQUES.  Y  N  NA

d) RESULTS OF ANALYSES AND CALIBRATIONS.  Y  N  NA

e) DATES AND TIMES OF ANALYSES.  Y  N  NA

f) NAME OF PERSON(S) PERFORMING ANALYSES.  Y  N  NA

3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE.  S  M  U  NA

4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR.  S  M  U  NA

5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA.  Y  N  NA

SECTION C - OPERATIONS AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED.  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes\_\_)

DETAILS:

1. TREATMENT UNITS PROPERLY OPERATED.  S  M  U  NA

2. TREATMENT UNITS PROPERLY MAINTAINED.  S  M  U  NA

3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED.  S  M  U  NA

4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.  S  M  U  NA

5. ALL NEEDED TREATMENT UNITS IN SERVICE.  S  M  U  NA

6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED.  S  M  U  NA

7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED.  S  M  U  NA

8. OPERATION AND MAINTENANCE MANUAL AVAILABLE.  Y  N  NA

STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED.  Y  N  NA

PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED.  Y  N  NA

**SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)**

9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR?  Y  N  NA  
 IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED?  Y  N  NA  
 HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS?  Y  N  NA

10. HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT?  Y  N  NA  
 IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT?  Y  N  NA

**SECTION D - SELF-MONITORING**

PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS.  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes ).  
 DETAILS:

1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT.  Y  N  NA

2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.  Y  N  NA

3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT.  Y  N  NA

4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT.  Y  N  NA

5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT.  Y  N  NA

6. SAMPLE COLLECTION PROCEDURES ADEQUATE  Y  N  NA

a) SAMPLES REFRIGERATED DURING COMPOSITING.  Y  N  NA

b) PROPER PRESERVATION TECHNIQUES USED.  Y  N  NA

c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136.3.  Y  N  NA

7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT?  Y  N  NA

**SECTION E - FLOW MEASUREMENT**

PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS.  S  M  U  NA (FURTHER EXPLANATION ATTACHED No )  
 DETAILS:

1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED.  Y  N  NA  
 TYPE OF DEVICE

2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED.  Y  N  NA

3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED.  Y  N  NA

4. CALIBRATION FREQUENCY ADEQUATE. (DATE OF LAST CALIBRATION Not Evaluated )  Y  N  NA  
 RECORDS MAINTAINED OF CALIBRATION PROCEDURES.  Y  N  NA  
 CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE.  Y  N  NA

5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE.  Y  N  NA

6. HEAD MEASURED AT PROPER LOCATION.  Y  N  NA

7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES.  Y  N  NA

**SECTION F - LABORATORY**

PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS.  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes )  
 DETAILS:

1. EPA APPROVED ANALYTICAL PROCEDURES USED (40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES)  Y  N  NA

**SECTION F - LABORATORY (CONT'D)**

2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED  Y  N  NA
3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.  S  M  U  NA
4. QUALITY CONTROL PROCEDURES ADEQUATE.  S  M  U  NA
5. DUPLICATE SAMPLES ARE ANALYZED. 10 % OF THE TIME.  Y  N  NA
6. SPIKED SAMPLES ARE ANALYZED. 10 % OF THE TIME.  Y  N  NA
7. COMMERCIAL LABORATORY USED.  Y  N  NA

LAB NAME Bio-Aquatics Lab  
 2501 Mayers Road, Ste 100  
 LAB ADDRESS Carlton, TX 75006

PARAMETERS PERFORMED Biomonitoring/ Whole Effluent Toxicity

**SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS.**  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes ).

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	FLOAT SOL.	COLOR	OTHER
01	No	No	Yes	No	Slight	Green-Brown	

RECEIVING WATER OBSERVATIONS Effluent is turbid; Effluent exceedences for E.coli Bacteria and Fecal Coliform Bacteria in the preceding months – TRC detected in effluent by Inspector; See Further Explanations.

**SECTION H - SLUDGE DISPOSAL**

SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS.  S  M  U  NA (FURTHER EXPLANATION ATTACHED Yes ).  
 DETAILS: Solids Composting Site Not Evaluated

1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY.  S  M  U  NA
2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503.  S  M  U  NA
3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO: Composting On Site (e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)

**SECTION I - SAMPLING INSPECTION PROCEDURES** (FURTHER EXPLANATION ATTACHED Yes ).

1. SAMPLES OBTAINED THIS INSPECTION. TRC collected and analyzed only  Y  N  NA
2. TYPE OF SAMPLE OBTAINED  
 GRAB X COMPOSITE SAMPLE      METHOD      FREQUENCY
3. SAMPLES PRESERVED.  Y  N  NA
4. FLOW PROPORTIONED SAMPLES OBTAINED.  Y  N  NA
5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE.  Y  N  NA
6. SAMPLE REPRESENTATIVE OF VOLUME AND MATURE OF DISCHARGE.  Y  N  NA
7. SAMPLE SPLIT WITH PERMITTEE.  Y  N  NA
8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED.  Y  N  NA
9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT.  Y  N  NA

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

**Introduction**

On March 4, 2011 a Compliance Evaluation Inspection was conducted at the Town of Taos Wastewater Treatment Plant (WWTP) by Barbara Cooney of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB), Point Source Regulation Section (PSRS).

An inspection was conducted by NMED for the US Environmental Protection Agency (USEPA), Region VI, under the NPDES permit program, in accordance with the federal Clean Water Act. These inspections are conducted under contract with the USEPA and are used to evaluate compliance with the NPDES permit program. This inspection report is based on information supplied by the Town of Taos representatives (the permittee), observations made by the NMED Inspector, reports and records kept by the permittee or NMED, complaints made by the New Mexico Department of Game and Fish (DGF), and the Taos Pueblo.

The WWTP is classified as a major municipal discharger, with a design flow of two million gallons per day (MGD) and is assigned the NPDES permit number NM0024066. The discharge from the WWTP enters a man made channel leading to the Rio Pueblo de Taos in Segment 20.6.4.122NMAC of the Rio Grande Basin. The Rio Pueblo de Taos is classified in the New Mexico Water Quality Standard. The designated uses are coldwater aquatic life, fish culture, irrigation, livestock watering, wildlife habitat and primary contact. The Rio Pueblo de Taos is also considered by the Taos Pueblo to be within its jurisdiction as the northern banks of the river are Pueblo lands. The EPA website in the document, Pueblo of Taos Water Quality Standards, enacted August 13, 2002 lists: *[the] Rio Pueblo, Below Los Cordovas, as having the designated uses of domestic water supply (incl. groundwater recharge), wildlife habitat, cold water fishery, irrigation, livestock watering & wildlife watering, aquatic life (acute & chronic criteria), primary human contact/ceremonial use.*

**Complaint Details**

NMED SWQB received reports late in the day on Thursday March 3, 2011 from the Department of Game and Fish and complaints from Mr. Robert Gomez of the Taos Pueblo that dead fish were found in the Rio Pueblo de Taos below the outfall of the Town of Taos WWTP. The following morning of Friday March 4, 2011 the Inspector contacted the Town of Taos WWTP via telephone to learn if any upsets had recently occurred at the WWTP. According to both Mr. Jeff Burkett, and Ms. Celsa Vigil, employees of OMI, the contractor who operates the town of Taos WWTP, ongoing problems have been reported as a result of the construction at the WWTP. These problems have been occurring for several months, and include higher than normal turbidity, and effluent exceedences for Fecal Coliform and E. coli bacteria. The operators had been working with remedies to limit the effluent exceedences of bacteria by including a chlorination, de-chlorination process, while attempting various operational controls to limit the turbidity. Other than the problems already noted, plant representatives said nothing new and unusual had occurred at the WWTP in the preceding days.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

According to Manuel Overby of the DGF on Friday March 4, 2011:

*“We looked upstream and downstream of the confluence of the treatment plant discharge canal and the Rio Pueblo. Dead fish were found in the water down stream of the confluence but not upstream. Live fish were observed immediately upstream of the confluence (approximately 60 yards) while live fish were not observed downstream for approximately 1/4 mile. A more intensive survey netted approximately 250 dead fish of all size classes and species yet to be identified including brown trout, sucker and chub. I collected some 113 of those fish while the Pueblo collected approximately 2 dozen from the day before.”*

The Inspector observed the confluence of the treated wastewater ditch with the Rio Pueblo de Taos and approximately a total of 200 feet above and below the confluence. There were no dead fish observed at that location, at that time.

