
APPENDIX H
CPE

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**BRILIAM
ENGINEERING**



COMPREHENSIVE PERFORMANCE EVALUATION (CPE) REPORT

VILLAGE OF TAOS SKI VALLEY WASTEWATER TREATMENT PLANT

Prepared for:
*Village of Taos Ski Valley
Taos, New Mexico*

August 2014

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. EXISTING FACILITY OVERVIEW	4
2.1. Flow and Loading Summary.....	4
2.1.1. 2013/2014 Flow and Organic Loading	4
2.1.2. 2013/2014 Ammonia and Phosphorus Loading	4
3. BASIS OF PLANNING AND EVALUATION	6
3.1. Performance Goals and Level of Service	6
3.2. Wastewater Reference Flows	6
3.3. Performance REquirements - Existing Facility Effluent Limits	8
4.1. Headworks	11
4.1.1. Influent Collection Piping	12
4.1.2. Performance Criteria and Assumptions	12
4.1.3. Discussion	12
4.2. Influent Channels and Screening Removal System	13
4.2.1. Performance Criteria and Assumptions	13
4.2.2. Discussion	13
4.3. Grit Removal System	14
4.3.1. Performance Criteria and Assumptions	14
4.3.2. Discussion	14
4.4. Parshall Flume, Flow Measurement	15
4.4.1. Performance Criteria and Assumptions	15
4.4.2. Discussion	15
4.5. Air Handling System.....	16
4.5.1. Performance Criteria and Assumptions	16
4.5.2. Discussion	17
4.6. Equalization and Secondary Treatment Process.....	17
4.6.1. Flow Split Structure; Concrete Equalization Basin; Steel EQ Tank (Additional EQ Capacity); and Pinch Valve/Flow Control	18
4.6.1.1. Existing Concrete Equalization Performance Criteria and Assumptions	19
4.6.1.2. Discussion.....	19
4.6.2. IFAS (AnoxKaldnes HYBAS) Aerobic-Anoxic Basins.....	20
4.6.2.1. Existing Basins Configuration.....	20
4.6.2.2. Performance Criteria and Assumptions.....	21
4.6.2.3. Discussion.....	21
4.7. Aeration System.....	21
4.7.1. Performance Criteria and Assumptions	22
4.7.2. Discussion	22
4.8. Secondary Clarifiers.....	23
4.8.1. Performance Criteria and Assumptions	23
4.8.2. Discussion	24
4.9. RAS and WAS Pumping Systems.....	24
4.9.1. Performance Criteria and Assumptions	25
4.9.2. Discussion	25

TABLE OF CONTENTS

4.10.	Pressure Filter System.....	26
4.10.1.	Performance Criteria and Assumptions.....	26
4.10.2.	Discussion.....	26
4.11.	Disinfection System.....	27
4.11.1.	Performance Criteria and Assumptions.....	27
4.11.2.	Discussion.....	27
4.12.	Biosolids Stabilization and Processing System.....	28
4.12.1.	Performance Criteria and Assumptions.....	28
4.12.2.	Discussion.....	28
4.13.	Instrumentation and Controls - Electrical.....	29
4.13.1.	Instrumentation and Controls (I&C).....	29
4.13.2.	SCADA System Architecture.....	29
4.13.3.	SCADA System Functionality.....	30
4.13.4.	Alarm Monitoring/Alarm Database.....	30
4.13.5.	Data Acquisition/Database.....	30
4.13.6.	Graphical Display System.....	30
4.13.7.	Reporting Module.....	30
4.13.8.	Other Controls/Instrumentation.....	30
4.13.9.	Electrical Power Distribution System.....	31
4.13.10.	Electrical Loads.....	32
4.13.11.	Motor Control Center.....	32
4.13.12.	Standby Power Generation.....	33
4.14.	Code Compliance and Safety Concerns.....	33
5.	CAPACITY SUMMARY DISCUSSION / RECOMMENDATIONS.....	34
Tables		
Table 1.	Service Area EQRs and Peak Period Flow Projections (2010-2020).....	7
Table 2.	Influent Wastewater Reference Flows (actual and estimated/projected).....	8
Table 3.	Existing Discharge Limitations ⁽¹⁾ - 0.167 MGD Permitted Capacity.....	9
Table 4.	Projected Future Discharge Limitations ⁽¹⁾ - 0.4 MGD Design Flow.....	10
Table 5.	Headworks Area Capacity Summary.....	17
Table 6.	Existing Basins Configuration.....	21
Table 7.	Aeration Supply System Capacity Summary.....	23
Table 8.	Clarifier Capacity Summary.....	24
Table 9.	Major Process Capacity Summary.....	34
FIGURES		
Figure 1.	CPE Bar Chart.....	37

TABLE OF CONTENTS

APPENDICES

Appendix A	Calculation Sheets
Appendix B	Select Equipment Information
Appendix C	Preliminary BioWin Model Results
Appendix D	Reference Document List
Appendix E	WWTF Discharge Permit

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1. INTRODUCTION

This Report presents the findings of Task Order #2 – Wastewater Treatment Facility (WWTF) Comprehensive Performance Evaluation (CPE), completed by Briliam Engineering Services (BES) for the Village of Taos Ski Valley (VTSV). This CPE is a proactive planning tool and the first step towards implementing facility optimization measures and a phased WWTF capital improvements program to address:

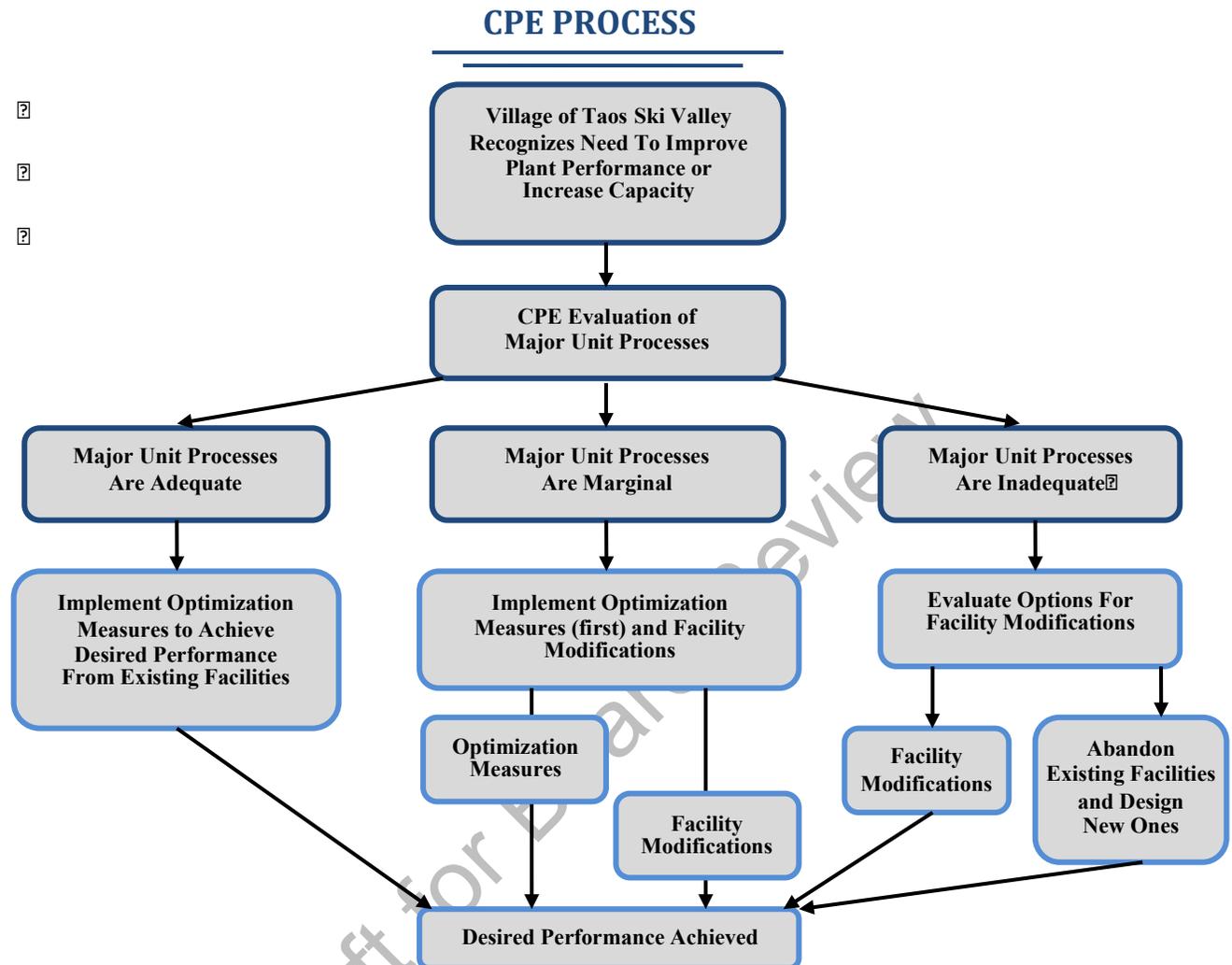
- Projected service area development and facility capacity needs;
- Current and future regulatory requirements (effluent discharge permit);
- Asset management and replacement; and
- Optimization and energy efficiency.

Currently, the VTSV operates an integrated fixed film (IFAS) activated sludge wastewater treatment facility (WWTF) with a permitted capacity of 167,000 gallons per day (gpd). However, the WWTF's ability to meet its permitted strict nitrogen effluent discharge standards is challenged due to cold influent wastewater temperatures, highly variable flows and loadings, and possible infrastructure limitations. Plant operations staff report that the facility's capability becomes challenged at peak flows of approximately 120,000 gpd. In addition, the VTSV is expecting that planned re-development and new development in its wastewater service area will further challenge the performance of the current WWTF. VTSV staff estimate that planned development in the service area would add approximately 72,000 gallons per day of peak day wastewater flow by the year 2020.

Consequently, the VTSV is considering a facility upgrade project to regain and expand treatment capacity in preparation of the expected increased wastewater flows as development in the Village occurs. The VTSV Preliminary Engineering Report (PER) prepared by McLaughlin Water Engineers, Ltd in 2011 recommended that VTSV replacing the existing IFAS facility with a new sequencing batch reactor (SBR) facility with an ultimate hydraulic capacity of 0.4 MGD. The first phase of the new SBR facility would be rated for a capacity of 200,000 gpd (0.2 MGD), at an estimated cost of \$3,460,000 (2011 costs). While not a part of this current Task Order / CPE, The VTSV would like to review the PER's recommendation to construct of a new SBR facility (recommended to start construction in 2013); and develop an updated project implementation schedule.

The CPE presented herein evaluates the current IFAS WWTF infrastructure and treatment process performance potential and identifies minor modifications to help the VTSF address meet short-term capacity and compliance needs. Capacity regained through minor modifications will allow more time for the upgrade project planning, and for project funding to be accumulated using grants, low interest loans, and potentially capital provided through user rates or plant investment fees revenues.

The CPE generally follows the methodology developed by the United States Environmental Protection Agency (EPA) for wastewater treatment facilities; with focus on evaluating and assessing WWTF unit processes, equipment, and infrastructure capacities. A schematic representation of the CPE Process (adapted from EPA) is presented below for reference.



As the CPE schematic indicates, the ultimate objective of the CPE process is to achieve the desired facility performance goals. Performance goals and requirements are unique for each facility and are often a combination of the facility owner's service needs (such as capacity) and effluent permit and discharge requirements; as well as other drivers such as sustainability or energy efficiency. The paths to achieving desired performance are usually a combination of optimization and facility modifications; and can also include new infrastructure, or even a full replacement facility.

A summary of the CPE approach follows:

- Establish the basis of planning and evaluation, including the Village's WWTF performance goals, and current and projected wastewater flows, loadings, and effluent requirements.
- Determine the theoretical (design) hydraulic and organic loading capacity of the WWTF's major unit processes.

- Identify equipment and unit processes that require optimization, replacement, upgrade, addition, or expansion to meet the Village's capacity and treatment requirements.
- Identify and recommend optimization or modification measures that may be used to address identified facility deficiencies and interim capacity needs.

An audit of the instrumentation and controls and electrical systems was also conducted and are summarized herein. This CPE did not specifically review or consider operations and management practices. We also note that the estimated unit process and equipment capacities are not absolute. They are based on several design and operational assumptions and typical design safety factors. While the analysis is intended to represent a conservative assessment of the hydraulic and treatment capacities of the existing WWTF, the Village should continue to monitor and assess influent flows, loadings and treatment performance; and, compare actual conditions with operating assumptions and estimated capacities presented in this CPE.

With this approach in mind, this Report is organized in the following main sections:

- Section 1: Introduction
- Section 2: Existing Facility Overview
- Section 3: Basis of Planning and Design
- Section 4: Capacity and Performance Evaluation
- Section 5: Capacity Summary Discussion / Recommendations

2. EXISTING FACILITY OVERVIEW

The District operates a municipal WWTF rated for a hydraulic capacity of 0.167 million gallons per day (MGD) and an organic capacity of 351 pounds per day (ppd) of biochemical oxygen demand (BOD₅). However, based on information from facility personnel, the current attainable capacity is approximately 0.120 MGD, limited by the clarifier performance. The facility discharges treated effluent to the Rio Hondo (Segment No. 20.6.4.129) in accordance with a domestic wastewater discharge permit (No. NM0022101) issued by the Region 6 USEPA, Water Quality Protection Division.

The existing wastewater treatment system was constructed in 1982 and improved in 2005, and consists of raw influent screening, grit removal, flow equalization basins/tank, integrated fixed film activated sludge (IFAS) anoxic and aeration basins, secondary clarifiers, pressure filters, ultraviolet (UV) disinfection, and an outfall pipe. Biosolids generated by the secondary treatment process are stabilized in sludge holding tanks, centrifuged, and disposed by a contract hauling service. The following image provides a general site plan for the WWTF site, highlighting major process areas.

2.1. FLOW AND LOADING SUMMARY

2.1.1. 2013/2014 Flow and Organic Loading

Historical flow and organic loading data from 2013 indicate an average annual daily flow (AADF) of 0.046 MGD, and an organic loading rate of 97 ppd BOD₅ (using 252 mg/l). The maximum month average daily flow (MMADF) is 0.075, and the corresponding loading rate is 158 ppd BOD₅. The VTSV service area as of 2010 includes 134 single family residences, 324 condos, 3 restaurants, and 13 commercial users, representing a total of 578 equivalent single family residential units (EQR), defined as 220 gal/day usage (McLaughlin, 2011).

Peak interval flows of up to 0.120 MGD occurred over an approximate 1 to 3 week period during Spring Break 2 to 3 years ago. The 2013/2014 high season (Christmas season through Spring Break) average flow and organic loading while higher than the AADF rates, were still below design capacity, with average monthly flow ranging from 0.037 to 0.068 MGD, and loads ranging from 78 to 143 ppd BOD₅ (using 252 mg/l).

2.1.2. 2013/2014 Ammonia and Phosphorus Loading

Historical influent ammonia loading data from 2013 indicate an average monthly influent concentration of 21 mg/l and an approximate ammonia loading rate of 13 ppd (using 0.075 MGD). The 2013/2014 high season (Christmas through Spring Break) average ammonia monthly influent concentration of 26 mg/l and an ammonia loading of 16 ppd (using 0.075 MGD). Peak ammonia grab sample concentrations have been reported by plant operations staff at approximately 40 mg/L during both the Holiday and Spring Break high season periods.

Historical influent total phosphorus loading data from 2013 indicate an average monthly influent concentration of 7 mg/l and an approximate phosphorus loading rate of 4 ppd (using 0.075 MGD).

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3. BASIS OF PLANNING AND EVALUATION

The CPE considers the ability of the WWTF to meet the Village's performance requirements, performance goals, and desired "level of service". "Performance Requirements" are defined as the capability of the existing WWTF to treat influent wastewater to the levels that are less than the limits stipulated in the facility's discharge permit. "Performance Goals" and "Level of Service" are non-regulated, and may include an expressed desire to provide a greater level of treatment performance than regulated by New Mexico Environment Department (NMED) or USEPA; or for the WWTF facility to provide an additional degree of reliability or redundancy. A discussion of our understanding of the Village's performance requirements and goals, reference wastewater flows, and level of service follows.

3.1. PERFORMANCE GOALS AND LEVEL OF SERVICE

The Village has expressed that they want "a world class WWTF for a world class ski resort". BES has thus used conservative assumptions and safety factors in the CPE to establish performance potential for the WWTF's individual unit processes and the facility as a whole, to provide a high degree of confidence that the facility is capable of meeting its treatment performance standards under all flow conditions, including the extended peak flow periods that occur during holidays and spring break.

Performance goals may also refer to a standard of treatment efficiency; for example power consumption per million gallons of water treated. Another example is the Village's desire (if economically viable) to utilize renewable energy sources such as solar (PV) panels or solar water heat, or effluent heat pumps; and to utilizing the WWTF site or tank covers to store and melt snow for gravel recovery.

Performance goals and level of service should be reviewed again during planning and preliminary design for future facility expansion projects.

3.2. WASTEWATER REFERENCE FLOWS

The "capacity" of each unit process is determined and expressed in terms of hydraulic flow and compared to reference flows. In acknowledgement that the WWTF must reliably treat peak flows and loadings for periods that can last up to two weeks; reference flows used for the CPE include peak conditions and not just annual average or maximum month (30-day average) flows. This is consistent with the Village's desired level of service to fully comply with the facility's discharge permit effluent limits during peak flow and loading periods; and is also consistent with the basis of design flow as peak day in the PER (McLaughlin, 2011, pg. II-4).