### **Inspection Details**

The Inspector notified plant personnel that she was going to conduct an inspection of the WWTP that day. The Inspectors arrived at the Taos WWTP at 13:30 hours, March 4, 2011. Upon arrival the Inspector was met at the entrance of the WWTP by Mr. Manuel Overby DGF and Mr. Robert Gomez of the Taos Pueblo. Mr. Overby requested the Inspector alter the inspection in order to include a site visit to the Rio Pueblo de Taos to collect chlorine samples from the river. After discussions with Mr. Overby and Mr. Gomez, the Inspector met with WWTP personnel. The Inspector showed her credentials and discussed the purpose of the inspection with Mr. Jeff Burkett, Plant Operator-Manager, for Operations Management Inc. (OMI). OMI is the contract operator of the WWTP for the Town of Taos. Later in the afternoon Mr. Amos Torres, Town of Taos joined the inspector. Additionally the Inspector met with Celsa Vigil, Certified Laboratory Operator and Mr. Terry Sheldon, Plant Operator, sampler and tester for Total Residual Chlorine (TRC). After initial introductions, the Inspector, with Mr. Burkett collected and took TRC readings of effluent samples at the effluent Parshall flume. Mr. Burkett took a split of the collected sample and also analyzed it for TRC. The Inspector then left the WWTP and accompanied by Mr. Overby, DGF went to the Rio Pueblo de Taos to sample for TRC. The inspector returned to the WWTP and continued the inspection with plant operators, and with Mr. Amos Torres, Utilities Director for the Town of Taos. An exit interview was held with Mr. Burkett, Mr. Torres, Ms. Vigil and Mr. Sheldon before the Inspectors left the WWTP at approximately 17:30 hours.

### **Treatment Units**

The wastewater treatment plant is undergoing major plant construction and upgrades that are altering normal plant processes. The construction was originally scheduled to already be completed. However, according to Mr. Burkett, the contractor is several months behind schedule, compounding any problems in the effectiveness of plant treatment of wastewater because of the cold winter weather. One of two aeration basins is off line and being rehabilitated.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

The raw wastewater arrives by gravity flow to the enclosed entrance works. The raw sewage is screened by parallel channels with bar screen - grinders. A manual bar screen bypass channel is located parallel to the mechanical screen. The removed solids are sent to a hopper and dried before final disposal. It then passes flow recording equipment into an aerated grit chamber. The raw sewage entering the treatment plant is largely septic due to the amount of time spent flowing through the collection system. The aerated grit chamber is the first unit in the treatment works to inject oxygen into the raw sewage to begin the aerobic treatment process for activated sludge. The solids removed from the grit chamber are combined with the other solids from the head works.

A station for septage haulers is located at the head works. In order to protect the WWTP process, septage haulers must test their loads for pH and other parameters before being allowed to dump the waste at the treatment plant. A log is kept of these loads.

Before construction there were proportional weirs at the end of the grit chamber, and the flow was split to the two rectangular aeration basins, 60% being sent to the West basin and 40% being sent to the East basin. The West basin is off line and is being rebuilt with upgraded treatment mechanisms including new fine bubble diffusers. The new plant design will incorporate a Membrane Bio Reactor (MBR) system that is designed to enhance treatment and Nitrogen removal. The remaining aeration basin that in the past received only 40% of the wastewater is now processing 100% of the sewage. This unit is equipped with three surface aerators and two mixers. The reduced treatment capacity is resulting in higher amounts of Total Suspended Solids (TSS) and reduced settling of solids.

Flow from the basin is delivered to the clarifier splitter box, which is outfitted with coarse bubbling aeration. The splitter box is designed for scum and grease removal. The removed scum and grease enters the sludge train for removal. Following the splitter box the flow is divided between the two trains of two clarifiers each. Within each train the clarifiers are run in series. As a result of the West aeration basin being off line, the plant is experiencing high levels of suspended solids that are interfering with the effectiveness of the Ultraviolet disinfection process. This has caused numerous exceedences of the bacterial limits for E. coli and Fecal Coliform. To compensate for the ineffective disinfection, operators are now chlorinating the secondary clarifiers, with a liquid solution of 10% and or 12% Sodium Hypochlorite. The delivery is set for a constant steady feed, and is not flow proportioned. The chlorine is delivered to the first clarifier each in both series. The operators attempted to reduce the TSS by introducing a form of flocculent at the splitter box following the aeration basin and preceding the clarifiers. This proved to be ineffective and it appears it was discontinued.

The decant from the two trains of clarifiers is sent through a fine screen for final removal of grease and foam before it enters the Ultra Violet (UV) disinfection chamber. This approximately 6'x4'x4' chamber with the fine screen is the delivery point for the de-chlorination agent, a liquid solution of 40% Sodium Bisulfite. The delivery of the de-chlorination is also set for a constant steady feed and is not flow proportioned. The rate of chlorination to de-chlorination is roughly 36 gallons of Sodium Hypo chlorite per day to 112 gallons of Sodium Bisulfite per day.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
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March 4, 2011

Operators stated that the proportional rates of chlorination to de-chlorination are based on calculations to determine the most effective treatment with an additional buffer of extra de-chlorination added to prevent any chlorine release in the effluent.

The UV chamber consists of two banks of lights with 14 modules of 8 bulbs each, that are kept submerged by a weighted check dam. The lights are turned on 100% of the time. Following in the treatment train is a 12 inch Parshall flume and staff gauge with a backup Drexelbrook flow measurement device. A portion of the flow is diverted to a golf course storage pond for reuse irrigation during the warm months of the year. At this time, no water was being diverted to the irrigation ponds.

### Sludge

Solids, as Return Activated Sludge (RAS), are pumped either to the end of the aeration grit chamber, where the blowers help to mix the RAS into the incoming raw sewage located just ahead of the aeration basin, or are pumped to the Waste Activated Sludge (WAS) train.

From the remaining aeration basin and from 2 of the 4 secondary clarifiers, , sludge that consists of 2% - 5% solids, is sent to the belt press for dewatering. A polymer coagulant is added to the solids. From the belt press solids are filled into a dump truck and taken to the newly built composting pad, to be mixed with wood chips for composting. The liquid from the belt press is sent back to the splitter box at the end of the aerated grit chamber. The composting pad is approximately 114'x172' and fitted with an under-drain that sends liquids to the sludge pond on site.

### Further Explanations

Note: The sections are arranged according to the format of the enclosed EPA Inspection Checklist (Form 3560-3), rather than being ranked in order of importance.

**Section A – Permit Verification – Overall Rating of “Satisfactory”**

**Section B – Record Keeping and Reporting – Overall Rating of “Unsatisfactory ”**

### Permit Requirements for Record Keeping and Reporting

The permit states in Part III.D. Reporting Requirements:

*4. Discharge Monitoring Reports And Other Reports  
Monitoring results must be reported on Discharge Monitoring Report (DMR) Form EPA No. 3320-1 in accordance with the “General Instructions” provided on the form. The permittee shall submit the original DMR signed and certified as required in Part III.D. II and all other reports required by Part III.D. to the EPA at the address below. Duplicate copies of DMR’s and all other reports shall be submitted to the State agency (ies) at the following address (es):*

*EPA:*

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

*Compliance Assurance and Enforcement Division  
Water Enforcement Branch (6EN-W)  
U.S. Environmental Protection Agency, Region 6  
1445 Ross Avenue  
Dallas, TX 75202-2733*

*New Mexico:  
Program Manager  
Surface Water Quality Bureau  
New Mexico Environment Department  
P.O. Box 26110  
1190 Saint Frances Drive  
Santa Fe, NM 87502*

The permit states in Part III.D. Reporting Requirements: 7. Twenty-four Hour Reporting:

- a. the permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall be provided within 5 days of the time the permittee becomes aware of the circumstances. The report shall contain the following information:*
  - (1) A description of the noncompliance and its cause;*
  - (2) The period of non compliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and,*
  - (3) Steps being taken to reduce, eliminate, and prevent recurrence of the noncomplying discharge.*

The permit requires in Part III.C. Monitoring Records: 3. *Retention Of Records:*

*The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recording for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Director at any time.*

The permit requires in Part III.C. Monitoring Records: 4. *Records Contents:*

Records of monitoring information shall include:

- a. The date, exact place and time of sampling or measurement.
- b. The individual(s) who performed the sampling or measurements;
- c. The date(s) and time(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used;
- f. The results of such analyses.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
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March 4, 2011

**Findings for Record Keeping and Reporting**

1. Discharge Monitoring Reports are typically received within the required time, and correctly filled out.

2. Throughout the construction process, OMI/ Town of Taos WWTP personnel have been in frequent contact with NMED - SWQB and EPA to report construction progress, effluent exceedences for E.coli bacteria, and the corrective actions being taken.

3. As part of this inspection, records were reviewed for the months of January, February, and up to March 4, 2011, for laboratory and operations and maintenance.

The permittee was able to provide many records requested by the Inspector, however some records were missing and/or not otherwise provided.

Records provided to the Inspector include laboratory bench sheets for:

- 5 day Biochemical Oxygen Demand (BOD5)
- Total Residual Chlorine (TRC) Sampling for January 2011
- Total Suspended Solids
- pH
- E.coli
- Fecal Coliform bacteria
- Totalized influent, Return Activated Sludge and effluent flow records (see attachment)
- Whole Effluent Toxicity Tests

4. Missing Records Include:

4.a. Operation and Maintenance Records. Mr. Burkett said daily O& M records are kept in individual logs by each operator, and there is no central check list or log maintained at the facility. None of these records were made available for review, as requested by the inspector.