Influent wastewater reference flows were established for three conditions: Current, year 2014 conditions (0.12 MGD); the current permitted flow (0.167 MGD), and interim period, 2020 flows (0.192 MGD). Future flow conditions beyond 2020 are not specifically referenced. As a planning tool, BES also correlated these peak reference flows with the number of equivalent residential units and with expected growth projections in the WWTF's service area. The service area growth (development) projections and the peak flow per EQR values were obtained from

the Village during our CPE site visit meeting. During this meeting, the Village advised that there are three development phases planned to be completed in the next 6 years. Phase 1 will include forty (40) condominium units. Of these, twenty (20) are planned to have 2-bedrooms; and 20 will have 3-bedrooms (2 bedrooms plus 1 bedroom lock-off). Thus, if all lock-offs were in use, there would be 60 units, consisting of (40) 2-bedroom units and (20) 1-bedroom units. Phase 1 is expected to be completed by the 2017 ski-season. Phase 2 development would be similar to Phase 1, with 40 units with lockoffs. Phase 3 would add 120 units consisting of 80, 2-bedroom units and 40, 3-bedroom units with lockoffs. For Phase 3, if the lockoffs were used, there would be 120 2-bedroom units and 40, 1-bedroom units.

In accordance with the PER, and the Village's published EQR schedule, condominiums are assigned an EQR factor ranging from 0.65 to 1. To conservatively estimate the projected additional peak flow from the 2014 -2020 development phases, we considered flow rates of 220 per EQR/ day as suggested by the PER with an EQR factor of "1"; and also have considered an alternate flow estimating method of based on 75 gallons per pillow per day as suggested by VTSV Staff. For this method, again for conservatism, we assumed that each bedroom had at least a double bed with two pillows. Comparing these two approaches, the suggested rate of 75 gallons of wastewater generated per pillow per day was more conservative and was used to establish planning level peak reference flows. For facility design, we recommend that a more thorough analysis of planned development and associated peak flows and timing be completed.

Table 1 presents a conservative estimate of the peak (day) flows that are projected through year 2020, based on three development phases occurring from 2014-2020, using the 75 gallon per pillow method suggested by Village staff.

Table 1. Service Area EQRs and Peak Period Flow Projections (2010-2020)

Service Area Condition/ Development Phase	Year	Addl. EQR (projected)	Total EQR (cumulative)	Total # of "pillows" added	Projected Addl. Peak Flow (gpd)	Projected Peak Day Flow (gpd)
Past	2010	---	578	---	---	115,000
Current	2014	22	600	---	---	120,000
Future – Phase 1	2017	40	640	200	15,000	135,000
Future – Phase 2	2018	40	680	200	15,000	150,000
Future – Phase 3	2020	120	800	560	42,000	192,000

In addition to the peak period reference flows estimated above, BES has estimated other pertinent flow conditions based on flow factors based on historical data, including:

- Minimum Month Average Daily Flow (Min MADF)
- Annual Average Daily Flow (AADF)
- Maximum Month Average Daily Flow (MMADF)

- Peak Day (period) Flow (PDF)
- Peak Hour Flow (PHF)
- Peak Instantaneous Flow (PIF).

Peaking factors were calculated relative to the maximum month average daily flow. (i.e. MMADF Factor = 1). Table 2 presents these flows along with the projected peak day flows.

Table 2. Influent Wastewater Reference Flows (actual and estimated/projected)

Development Phase	Year	Min MADF	AADF (MGD)	MMADF (MGD)	PDF (MGD)	PIF (MGD)
Peaking Factor	-----	0.33	0.61	1	1.6	3.9
Current	2014	0.025	0.046	0.075 ⁽²⁾	0.120 ⁽³⁾	0.290 ⁽⁵⁾
Future – Phase 1	2017	0.028	0.051	0.084	0.135	0.330
Future – Phase 2	2018	0.031	0.057	0.094	0.150	0.367
Permitted Capacity	2019 ⁽¹⁾	0.055	0.101	0.167	0.267	0.651
Future – Phase 3	2020	0.040	0.073	0.12	0.192	0.468

(1) Projected Date Permitted Flow Will Be Reached , Based On Above Development Schedule

(2) 2013/2014 Influent Flow Data

(3) Based on Verbal Report of Peak Period Flow by WWTF Operations Staff

(4) 2014 Flow Data (Calculated Peaking Factor of 1.57)

(5) 2014 Flow Data (Calculated Peaking Factor of 3.9)

While these reference flows are not used to determine current facility performance potential, they provide a perspective on the relationship between influent flow and potential treatment capacity, and a projected timeframe for when influent flows and pollutant loads may exceed the estimated unit process treatment capacities.

3.3. PERFORMANCE REQUIREMENTS - EXISTING FACILITY EFFLUENT LIMITS

The WWTF's capacity also depends on the degree of pollutant removal and effluent permit limitations required by the Facility's discharge permit. The current discharge permit provides a basis for evaluating potential treatment and performance capacities. Table 3 presents a summary of effluent requirements used as a basis for the evaluation. Table 4 presents the potential discharge limits applicable for a future design flow of 0.4 MGD; the effluent limit concentrations for ammonia – nitrogen, total nitrogen, and total phosphorus have been calculated using the 0.4 MGD flow, assuming that the allowable lb/day is held constant.

Table 3. Existing Discharge Limitations ⁽¹⁾ - 0.167 MGD Permitted Capacity

Effluent Parameter	Lbs/Day	mg/L	Basis
BOD ₅ (mg/L)	23.8 / 35.7	30 / 45	30-day avg/7-day avg.
TSS (mg/L)	23.8 / 35.7	30 / 45	30-day avg/7-day avg.
E. coli (No./100mL)	N/A	126 / 235	30-day avg/Daily Max
Fecal coliform (No./100mL)	N/A	200 / 400	30-day avg/Daily Max
Total Residual Chlorine (mg/L)	N/A	N/A / 0.019	30-day avg/Daily Max
pH (SU)	N/A	6.6 – 8.8	Minimum to maximum
Ammonia – Nitrogen (mg/l)	5.34 / 5.34	3.2 / 3.2	30-day average/7-day average
Total Nitrogen (mg/l)	13.65 / 20.5	8.2 / 12.3	30-day avg/7-day avg.; Nov.1 – April 30
	46.55 / 68.8	27.9 / 41.2	30-day avg/7-day avg.; May 1 – June 30
	27.7 / 41.6	16.6 / 24.9	30-day avg/7-day avg.; July 1 – August 31
	21.1 / 31.7	12.7 / 19	30-day avg/7-day avg.; Sept. 1 – Oct. 31
Total Phosphorus (mg/l)	0.8 / 1.2	0.5 / 0.75	30-day avg/7-day avg.; Nov.1 – April 30
	1.6 / 2.4	1.0 / 1.5	30-day avg/7-day avg.; May 1 – June 30
	1.2 / 1.8	1.5 / 2.25	30-day avg/7-day avg.; July 1 – August 31
	0.8 / 1.2	2.5 / 3.75	30-day avg/7-day avg.; Sept. 1 – Oct. 31
Whole Effluent Toxicity Testing (48-hour static renewal)	Monitoring	Monitoring	
Daphnia pulex	Report	Report	1/12 months; btwn Nov 1 and April 30
Pimephales promelas	Report	Report	1/12 months; btwn Nov 1 and April 30

(1) Issued on February 27, 2006 (Discharge Permit #NM-0022101)

Table 4. Projected Future Discharge Limitations ⁽¹⁾ – 0.4 MGD Design Flow

Effluent Parameter	Lbs/Day	mg/L	Basis
BOD ₅ (mg/L)	50	15	30-day avg
TSS (mg/L)	50	15	30-day avg
E. coli (No./100mL)	N/A	126 / 235	30-day avg/Daily Max
pH (SU)	N/A	6.6 – 8.8	Minimum to maximum
Ammonia – Nitrogen (mg/l)	5.34	1.6	30-day average
Total Nitrogen (mg/l)	13.65	4.1	30-day average
Total Phosphorus (mg/l)	0.8	0.25	30-day average

(1) Projected Future Discharge Limits at a Flow Rate of 0.4 MGD – Reference: McLaughlin Water, 2011, page II-3

4. CAPACITY AND PERFORMANCE EVALUATION

This section presents process evaluations and capacity assessments for the following major unit process areas and systems at the WWTF:

- Headworks
- Equalization and Secondary (Biological) Treatment
- Pressure Filter System
- Disinfection System
- Effluent Flow Metering and Outfall
- Biosolids Stabilization and Processing
- Miscellaneous Systems

As part of the CPE, BES analyzed the existing facility treatment process and appurtenant systems; conducted site visits and interviews with plant operations staff; reviewed record drawings and engineering reports for the 2005 expansion project and the 2011 Preliminary Engineering Report for WWTF Expansion/Upgrade Recommendations, and evaluated existing plant flow and loading data and process control data. We then performed process and component sizing calculations; and reviewed industry standards to establish appropriate unit process evaluation criteria.

The results and recommendations presented herein may also be used to develop interim WWTF improvements to meet 2015 – 2020 capacity requirements. These proposed improvements should be developed to be consistent with the planned future WWTF improvements suggested by the PER, and to provide the desired level of service to the District’s customers while the Project is under construction.

Each of the major plant process areas are evaluated to assess the potential of the WWTF to adequately treat current and projected flows and organic loadings, and continue meeting the facility’s discharge permit limits. For each unit process or major equipment system, the CPE presents a process description, evaluation criteria and assumptions, and a discussion of the rated capacity, implications, and recommendations.

4.1. HEADWORKS

The Headworks process area includes the following processes and equipment:

- Collection System
- Influent Channels
- Screenings Removal System
- Grit Removal System
- Flow Metering (3” Parshall Flume)
- Air Handling System

With the exception of the influent sewer, all headworks equipment is contained in the

Headworks Building. The building consists of two levels, with the upper level at grade and the lower level below grade. Influent wastewater is routed to the building via buried collection piping. The gravity sewer main enters the site in the southeast corner of the property and conveys influent flow through a fairly flat section of 8-inch ductile iron pipe prior to entering the building. At the main level of the building, influent is screened through a mechanical screen and grit is removed by a vortex grit chamber. Influent wastewater then flows to a Parshall Flume, with flume effluent passing to a 12" ductile iron pipe that conveys screened influent to the secondary treatment process.

Screenings and grit removed from the influent are managed using systems in the Headworks Building. Screenings are collected in a waste bin on the upper level. Grit is removed from the vortex grit chamber and a grit pump conveys the slurry to a grit classifier/washer.

4.1.1. Influent Collection Piping

Major modifications to the section of sewer interceptor feeding the headworks completed in 2005 include a new section of 8-inch diameter gravity main feeding the headworks. The 8-inch main enters the WWTF site in the southwest corner and connects to a new manhole (New MH 1) located approximately 32 feet east of the Headworks Building. The 8-inch pipe conveys into a Wye cleanout fitting off the east headworks building foundation, and then connects New MH 1 to the headworks inlet channel in the lower level of the building.

Based on information provided by the Operations staff, the approximate 0.88 percent slope in the 8-inch pipe is susceptible to solids deposition.

4.1.2. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the potential capacity of the influent sewer main entering the WWTF:

- For the purposes of the capacity analysis, surcharge conditions (i.e. full pipe flow) are allowed in New MH 1.
- A maximum water surface level of 26-inches in the headworks influent channel upstream of the bar screens.

4.1.3. Discussion

To estimate the carrying capacity of the collection system immediately upstream of the Headworks Building, the hydraulic grade was calculated for the 12" wide rectangular inlet channel and the 8-inch ductile pipe for the flow scenarios based on a maximum flow depth of 26 inches (2.17 feet) within the headworks inlet channel.

Based on the hydraulic calculations, the normal flow depth in the 12-inch wide channel at a PIF of 0.65 MGD is 3.4 inches; while the normal flow depth in the 8-inch ductile pipe at a slope of 0.88 percent is 5.6 inches. However, the inlet channel and 8-inch influent sewer main hydraulics are controlled by the fine screen and Parshall Flume headloss. At a PIF of 0.65 MGD the water level downstream of the screen and upstream of the screen are 10.3 inches and 24.8 inches, respectively. As the inlet channel flow depth approaches or exceeds 8 inches, the sewer main flow depth

transitions to full-pipe, and New MH 1 will surcharge by a depth corresponding to the inlet channel depth that exceeds 8 inches, approximately.

Due to the shallow slope and the solids deposition in this undersized sewer main, it is recommended that the sewer main hydraulics be re-evaluated as part of the future new (year 2020) WWTF capacity analysis.

4.2. INFLUENT CHANNELS AND SCREENING REMOVAL SYSTEM

Raw wastewater influent is via a 12 inch wide concrete channel to a cylindrical bar screen manufactured by Vulcan Industries, Inc. A second channel serves as a bypass channel and is fitted with a manual bar screen. Both channels are 1-ft wide by 4.2-ft deep. Manual slide gates may be used to divert flow and isolate the bar screens or downstream grit chambers. Under normal operating conditions, the slide gates are only used to isolate the manual bar screen channel.



The screen assembly consists of a stainless steel cylindrical fine screen with $\frac{1}{4}$ -inch bar spacing and a nylon cleaning brush, screw conveyor, and a compaction dewatering cone, and discharge chute. Screenings are swept by the brush assembly into the screw conveyor. Within the conveyor, the screenings are washed, compacted and dewatered, and then dropped into a hopper.

4.2.1. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the influent channels and screenings removal and conveyance systems.

- Maintain at least 18-in of freeboard and 2 feet per second velocity within the distribution channels.
- Provide automatic screening for peak hour flow conditions with minimum bar spacing of $\frac{1}{4}$ -inch.
- The overflow elevation for the screens is 30 inches from the channel bottom; assuming a safety factor of ~ 4 -inch, the maximum allowable water depth upstream of the screens is 26-in.
- The fine screen drum cleaning rake and screw conveyor may operate continuously for peak hour flow conditions.
- Full redundancy for automatic screening equipment is not required.

4.2.2. Discussion

The existing influent channel has a capacity of approximately 0.5 MGD based on a 10.3-in water surface elevation on the downstream side of the bar screen. This downstream water depth

corresponds to a 22.3-in water depth on the upstream side of the bar screen. The automatic screening removal system provides trouble-free performance and currently operates as designed based on discussions with operations staff. Based on conversations with Vulcan Industries, Inc. the screen can screen up to 0.50 MGD. Since the headloss through the screen at this flow is 12 inches, the upstream water depth increases to approximately 22.3-in. Thus, the total capacity of the fine screens is 0.5 MGD.

4.3. GRIT REMOVAL SYSTEM

The grit removal system consists of a circular vortex grit chamber, Spiragrit Model SG-6.-1.0, manufactured Lakeside Equipment Corp., an approximate 10 HP recessed impeller vortex-type, vacuum primed, pump, conveying to a screw-type grit classifier, and washing system with a cyclone separator. The grit slurry pump is rated for 225 gallons per minute (gpm) at a head of 32 feet. The grit classifier is a Lakeside Model Type “W”.



Screened influent is conveyed to the separator via a concrete channel. The grit chamber is 5ft-9 inches in diameter with a 5 feet chamber depth. Grit is concentrated into the center of the chamber by the vortex action of the influent flow and rotating paddles, and collected in a 3-ft diameter by 5-ft deep sump beneath

the vortex chamber. De-gritted influent exits the grit separator and returns to the effluent channel via a concrete channel that flows to the Parshall Flume. The grit classifier system discharges a washed grit residue that is collected in a bagging system.

4.3.1. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the grit removal system.

- Provide the following grit removal efficiencies at maximum month daily flow: 95 percent greater than 50 mesh; 85 percent of grit greater than 70 mesh but less than 50 mesh; 65 percent of grit greater than 100 mesh but less than 70 mesh.
- At higher flow rates up to peak hour flows, a reduction in grit removal efficiency of between 0 and 25 percent will be accepted, with not less than the following removal: 75 percent of grit greater than 50 mesh; 60 percent of grit greater than 70 mesh but less than 50 mesh; 50 percent of grit greater than 100 mesh but less than 70 mesh.
- Limit grit pump cycling to no more than 6 times per hour; and reliably remove grit from the vortex grit chambers as needed.

4.3.2. Discussion

The grit pump is still in good working condition, and appeared to be functioning properly. According to operations staff, the vortex grit separator performs satisfactorily, and the grit

classifier cycles 2-3 times per day (well within design specifications). Based on the 2005 design submittal and conversations with Lakeside Equipment, Inc., the vortex grit separator is rated for a peak flow of 0.5 MGD with an associated grit removal efficiency of 95 percent of grit greater than 50 mesh; 85 percent of grit greater than 70 mesh but less than 50 mesh; and 65 percent of grit greater than 100 mesh but less than 70 mesh. Lakeside has advised that the vortex grit separator can handle flows up to 1.0 MGD, although there will be a reduction in grit removal efficiency of 25 to 30 percent. Thus, the capacity and performance potential of the existing vortex grit removal equipment is acceptable and ranges from 0.05 to 1.0 MGD.

In conclusion, the capacity of the existing grit removal and pumping system is acceptable.

4.4. PARSHALL FLUME, FLOW MEASUREMENT

After influent is screened through the mechanical screen and grit is removed by the vortex grit chamber, influent wastewater then flows to a Parshall Flume, with flume effluent passing to a 12" ductile iron pipe that conveys screened influent to the secondary treatment process. The Parshall flume is equipped with a Siemens OCM III ultrasonic flow meter to measure level and effluent flow.



The 12-in equalization tank inlet pipe length is approximately 72 linear feet from the headworks building to the equalization tank splitter box.

4.4.1. Performance Criteria and Assumptions

The capacity and performance potential of the influent Parshall flume and flow meter and equalization tank influent pipe is evaluated under two conditions: the maximum allowable screen downstream water level (induced by flume head); and, the maximum pipe capacity without causing a submerged flume condition.

Specific evaluation criteria and assumptions follow:

- Provide influent flow metering for flow ranges up to the PHF condition, while remaining below the maximum allowable water level downstream of the screen.
- Provide sufficient hydraulic capacity to convey PHF without creating a submerged flume condition.
- For both conditions, full pipe flow will be considered for the equalization tank influent pipe hydraulics since the 12-inch pipe exit elevation is below the maximum water level allowable in the equalization tanks of 9268.80.

4.4.2. Discussion

Evaluating the flume capacity limitations based on the 26-inch maximum water level upstream of the fine screen at the channel capacity at the PHF of 0.65 MGD, the water level is 12.1-in on

the downstream side of the screen. Allowing for approximately 14.5 inches of loss across the screen at this flow rate would put the upstream water level at approximately 26.5 inches, exceeding the maximum allowable screen upstream flow depth slightly, and reducing the 4 inch safety factor to 3.5 inches.

Based only on the flume effluent pipe hydraulics, the 12-in outfall pipe has a flow capacity of more than 2 mgd. This capacity is based on full pipe pressure flow with a submerged pipe entrance into the tank (assumes the maximum equalization tank water elevation is 9268.80).

4.5. AIR HANDLING SYSTEM

Based on information provided by the operations staff, the headworks building air handling system may not be performing correctly. The exhaust fan was not in service, and the make-up



air unit was not operating at the time of the CPE plant assessment onsite meeting. Additionally, the operations staff noted that the unit heater apparently had difficulty keeping the building at temperature in the winter.

4.5.1. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the grit removal system.

- The air handling system must attain Class 1, Div 2 NFPA minimum number of air changes per hour.
- A space sensor sensing flammable gases is to shift the operation of the Make Up Air Unit (MAU) and the Exhaust Fan to high speed when the concentration of gases exceeds 10 percent of the flammable flash point.
- Whenever the space is occupied, the MAU and the Exhaust Fan are to operate at high speed.
- For occupied mode, the MAU is continuously energized (as is the supply fan located in the electrical room). A low limit control in the discharge air will limit the discharge air temperature to 55 F. A space thermostat will override the low limit and maintain 55 F.
- The space is classified as Class 1, Division 2, Group D and requires 6 air change outs per hour.

4.5.2. Discussion

The interior volume of the headworks building is calculated to be approximately 10,000 cubic feet. The air handling equipment needs to have a capacity of approximately 1020 cfm to meet the FPA requirement of required 6 air change outs per hour. The June 2006 test and balancing report identifies that both the MAU and the exhaust fan tested out at approximately 1800 cfm.

Based on available information, the air handling system is currently believed to be non-functional. The exhaust fan was observed to be non-functional, and in need of adjustment to correct a likely alignment, belt tension, sheave adjustment or other problem to be able to be put back into service. The MAU functionality and control interface with the flammable gas air sensor needs to be verified and made functional to meet code requirements. It is recommended that a reliable Mechanical Contractor be engaged to make these adjustments/repairs immediately.

Table 5. Headworks Area Capacity Summary

Component	Capacity (MGD)	Notes
Influent Sewer	0.65	Conditional flow rate based on flow depth
Concrete Channels	0.65	Limited by allowable level upstream of screen
Screening System	0.5	Peak Flow
Grit Removal System	1.0	Removal efficiency decreases with flow
Parshall Flume/Flow Metering	0.65	Limited by allowable level upstream of screen

4.6. EQUALIZATION AND SECONDARY TREATMENT PROCESS

The activated sludge secondary treatment process is based on the AnoxKaldnes HYBAS® hybrid activated sludge (or integrated fixed film activated sludge, IFAS process) and consists of a conventional suspended growth activated sludge process combined with a moving bed media fixed film process. The process includes the following major components and processes:

- Splitter Box
- Concrete Equalization Basin; Steel Equalization Tank
- Anoxic Basins
- Aeration Basins
- Aeration System
- Secondary Clarifiers
- Return Activated Sludge (RAS) Pumping System
- Waste Activated Sludge (WAS) Pumping System

Screened influent wastewater from the headworks flows to a splitter box, and then to the concrete equalization tank (and the steel equalization tank if not bypassed). Currently the equalized flow is combined with RAS in the Anoxic Basin 1, prior to the aeration basins, Basins 2 and 3. Secondary treatment is provided by an IFAS combined activated sludge and fixed film process, consisting of aeration and anoxic basins fitted with the AnoxKaldnes® medium bubble

wastewater aeration system and screens placed for retaining media in the basins. Positive displacement (PD) blowers located in the Main Treatment Building provide process air to the aeration system for mixing and biological treatment.

Mixed liquor suspended solids (MLSS) leaving the aeration basins (Basins 2, 3, and 4A) flows to an Anoxic Basin 4B and is collected through an 8-inch collection ductile pipe which tees and is reduced to two 6-inch lines feeding two 15-ft diameter secondary clarifiers. The MLSS can be transferred to either clarifier, using gate valves between the anoxic basin and the clarifiers. Clarified effluent is collected by circular V-notch weirs in each clarifier and routed to the pressure filter and disinfection system. The RAS and WAS are pumped from the clarifier through a duplex set of combined service RAS/WAS submersible pumps located in a wet well adjacent to the clarifiers. The RAS is returned to Anoxic Basin 1, and WAS is transferred to the sludge holding tanks prior to centrifuging.

A discussion of each of the major components of the activated sludge secondary treatment process follows.

4.6.1. Flow Split Structure; Concrete Equalization Basin; Steel EQ Tank (Additional EQ Capacity); and Pinch Valve/Flow Control

Screened influent flows from the headworks to the concrete flow splitting box via a 12-inch ductile iron pipe. Typical plant operations bypass the steel equalization tank, flowing directly from the splitting box to the concrete equalization tank. The concrete equalization tank penetrations include an 8-inch outlet line to the secondary process anoxic/aerobic basins, a 6-inch RAS line, a 4-inch (or 6-inch) internal MLSS recycle line, a 4-inch backwash waste line, and a 6-inch air line. Currently, the existing Flygt submersible mixer is inoperable, and a surface mixer is in use. The mixing provided by the surface mixer is insufficient, and significant solids settling and development of septicity occur.



Equalized wastewater then flows to the anoxic/aerobic basins in the Main Treatment Building (an overflow to the steel equalization tank is also available to provide additional equalization capacity, if required). Flow to the secondary process anoxic and aerobic basins is controlled by a pinch valve and magnetic flowmeter located immediately

upstream of Anoxic Basin 1. A single loop controller accepts an operator-entered plant flow target and modulates the pinch valve based on the flow signal, to control flow from the equalization tank(s) to the secondary process basins.

Currently the equalized flow is combined with RAS and the internal recycle flow from Basin 4A

in the Anoxic Basin 1, prior to Aeration Basins 2 and 3.

4.6.1.1. Existing Concrete Equalization Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the influent flow split structure, equalization basins, and pinch valve/flow control:

- Effective conveyance of the peak flow from the headworks to the concrete equalization tank and bypass (typically) of the steel equalization tank.
- Since the timing of the centrate can be controlled, centrate flows are not considered.
- Provide sufficient equalization volume to allow for effective equalized flow control to maintain flow within WWTF capacity limits.
- Provide sufficient mixing energy utilizing the proposed new submersible mixers to maintain solids suspension.

4.6.1.2. Discussion

The equalization tank flow splitter structure and existing concrete equalization tanks were constructed in 1982 and are in reasonably good condition. Operated as a flow-through structure feeding the concrete equalization tank (and not splitting flow to the steel equalization tank), the capacity of the flow box is approximately 1.5 MGD, limited by the 8-inch effluent pipe to the concrete equalization tank. Operated as a flow-through box (limited by the outlet pipe capacity), the maximum flow box capacity is more than the projected future facility design 2020 PIF rate of 0.65 MGD, and is sufficient for use as a part of the initial proposed capacity expansion to 0.2 MGD.

The concrete tank total capacity is approximately 103,000 gallons, and the usable equalization volume is approximately 79,000 gallons. The steel equalization tank was installed after 1982, and is near the end of the estimated service life. The steel tank total capacity is approximately 300,000 gallons, and the usable capacity is approximately 220,000 gallons. Due to tank roof deterioration, access to the tank roof is not allowed. There are two functional surface mixers in the tank; however, it is believed that the mixing energy provided is insufficient to keep solids in suspension.

To maintain a future equalized 0.2 MGD MMDF influent flow to the secondary process, at the future PHF of 0.314 MGD, the concrete equalization tank has a 16.7 hour detention time capacity. In addition, the steel tank provides an additional 46.3 hours of flow detention capacity to equalize to a 0.2 MGD flow with the influent flow at the PHF. Thus, the total equalization capacity provided by the two tanks is approximately 63 hours, which is sufficient to maintain a 0.2 MGD equalized flow to the secondary process under typical peak flow conditions. Currently, the existing Flygt submersible mixer is inoperable, and a surface mixer is in use. The mixing provided by the surface mixer is insufficient, and significant solids settling and development of septicity occur.

The pinch valve is controlled using a dedicated loop controller that is not part of the SCADA system. The flowmeter signal (FIT-303) is used as the process variable to control the influent flow to match an operator-entered setpoint. This control approach is limited in terms of

providing information to the SCADA system for operator use, and alarm capability.

4.6.2. IFAS (AnoxKaldnes HYBAS) Aerobic-Anoxic Basins

4.6.2.1. Existing Basins Configuration

The IFAS secondary treatment process provides for increased biomass concentration within the aerobic basins of an activated sludge process by adding plastic media carrier elements which provide surface area for fixed film biomass. In the VTSV IFAS process, screened, equalized flow is combined with RAS in the Anoxic Basin 1, which then flows to the Aerobic Basins 2, 3, 4A. The VTSV IFAS activated sludge process is operated as an MLE process (Modified Ludzack- Ettinger), incorporating a recycle stream of mixed liquor from the oxic zone to the anoxic zone with the recycle flow rate varied to attain the desired denitrification. Mixed liquor suspended solids (MLSS) leaving the aerobic basins flows to an Anoxic Basin 4B, and then to the clarifiers. Selector pumps in Anoxic Basin 4B pump the recycle flow to Basin 1. The process is configured with Aeration Basin 2 containing AnoxKaldnes K1 media at a fill fraction of 65 percent, and Aeration Basin 3 currently operating without media.



The selector pumps convey nitrate-rich internal recycle flows to Basin 1 to utilize the additional denitrification capacity at a recycle ratio of 5:1 in the summer and 3:1 in the winter (3-5Q recycle: 1Q influent). RAS flows have been typically maintained at a ratio of 0.6 to 0.9 RAS:influent Q. The MLSS in Anoxic Basin 4B is maintained in suspension using a submersible mixer, and MicroC 2000 is dosed, if

the BOD load is below the concentration necessary for the required denitrification (typically required in the summer).

No structural or functional issues are noted. The basin concrete and aeration piping are assumed to be in good condition as they are less than 10 years old.

Under current plant AADF and MMADF flow and loadings, operation of the IFAS process as presently configured results in a stable biological process capable of meeting discharge permit limits. Based on discussions with operations personnel, at plant flows of approaching 0.120 MGD, the process has difficulty meeting the 8.2 mg/l Total Nitrogen limit and the clarifiers are overloaded, driven by both nitrification capacity and by sludge settling issues.

Table 6. Existing Basins Configuration

Basin	Process Condition	AnoxKaldnes Media (Percent Fill Volume)	Volume (Gal)	HRT (Days) @ Current MMADF
Basin 1	Anoxic	0	25,245 gal	0.34
Basin 2	Aerobic	65	25,245 gal	0.34
Basin 3	Aerobic (air off)	0	25,245 gal	0.34
Basin 4A	DO Depletion	0	16,830 gal	0.22
Basin 4B	Anoxic	0	6,732 gal	0.09

4.6.2.2. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the IFAS Aerobic/Anoxic Basins:

- Provide sufficient volume for treatment based on aerobic and anoxic solids retention time (SRT) and average organic loading rate.
- An average organic loading of 252 mg/L BOD₅, based on the current MMADF of 0.075 MGD and considering the future peak flow of 0.200 MGD and loading projections.
- A maximum operating MLSS concentration of 3,975 mg/L.
- Sludge yield (obs.) of 0.66 lb TSS/lb BOD₅ removed.
- Total solids retention time (SRT) of 15.4 days; Aerobic SRT of 11 days; Anoxic SRT of 4.4 days.

4.6.2.3. Discussion

The existing IFAS aerobic/anoxic basins have a capacity potential of approximately 0.12 MGD, based on preliminary process modeling performed using a model of the existing VTSV WWTF performed using the BioWin software.

At flows and loadings approaching approximately 0.120 MGD, which occurs during the winter/early spring, nitrification can be the capacity limiting factor, which puts pressure on meeting the TIN discharge limit of 8.2 mg/l (note: clarifier performance can also be the capacity limiting factor, and is discussed in a following section below). For the flow and loading periods where ammonia loads cannot be fully nitrified, the aerobic volume, IFAS media surface area, and aerobic MLSS SRT are the limiting factors, and the plant can have difficulty attaining the TN discharge limit.

4.7. AERATION SYSTEM

The IFAS aeration system is comprised of six 15 Hp PD blowers located in the blower room of the Main Treatment Building which are available for process aeration and for supplying air

intermittently to the concrete equalization tank; air header and manifold piping; and the AnoxKaldnes aeration grid system. An additional 15 Hp blower also located in this blower room is used in combination with a blower in the solids dewatering building to supply air to the sludge holding tanks. The blowers have individual intake piping and inlet filters, and a common 6-inch discharge header. The initial five 15 Hp blowers were installed in 1982, and the two converted 15 Hp blowers were relocated adjacent to the other five existing blowers in the 2005 plant improvements project.



The 6-inch discharge header runs from the blower room to feed a 4-inch Tee to Basin 4A and a 10-inch Tee to the aeration basins. Air to the grid in each basin is controlled by butterfly valves located at the side of each basin. Based on information provided by the District, the installed blower capacities used for the activated sludge process aeration are:

- Six 15 Hp blowers with 93 standard cubic feet per minute (scfm) @ 6.0 psig; (120 icfm)

4.7.1. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the IFAS aeration supply system:

- “Firm” capacity and “total” capacity with no redundancy are calculated for both maximum month load conditions and peak load conditions. Firm capacity assumes that the largest blower is out of service.
- Peak BOD₅ and estimated TKN concentrations are 300 mg/L and 45 mg/L, respectively.
- Maximum month BOD₅ and estimated TKN concentrations are 252 mg/L and 40 mg/L, respectively.
- No denitrification oxygen “credit” is taken.
- The minimum dissolved oxygen (DO) level for peak day aeration is 1 mg/L. The target DO for maximum month loading conditions is 4 mg/L in Aerated Basin 2.
- The standard oxygen transfer efficiency (SOTE) for the AnoxKaldnes medium bubble diffusers is 1.2 percent per foot with media, and 1.1 percent per foot without media; the alpha fouling factor is 0.8.

4.7.2. Discussion

Table 5 summarizes the estimated operational capability and limiting capacity of the aeration system:

Table 7. Aeration Supply System Capacity Summary

Load and Operating Condition ⁽¹⁾⁽²⁾	Flow (MGD)	Blower Capacity (scfm)
Peak Load; total capacity	0.38	558
Peak Load; firm capacity	0.30	465
Max Month Load; total capacity	0.24	279
Max Month Load; firm capacity	0.24	279

(1) Total capacity is defined as all six 15 Hp blowers operating

(2) Firm capacity is defined as five 15 Hp blowers operating with one 15 Hp blower on standby

As indicated in Table 7, the firm capacity to treat peak loads is 0.30 MGD with one blower out of service. If all six 15 Hp blowers operate with no standby, the total capacity to treat peak loads is 0.38 MGD. In summary, the blowers have sufficient firm capacity for treating projected peak and maximum month flow using all six 15 hp blowers; however, there would be no availability for intermittent use of one or more of these blowers for aeration of the concrete equalization tank.

4.8. SECONDARY CLARIFIERS



secondary clarifiers are each 15-foot diameter steel tanks with an 11-ft sidewater depth and inboard effluent troughs and v-notch weirs. The clarifiers are each fitted with a circular sludge collection mechanism. The mechanism on the south clarifier was replaced in the 2005 plant improvements project. District operations staff report that while there is an apparent performance efficiency difference between the north and south clarifiers, the mechanisms and

the clarifiers have generally functioned well since installation. Operations staff report that SVI values range from 180 to 190 milliliters per gram (mL/g) (which are on the high side for an activated sludge process), and staff indicate that as plant flow approaches 0.120 MGD, clarifier bulking limits the ability of the plant to operate and attain discharge limits.

4.8.1. Performance Criteria and Assumptions

The following criteria and assumptions provide the basis for evaluating the performance potential of the secondary clarifiers.

- Peak surface overflow rate \leq 1200 gallons per square foot per day (gal/ft²/d) at PHF.
- Peak solids loading rate \leq 30 ppd per square foot (lb/ft²-day) at 4,093 mg/L MLSS and PHF plus RAS.
- Average surface overflow rate \leq 600 gallons/sf/day, at MMADF and peak period.

- Average solids loading rate ≤ 25 lb/ft²-day, at 4,093 mg/L MLSS and MMADF plus RAS.
- Weir loading rate of 30,000 gallons/lf/day (Ref. WEF Manual FD-8).
- Both clarifiers are required to be in service; no redundancy is provided.

4.8.2. Discussion

Table 8 presents the theoretical hydraulic capacity potential for the clarifiers based on the above criteria.