4.b The permittee should be maintaining daily operational logs. Additionally, there should be Standard Operating Procedures (SOPs), even though construction has altered plant operations, SOP should be maintained and up to date.

5. Total Residual Chlorine (TRC) records for the period of January 18 though January 31, 2011 were provided to the Inspector. No records for February or March 2011 were provided as requested.

6. The records for TRC from January 18 though January 31, 2011 were missing some required information. Missing information includes:

time of sample collection

time of sample analyses

Analytical method used for the analysis

One initial was recorded- presumably the sample collection and the sample analysis was done by the same person, but it was not clearly stated on the record.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

**Section C - Operation and Maintenance – Overall Rating of “Unsatisfactory”**

**Permit Requirements for Operation and Maintenance**

The permit requires, in Part III, Section B.3. , Proper Operation and Maintenance

*a. The permittee shall at all times properly operate and maintain all facilities and system of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit...*

*b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operations, maintenance and testing functions required to insure compliance with the conditions of this permit.*

**Findings for Operation and Maintenance**

During the site review of the WWTP the following observations were made:

1. The WWTP is currently under construction. Plant operations and treatment schemes have been modified as treatment units have been taken off line for rebuild, including the West Aeration Basin. According to Mr. Burkett, the contractors were very far behind in construction. The construction was originally scheduled to be completed before winter cold weather was impacting plant processes.

2. The East aeration basin that normally processes 40% of the raw sewage is now processing 100%. The basin was a light brown-grey color, indicating that biological treatment is stressed and not functioning optimally. This is also resulting in higher than normal solids being sent to the secondary clarifiers.

The temporarily installed chlorination and de-chlorination delivery systems were observed and appeared to be operating as designed. There were no indications of surges and or interruptions in the delivery.

3. The Ultra Violet (UV) disinfection channel was heavily coated with algae, and floating solids. It appeared that operators had completely abandoned maintaining this treatment unit while using Chlorine disinfection. The problems with turbidity and ineffective disinfection have resulted in numerous exceedences of permit limits for E. coli and Fecal Coliform bacteria.

4. The downhill perimeter of the WWTP was observed for any evidence of recent runoff or potential dumping of any material and/or substances that could make it's way to the Rio Pueblo de Taos. The WWTP does not have any constructed berms or containment around the WWTP to prevent runoff. Indications of recent flows of liquid and/or material off site were not evident.

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

**Section D – Self Monitoring – Overall Rating of “Satisfactory”**

**Section E – Flow Measurements – Overall Rating of “Satisfactory”**

**Section F - Laboratory - Overall Rating of "Satisfactory"**

**Permit Requirements for Laboratory**

The permit requires, in Part III, Section B.3. , Proper Operation and Maintenance

*a. ...Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures...*

The permit requires, in Part III, Section 5. , Monitoring Procedures

*a. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in the permit or approved by the Regional Administrator.*

**Findings for Laboratory**

Laboratory records were reviewed for January, February and the first week of March 2011.

The records review include bench sheets and summary reports for:

Biochemical Oxygen Demand (BOD)

pH

Total Suspended Solids (TSS)

Total Residual Chlorine (TRC)

Bacteria, E. coli, and Fecal Coliform

Bio-monitoring records were also reviewed. The most recent Bio-monitoring – Whole Effluent Toxicity test was conducted in December 2010 and passed.

With the exception of missing information in the TRC records (noted in the Record Keeping and Reporting section of this report), no adverse finding were made of the laboratory records and procedures.

Town of Taos Wastewater Treatment Plant  
 Compliance Evaluation Inspection  
 NPDES Permit Number NM0024066  
 By New Mexico Environment Department, Surface Water Quality Bureau  
 March 4, 2011

**Section G - Effluent and Receiving Water - Overall Rating "Unsatisfactory"**

**Permit Requirements for Effluent/Receiving Waters**

The permit requires in Part I. A. Effluent Limitations and Monitoring Requirements:

Parameter	Quantity Loading Lbs/day		Quality Concentration Mg/L (unless otherwise specified)			Frequency	Sample Type
	30 day avg	7day avg	30 day avg	7day avg	Daily max		
pH				Minimum 6.6 s.u.	Maximum 8.8 s.u.	Once/week	Grab
Flow						Continuously	
BOD	500		30	45		Once/week	6-hr composite
TSS	500		30	45		Once/week	6-hr composite
Fecal <sup>*1</sup> Coliform Bacteria			500 cfu	500 cfu		Once/week	grab
E.coli Bacteria			126 cfu		235 cfu	Once/week	grab
Total Residual Chlorine					0.019µg/L	Daily *when in use	grab
<b>Whole Effluent Toxicity Testing</b>							
Ceriodaphnia Dubia						Once/Quarter *8	24hr. Composite
Pimephales promelas						Once/Quarter *8	24 hr. Composite

**Footnote \*1, States:**

The permittee shall continue monitoring for both Fecal Coliform bacteria and E. coli bacteria until the agency approves the E. coli limitations as stated in the revise New Mexico Water Quality Standards. The permittee may discontinue Fecal Coliform bacteria monitoring when the Region approves the water quality standard for E.coli, at which point the water standard will effectively replace the Fecal Coliform parameter within the document and update the Water Quality Management Plan.

**Footnote \*8, States:**

The monitoring frequency shall be once per quarter for the first year of the permit is effective. If no toxic effects are found during that first year of testing, the required monitoring frequency shall be reduced to once per six months for Ceriodaphnia dubia and once per year for Pimephales promelas. Should any future testing show toxic effects, the required monitoring frequency for both Ceriodaphnia dubia and Pimephales

Town of Taos Wastewater Treatment Plant  
 Compliance Evaluation Inspection  
 NPDES Permit Number NM0024066  
 By New Mexico Environment Department, Surface Water Quality Bureau  
 March 4, 2011

*promelas shall be increased to once per quarter for the life of the permit. The monitoring frequency shall revert to once per quarter on the last day of the life of the permit.*

**Finding for Effluent / Receiving Waters**

The facility's effluent exceeded the permit limits for E.coli bacteria, and for Fecal Coliform bacteria in recent months. It was observed that the effluent water was a very turbid green-brown and the effluent flow channel had visible algal growth on the walls and floor of the chamber. The UV lights were heavily coated with algae.

**Effluent Exceedences as Reported on DMRs for 2010 and 2011:**

Date	Parameter	Effluent Exceedence
January 2011	E. coli Bacteria Daily Max 235 cfu/100mL	>8000 cfu
January 2011	E. coli Bacteria 30 Day Avg 126 cfu/100mL	>1800 cfu
January 2011	Fecal Coliform 7 Day Avg 500 cfu	>6000 cfu
January 2011	Fecal Coliform 30 Day Avg 748 cfu	>748 cfu
December 2010	E. coli Bacteria Daily Max 235 cfu/100mL	>8000 cfu
December 2010	E. coli Bacteria 30 Day Avg 126 cfu/100mL	1698 cfu
December 2010	Fecal Coliform 7 Day Avg 500 cfu	4000 cfu
October 2010	E. coli Bacteria Daily Max 235 cfu/100mL	250 cfu
June 2010	BOD5	Missing value

TRC samples were analyzed by the Inspector and levels above the permit limit were found in the effluent. The effluent sample being tested for TRC was split with Mr. Burkett, who also analyzed the sample. Mr. Burkett reported that the concentration found was 0.00 µg/L.

**Total Residual Chlorine Samples (TRC) at the WWTP outfall:**

Sample Time	Sample Analysis Time	Sample Results	Sample Collector	Sample Analyst
13:50	13:53	0.07 mg/L	Mr. Jeff Burkett	Barbara Cooney
13:50	13:56	0.03 mg/L	Mr. Jeff Burkett	Barbara Cooney
13:50	13:59	0.06 mg/L	Mr. Jeff Burkett	Barbara Cooney

Analysis was performed on site with a Hach<sup>®</sup> Chlorine Pocket Colorimeter using the DPD-method [APHA-4500CL(G)] with factory calibration. Accuracy of each reading is plus or minus 0.02 mg/L.

Town of Taos Wastewater Treatment Plant  
 Compliance Evaluation Inspection  
 NPDES Permit Number NM0024066  
 By New Mexico Environment Department, Surface Water Quality Bureau  
 March 4, 2011

**Additional Sampling**

As previously noted, the Inspector took water samples and analyzed them for Total Residual Chlorine from the treated wastewater ditch just above the confluence with the Rio Pueblo de Taos; in the mixing zone of the Rio Pueblo de Taos below the confluence with the ditch; and a sample was taken from an eddy on the opposite side of the Rio Pueblo de Taos from the confluence. These ditch and river samples were collected and analyzed with the assistance of Mr. Manuel Overby DGF. Due to limited accessibility, safety and time limitations, no samples were taken up stream from the confluence of the return flow ditch and the Rio Pueblo de Taos.

Those sample results are:

Sample Time	Sample Collection Time	Sample Analysis Time	Sample Results	Sample Collector	Sample Analyst
Below Confluence approx 30 feet	14:18	14:20	0.00 mg/L	Barbara Cooney	Barbara Cooney
Below Confluence approx 30 feet	14:22	14:24	0.06 mg/L	Barbara Cooney	Barbara Cooney
Below confluence approx 15 feet	14:27	14:30	0.05mg/L	Barbara Cooney	Barbara Cooney
Eddy across on the opposite side of the river	14:34	14:40	0.05 mg/L	Manuel Overby	Barbara Cooney
Effluent Ditch	14:44	14:49	0.01 mg/L (below detect limit of meter)	Manuel Overby	Barbara Cooney

Analysis was performed on site with a Hach<sup>®</sup> Chlorine Pocket Colorimeter using the DPD-method [APHA-4500CL(G)] with factory calibration. Accuracy of each reading is plus or minus 0.02 mg/L.

**Sampling Discussion**

This inspection was conducted in response to reports of dead fish in the receiving water where the WWTP discharges. This inspection was conducted on very short notice, and no time was available to prepare a full Compliance Sampling Inspection (CSI). This inspection was intended primarily to evaluate the operations at the WWTP. A separate more comprehensive sampling event was not possible due to time limitations.

NMED -SWQB Monitoring and Assessment Section (MAS) conducted a more extensive investigation of the Rio Pueblo de Taos in response to the reports of dead fish (see attachment).

Town of Taos Wastewater Treatment Plant  
Compliance Evaluation Inspection  
NPDES Permit Number NM0024066  
By New Mexico Environment Department, Surface Water Quality Bureau  
March 4, 2011

**Section H - Sludge Disposal - Overall Rating of "Not Evaluated"**

**Findings for Sludge Disposal**

The facility now has an onsite composting processing. Due to time limitations, this was not evaluated as part of this inspection.

**Summary Discussion**

The information found as part of this inspection was not sufficient to conclusively identify the source and cause of the reported fish kill. As described in preceding sections of this report, problems were found in the areas of Operations and Maintenance, Recordkeeping and Reporting, Effluent and Receiving Water. These areas must be addressed by the permittee to insure compliance with the NPDES permit and to be protective of the receiving water, the Rio Pueblo de Taos.

**Attachments**

- A. Photos 1-13
- B. Waste Water Treatment Plant Flow Records
- C. Memo – Rio Pueblo de Taos Fish Kill

NMED/SWQB  
Official Photograph Log  
Photo # 1

Photographer: Google Earth

Date: November 15, 2006

Time: Unknown

City/County: Taos / Taos County

State: New Mexico

Location: Taos WWTP to the Rio Pueblo de Taos

Subject: Google Earth Image



NMED/SWQB  
Official Photograph Log  
Photo # 2

Photographer: Barbara Cooney

Date: March 4, 2011

Time: 13:55

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP effluent ditch confluence with the Rio Pueblo de Taos

Subject: Confluence



NMED/SWQB  
Official Photograph Log  
Photo #3

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 13:57

City/County: Taos / Taos

State: New Mexico

Location: Rio Pueblo de Taos below the confluence with the Taos WWTP Effluent Ditch

Subject: Down Stream looking up to the Confluence of the Taos WWTP Effluent Ditch and the Rio Pueblo de Taos



NMED/SWQB  
Official Photograph Log  
Photo # 4

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 14:17

City/County: Taos / Taos

State: New Mexico

Location: Rio Pueblo de Taos

Subject: Manuel Overby, DGF collecting a river sample in the eddy across from the confluence of the WWTP effluent ditch with the Rio Pueblo de Taos.



NMED/SWQB  
Official Photograph Log  
Photo # 5

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 13:39

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: Chlorine meter reading of 0.06 mg/L Total Residual Chlorine at the Taos WWTP effluent channel.



NMED/SWQB  
Official Photograph Log  
Photo #6

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 15:48

City/County: Taos / Taos County

State: New Mexico

Location: Taos WWTP

Subject: WWTP U V disinfection Chamber, Very Turbid effluent water, with algal growth stringing off the light bulbs.



NMED/SWQB  
Official Photograph Log  
Photo # 7

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 15:02

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: West Aeration basin off line for construction.



NMED/SWQB  
Official Photograph Log  
Photo # 8

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 15:07

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: Secondary Clarifier with chlorine feed line. Note the white tubing in the center bottom of the photo.



NMED/SWQB  
Official Photograph Log  
Photo # 9

Photographer: Barbara Cooney

Date: March 04, 2011

Time: 16:00

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: West Aeration Basin being fitted with fine bubble diffuse aerators



NMED/SWQB  
Official Photograph Log  
Photo # 10

Photographer: Barbara cooney

Date: March 04, 2011

Time: 15:44

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: New building in the background under construction. Note in the far right of the picture are the composting piles for the solids at the WWTP.



NMED/SWQB  
Official Photograph Log  
Photo # 11

Photographer: Barbara cooney

Date: March 04, 2011

Time: 15:40

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: Ditch along Cordova Road at WWTP does not show recent discharges or flow at the time of the inspection. However the site does not have any berm or physical containment in place.



NMED/SWQB  
Official Photograph Log  
Photo # 12

Photographer: Barbara cooney

Date: March 04, 2011

Time: 15:42

City/County: Taos / Taos

State: New Mexico

Location: Taos WWTP

Subject: Ditch along down grade side of WWTP does not show recent discharges or flow at the time of the inspection. However the site does not have any berm or physical containment in place.



NMED/SWQB  
Official Photograph Log  
Photo # 13

Photographer: Barbara cooney

Date: March 04, 2011

Time: 15:40

City/County: Taos / Taos

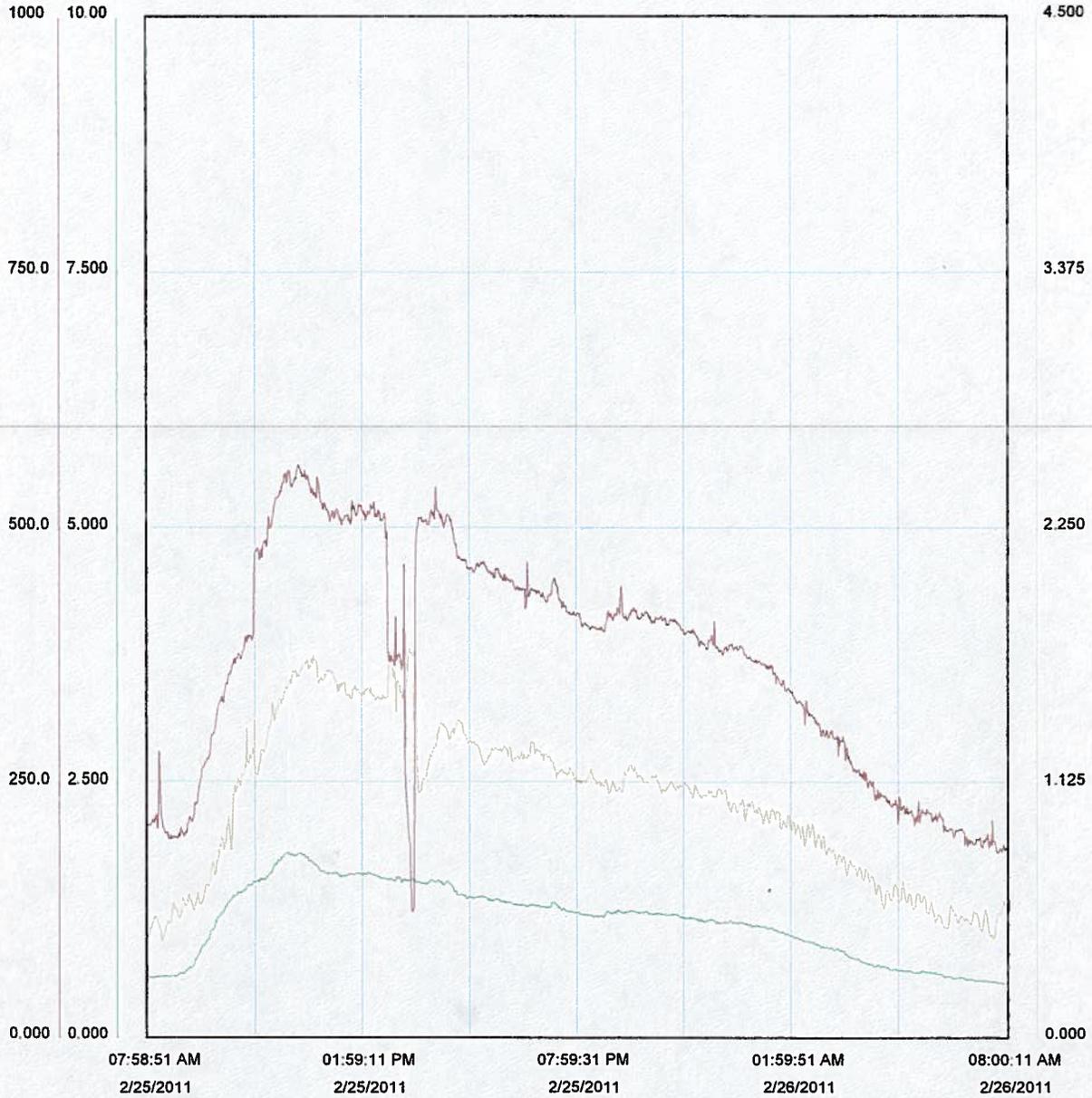
State: New Mexico

Location: Taos WWTP

Subject: Town of Taos Drinking Water Chlorination and Distribution Station. Located across Cordova Road from WWTP. Processes water from Well by river.