Table 8. Clarifier Capacity Summary

Evaluation Criteria	Theoretical Capacity (MGD)
Peak Surface Overflow Rate, at PHF	0.42
Peak Solids Loading Rate, at PHF	0.22
Average Surface Overflow Rate, at MMADF	0.21
Average Solids Loading Rate, at MMADF	0.18
Maximum Weir Loading Rate	2.83

Since the operations staff indicates that clarifier bulking occurs at peak period flows of approximately 0.120 MGD, we have back-calculated the actual attainable clarifier peak solids loading rate (solids flux rate). At a peak period flow of 0.120 MGD plus a RAS flow of 0.072 MGD (0.6Q), and a MLSS of 4,000 mg/l, the solids flux rate that the clarifiers are actually operating at is 18.1 lb/ft²-day. The clarifiers are under-performing and are limited in the solids flux that they can handle either due to the current poor sludge settling characteristics, or due to MLSS concentration overloading. At this early stage in the plant evaluation, the reason for poor sludge settling is not known with certainty. However, septicity developing in the equalization tank and impacting the downstream activated sludge process or the potential development of polysaccharide slime (related to the PACI feed point) could be related to the observed sludge setting conditions. Utilization of the concrete equalization tank as a biological anoxic tank, and converting the current anoxic Basin 1 to an aerobic basin will serve to spread out the loading and allow operation at a lower MLSS concentration (while maintaining the same biomass in the system), reducing the clarifier loading.

If the sludge settling characteristics can be improved and clarifier loading can be reduced by utilizing the existing concrete equalization tank as a biologic anoxic process tank, then the potential clarifier performance could be increased to a flux rate of approximately 28 lb/ft²-day. This increase in the attainable clarifier solids flux rate corresponds to a peak period flow of 0.200 MGD plus a RAS flow of 0.13 MGD (0.65Q), and a MLSS of 3,700 mg/l.

4.9. RAS AND WAS PUMPING SYSTEMS

Two RAS/WAS pumps are located in the wet well with a center concrete dividing wall, adjacent

to the north clarifier. The pumps are fed by an influent valve manifold connecting both clarifier underflow pipes to either side of the wetwell. RAS from each clarifier is pumped to Aerobic Basin 1 where it is mixed with raw influent. WAS is pumped to the sludge holding tanks, in a batch mode using this same set of pumps.



The RAS/WAS pumps are 4-inch submersible pumps sized at approximately 5 Hp, with a design point of 300 gpm at 22 ft. The pumps are equipped with VFDs to allow a turndown of approximately 50 percent. The RAS return rate is typically in the range of 0.6 – 0.9 times the influent rate (0.6 - 0.9Q). It is believed that the current RAS rate is a contributing factor to the observed clarifier bulking issue.

In order to lower this ratio the RAS/WAS pumps need to be de-coupled to allow for a dedicated RAS pump (which will effectively reduce the current minimum RAS flow rate by approximately one-half) and a dedicated WAS pump. The lower RAS rate can be obtained by modifying the RAS/WAS wet well; saw cutting and installing a gate in the center wall, allowing a single pump to take suction from both clarifiers.

4.9.1. Performance Criteria and Assumptions

- Current firm capacity to pump daily RAS flow during MMDF conditions.
- With proposed WAS/RAS wet well center wall modification allowing decoupling of the pumps, firm capacity to pump RAS between approximately 0.4Q (21 gpm) and 1.5Q (78 gpm) of the influent flow rate at MMDF (0.075 MGD) conditions.
- Current firm capacity to pump daily WAS flow during MMDF conditions.

4.9.2. Discussion

The proposed modifications to the wet well will allow the use of a single RAS pump, and operation at a lower RAS rate (target ratio of 0.2 – 0.4 to influent flow). A single RAS pump has a capacity ranging from approximately 21 gpm (at 16 ft of head) at 40 Hz to approximately 300 gpm (at 22 ft of head) at 60 Hz. The potential benefits of operating at a lower RAS rate include a reduction in the clarifier solids loading rate, a reduction in the dilution of initial substrate concentration in the aeration basin, and maximizing the solids detention time in the aerobic basin(s) per recycle pass.

WAS production per day at MMDF (0.075 MGD) is calculated to be approximately 110 lb/day, which equates to 660 gal/day at 2 percent solids. A single WAS pump has a capacity ranging from approximately 21 gpm (16 ft) at 40 Hz to approximately 300 gpm (22 ft) at 60 Hz. At the

lower range of the WAS pump capacity, 21 gpm, approximately 31 minutes is required to pump 660 gallons of WAS. If interval duration wasting is practiced, the WAS pumps could be operated for approximately 5 minutes every four hours at a rate of 21 gpm.

4.10. PRESSURE FILTER SYSTEM

Two (2), 4 ft diameter multimedia pressure vessels, piped in parallel, are used to filter the clarified effluent. Clarified effluent is typically in the range of 3 mg/l TSS. Two (2) 12.2 Hp submersible pumps take suction from the filter wet well and convey through the pressure filters and the UV disinfection reactors. The pumps are operated using a single loop controller with a PID control loop using a pressure transducer signal to control the VFDs. The filters are backwashed with house water, backwash cycles are manually initiated, and backwash waste is conveyed to the concrete equalization tank. Differential pressure across each vessel is used to determine the backwashing timing; typically at a differential pressure of approximately 6 - 10 psig. The existing pressure filter manufacturer is not known and there is not an equipment nameplate or other stamped information on the two vessels, hence verification of the filter internals, media, and capacity ranges is uncertain.



4.10.1. Performance Criteria and Assumptions

Current firm capacity to pump clarified effluent through the pressure filters and UV disinfection vessels at MMDF conditions.

4.10.2. Discussion

Operation of the pressure filters is limited by the allowable filter differential pressure setpoint and the corresponding filter feed pump capacity at that differential pressure setpoint. The submersible filter pumps design point is 600 gpm at 29 ft (12.6 psi) each; and capacity drops off to approximately 500 gpm at 32 (13.8 psi) ft, and 300 gpm at 52 ft (22.5 psi) limiting the capacity of the pressure filters if the filters are not backwashed at a frequency to maintain flow through the filters at a rate exceeding the incoming flow to the filter wet well. At either the MMDF of 0.075 MGD (52.1 gpm), or the future desired MMDF of 0.2 MGD (139 gpm), a single filter pump has sufficient capacity, at 300 gpm at 22.5 psi. However, overnight operation at plant flows approaching 0.120 MGD, can load the filters to the point that the filter wet well backs up and overflows to the effluent basin bypassing the UV system, if the filters are not backwashed.

Based on information provided by the plant staff, the filter system capacity is approximately 100,000 gal/day without operating problems. Backwashing a filter takes approximately 35 – 40 minutes, and influent flow to the plant is typically manually diverted to the equalization basin (while one filter is backwashed, the second filter remains on-line). At 120,000 gal/day, backwashing requirements can be in the range of 2 to 3 times per day, and during overnight plant operation, the filter feed pump/pressure filter system can be overloaded since filter backwashing has to be operator initiated. If the filter backwash setpoint is reached during overnight operations, the filter pump capacity can be reduced below the incoming flow rate, resulting in a filter wet well overflow to the effluent basin, bypassing UV. The filter pump wet well capacity is approximately 3,100 gallons, which provides a detention time of approximately 38 minutes at a plant flow of 120,000 gal/day when both filters are being backwashed; the wet well detention time is approximately.

4.11. DISINFECTION SYSTEM

Secondary clarifier effluent is disinfected using a low pressure- high intensity ultraviolet (UV) system with two pressurized reactors operated in series originally manufactured by Ultraviolet Purification Systems (and subsequently acquired by Infilco Degremont). The existing system equipment has been in service for more than 25 years. The operations staff report that they have had difficulties keeping the UV system in service at present due to the equipment age (estimated to be approximately 25 -30 years) and the deterioration of the system's electrical components. Conversations with Infilco Degremont have indicated that with a system of this age the ballasts, electrical harness, switches, and contacts are likely to be in poor condition, and that replacement parts may become unavailable.

4.11.1. Performance Criteria and Assumptions

- Firm capacity to disinfect peak hour flow is recommended (there are no redundant reactors).
- A UV transmission of 65 percent is assumed.
- The system capacity is a function of UV dose and hydraulic limitations.
- A minimum dose of 40 mJ/cm² at peak hour flow is required for reliable disinfection to meet an effluent fecal coliform limit of 200 c.f.u./100 ml and an E. coli limit of 126 c.f.u./100 ml.

4.11.2. Discussion

Based on our discussions with Infilco Degremont and their dose calculations for sizing a replacement system, the existing UV system is believed to have been rated for a peak flow of approximately 0.1 - 0.2 MGD with both reactors operating (i.e. no redundancy) as originally manufactured. At this flow the system would have been capable of delivering a UV dose of approximately 30 - 40 mJ/cm², if all components of the system were functioning to the manufacturer's original specifications. Because the original manufacturer is no longer in business and this equipment is no longer fully supported, it is difficult to verify the actual capacity of the existing UV system equipment. It is estimated that with only one reactor in operation (firm capacity), the existing UV system rating is approximately 0.050 – 0.075 MGD.

The existing UV disinfection system is functional; however the equipment is difficult to maintain due to deterioration of ballast and wiring harness hardware, and replacement parts are expected to be increasingly difficult to procure. Since the system design capacity cannot be fully verified, and since certain system components may not be operating to meet original specifications, it is possible that the current functional system capacity is substantially below the estimated 0.1 -0.2 MGD capacity.

Several UV system equipment proposals are in-progress currently, and information is expected from equipment suppliers in the next 30 days. Additionally, a proposal to re-build the existing two UV reactor vessels, replacing bulbs, ballasts, wiring harnesses, control panel, and upgrading the power supply to 220v. These proposals will be reviewed with respect to capacity provided, equipment reliability, and cost.

4.12. BIOSOLIDS STABILIZATION AND PROCESSING SYSTEM

The biosolids stabilization process includes two aerated sludge holding tanks, a centrifuge system, and an uncovered, concrete sludge drying bed. WAS is pumped from the Operations Building to the biosolids processing building, which houses the sludge holding tanks and the centrifuge.

4.12.1. Performance Criteria and Assumptions

- The criteria applicable to the present Project requires the capability to stabilize (treat) biosolids for disposal in a landfill. Additional treatment to reduce pathogen content to a Class B designation as defined by EPA and NMED is not required at this time.
- Plant operations personnel indicate that the preferred criteria applicable to the future design of a new plant requires the capability to stabilize (treat) biosolids for Class A designation as defined by EPA and NMED;
- Provide a total aerobic storage volume and detention time sufficient to meet the plants processing and disposal needs regardless of stabilization.
- Continued use of contract hauling and off-site disposal by a licensed contract hauler.
- Compliance with Vector Attraction Reduction requirements is assumed to be the responsibility of the biosolids disposal contractor.
- Sludge quality, specifically metals content, is not reported to be an issue and is not considered.

4.12.2. Discussion

The biosolids stabilization process was not evaluated with respect to capacity in this study. However, based on discussions with operations personnel, covering the existing drying bed would improve the solids handling as an interim step.

4.13. INSTRUMENTATION AND CONTROLS - ELECTRICAL

4.13.1. Instrumentation and Controls (I&C)

The existing plant Instrumentation & Control System is a mix of vendor package supplied control equipment, and individually supplied equipment as part of the 2005 improvements, which were an addition to the existing plant control system. Some additional equipment has been added by the Village to meet operating requirements. A storage tank level monitoring system was added using radio telemetry, but was currently out of service during the walk-through. A dedicated RACO alarm dialer is also part of the tank system control package, with connection to a telephone line.

Plant control is accomplished largely by manual start-stop control functions by the operations staff on the Human Machine Interface (HMI) computer. Most plant data is manually recorded by operations staff as no data was being logged by the control system. There are no video cameras in the facility, so all observation of the plant has to be done by operator walkthroughs.



The 2005 improvements project included a Main Control Panel (SCADA-301) which has the majority of the Plant Inputs and Outputs (I/O) run to the main control panel. The plant I/O is terminated on I/O cards which are a component of the Sensaphone SCADA 3000 system. All signals are run in individual wires/conduits; there are no Ethernet communications between areas in the facility.

There are several components that make up a complete functioning Control/SCADA system:

4.13.2. SCADA System Architecture

SCADA stands for Supervisory Control and Data Acquisition. As the name indicates it is not a full control system, but rather focuses on the supervisory level. As such, it is usually a computer software package that is positioned on top of the control system hardware to which it is interfaced, in general via Programmable Logic Controllers (PLC'S), or other commercial controllers with hardware modules.

4.13.3. SCADA System Functionality

The base control layer of a SCADA system includes the instrumentation, control components and programmable controller CPU and I/O cards. In a centralized SCADA such as that installed at VTSV, it consists of the package equipment, plant instrumentation and the SCADA 3000 control system.

4.13.4. Alarm Monitoring/Alarm Database

An alarm dialer is currently mounted in the plant process area, but apparently is not connected to alarm outputs on SCADA system. It appears the Sensaphone 3000 has an internal alarm dialer, but it does not currently appear to be in working order. It does not appear that the current software has a separate alarm database setup. In fact, there were no alarms configured in the Human Machine Interface (HMI), other than individual alarms/alarm set points on a few screens. Without a main alarm screen, operators must navigate through each screen to see if there are any alarms to take action. This can result in a number of process upsets. There are numerous alarms wired into the SCADA system, but very few are implemented on the graphics screens, resulting in many “operations near misses.”

4.13.5. Data Acquisition/Database

The SCADA system has a tag database which defines the points in the system. This is a real-time database that is responsible for providing real-time data on the graphic screens, for example providing the current plant flow rates. Each tag is based on an input point and is scaled as required. If tags are setup for historical data acquisition, individual values will be logged to disk at specified time periods. No data was being logged during the plant visit, but we were able to restore data logging on about 8 important variables. The connection between the Sensaphone 3000 and the computer is a RS-232 serial interface, so there are bandwidth limitations in the existing system which will limit the amount of data that can be polled and stored in the SCADA system.

4.13.6. Graphical Display System

Graphics displays are individual graphics screens that show plant information along with real-time values. Another important feature is historical trending which shows a real-time or historical trend of a particular process item. No historical trend screens were provided for the plant. This is an important feature and should be available for many process parameters.

4.13.7. Reporting Module

Most SCADA packages provide a free format reporting module. No reports were available in the current system, except for a graphics screen that reported plant effluent flow totals. Again, this is an important feature and should be available for many process parameters.

4.13.8. Other Controls/Instrumentation

There are several control loops that are not part of the SCADA system. In the main plant area, the pinch valve controller is controlled from a dedicated loop controller. The flowmeter (FIT-303) is used as the process variable to control the flow into the main plant, with the balance of

the flow staying in the EQ basin. Flow then proceeds hydraulically through the plant until it leaves the clarifier and enters the filter feed sump.

Another major control loop is the Filter controls. The filter control feed pumps are VFD speed controlled based on a wetwell level set point. Depending on the level in the wetwell, the pump will run to maintain a set level. If the level goes above the high level set point, then the second pumps should start to get the level to set point.

Dissolved Oxygen (DO) probes were installed in Aeration Basins 2 and 3 and Oxidation Reduction Potential (ORP) probes were installed in basins 1 and 4 in the recent project. However, it does not appear that the probes are in working order. Also, DO and ORP measurements are displayed but not used to control blowers. Potential energy savings could be claimed by controlling the blowers based on DO on an ON-OFF control mode.

Aeration basin air flow control valves to the diffusers are manually controlled and do not contain automatic flow control valves or individual flow meters, so the actual air flows to the basins cannot be measured, and there is not the possibility of an advanced Most Open Valve control scheme without significant upgrades to the facility. Return Activated Sludge (RAS) and Waste Activated Sludge (WAS) flows are measured, pumps are controlled by variable frequency drives, but controls do not exist to allow operations to setup proper return or was sludge flows, so they are manually controlled.

4.13.9. Electrical Power Distribution System

The existing plant is served by a three phase, 480 Volt AC power system from Kit Carson Electric. The original service to the facility was three phase 240 Volt AC, so many of the original plant motors were supplied for 240 VAC service. During the 2005 Upgrade project, discussions were held with the utility, and it was thought that the available service would continue to be three phase 240 VAC; hence the electrical power system upgrades were made using a 240 VAC power supply. However, during construction, the power company provided a 480VAC service. Therefore a 480VAC to 240VAC step down transformer was supplied and the diesel generator was wired for 240 VAC service. The efficiency of the step down transformer is 98.9%, so very little loss occurs with this conversion.

The power distribution system consists of a fused 600 Amp main service disconnect switch, a 1000 amp transfer switch which feeds power to the main switchboard. The switchboard is an Eaton (Pow-R-Line C) switchboard, which is rated 1000 Amps. There is no incoming power monitor, so issues with power quality cannot be recorded or understood. Also, it is not possible to see the impact of energy savings due to changes in process control. The switchboard feeds various power panels at different locations, including the Headworks, the Dewatering building, the Old plant and the UV system. An 800 Amp main power feeder feeds Motor Control Center MCC-1A, which in turn feeds MCC-1B.

Conduits and raceways are in good condition and no significant issues were observed during the plant walk-through. There appear to be sufficient duct banks from the exiting main plant to the other plant areas. The ducts were built with soft fill rather than concrete encased that allow ease of future additions, if required.

4.13.10. Electrical Loads

The Load Table (below) summarizes the main loads in the facility with an average of 350 connected Amps.