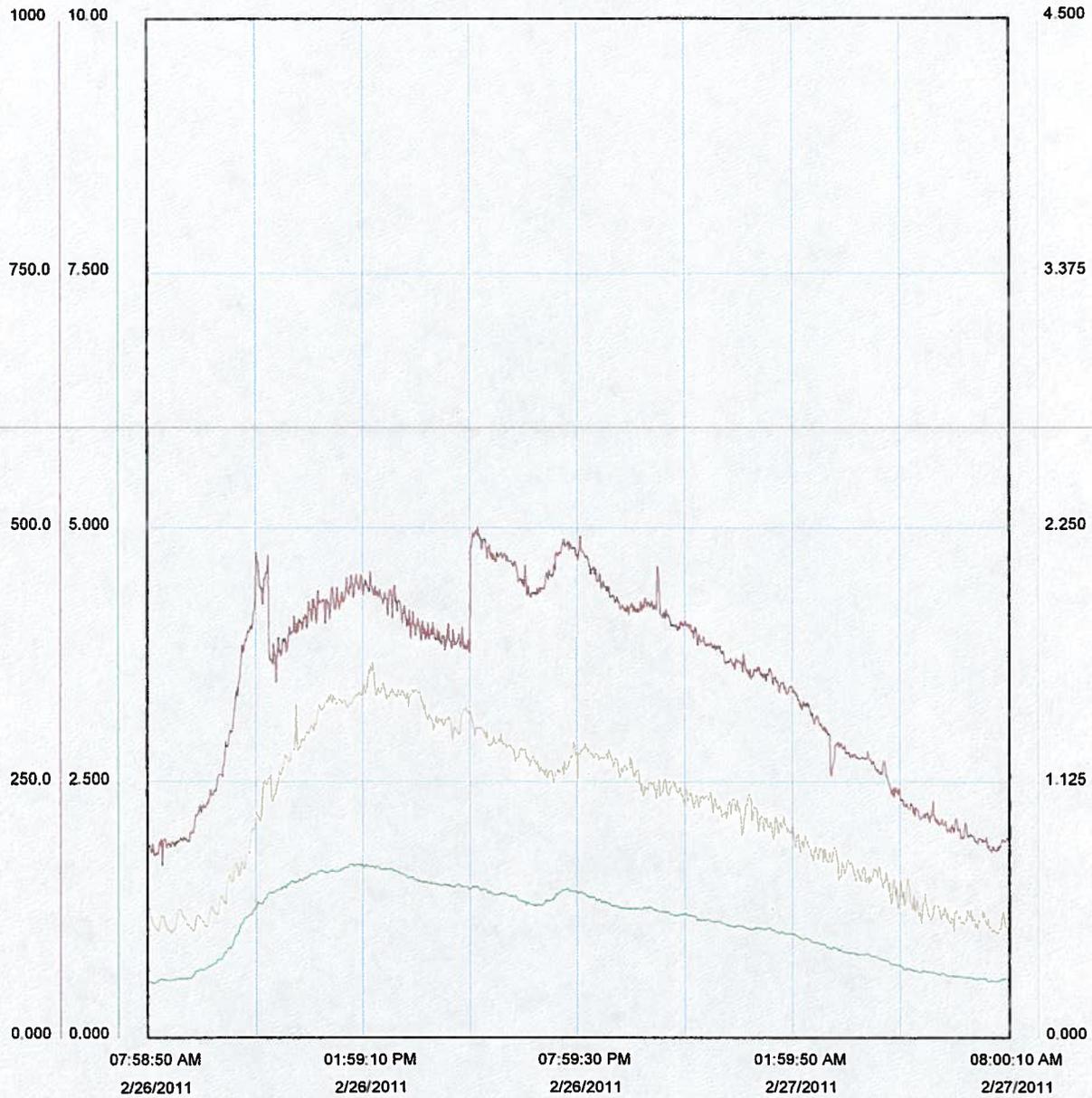
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.528	1.803	1.144	0.000	10.00	MGD
<span style="color: grey;">—</span>	EFFLUENTFL OW	Effluent flow	0.424	1.719	1.051	0.000	4.500	MGD
<span style="color: brown;">—</span>	RASFLOW	RAS flow	122.2	562.1	370.7	0.000	1000	GPM

*All flows on + running  
CGS 2/25/11*

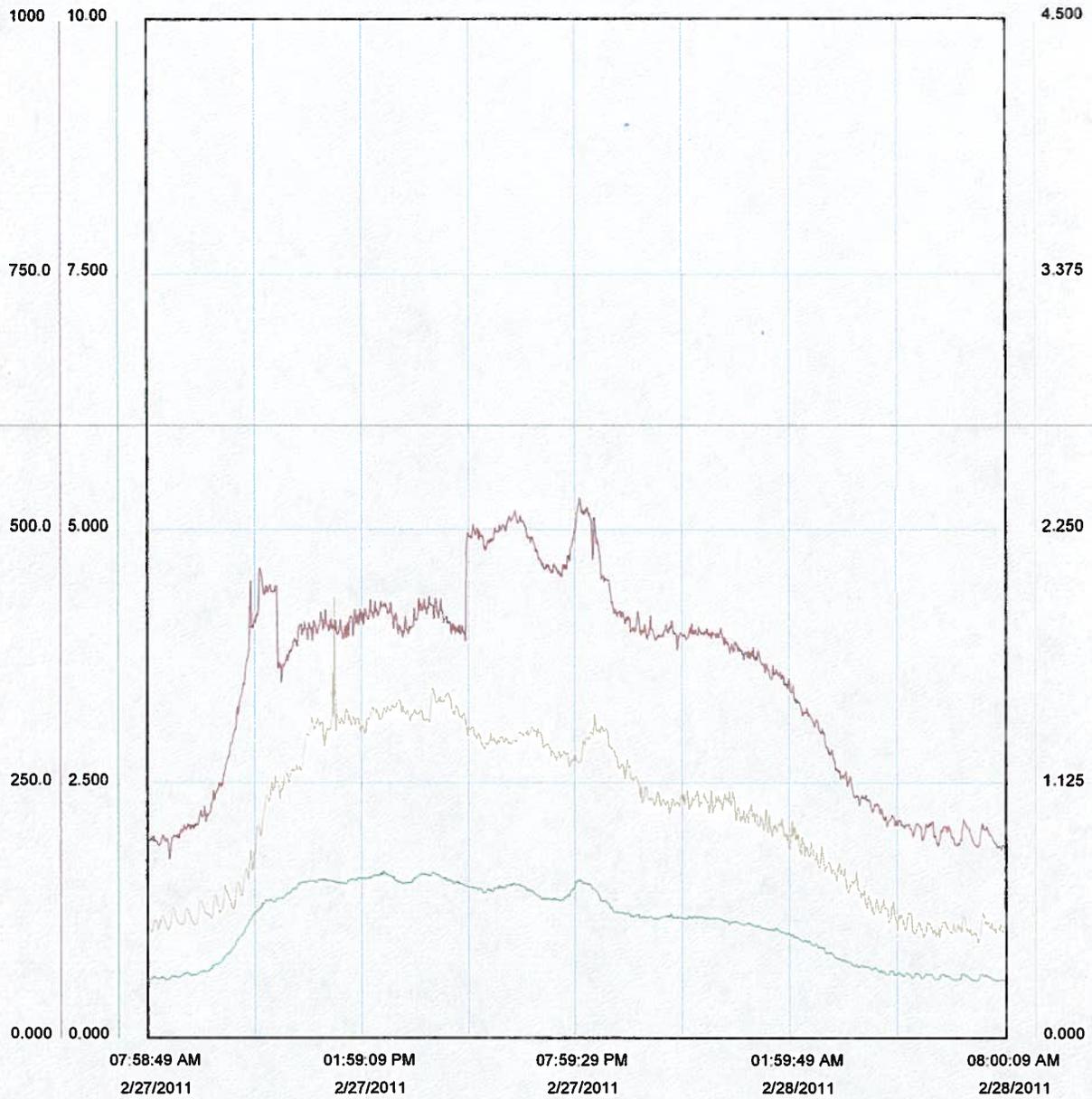
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.524	1.694	1.128	0.000	10.00	MGD
<span style="color: yellow;">—</span>	EFFLUENTFL OW	Effluent flow	0.455	1.664	1.014	0.000	4.500	MGD
<span style="color: red;">—</span>	RASFLOW	RAS flow	167.7	501.3	355.0	0.000	1000	GPM