Area	Item Name	Tag	Status	Load Power Information							
				Volts	Phase	Rating (HP)	Kw	FLA (Total)	Utilization (%)	FLA (Adjusted)	Generator Priority
Electrical Room	Headworks Feeder	PP-H	Exist	208	3			100.0	25%	25.0	
	Dewatering feeder	PP-F	Exist	208	3			100.0	25%	25.0	
	Plant Feeder	PP-A	Exist	208	3			100.0	30%	30.0	
	UV Feeder	UV	Exist	208	3			50.0	100%	50.0	
	Trash compactor	TSH	Exist	208	3	5		15.0	10%	1.5	
	Generator Support	Gen	Exist	208	3	5		9.6	75%	7.2	
	Blower	B-312	Exist	208	3	15		28.0	100%	28.0	
	Blower	B-313	Exist	208	3	15		28.0	50%	14.0	
	Blower	B-314	Exist	208	3	15		28.0	25%	7.0	
	Blower	B-315	Exist	208	3	15		28.0	50%	14.0	
	Blower	B-309	Exist	208	3	7.5		15.2	25%	3.8	
	Blower	B-310	Exist	208	3	7.5		15.2	25%	3.8	
	EQ Mixer 1	M-221	Exist	208	3	5		9.6	100%	9.6	
	EQ Mixer 2	M-222	Exist	208	3	5		9.6	100%	9.6	
	EQ Mixer 3	M-223	Exist	208	3	5		9.6	100%	9.6	
	EQ Mixer 4	M-224	Exist	208	3	5		9.6	100%	9.6	
	Aeration mixer	M-365	Exist	208	3	2		6.0	100%	6.0	
	Flash Mixer	M-321	Exist	208	3	3		6.8	100%	6.8	
	Flocculator	M-322	Exist	208	3	1		3.2	50%	1.6	
	Selector pump	P-366	Exist	208	3	5		9.6	100%	9.6	
	Selector pump	P-367	Exist	208	3	5		9.6	100%	9.6	
	Selector pump	P-368	Exist	208	3	5		9.6	100%	9.6	
	Clarifier	M-323	Exist	208	3	1		3.2	50%	1.6	
	Clarifier	M324	Exist	208	3	1		3.2	50%	1.6	
	Dewatering Pump	P-357	Exist	208	3	3		6.8	100%	6.8	
	RAS Pump	P-331	Exist	208	3	3		6.8	100%	6.8	
	RAS Pump	P-332	Exist	208	3	3		6.8	100%	6.8	
	Filter Feed Pump	P-341	Exist	208	3	10		22.0	100%	22.0	
Filter Feed Pump	P-342	Exist	208	3	10		22.0	100%	22.0		
							Total				
							Total	671.0		358.5	

The electrical system has a 600 Amp service which is sufficient for the size of facility. Utility bills were not evaluated to determine peak loads during ski season, but it appears that there is adequate transformer capacity to serve current and future loads. The current loading indicates that the plant is currently loaded at $(350/600=.58)$ 60%. This means that the current transformer should provide sufficient capacity for now and future additional loads.

4.13.11. Motor Control Center

Motor Control Centers MCC-1A, MCC-1B were installed during the 2005 improvements and appear to be in good working order, however there is no spare capability. There was to be an operator area with a wall/door separating the MCC room and operations, but this was not constructed. So the operations/SCADA computer is located in a loud and warm area, not conducive for operations staff.

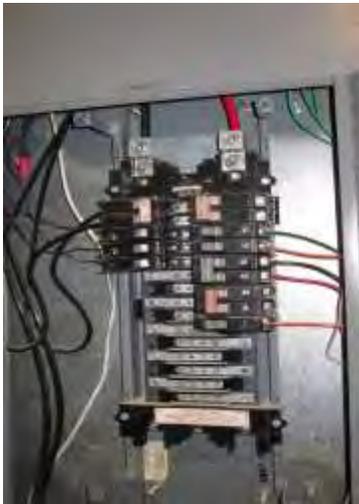
4.13.12. Standby Power Generation

A new standby generator was provided in the 2005 plant construction project. The generator is a Cummins powered 350kW diesel generator providing 220 VAC power to the automatic transfer switch upon loss of power from the local utility.

The generator appears to be sized appropriately for the required loads; however there does not appear to be any automatic sequencing of loads when under standby power, so the plant operations staff need to manually shed loads.

As the power distribution system has been recently replaced, it should serve the needs of the existing facility, for at least 10 years, if necessary. It is recommended that when a new facility is constructed, that the power distribution system be changed to 480 VAC.

4.14. CODE COMPLIANCE AND SAFETY CONCERNS



There are no major code compliance issues with the electrical system.

ARC Flash labels have not been provided or installed on the electrical equipment per NFPA guidelines. Any future modifications to the electrical equipment should include a new ARC Flash study and labels.

There is an existing lighting panel in the MCC room (Lighting Panel A) which is not covered.

For safety considerations, a cover should be added to prevent staff from coming into contact with the panel busses. This can be completed as a maintenance item, and should be readily available via Grainger or other electrical supply for around \$100.00.

Housekeeping should be performed to provide 36" of clear access space to all electrical power equipment. An example of unacceptable access space



5. CAPACITY SUMMARY DISCUSSION / RECOMMENDATIONS

Figure 1 presents a summary of the equivalent hydraulic capacity of each major process area. Both peak hour flow capacity and maximum month flow capacity are shown. The graph also includes reference flows to allow comparison of the rated unit process capacities with these flows. Reference flows are included for the current conditions, as well as projected facility design flows.

Table 9 summarizes the capacity of the WWTF's major process and equipment systems.

Table 9. Major Process Capacity Summary

Component	Capacity (MGD)	Basis / Notes
Headworks		
Influent Sewer	0.65	Conditional flow rate based on flow depth
Concrete Channels	0.65	Limited by allowable level upstream of screen
Screening System	0.5	Peak Flow
Grit Removal System	1.0	Removal efficiency decreases with flow
Influent Flow Metering	0.65	Limited by allowable level upstream of screen
Secondary Treatment		
Influent Flow Splitter	>0.65	Full-pipe, submerged outlet
Aerobic/Anoxic Basins	0.12	SRT of 15.4 days; MLSS of 3975 mg/l
Aeration Supply – Peak	0.38	MMADF – 0.30 is firm capacity;
Secondary Clarifiers - Peak	0.12	Peak Flow; limited by solids flux
Secondary Clarifiers - Avg	0.12	MMADF; limited by solids flux
RAS Pumps	0.2	Capacity based on 0.4 – 1.5 ratio
WAS Pumps	0.2	Capacity to waste continuously to sludge holding tanks
Disinfection		
Required Dose/ Hydraulics	0.1 – 0.2 est.	Total capacity is estimated due to lack of available system documentation
Effluent Flow Metering and Outfall		
Flume/Outfall	NA	Capacity not evaluated as part of this study
Solids Processing		
Sludge Holding Tanks/Centrifuge	NA	Capacity not evaluated as part of this study

As seen above, the current plant is capacity limited by the aerobic/anoxic basins and the clarifiers at a peak period flow of 0.120 MGD. Section 4.6 presented our analysis of the secondary process aerobic/anoxic basin capacities evaluated using BioWin modeling of the existing IFAS process. The evaluation shows that the present system does not have enough total biomass to attain the limits at flows (and corresponding loadings) greater than 0.12 MGD, and the clarifiers are overloaded at these flows. The way to increase capacity is to either increase the available biomass in the basins and spread it out in the increased volume obtained by using the concrete equalization tank as an anoxic biologic reactor, and convert the current Basin 1 to aerobic available volume.; or to add additional media in Basin 3. Based on process flexibility, managing Basin 3 media suspension/screen plugging problems, and cost considerations (media is expensive) adding additional basin treatment volume is recommended.

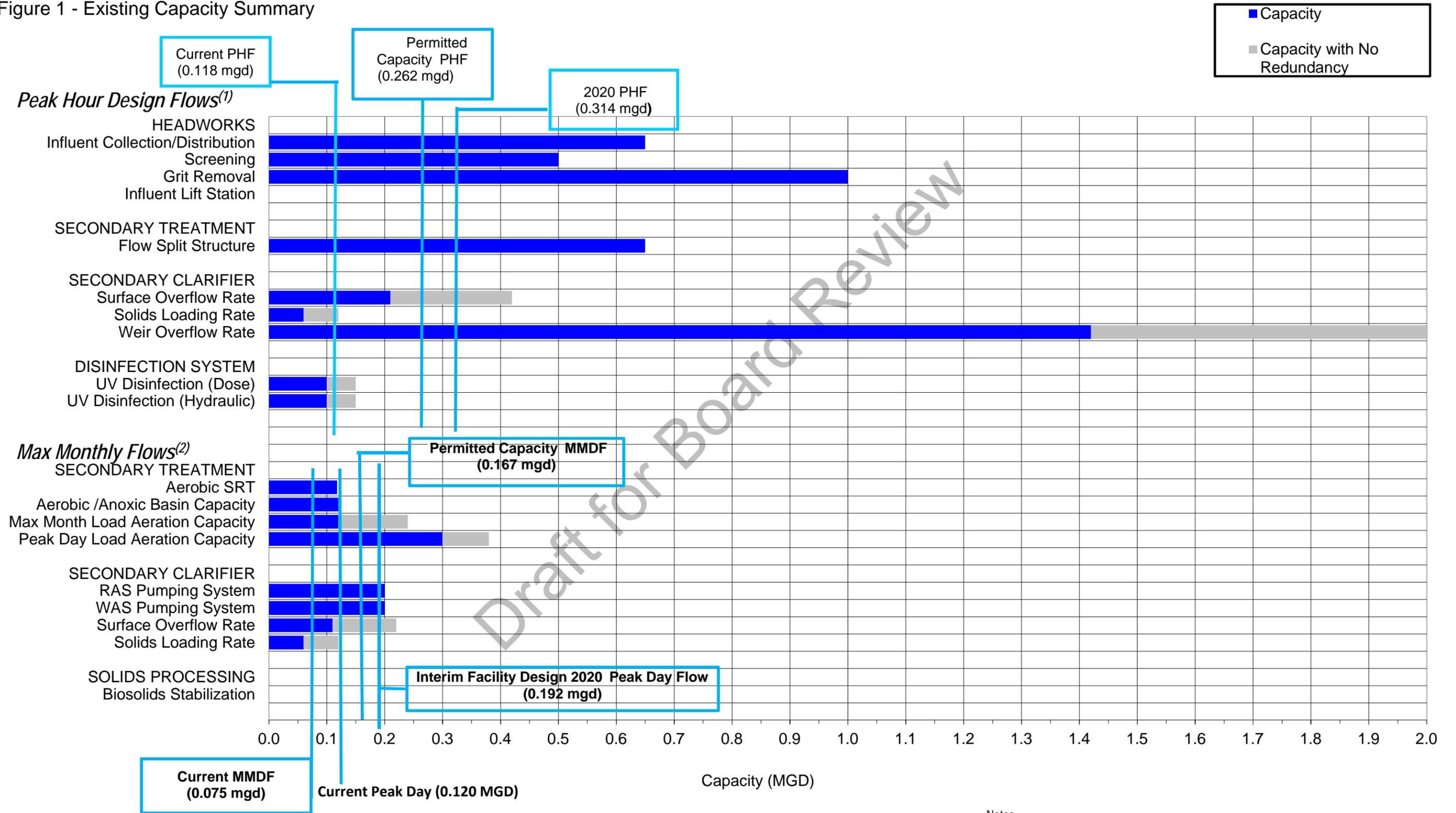
Section 4.8 presented our analysis of the clarifier loading, and it can be concluded that the theoretical clarifier capacity of approximately 0.22 MGD (corresponding to a peak solids loading rate of 30 lb/ft²-day) during peak period flow conditions is not attainable either due to the current sludge settling characteristics or due to the MLSS concentration loading on the clarifiers. Starting with the stated actual current clarifier capacity limit of 0.120 MGD, we have back-calculated the current attainable clarifier peak solids loading rate (solids flux rate). At a peak period flow of 0.120 MGD plus a RAS flow of 0.072 MGD (0.6Q), and a MLSS of 4,000 mg/l, the solids flux rate that the clarifiers are actually operating at is 18.1 lb/ft²-day. If the sludge settling characteristics can be improved and/or the solids loading to the clarifiers can be reduced, then the potential clarifier performance could be increased to a flux rate of approximately 28 lb/ft²-day. This increase in the attainable clarifier solids flux rate corresponds to a peak period flow of 0.200 MGD plus a RAS flow of 0.13 MGD (0.65Q), and a MLSS of approximately 3,700 mg/l.

Preliminary recommendations are summarized in the following list:

- Convert the existing concrete equalization tank to an anoxic equalization tank.
 - Operating in an anoxic mode with RAS and internal recycle pumped to the concrete anoxic tank (and using additional process instrumentation), will facilitate eliminating development of septicity, and the detrimental impact on solids settling characteristics attributable to the microorganisms that can exist in that regime.
 - Additional aerobic basin volume can be obtained through the conversion of the concrete equalization tank to an anoxic equalization tank shifting denitrification capacity from the current Anoxic Tank 1 to the concrete equalization tank and converting Tank 1 to aerobic process conditions. This additional aerobic volume lowers the overall aerobic concentration loading in the aerobic basins and provides increased aerobic process capacity through the addition of increased aerobic biomass.
- Install two mixers in the concrete influent equalization basin.
 - The mixing provided by the current surface mixer is insufficient, and significant solids settling and development of septicity occur. Additionally, with the MLSS kept in suspension using a new submersible mixer(s), septicity conditions in this tank can be substantially reduced, potentially improving clarifier sludge settling characteristics.

- Relocate the PACl feed point from Tank #1 to the splitter box prior to the Clarifiers.
 - Evaluation of SVI data (obtained since the PACl feed point relocation) and potential additional sample analysis to determine whether polysaccharide slime formation is an issue should be implemented. COMPLETED.
- Collect and interpret data from soluble BOD and total BOD sampling.
- Confirm piping, valves, and recycle pump flow capacity for ability to pump recycle flows at 3Q to 5Q from basin 4B to the concrete anoxic equalization tank.
- Replace the SCADA system.
 - Please refer to the previously-provided proposal from our team. The primary benefit to the VTSV is that we could maintain the software remotely, saving time and providing fast response to issues. The proposal approach would also provide the VTSV with the flexibility to hire any integrator because the equipment and programming is not proprietary.
- Based on available information, the headworks building air handling system is currently believed to be non-functional. It is recommended that a reliable Mechanical Contractor be engaged to make adjustments/repairs to the following system components immediately.
 - The exhaust fan was observed to be non-functional, and in need of adjustment to correct a likely alignment, belt tension, sheave adjustment or other problem to be able to be put back into service.
 - The MAU functionality and control interface with the flammable gas air sensor needs to be verified and made functional to meet code requirements.
- Removal of a portion of the separation wall between the two RAS/WAS pumps along with the installation of an isolation gate.
 - Two (total) RAS/WAS pumps are located in the wet well adjacent to the north clarifier. The pumps are fed by an inlet valve manifold connecting both clarifier underflow pipes to either side of the wetwell.
 - A lower RAS rate can be attained by a modification to the RAS/WAS wet well consisting of saw cutting (approximately 2.5-feet wide by entire depth), installing a gate and center partition wall (for future flexibility), allowing a single pump to take suction from both clarifiers - either to RAS or WAS.
- Add additional process control instrumentation.
 - Installation of an ORP probe in concrete equalization basin, DO probe in Basin No. 1, and ammonia probe in Basin No. 3.

Figure 1 - Existing Capacity Summary



Notes:
 (1) Unit process hydraulic capacity compared with observed Peak Hour Flow (PHF) and peak instantaneous flow (PIF) values.
 (2) Unit process treatment capacity estimated on Max Month average daily flow (MMDF).

Draft for Board Review

12" Pipe Flume Outlet to EQ Tank Inlet - Circ. Channel

	Units	
D =	0.30 m	12 Enter Pipe D in inches
n =	0.013	
Q =	0.0219 m ³ /sec	0.50 Enter Q in MGD
Φ =	1	Φ = 1 for SI units; 1.49 for English Units
S =	0.027222222	

$$AR^{2/3} = nQ/\Phi(S)^{0.5}$$

$$AR^{(2/3)} = 0.002$$

$$AR^{(2/3)}/D^{(8/3)} = 0.04$$

From Fig. 5.2, $Y_N/D = 0.245$ dimensionless
 $Y = (Y_N/D)*D = 0.07$ m 0.25 ft

$$\cos(\Theta/2) = 1 - (2*Y/D)$$

$$\cos(\Theta/2) = 0.51$$

$$\Theta/2 = 1.035611537$$

$$\Theta = 2.071223073$$

$$A = 1/8(\Theta - \sin\Theta)d_o^2 = 0.013864318 \text{ m}^2 \quad 0.15 \text{ ft}^2$$

$$P = 1/2\Theta d_o = 0.315658235 \text{ m} \quad 1.04 \text{ ft}$$

$$R = 1/4(1 - \sin\Theta/\Theta)d_o = 0.043921927 \text{ m} \quad 0.14 \text{ ft}$$

$$D = 1/8(\Theta - \sin\Theta/\text{SIN}(0.5*\Theta))d_o = 0.040052086 \text{ m} \quad 0.13 \text{ ft}$$

$$v = Q/A = 1.58 \text{ m/sec} \quad 5.18 \text{ ft/sec}$$

$$g = 9.8 \text{ m/sec}^2 \quad 9.8 \text{ m/sec}^2$$

$$F = v/((gD)^{0.5}) = 2.52$$

Length of Channel: $L = 21.94586686$ m 72.00 ft Enter Channel Length in Feet

$$h_L = L(vn/R^{(2/3)})^2 = 0.609730035 \text{ m} \quad 2.00 \text{ ft}$$

8" Infl. Pipe - Circ. Channel

	Units	
D =	0.20 m	8 Enter Pipe D in inches
n =	0.013	
Q =	0.0219 m ³ /sec	0.50 Enter Q in MGD
Φ =	1	Φ = 1 for SI units; 1.49 for English Units
S =	0.0088	

	$AR^{2/3} = nQ/\Phi(S)^{0.5}$	
AR ^(2/3) =	0.003	
AR ^(2/3) /D ^(8/3) =	0.21	
From Fig. 5.2, Y _N /D =	0.6 dimensionless	
Y = (Y _N /D)*D	0.12 m	0.40 ft
cos(Θ/2) = 1 - (2*Y/D)		
cos(Θ/2) =	-0.2	
Θ/2 =	1.772154248	
Θ =	3.544308495	

A = 1/8(Θ - sinΘ)d _o ²	0.020316463 m ²	0.22 ft ²
P = 1/2Θd _o	0.360106122 m	1.18 ft
R = 1/4(1 - sinΘ/Θ)d _o	0.056417988 m	0.19 ft
D = 1/8(Θ - sinΘ/SIN(0.5*Θ))d _o	0.100186654 m	0.33 ft

v = Q/A	1.08 m/sec	3.54 ft/sec
g = 9.8 m/sec ²	9.8 m/sec ²	
F = v/((gD) ^{0.5})	1.09	

Length of Channel: L =	45.41575226 m	149.00 ft	Enter Channel Length in Feet
h _L = L(vn/R ^(2/3)) ²	0.420131903 m	1.38 ft	

Infl. Channel - Rectangular

	Units		
b =	0.30 m	<input type="text" value="1"/>	Enter b in ft
z =	<input type="text" value="0"/>		
n =	0.013		
Q =	0.02847 m ³ /sec	<input type="text" value="0.65"/>	Enter Q in MGD
Φ =	1		Φ = 1 for SI units; 1.49 for English Units
S =	0.0088		

$AR^{(2/3)} = nQ/\Phi(S)^{0.5}$ 0.004

$AR^{(2/3)}/b^{(8/3)} =$ 0.093764

From Fig. 5.2, $Y_n/b =$ dimensionless
 $Y = (Y_n/b)*b$ 0.085345 m 0.28 ft

A = (b+zy)y	0.026 m ²	0.28 ft ²
P = b+2y(1+z ²) ^{0.5}	0.475 m	1.56 ft
R = (b+zy)y/(b+2y(1+z ²) ^{0.5})	0.055 m	0.18 ft
T = b+2zy	0.305 m	1.00 ft
D = AT	0.085 m	0.28 ft

v = Q/A	1.09 m/sec	3.59 ft/sec
g = 9.8 m/sec ²	9.8 m/sec ²	
F = v/((gD) ^{0.5})	1.196704	

Length of Channel: L =	1.828822 m	<input type="text" value="6.00"/>	Enter Channel Length in Feet
$h_c = L(vn/R^{(2/3)})^2$	0.018174 m	0.06 ft	

~~Parabolic~~ - Circ. Channel

D =	0.20 m	8	Enter Pipe D in inches = 0.67 ft
n =	0.013		
Q =	0.0204984 m ³ /sec	0.47	Enter Q in MGD
Φ =	1		Φ = 1 for SI units; 1.49 for English Units
S =	0.0088		

$AR^{2/3} = nQ/\Phi(S)^{0.5}$

AR^(2/3) = 0.003

AR^(2/3)/D^(6/3) = 0.20

From Fig. 5.2, Y_N/D = 0.56 dimensionless

Y = (Y_N/D)*D = 0.11 m 0.37 ft

0.37 = 0.56 Full (56%)
0.67

$\cos(\Theta/2) = 1 - (2*Y/D)$

cos(Θ/2) = -0.12

Θ/2 = 1.691086209

Θ = 3.382172418

A = 1/8(Θ - sinΘ)d_o² = 0.018686549 m² = 0.20 ft²

P = 1/2Θd_o = 0.343632896 m = 1.13 ft

R = 1/4(1 - sinΘ/Θ)d_o = 0.054379396 m = 0.18 ft

D = 1/8(Θ - sinΘ/SIN(0.5*Θ))d_o = 0.092004298 m = 0.30 ft

v = Q/A = 1.10 m/sec = 3.60 ft/sec

g = 9.8 m/sec² = 9.8 m/sec²

F = v/((gD)^{0.5}) = 1.16

Length of Channel: L = 45.41575226 m = 149.00 ft Enter Channel Length in Feet

$h_L = L(vn/R^{2/3})^2$ = 0.457080655 m = 1.50 ft

Intake - Circ. Channel

D =	0.20 m	Units	
n =	0.013		8 Enter Pipe D in inches = 0.67 ft
Q =	0.0285138 m ³ /sec		0.65 Enter Q in MGD
Φ =	1		Φ = 1 for SI units; 1.49 for English Units
S =	0.0088		

$AR^{2/3} = nQ/\Phi(S)^{0.5}$

AR^(2/3) = 0.004

AR^(2/3)/D^(8/3) = 0.28

From Fig. 5.2, Y_N/D = 0.71 dimensionless

Y = (Y_N/D)*D = 0.14 m 0.47 ft

$\frac{0.47}{0.67} \times 100 = 70.1\% \text{ full}$

$\cos(\Theta/2) = 1 - (2*Y/D)$

cos(Θ/2) = -0.42

Θ/2 = 2.004241647

Θ = 4.008483294

A = 1/8(Θ - sinΘ)d₀² = 0.024624052 m² = 0.27 ft²

P = 1/2Θd₀ = 0.407266855 m = 1.34 ft

R = 1/4(1 - sinΘ/Θ)d₀ = 0.060461713 m = 0.20 ft

D = 1/8(Θ - sinΘ/SIN(0.5*Θ))d₀ = 0.123152973 m = 0.40 ft

v = Q/A = 1.16 m/sec = 3.80 ft/sec

g = 9.8 m/sec² = 9.8 m/sec²

F = v/((gD)^{0.5}) = 1.05

Length of Channel: L = 45.41575226 m = 149.00 ft Enter Channel Length in Feet

h_L = L(vn/R^(2/3))² = 0.441876172 m = 1.45 ft

VTSV RAS/WAS Pump Design Calcs
Submersible Pump Calc

System Curves

Nominal Pipe Size (in)	Static Head (ft)	Flowrate (gpm)	Flowrate (cfs)	Pipe Length (ft)	C Factor H-W Eq	Pipe Friction Loss (ft)	TDH (ft)	Water Velocity (ft/s)	Pump Efficiency (%)	Motor Efficiency (%)	Water Horsepower (whp)	Brake Horsepower (bhp)	Electrical input (hp)
6	12	0	0.00	22	110	0.00	12.00	0.00	0.8	0.92	NA	NA	NA
6	12	50	0.11	22	110	0.01	12.52	0.57	0.8	0.92	0	0	0
6	12	100	0.22	22	110	0.03	12.59	1.14	0.8	0.92	0	0	0
6	12	150	0.33	22	110	0.07	12.69	1.70	0.8	0.92	0	1	1
6	12	200	0.45	22	110	0.11	12.84	2.27	0.8	0.92	1	1	1
6	12	250	0.56	22	110	0.17	13.02	2.84	0.8	0.92	1	1	1
6	12	300	0.67	22	110	0.24	13.24	3.41	0.8	0.92	1	1	1
6	12	350	0.78	22	110	0.32	13.50	3.98	0.8	0.92	1	1	2

Nominal Pipe Size (in)	Static Head (ft)	Flowrate (gpm)	Flowrate (cfs)	Pipe Length (ft)	C Factor H-W Eq	Pipe Friction Loss (ft)	TDH (ft)	Water Velocity (ft/s)	Pump Efficiency (%)	Motor Efficiency (%)	Water Horsepower (whp)	Brake Horsepower (bhp)	Electrical input (hp)
6	12	0	0.00	22	120	0.00	12.00	0.00	0.8	0.92	NA	NA	NA
6	12	50	0.11	22	120	0.01	12.52	0.57	0.8	0.92	0	0	0
6	12	100	0.22	22	120	0.03	12.58	1.14	0.8	0.92	0	0	0
6	12	150	0.33	22	120	0.06	12.68	1.70	0.8	0.92	0	1	1
6	12	200	0.45	22	120	0.10	12.82	2.27	0.8	0.92	1	1	1
6	12	250	0.56	22	120	0.15	13.00	2.84	0.8	0.92	1	1	1
6	12	300	0.67	22	120	0.20	13.21	3.41	0.8	0.92	1	1	1
6	12	350	0.78	22	120	0.27	13.46	3.98	0.8	0.92	1	1	2

Calc Fittings Friction Loss

Fittings/Valves	K - Resis. Coeff.	No.	K Total	Butterfly Valve Degrees Open	Butterfly Valve 6 inch --Cv	Butterfly Valv. Loss (ft)	Fittings Friction Loss (ft)	Total Minor Friction Losses (ft)
90 Degree ELL	0.28	2	0.6	NA	NA	NA	NA	NA
45 Degree ELL	0.17	1	0.2				0.0	0.5
Line TEE	0.13	2	0.3				0.1	0.6
Branch TEE	0.60	1	0.6				0.1	0.6
		0	0.0				0.2	0.7
Gate Valves	0.10	2	0.2				0.3	0.8
Sudden Elargement	0	0	0.0				0.5	1.0
Inward Proj. Pipe	1.00	1	1.0				0.7	1.2
							0.0	0.5
K TOTAL			2.8				0.0	0.5

SurgeBusterCheck 16"; 300 gpm

0.5

Draft for Board Review

Calculation Title: Air Calculations and Blower Sizing
Project: VTSV WWTF
Calculation by: MAD
Date: 8/28/2014
CALCULATIONS:

TABLE 1 -- INFLUENT & EFFLUENT FLOW & LOAD CRITERIA

Parameter	Designer Notes	Units	Value		
			Design Condition	Peak	Start-up
FLOW		MGD	0.25	0.38	0.18
BOD, Influent Concentration		mg/L	252	300	222
BOD, Influent Load		lb/day	525.4	950.8	333.3
BOD, addl Load from Sidestreams	Ref to Mass Balance Calc	lb/day			8.0
BOD, Effluent Concentration allowed		mg/L	5	5	10
BOD, Effluent Load Allowed		lb/day	10.4	15.8	15.0
Total BOD Load Removed	Total BOD applied (infl + sidesteam) less effluetn BOD	lb/day	515.0	934.9	326.3
TKN, Influent Concentration		mg/L	40	62	50
TKN, Influent Load		lb/day	83.4	196.5	75.1
TKN, addl Load from Sidestreams		lb/day			10.0
TOTAL TKN Load		lb/day	83.4	196.5	85.1
% Nitrogen assimilated into biomass & wasted		%	0%	0%	0%
Nitrogen Removed from System via Sludge		lb/day	0.0	0.0	0.0
Net TKN Load to be Transformed		lb/day	83.4	196.5	85.1
% of Net TKN Load converted to NH3		%	100%	100%	100%
NH3 Load Applied		lb/day	83.4	196.5	85.1
NH3 Concentration Applied		mg/L	40.0	62.0	56.7
NH3, Effluent Concentration		mg/L	0.5	0.5	0.5
NO3 Created, Concentration		mg/L	39.5	61.5	56.2
NO3 Effluent Concentration		mg/L	5.0	5.0	5.0
NO3 Removal via Denitrification		mg/L	34.5	56.5	51.2

TABLE 2 -- AOR CALCULATIONS

Parameter	Designer Notes	Value		
		Current Summer ML	Current Winter ML	Future MADL
BOD5 Removed (ppd)		515.0	934.9	318.3
BOD5 O2 Requirement (lb O2/lb BOD removed):	REF EPA Fig 5-4; value based on SRT.		1.25	
BOD5 O2 Demand (lb O2/day)		643.7	1,168.6	397.8
Ammonia to be Nitrified (lb NH3/day)		40.0	62.0	56.7
Nitrification O2 Requirement (lb O2/ lb NH3 nitrified)			4.57	
Nitrification O2 Demand (lb O2/day)		182.8	283.3	258.9
Nitrate to be Denitrified (lb NO3/day)		34.5	56.5	51.2
Denitrification O2 Benefit (lb O2/ lb NO3 denitrified)			2.86	
Denitrification O2 Credit (lb O2/day)		98.7	161.6	146.3
VSS Yield (lb VSS/ lb BOD5 removed)	Ref MOP 8, Yobs as funtion of SRT	0.60	0.60	0.60
Daily VSS Production (lb VSS produced/day)		309.0	560.9	195.8
VSS O2 Requirement (lb O2/ lb VSS)			-1.42	
WAS O2 Credit (lb O2/day)		-438.8	-796.5	-278.0
Total AOR (NO denite & WAS credits)		826.5	1,452.0	656.8
Total AOR (including WAS credit but NO denite credit)		387.8	655.4	378.8
Total AOR (including denite credit but NO WAS credit)		925.2	1,613.6	803.1
Total AOR (including denite & WAS credits)		486.4	817.0	525.1
Include WAS Credit in final aeration calculations (YES or NO)			NO	
Include Denite Credit in final aeration calculations (YES or NO)			NO	
Parameter		Value		
		Current Summer ML	Current Winter ML	Future MADL
Total AOR Used for Final Aeration Design (lb O2/day)		826.5	1,452.0	656.8
Hours of Aeration Per Day (hr)		24.0	24.0	24.0
Total AOR Used for Final Aeration Design (lb O2/hr)		34.4	60.5	27.4

TABLE 3 -- AERATION RATE CALCULATIONS

$$SOR = \frac{AOR}{\alpha \theta^{(T-20)} \left\{ \frac{\beta C^* \infty - C_L}{C_{SS}} \right\}}$$

$$SOR = \frac{AOR}{\alpha \theta^{(T-20)} \left\{ \frac{\tau \beta (\Omega + Sf) C_S - C_L}{(1 + Sf) C_S} \right\}}$$

CONVERSIONS	
1 SCF = 0.0173 lb O ₂	1 cubic foot = 7.481 gallons
23.3 lb O ₂ = 1.0 lb air	0 °F = 460 °R
1 SCF = 0.075 lb air	Standard Temp = 20 °C = 68 °F
SCF = standard cubic foot	

Parameter	Description	Value		
		Design Load	Peak Load	Start-up
Alpha (with Fouling Factor, if applicable)	Including fouling factor. Ref. Sanitaire and WETEC Study	0.80	0.60	0.60
Beta	surface tension correction factor; for differences between wastewater & clean water, use 0.95	0.95	0.95	0.95
Theta	Corrects for effect of MLSS temp on K _{La} , use 1.024	1.024	1.02	1.02
Process Temperature, degrees C	MMF Max. Temperature (higher temp water is harder to saturate, thus conservative)	8.00	20.00	20.00
Elevation Above MSL (ft)	Input from site data (or use calculator)	9260	5318	5318
Site Atmospheric Pressure (psia)	Formula, back check using lookup table sheet	12.16	12.16	12.16
Standard Atmospheric Pressure (at MSL, psia)	Standard value at sea level	14.70	14.70	14.70
Theta ^{T-20}	Corrects for effect of MLSS temp on K _{La} , use 1.024, note at 20 deg calculation becomes "1"	0.75	1.00	1.00
Tau	Corrects for effect of MLSS temp on C _s	1.30	1.00	1.00
Omega	Corrects for effect of ambient air pressure on C _s (does not account for submergence)	0.83	0.83	0.83
S _{r,site}	SITE Submergence correction factor; Corrects for hydrostatic pressure on C _s ; only used for submerged aerators	0.44	0.16	0.16
S _{r,sea level}	SEA LEVEL Submergence correction factor; Corrects for hydrostatic pressure on C _s ; only used for submerged aerators	0.19	0.16	0.16
C _s	Dissolved oxygen surface saturation at standard conditions, pressure at sea level (14.7 psia, 20 deg C, from table)	9.09	9.09	0.09
C _{s,t}	C _s adjusted for process temperature: C _s x tau	11.84	9.09	9.09
C _{ss}	C _s adjusted for effective submergence: C _s x S _{r,sea level} ; to discount enter "0" for effective submergence, SEA LEVEL	10.86	10.54	0.10
C* _∞	Steady steady state DO concentration, adjusted for process temp, site pressure, and effective submergence	15.04	8.97	0.09
C _L	Target DO Concentration	2.00	1.00	2.00
Water Depth, feet	Depth of effective air release or diffuser depth	15.00	13.51	13.51
Effective Submergence Factor, site	Aerator specific, although mid depth (1.5) is used by M&E, Fluidyne used 0.5, Mazzei uses 0.45; Kaldnes uses 1.0; to discount enter "0"	1.00	0.40	0.40
Effective Submergence Factor, sea level	Submergence correction factor for standard conditions surface saturation: to discount enter "0"	0.44	0.40	0.40
AOR	Choose AOR from calculated values above, use to higher number for conservatism	827	1452	657
AOR:SOR Ratio	Note: if effective submergence at sea level correction is not used, the ratio goes up, and SOR goes down! (less conservative)	0.68	0.43	-11.01
SOR	Standard Oxygen Required in a 24-hr day	1214	3390	-60
Number of Hours Under Aeration		24.00	20.00	20.00
SOR	Standard Oxygen Required per hour of aeration time	50.57	169.51	-2.98
SOTE (%/ft)	From certified Mfr data or reliable reference data	1.20	2.22	1.20
Total SOTE (%)		18.00	29.92	16.21
AOTE (%)	SOTE x AOR/SOR Ratio	12.3	12.8	-178.6
Total Aeration (scfm)	conversion of lbs/hr (SOR) to SCFM using conversion factors	268.4	541.1	-14.6
Number of Operating Blowers	for Firm Capacity	1	5	2
Min Aeration Rate per Blower (scfm/blower)	Required		108.2	-7.3
Max. Inlet Air Temp (degrees F)		90.0	90.0	90.0
Relative Humidity at Max. Temp (%)		50%	50%	50%
Saturation Pressure, psia		0.7	0.7	0.7
Discharge Pressure, psig		6.0	6.0	7.5
Blower Mechanical Efficiency, %		56%	56%	56%
Motor and VFD Efficiency, %		89%	89%	89%
Total Aeration Rate (icfm)		348.0	701.6	-19.0
Aeration Rate per Blower (ICFM/blower)		348.0	140.3	-9.5
Blower Brake Horsepower (BHP/blower)		#VALUE!	5.5	-0.4
Blower Wire HP with 1.1 SF		#VALUE!	6.8	-0.6
Total Blower Operating Energy Demand per Blower (kW)		#VALUE!	9.1	-0.4
Total Blower Operating Energy Demand (kW)		#VALUE!	45.3	-0.8