*All flows on + running  
CGL 2/28/11*

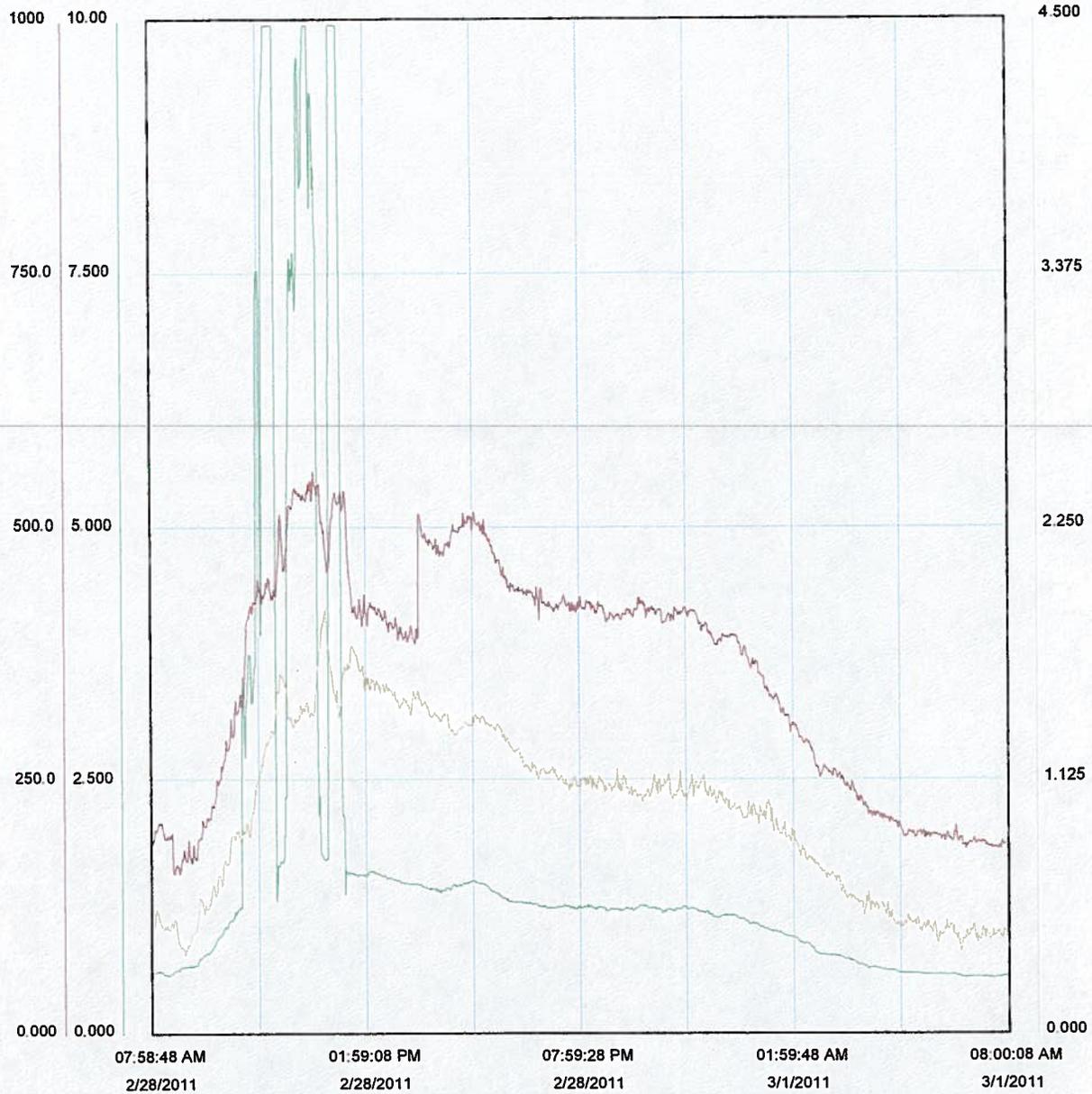
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.550	1.635	1.120	0.000	10.00	MGD
<span style="color: yellow;">—</span>	EFFLUENTFL OW	Effluent flow	0.419	1.951	0.994	0.000	4.500	MGD
<span style="color: red;">—</span>	RASFLOW	RAS flow	175.9	531.4	354.7	0.000	1000	GPM

*all flows out running  
CBV 2/28/11*

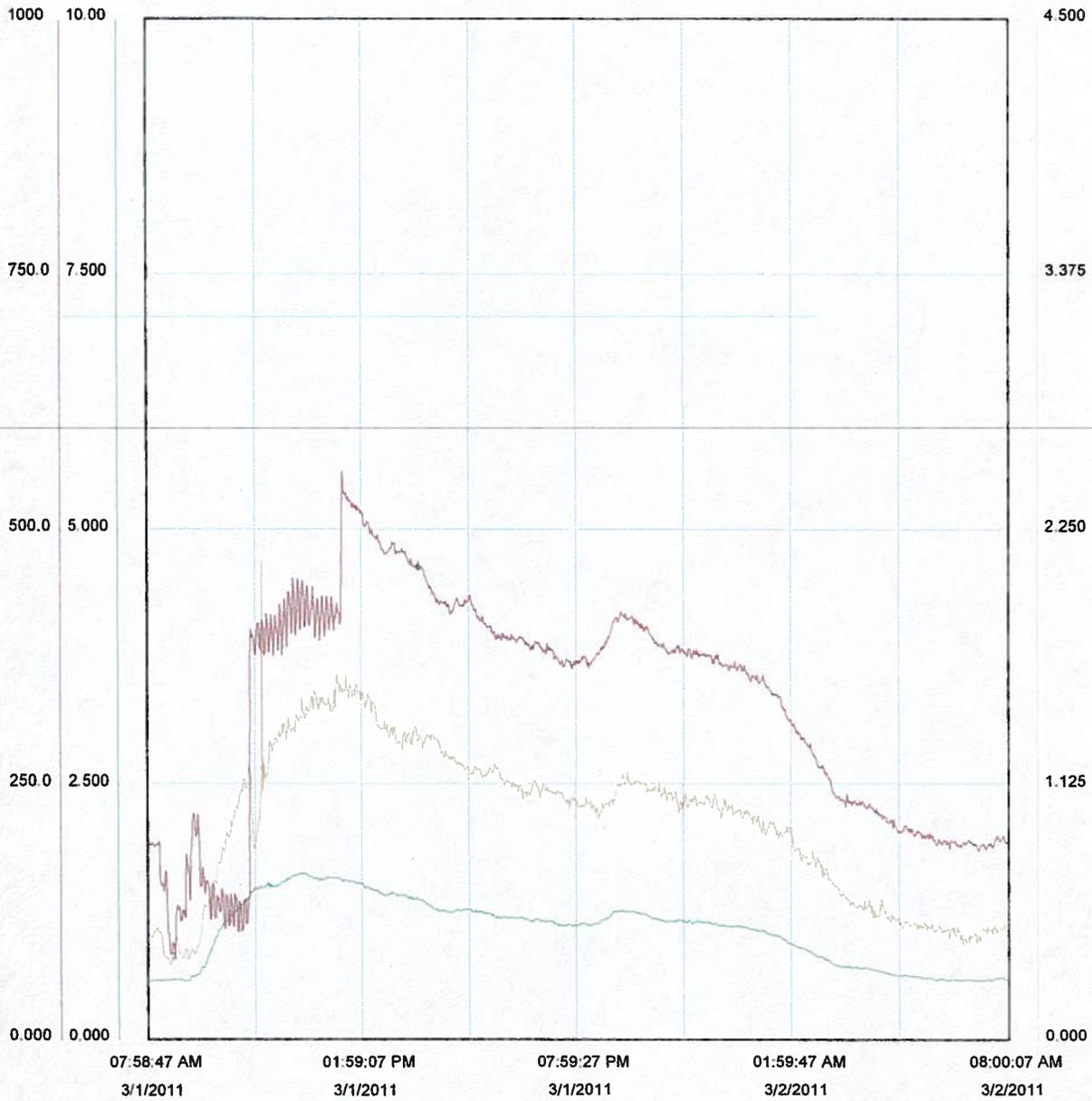
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.541	9.95	1.671	0.000	10.00	MGD
<span style="color: brown;">—</span>	EFFLUENTFL OW	Effluent flow	0.344	1.882	1.005	0.000	4.500	MGD
<span style="color: red;">—</span>	RASFLOW	RAS flow	157.8	554.9	356.8	0.000	1000	GPM

*All flows are running  
CB 3/1/11*

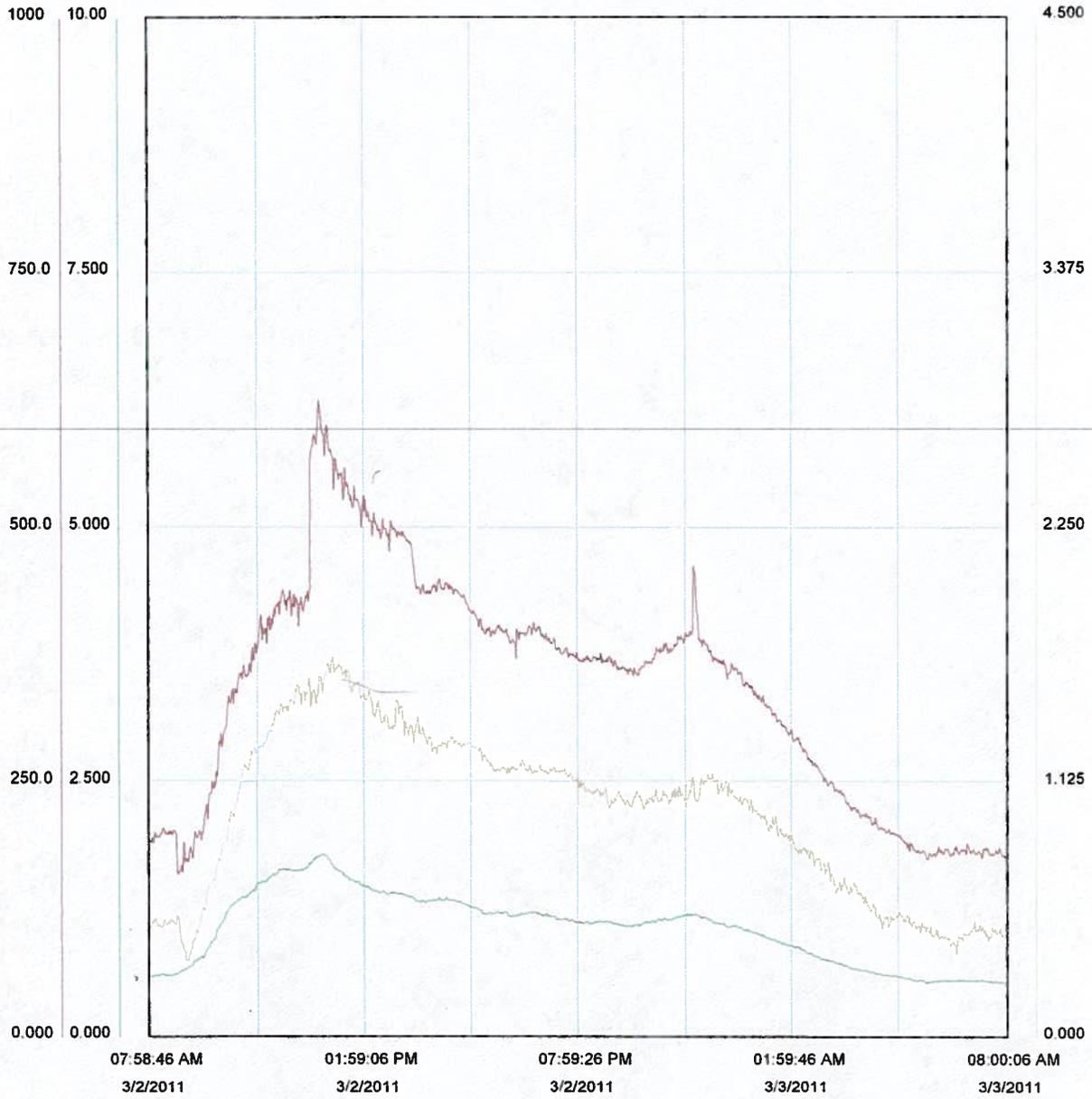
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.556	1.631	1.070	0.000	10.00	MGD
<span style="color: brown;">—</span>	EFFLUENTFL OW	Effluent flow	0.326	2.114	0.964	0.000	4.500	MGD
<span style="color: red;">—</span>	RASFLOW	RAS flow	77.56	556.6	329.8	0.000	1000	GPM

*all flows on + running  
CMT 3/2/11*

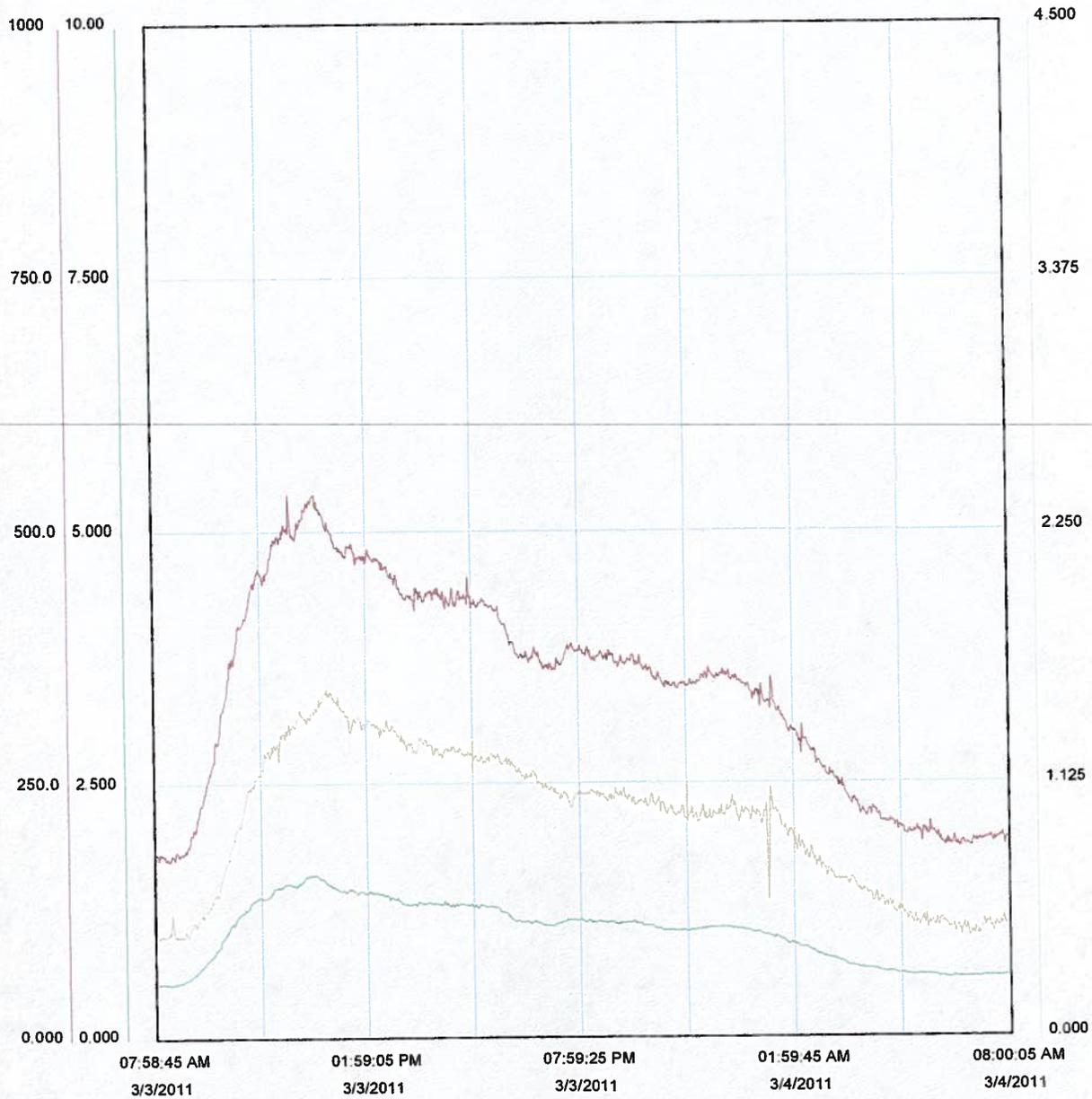
# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
	INFLUENTFL OW	Influent flow	0.524	1.785	1.067	0.000	10.00	MGD
	EFFLUENTFL OW	Effluent flow	0.333	1.681	0.998	0.000	4.500	MGD
	RASFLOW	RAS flow	159.0	624.9	343.2	0.000	1000	GPM

*All flows on + going  
CAY 3/3/11*

# OMI TAOS WWTP FLOW TREND



Legend	Trend Name	Comment	Min.	Max.	Avg.	Min. Scale	Max. Scale	Eng. Units
<span style="color: green;">—</span>	INFLUENTFL OW	Influent flow	0.518	1.610	1.040	0.000	10.00	MGD
<span style="color: yellow;">—</span>	EFFLUENTFL OW	Effluent flow	0.441	1.557	0.971	0.000	4.500	MGD
<span style="color: red;">—</span>	RASFLOW	RAS flow	173.4	537.1	345.7	0.000	1000	GPM



NEW MEXICO  
ENVIRONMENT DEPARTMENT



*Surface Water Quality Bureau*

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DAVE MARTIN  
Secretary

RAJ SOLOMON, P.E.  
Deputy Secretary

To: Glenn Saums, Program Manager, Point Source Regulation Section  
From: Gary Schiffmiller, Monitoring and Assessment Section  
Cc: James Hogan, Program Manager, Monitoring and Assessment Section  
Date: 22 March 2011  
Re: Rio Pueblo de Taos fish kill

On Friday, 11 March 2011, Gary Schiffmiller of the Monitoring and Assessment Section and Daniel Guevara of the Watershed Protection Section conducted a focused sampling investigation of the Rio Pueblo de Taos in the vicinity of the Taos wastewater treatment plant (WWTP). The purpose of the sampling was to gather water quality information following a reported fish kill, which occurred Thursday, 3 March.