Draft for Board Review

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location If Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101 PERMIT NUMBER
001-A DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD
FROM 01/01/2013 TO 01/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C 00310 10 Effluent Gross	SAMPLE MEASUREMENT	1.37	1.77	lb/d	*****	2.50	2.90	mg/L	0	6/31	COMP-6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L			
pH 00400 10 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.41	*****	7.81	SU	0	19/31	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	8.8 MINIMUM	*****	8.8 MAXIMUM	SU			
Solids, total suspended 00530 10 Effluent Gross	SAMPLE MEASUREMENT	0.68	0.94	lb/d	*****	1.10	1.30	mg/L	0	2/31	COMP-6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L			
Nitrogen, total 00600 10 Effluent Gross	SAMPLE MEASUREMENT	1.11	2.60	lb/d	*****	2.03	3.60	mg/L	0	8/31	COMP-6
	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L			
Nitrogen, ammonia total (as N) 00610 10 Effluent Gross	SAMPLE MEASUREMENT	0.46	1.81	lb/d	*****	0.78	2.50	mg/L	0	8/31	COMP-6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L			
Phosphorus, total (as P) 00665 10 Effluent Gross	SAMPLE MEASUREMENT	0.04	0.06	lb/d	*****	0.08	0.15	mg/L	0	8/31	COMP-6
	PERMIT REQUIREMENT	8 30DA AVG	1.2 7 DA AVG	lb/d	*****	5 30DA AVG	75 7 DA AVG	mg/L			
Flow, in conduit or thru treatment plant 50050 10 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.060	0.094	0.118	MGD	0	31/31	TOTALZ
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Dir	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT 	TELEPHONE	DATE
TYPED OR PRINTED			575 776 8220	02/14/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			AREA Code	NUMBER
				MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

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ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 01/01/2013	TO 01/31/2013

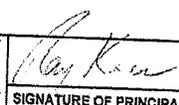
DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS				
Chlorine, total residual 50080 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*					
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****						
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	1	1	19 INST MAX	ug/L		Daily	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	*****	128 30DAVGEO	235 DAILY MX		CFU/100m L	0	2/31	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	2.25	4.50		CFU/100m L	0	2/31	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX		CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen Public Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all statements were prepared under my direction or supervision in accordance with the system designed to ensure that qualified persons properly gather and evaluate the information submitted. Based on my knowledge and belief, true, accurate, and complete, I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT 	TELEPHONE	DATE
			575 7768220	02/14/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101
PERMIT NUMBER

001-A
DISCHARGE NUMBER

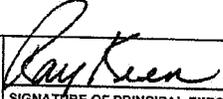
DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD
FROM MM/DD/YYYY TO MM/DD/YYYY
02/01/2013 TO 02/28/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C 00310 1 0 Effluent Gross	SAMPLE MEASUREMENT	1.04	1.11	lb/d	*****	2.10	2.40	mg/l	0	4/28	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.45	*****	7.61	su	0	15/28	grab
	PERMIT REQUIREMENT	*****	*****	*****	8.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended 00530 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.59	0.64	lb/d	*****	1.20	1.30	mg/l	0	2/28	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
Nitrogen, total 00600 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.8	1.13	lb/d	*****	1.62	2.11	mg/l	0	6/28	comp6
	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L		Weekly	COMP-6
Nitrogen, ammonia total (as N) 00610 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.19	0.20	lb/d	*****	0.38	0.42	mg/l	0	6/28	comp6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Twice Per Month	COMP-6
Phosphorus, total (as P) 00665 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.04	0.06	lb/d	*****	0.08	0.11	mg/l	0	6/28	comp6
	PERMIT REQUIREMENT	8 30DA AVG	1.2 7 DA AVG	lb/d	*****	5 30DA AVG	7.5 7 DA AVG	mg/L		Twice Per Month	COMP-6
Flow, in conduit or thru treatment plant 50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.059	0.067	0.071	MGD	0	28/28	totalz
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT 	TELEPHONE		DATE
			AREA Code	NUMBER	MM/DD/YYYY
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			575	776-8220	03/11/2013

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 02/01/2013	TO 02/28/2013

DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	1	1	cfu/100ml	0	2/28	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	0.75	1	cfu/100ml	0	2/28	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Director TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.		TELEPHONE		DATE
			757 776-8220	03/11/2013	
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER	MM/DD/YYYY	

LAB SUMMARY REPORT
February 2005

Date	BOD Data		pH	TSS Mg/L#/day	TKN Mg/L#/day	NH ₃ Mg/L#/day	NO ₃ Mg/L#/day	NO ₂ Mg/L#/day	Total P Mg/L#/day	Daily	Flow, mgd		E.Coli CFU	Fecal CFU
	Mg/L	#/day									Weekly Avg.	Weekly Total		
			7.46							0.051				
	2.40	1.09	7.52		1.40	0.64	0.36	0.16	0.12	0.05	0.02	0.01	0.06	0.03
			7.58	1.3	0.64	0.98	0.48	0.36	0.18	0.06	0.03	0.02	0.01	0.06
			7.51							0.059				
										0.060				
			7.57							0.060				
	2.00	0.92	7.45		1.50	0.69	0.42	0.19	0.08	0.04	0.02	0.01	0.08	0.04
			7.51							0.060				
			7.61							0.057				
					1.30	0.59	0.42	0.19	0.07	0.03	0.02	0.01	0.11	0.05
										0.055				
			7.61							0.060				
										0.055				
			7.57							0.054				
			7.54							0.059				
			7.58		1.70	0.87	0.36	0.18	0.11	0.06	0.30	0.15	0.07	0.03
	2.00	1.03	7.59		2.11	1.35				0.062			0.062	0.070
										0.070			0.067	0.071
										0.068			0.068	0.059
			7.49							0.066			0.066	0.066
										0.069			0.069	0.069
										0.068			0.068	0.068
	2.00	1.11	7.54	1.1	0.63	2.00	1.11	0.36	0.20	0.02	0.01	0.02	0.01	0.11
										0.067			0.067	0.067
										0.068			0.068	0.068
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										0.068			0.068	0.068
										0.069			0.069	0.069

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 03/01/2013	TO 03/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	< 1.30	< 1.35	lb/d	*****	< 2.00	< 2.00	mg/l	0	5/31	comp6
00310 1 0 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
pH	SAMPLE MEASUREMENT	*****	*****	*****	7.40	*****	7.59	SU	0	15/31	grab
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	0.80	0.82	lb/d	*****	1.30	1.30	mg/l	0	2/31	comp6
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
Nitrogen, total	SAMPLE MEASUREMENT	0.88	1.17	lb/d	*****	1.36	1.80	mg/l	0	6/31	comp6
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L		Weekly	COMP-6
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	0.37	0.68	lb/d	*****	0.58	1.10	mg/l	0	6/31	comp6
00610 1 0 Effluent Gross	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Twice Per Month	COMP-6
Phosphorus, total (as P)	SAMPLE MEASUREMENT	0.05	0.07	lb/d	*****	0.08	0.10	mg/l	0	6/31	comp6
00665 1 0 Effluent Gross	PERMIT REQUIREMENT	.8 30DA AVG	1.2 7 DA AVG	lb/d	*****	.5 30DA AVG	.75 7 DA AVG	mg/L		Twice Per Month	COMP-6
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	0.075	0.079	0.089	MGD	0	31/31	totalZ
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information identified. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE
Raymond Keen, Pub Works Dir		<i>Raymond A. Keen</i>	575 776-8220
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 03/01/2013	TO 03/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
50060 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	1	cfu/100ml	0	2/31	grab
51040 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	1	cfu/100ml	0	2/31	grab
74055 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	260 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Raymond Keen, Pub Works D TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge and belief, the information submitted is true and complete, and I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Raymond A. Keen</i>	TELEPHONE		DATE
			AREA Code	NUMBER	MM/DD/YYYY
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			575	776-8220	04/14/2013

LAB SUMMARY REPORT
March 2005

Date	BOD Data Mg/L#/day	pH	TKN		NH ₃ Mg/L#/day	NO ₃ Mg/L#/day	NO ₂ Mg/L#/day	Total P Mg/L#/day	Daily	Flow, mgd		E-Coil CFU	Fecal CFU							
			Mg/L#/day	Mg/L#/day						Weekly Avg.	Weekly Total									
2/01	2.00	1.30	1.2	0.78	1.70	1.11	0.70	0.46	0.08	0.05	0.02	0.01	0.10	0.07	0.072	0.083				
2/02					1.58	1.17										0.078				
2/03	2.00	1.33			1.10	0.73	0.56	0.37	0.04	0.03	0.02	0.01	0.10	0.07	0.080	0.081	0.078	0.547	<1	0.5
2/04					1.16	0.77										0.064				
2/05																0.065				
2/06	2.00	1.24	7.43		1.40	0.87	1.10	0.68	0.15	0.09	0.02	0.01	0.06	0.04	0.075	0.075				
2/07			7.53		1.57	0.97									0.075	0.079				
2/08			7.53												0.077	0.077				
2/09			7.44												0.077	0.077				
2/10			7.52												0.081	0.083	0.074	0.515		
2/11			7.47												0.083	0.089				
2/12			7.47												0.089	0.080				
2/13	2.00	1.26	7.40		1.3	0.82	0.71	0.45	0.36	0.23	0.02	0.01	0.10	0.06	0.075	0.074	0.074	0.554	0.500	1.5
2/14			7.40												0.074	0.074				
2/15			7.50												0.074	0.074				
2/16			7.50												0.074	0.074				
2/17			7.54												0.078	0.078				
2/18	2.00	1.35	7.45		1.4	0.94	0.56	0.24	0.07	0.01	0.02	0.01	0.04	0.03	0.081	0.081				
2/19			7.40		1.4	0.94	0.56	0.24	0.07	0.01	0.02	0.01	0.04	0.03	0.073	0.073				
2/20			7.40												0.067	0.067				
2/21			7.50		1.5	0.98	0.42	0.25	0.07	0.01	0.02	0.01	0.07	0.04	0.072	0.072	0.072	0.505		
2/22			7.50		1.5	0.98	0.42	0.25	0.07	0.01	0.02	0.01	0.07	0.04	0.063	0.063				
2/23			7.55												0.067	0.067				
2/24			7.55												0.070	0.070				
2/25			7.55												0.070	0.070				
2/26			7.55												0.070	0.070				
2/27			7.55												0.070	0.070				
2/28			7.55												0.070	0.070				
2/29			7.55												0.070	0.070				
2/30			7.55												0.070	0.070				
2/31			7.55												0.070	0.070				
Total	5.13				1.60		3.15	0.20	1.74		0.19		0.04	0.23	2.329	0.069	0.207	2.329		
Max	2.00	1.33	7.59		1.3	0.82	1.70	1.11	1.10	0.68	0.15	0.09	0.02	0.10	0.07	0.089	0.079	0.554	0.50	1.50
Min	2.00	1.24	7.40		1.2	0.78	0.71	0.45	0.36	0.23	0.02	0.01	0.02	0.04	0.063	0.063	0.069	0.207	0.50	0.50
Avg	2.00	1.28	7.49		1.3	0.80	0.73	0.43	0.37	0.23	0.07	0.05	0.02	0.06	0.075	0.074	0.207	0.466	0.50	1.00

TNI
MAY
1.25 mgd
1.37 mgd
Avg 1.30 0.83 0.58 0.37 0.06 0.05 0.02 0.01

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0034

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 04/01/2013	TO 04/30/2013

DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	1.49	2.37	lb/d	*****	4.65	7.30	mg/l	0	4/30	com p6
00310 1 0 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
pH	SAMPLE MEASUREMENT	*****	*****	*****	7.33	*****	7.81	su	0	13/30	grab
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	0.56	0.80	lb/d	*****	1.96	2.90	mg/l	0	2/30	com p6
00530 1 0 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
Nitrogen, total	SAMPLE MEASUREMENT	0.45	0.60	lb/d	*****	1.37	1.74	mg/l	0	4/30	com p6
00600 1 0 Effluent Gross	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L		Weekly	COMP-6
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	0.11	0.14	lb/d	*****	0.36	0.36	mg/l	0	4/30	com p6
00610 1 0 Effluent Gross	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Twice Per Month	COMP-6
Phosphorus, total (as P)	SAMPLE MEASUREMENT	0.02	0.05	lb/d	*****	0.07	0.12	mg/l	0	4/30	com p6
00665 1 0 Effluent Gross	PERMIT REQUIREMENT	.8 30DA AVG	1.2 7 DA AVG	lb/d	*****	.5 30DA AVG	.75 7 DA AVG	mg/L		Twice Per Month	COMP-6
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	0.035	0.042	0.061	MGD	0	30/30	totalZ
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that certified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE
Ray Keen, Pub. Works Dir		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	575 776-8220
TYPED OR PRINTED		AREA Code	NUMBER
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101 001-A
PERMIT NUMBER DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

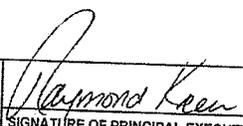
MONITORING PERIOD
MM/DD/YYYY MM/DD/YYYY
FROM 04/01/2013 TO 04/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****					
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	0.5	19 INST MAX ug/L		Daily	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L	0	2/30	grab
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	2	4	CFU/100m L		Twice Per Month	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L	0	2/30	grab

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Pub. Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT 	TELEPHONE	DATE
			AREA Code	NUMBER

575 776-8220 05/15/2013

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

LAB SUMMARY REPORT
April 2005

Date	BOD Data Mg/L#/day	pH	TSS		TKN		NH ₃ Mg/L#/day	NO ₃ Mg/L#/day	NO ₂ Mg/L#/day	Total P Mg/L#/day	Flow, mgd			E. coli CFU	Fecal CFU				
			Mg/L	#/day	Mg/L	#/day					Mg/L	#/day	Daily			Weekly Avg.	Weekly Total		
1		7.54																	
2																			
3																			
4		7.63	2.90	0.80															
5		7.81																	
6																			
7	2.40	0.92	7.74		1.50	0.58	0.36	0.14	0.03	0.01	0.02	0.01	0.12	0.05	0.046	0.042	0.291		
8																			
9		7.65																	
10		7.57																	
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12		7.44																	
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15		7.54																	
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98																			
99																			
100																			
Total			7.33																
Max	7.30	2.37	7.81	2.90	1.12	1.74	0.46	0.03	0.02	0.01	0.12	0.05	1.053	0.165	1.053	0.50	4.00		
Min	2.00	0.48	7.33	1.01	0.32	0.17	0.09	0.01	0.02	0.00	0.05	0.01	0.015	0.020	0.040	0.50	4.00		
Avg	4.65	1.49	7.55	1.96	0.56	0.44	0.36	0.11	0.02	0.01	0.07	0.02	0.035	0.033	0.211	0.50	4.00		

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 05/01/2013	TO 05/31/2013

DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	< 0.57	< 0.64	lb/d	*****	< 2.0	< 2.0	mg/l	0	3/31	comp
00310 1 1 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
pH	SAMPLE MEASUREMENT	*****	*****	*****	7.19	*****	7.55	SU	0	14/31	grab
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Thres Per Week	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	0.26	0.38	lb/d	*****	0.82	1.20	mg/l	0	2/31	comp
00530 1 1 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, total	SAMPLE MEASUREMENT	0.85	1.95	lb/d	*****	3.52	8.65	mg/l	0	3/31	comp
00600 1 1 Effluent Gross	PERMIT REQUIREMENT	46.55 30DA AVG	68.8 7 DA AVG	lb/d	*****	27.9 30DA AVG	41.2 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	0.10	0.12	lb/d	*****	0.36	0.36	mg/l	0	3/31	comp
00610 1 1 Effluent Gross	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Monthly	COMP-6
Phosphorus, total (as P)	SAMPLE MEASUREMENT	0.01	0.02	lb/d	*****	0.07	0.10	mg/l	0	3/31	comp
00665 1 1 Effluent Gross	PERMIT REQUIREMENT	1.6 30DA AVG	2.4 7 DA AVG	lb/d	*****	1 30DA AVG	1.5 7 DA AVG	mg/L		Monthly	COMP-6
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	0.025	0.028	0.046	MGD	0	31/31	total
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Pub Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Raymond Keen</i>	TELEPHONE		DATE
			AREA Code	NUMBER	MM/DD/YYYY
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			525	776-8220	06/12/2013

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 05/01/2013	TO 05/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50080 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	CFU/100 mL	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	CFU/100 mL	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE	
Ray Keen, Pub Works Dir				525 776-8220
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER	MM/DD/YYYY
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)				