We sampled for bacteria (*E. coli* and total coliform bacteria), nutrients (including ammonia, which can be toxic to aquatic organisms), and total residual chlorine in four locations:

1. Rio Pueblo de Taos above the effluent channel
2. Rio Pueblo de Taos below the effluent channel
3. Taos WWTP effluent channel immediately above the Rio Pueblo de Taos
4. WWTP flume (not shown in photo)

Additionally, we performed a visual inspection for dead fish from below the effluent channel (location 2) for approximately 200 meters downstream (location 5), and also at the USGS gauge station.



Preliminary ammonia results from the Scientific Laboratory Division are at location 1: 0.00 mg/L as N; at location 2: 0.55 mg/L as N; at location 3: 21.8 mg/L as N; location 4: 20.8 mg/L as N. Nitrate values were all below detection. These data, if verified and finalized by the laboratory, indicate that the Taos WWTP does input ammonia to the Rio Pueblo de Taos. The concentration at the downstream site is consistent with the mixing of this effluent with stream water and this sample having been collected below the mixing zone. The downstream concentration (0.55 mg/L) is less than the applicable water quality standards (acute (salmonids present) = 1.6 mg/L; chronic (early life stages present) = 0.85 mg/L) at the stream temperature (11.06°C) and pH (8.66).

*E coli* results at location 1 were 7.4 cfu/100 mL; at location 2, 7.5cfu/100 mL; at location 3, 52.8 cfu/100 mL; at location 4, 37.9 cfu/100 mL. All values are below the applicable water quality standard of 126 cfu/100mL (monthly geometric mean).

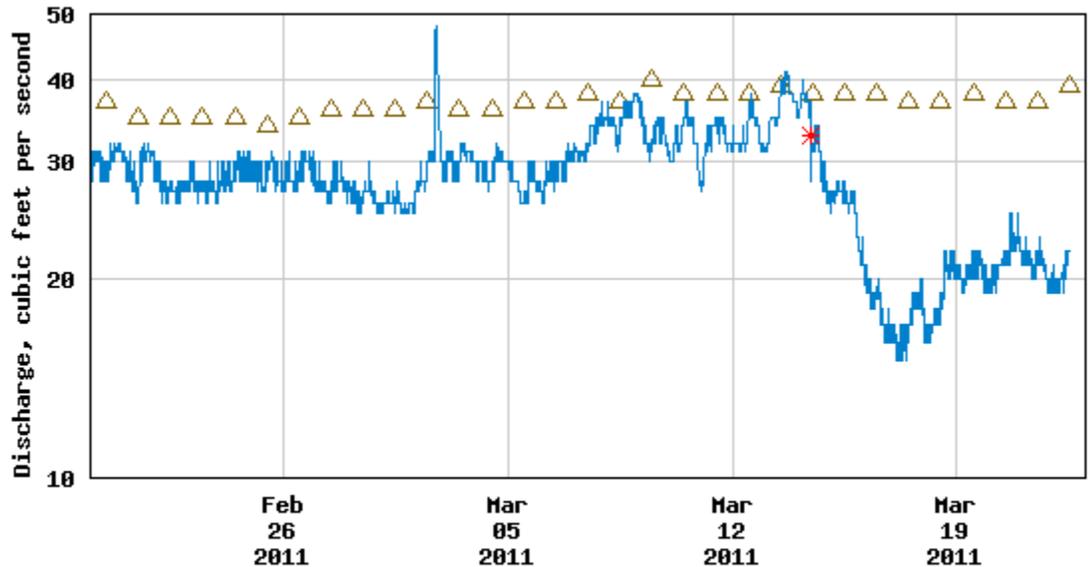
Total residual chlorine results were 0.08 ppm, 0.05 ppm, 0.00 ppm, and 0.00 ppm for locations 1-4, respectively. Analysis was performed on site with a Hach® Chlorine Pocket Colorimeter using the DPD-method [APHA-4500-CL(G)] with factory calibration.

The values measured in the Rio Pueblo de Taos (sites 1 and 2) are above the applicable aquatic life criteria (chronic = 0.011mg/L; acute = 0.019 mg/L). Total residual chlorine, however, is very rare in rivers. It does not occur naturally, and as chlorine is very reactive, it does not persist. Because we recorded total residual chlorine in the river upstream of the effluent, and also because we did not find any chlorine in the effluent, we suspected either an undocumented chlorine discharge or, more likely, a false positive reading.

In an attempt to discern what was actually occurring, Gary Schiffmiller and Daniel Valenta (Point Source Regulation Section) returned to the Rio Pueblo de Taos on Thursday, 17 March 2011. A sample of raw river water taken upstream of the WWTP effluent channel yielded a total residual chlorine result of 0.11 ppm. We then dechlorinated a sample of river water, using sodium thiosulfate, and the resulting reading was 0.14 ppm. We went approximately 300 meters upstream (and observed several dozen apparently healthy fish along the way) and took another sample of river water that yielded a chlorine reading of 0.11 ppm. These results lead us to believe that we are getting false positive readings for chlorine from Rio Pueblo de Taos water. According to Hach, Inc., false positive readings for chlorine are possible in natural surface waters due to interference from metals, such as manganese or chromium. Data on metals was collected from the Rio Pueblo de Taos at this location in 2009. Four samples were collected, all had detectable levels of manganese (0.024 to 0.33 mg/L) and were consistently higher than other waters in the region (e.g. Rio Grande, Rio Hondo). The consistent and elevated levels manganese further confirm that these measured values were false positives.

A review of USGS stream flow data from the gauge shown on the above photo (Rio Pueblo de Taos below Los Cordovas) indicated a spike in stream flow from about 18:00 to 20:00 on 2 March, the evening before the fish kill was originally reported. No such spike is indicated in the data from the next upstream gauge, Rio Pueblo de Taos near Taos (which is in the canyon above the Taos Pueblo). The spike in flow brought the river from about 30 cfs to 48 cfs for a brief time.

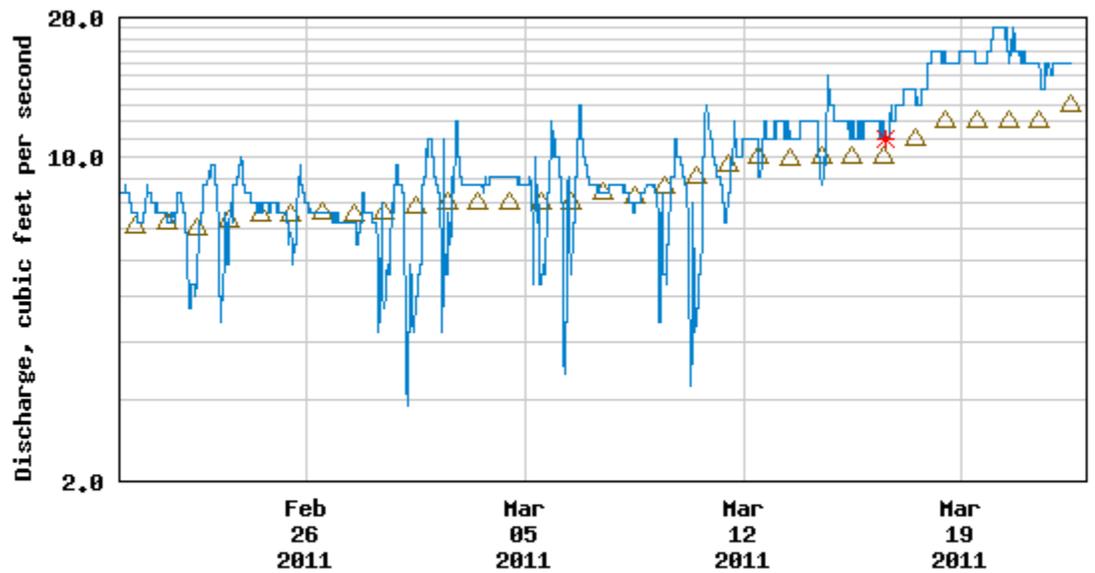
USGS 08276300 RIO PUEBLO DE TAOS BELOW LOS CORDOVAS, NM



----- Provisional Data Subject to Revision -----

△ Median daily statistic (53 years) \* Measured discharge  
— Discharge

USGS 08269000 RIO PUEBLO DE TAOS NEAR TAOS, NM



----- Provisional Data Subject to Revision -----

△ Median daily statistic (62 years) \* Measured discharge  
— Discharge