LAB SUMMARY REPORT
May 2005

Date	BOD Data Mg/L#/day	pH	TSS Mg/L#/day	TKN Mg/L#/day	NH ₃ Mg/L#/day	NO ₃ Mg/L#/day	NO ₂ Mg/L#/day	Total P Mg/L#/day	Daily	Flow, mgd		E.Coli CFU	Fecal CFU
										Weekly Avg.	Weekly Total		
1		7.35							0.028			<1	<1
2		7.36							0.031				
3									0.017				
4									0.000				
5	2.00	7.19	1.20	0.38	0.71	0.22	0.36	0.11	0.11	0.03	0.02	0.00	0.05
6									0.038		0.022	0.185	
7									0.042				
8									0.038				
9									0.044				
10									0.015				
11									0.000				
12									0.000				
13									0.045				
14									0.039		0.026	0.181	
15									0.046				
16									0.039				
17									0.000				
18									0.000				
19									0.039				
20	2.00	0.64	7.45	0.43	0.14	0.71	0.23	0.36	0.12	0.32	0.10	0.04	0.01
21									0.039		0.028	0.195	<1
22									0.023				<1
23									0.021				
24									0.022				
25									0.027				
26									0.029				
27									0.028				
28									0.019		0.024	0.170	
29									0.027				
30									0.026				
Total	1.28		7.45						0.029		0.027	0.082	
Max	2.00	0.64	7.55	1.20	0.38	0.71	0.23	0.36	0.12	0.32	0.10	0.04	0.01
Min	2.00	0.63	7.19	0.43	0.14	0.71	0.22	0.36	0.11	0.03	0.02	0.00	0.05
Avg	2.00	0.64	7.40	0.82	0.28	0.71	0.23	0.36	0.14	0.07	0.03	0.01	0.05

0.57
 0.20
 0.10 2.78 0.24 0.03 0.01 0.07 0.01
 Avg BOD = 0.71 + 2.78 + 0.03 = 5.52 mg/L TD
 Avg pH = 7.20 + 7.19 + 7.19 = 7.19
 Avg TSS = 0.71 + 1.20 + 0.38 = 2.29 mg/L TD
 Avg TKN = 0.71 + 0.38 + 0.71 = 1.79 mg/L TD
 Avg NH₃ = 0.14 + 0.36 + 0.11 = 0.61 mg/L TD
 Avg NO₃ = 0.32 + 0.03 + 0.02 = 0.37 mg/L TD
 Avg NO₂ = 0.04 + 0.00 + 0.01 = 0.05 mg/L TD
 Avg Total P = 0.10 + 0.03 + 0.01 = 0.14 mg/L TD
 Avg Daily = 0.029 + 0.027 + 0.026 = 0.082 mg/L TD
 Avg Flow = 0.027 + 0.028 + 0.022 = 0.077 mgd
 Avg Weekly Total = 0.082 + 0.082 + 0.082 = 0.246 mgd
 Avg E.Coli = 0.01 + 0.01 + 0.01 = 0.03 CFU
 Avg Fecal = 0.01 + 0.01 + 0.01 = 0.03 CFU

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2000-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/location if different)

NAME: TAOS SKI VALLEY VILLAGE OF
ADDRESS: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY VILLAGE OF
LOCATION: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

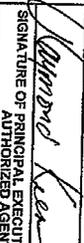
PERMIT NUMBER	NM0022101	DISCHARGE NUMBER	001-A
MONITORING PERIOD		FROM 06/01/2013 TO 06/30/2013	

DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER	QUANTITY OR LOADING			QUALITY OR CONCENTRATION			NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
	VALUE	VALUE	UNITS	VALUE	VALUE	VALUE				UNITS
BOD, 5-day, 20 deg. C	1.07	1.08	lb/d	*****	2.0	2.0	mg/l	0	2/30	CO m p6
00310 1 1 Effluent Gross	22.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L	0	Monthly	COMP-6
pH	*****	*****	*****	6.91	*****	7.59	SU	0	13/30	grAb
00400 1 0 Effluent Gross	*****	*****	*****	6.8 MINIMUM	*****	8.8 MAXIMUM	SU	0	These Per Week	grAb
Solids, total suspended	2.00	2.00	lb/d	*****	3.70	3.70	mg/l	0	1/30	CO m D6
00530 1 1 Effluent Gross	33.8 30DA AVG	38.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L	0	Monthly	COMP-6
Nitrogen, total	3.49	4.44	lb/d	*****	6.49	8.23	mg/l	0	2/30	CO m p6
00600 1 1 Effluent Gross	46.55 30DA AVG	58.8 7 DA AVG	lb/d	*****	27.9 30DA AVG	41.2 7 DA AVG	mg/L	0	Monthly	COMP-6
Nitrogen, ammonia total (as N)	0.19	0.19	lb/d	*****	0.365	0.36	mg/l	0	2/30	CO m p6
00610 1 1 Effluent Gross	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L	0	Monthly	COMP-6
Phosphorus, total (as P)	0.05	0.05	lb/d	*****	0.10	0.10	mg/l	0	2/30	CO m p6
00665 1 1 Effluent Gross	1.6 30DA AVG	2.4 7 DA AVG	lb/d	*****	1 30DA AVG	1.5 7 DA AVG	mg/L	0	Monthly	COMP-6
Flow, in conduit or thru treatment plant	*****	*****	*****	0.049	0.063	0.065	MGD	0	30/30	TOTALZ
50050 1 0 Effluent Gross	*****	*****	*****	Reg. Mon. 30DA AVG	Reg. Mon. 7 DA AVG	Reg. Mon. DAILY MAX	MGD	0	Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and statements were prepared under the direction of the person named above and that I am a duly authorized officer or employee of the permittee. I am not aware of any person who has provided information that is false or misleading. I am not aware of any person who has provided information that is false or misleading. I am not aware of any person who has provided information that is false or misleading.		TELEPHONE	DATE
Ray Keen, Pub Works Dir			575 776-8220	07/09/2013
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA CODE	NUMBER	MMDDYYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101 001-A
PERMIT NUMBER DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

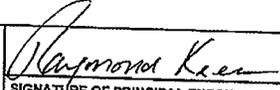
MONITORING PERIOD
MM/DD/YYYY MM/DD/YYYY
FROM 06/01/2013 TO 06/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	1		cfu/ 100ml	0	2/30	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	1	cfu/ 100ml	0	2/30	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Pub Works Dir	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or parties who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT 	TELEPHONE	DATE	
			575 776-8220	07/09/2013	
TYPED OR PRINTED			AREA Code	NUMBER	MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 07/01/2013	TO 07/31/2013

DMR Mailing ZIP CODE: 87525
MAJOR

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C	SAMPLE MEASUREMENT	0.71	0.88	lb/d	*****	2.0	2.0	mg/l	0	2/31	comp6
00310 1 1 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
pH	SAMPLE MEASUREMENT	*****	*****	*****	7.28	*****	7.54	su	0	13/31	grab
00400 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	0.97	0.97	lb/d	*****	2.2	2.2	mg/l	0	1/31	comp6
00530 1 1 Effluent Gross	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, total	SAMPLE MEASUREMENT	0.91	1.31	lb/d	*****	3.04	4.90	mg/l	0	2/31	comp6
00600 1 2 Effluent Gross	PERMIT REQUIREMENT	27.7 30DA AVG	41.6 7 DA AVG	lb/d	*****	16.6 30DA AVG	24.9 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	0.13	0.16	lb/d	*****	0.36	0.36	mg/l	0	2/31	comp6
00610 1 1 Effluent Gross	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Monthly	COMP-6
Phosphorus, total (as P)	SAMPLE MEASUREMENT	0.03	0.04	lb/d	*****	0.10	0.11	mg/l	0	2/31	comp6
00665 1 2 Effluent Gross	PERMIT REQUIREMENT	1.2 30DA AVG	1.8 7 DA AVG	lb/d	*****	1.5 30DA AVG	2.25 7 DA AVG	mg/L		Monthly	COMP-6
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	0.041	0.051	0.058	MGD	0	31/31	totalZ
50050 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	TELEPHONE	DATE
Ray Keen, Pub Works Dir		575 776-8220	08/15/2013
TYPED OR PRINTED	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER
			MM/DD/YYYY

COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

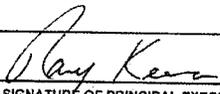
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 07/01/2013	TO 07/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	1	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	1.5	1.5	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
Ray Keen, Pub Works Dir TYPED OR PRINTED			757 776-8220	08/15/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD,
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

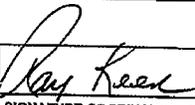
DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 08/01/2013	TO 08/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C 00310 1 1 Effluent Gross	SAMPLE MEASUREMENT	< 0.81	< 1.03	lb/d	*****	< 2.0	< 2.0	mg/l	0	2/31	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	36.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.27	*****	7.63	su	0	13/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended 00530 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.16	0.16	lb/d	*****	0.60	0.60	mg/l	0	1/31	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, total 00600 1 2 Effluent Gross	SAMPLE MEASUREMENT	0.95	1.31	lb/d	*****	2.77	4.39	mg/l	0	2/31	comp6
	PERMIT REQUIREMENT	27.7 30DA AVG	41.6 7 DA AVG	lb/d	*****	16.6 30DA AVG	24.9 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, ammonia total (as N) 00610 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.15	0.19	lb/d	*****	0.36	0.36	mg/l	0	2/31	comp6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Monthly	COMP-6
Phosphorus, total (as P) 00665 1 2 Effluent Gross	SAMPLE MEASUREMENT	0.03	0.04	lb/d	*****	0.07	0.08	mg/l	0	2/31	comp6
	PERMIT REQUIREMENT	1.2 30DA AVG	1.8 7 DA AVG	lb/d	*****	1.5 30DA AVG	2.26 7 DA AVG	mg/L		Monthly	COMP-6
Flow, in conduit or thru treatment plant 50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.038	0.048	0.062	MGD	0	31/31	totalZ
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information reported. Based on my familiarity with the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
TYPED OR PRINTED			757 776-8220	09/12/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			AREA Code	NUMBER

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101
PERMIT NUMBER

001-A
DISCHARGE NUMBER

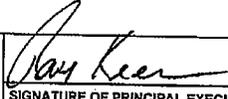
DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD
MM/DD/YYYY TO MM/DD/YYYY
FROM 08/01/2013 TO 08/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall
No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100mL		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	0.5	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100mL		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
			575 776-8220	09/12/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

LAB SUMMARY REPORT
August 2005 2013

Date	BOD Data		TSS		TKN		NH ₃		NO ₃		NO ₂		Total P		Flow, mgd			E.Coli	Fecal	
	Mg/L	#/day	pH	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Daily	Weekly Avg.	Weekly Total	CFU	CFU
			7.38												0.013					
															0.055					
															0.062					
															0.062					
	2.00	1.03	7.27		0.71	0.37	0.36	0.19	0.33	0.17	0.10	0.05	0.08	0.04	0.062					
			7.45												0.046					
															0.038	0.048	0.337			
			7.49												0.025				<1	0.5
															0.028					
															0.030					
															0.029					
			7.58												0.030					
															0.036					
			7.47												0.039	0.031	0.217			
															0.030					
			7.47												0.036					
															0.036					
	2.00	0.60		0.6	0.16	0.71	0.21	0.36	0.11	3.60	1.08	0.08	0.02	0.06	0.02	0.036				
			7.63												0.036					
															0.035					
			7.47												0.045	0.036	0.254			
															0.019					
			7.50												0.039					
															0.039					
															0.039					
			7.46												0.039					
															0.039					
			7.53												0.039	0.036	0.252		<1	<1
			7.52												0.039					
															0.039					
															0.039	0.039	0.118			
Total		1.63		0.16		0.58		0.29		1.25		0.07		0.06	1.178	0.191	1.178			
Max	2.00	1.03	7.63	0.6	0.16	0.71	0.37	0.36	0.19	3.60	1.08	0.10	0.05	0.08	0.04	0.062	0.048	0.337	0.00	0.50
Min	2.00	0.60	7.27	0.6	0.16	0.71	0.21	0.36	0.11	0.33	0.17	0.08	0.02	0.06	0.02	0.013	0.031	0.118	0.00	0.50
Avg	2.00	0.81	7.48	0.6	0.16	0.71	0.29	0.36	0.15	1.97	0.62	0.09	0.04	0.07	0.03	0.038	0.038	0.236	#DIV/0!	0.50

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 09/01/2013	TO 09/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall
No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C 00310 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.57	0.58	lb/d	*****	2.0	2.0	mg/l	0	3/30	com p6
	PERMIT REQUIREMENT	23.8 30DA AVG	36.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-s
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.31	*****	7.58	su	0	13/30	grab
	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended 00530 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.07	0.07	lb/d	*****	0.3	0.3	mg/l	0	1/30	com p6
	PERMIT REQUIREMENT	23.8 30DA AVG	36.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-s
Nitrogen, total 00500 1 3 Effluent Gross	SAMPLE MEASUREMENT	1.25	3.16	lb/d	*****	4.41	11.15	mg/l	0	3/30	com p6
	PERMIT REQUIREMENT	21.1 30DA AVG	31.7 7 DA AVG	lb/d	*****	12.7 30DA AVG	19 7 DA AVG	mg/L		Monthly	COMP-s
Nitrogen, ammonia total (as N) 00610 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.10	0.10	lb/d	*****	0.36	0.36	mg/l	0	3/30	com p6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Monthly	COMP-s
Phosphorus, total (as P) 00665 1 3 Effluent Gross	SAMPLE MEASUREMENT	0.03	0.03	lb/d	*****	0.09	0.10	mg/l	0	3/30	com p6
	PERMIT REQUIREMENT	.8 30DA AVG	1.2 7 DA AVG	lb/d	*****	2.5 30DA AVG	3.76 7 DA AVG	mg/L		Monthly	COMP-s
Flow, in conduit or thru treatment plant 50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.035	0.038	0.040	MGD	0	30/30	totalz
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons and persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Raymond Keen</i>	TELEPHONE	DATE
			575 776-8220	10/15/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MMDD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

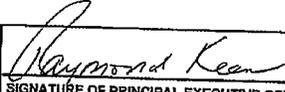
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 09/01/2013	TO 09/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	<1	cfu/ 100ml	0	2/30	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	<1	cfu/ 100ml	0	2/30	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Public Works Director	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.		TELEPHONE	DATE	
TYPED OR PRINTED			575 776-8220	10/15/2013	
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	AREA Code	NUMBER	MM/DD/YYYY

LAB SUMMARY REPORT
September 2005 2013

Date	BOD Data		TSS		TKN		NH ₃		NO ₃		NO ₂		Total P		Flow, mgd			E.Coli	Fecal	
	Mg/L	#/day	pH	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Daily	Weekly Avg.	Weekly Total	CFU	CFU
1																0.039				
2			7.31													0.039				
3																0.034				
4			7.45													0.039				
5																0.039			<1	<1
6			7.44													0.034				
7																0.039	0.038	0.263		
8																0.039				
9			7.54													0.040				
10																0.039				
11	2.0	0.57	7.56	0.3	0.07	0.71	0.20	0.36	0.10	10.0	2.84	0.44	0.12	0.10	0.03	0.034				
12																0.034				
13			7.56													0.031				
14																0.034	0.036	0.249		
15																0.033				
16						0.84	0.24	0.36	0.10	0.2	0.04	0.02	0.01	0.10	0.03	0.034				
17																0.034			<1	<1
18	2.0	0.58	7.48													0.035				
19			7.42													0.036				
20			7.47													0.030				
21																0.035	0.034	0.237		
22																0.034				
23	2.0	0.57	7.40			0.71	0.20	0.36	0.10	0.20	0.06	0.10	0.03	0.06	0.02	0.034				
24																0.032				
25			7.44													0.032				
26																0.034				
27			7.47													0.037				
28																0.037	0.034	0.239		
29																0.036				
30			7.58													0.037	0.037	0.073		
Total		0.00		0.07		0.44		0.20		2.88		0.13		0.06	1.060		0.178	1.060		
Max	0.00	0.00	7.58	0.3	0.07	0.84	0.24	0.36	0.10	10.0	2.84	0.44	0.12	0.10	0.03	0.040	0.038	0.263	0.00	0.00
Min	0.00	0.00	7.31	0.3	0.07	0.71	0.20	0.36	0.10	0.2	0.04	0.02	0.01	0.06	0.02	0.030	0.034	0.073	0.00	0.00
Avg	#####	#####	7.47	0.3	0.07	0.75	0.21	0.36	0.10	3.47	0.98	0.19	0.05	.09	0.03	0.035	0.036	0.212	#####	#####

2.0 0.57 (13)

0.75 0.21 0.36 0.10 3.47 0.98 0.19 0.05 .09 0.03

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

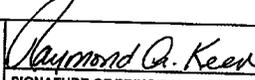
DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 10/01/2013	TO 10/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD ₅ -day, 20 deg. C 00310 1 1 Effluent Gross	SAMPLE MEASUREMENT	<0.69	<0.73	lb/d	*****	<2.0	<2.0	mg/l	0	2/31	com p6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.34	*****	7.67	mg/l	0	14/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	8.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended 00530 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.16	0.16	lb/d	*****	0.4	0.4	mg/l	0	1/31	com p6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, total 00600 1 3 Effluent Gross	SAMPLE MEASUREMENT	0.28	0.28	lb/d	*****	0.79	0.83	mg/l	0	2/31	com p6
	PERMIT REQUIREMENT	21.1 30DA AVG	31.7 7 DA AVG	lb/d	*****	12.7 30DA AVG	19 7 DA AVG	mg/L		Monthly	COMP-6
Nitrogen, ammonia total (as N) 00610 1 1 Effluent Gross	SAMPLE MEASUREMENT	0.13	0.13	lb/d	*****	0.36	0.36	mg/l	0	2/31	com p6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Monthly	COMP-6
Phosphorus, total (as P) 00655 1 3 Effluent Gross	SAMPLE MEASUREMENT	0.02	0.02	lb/d	*****	0.07	0.07	mg/l	0	2/31	com p6
	PERMIT REQUIREMENT	8 30DA AVG	1.2 7 DA AVG	lb/d	*****	2.5 30DA AVG	3.75 7 DA AVG	mg/L		Monthly	COMP-6
Flow, in conduit or thru treatment plant 50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.032	0.043	0.045	MGD	0	31/31	Totalz
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Raymond Keen, Pub Works TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information specified. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE		DATE
			AREA Code	NUMBER	MM/DD/YYYY
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			775	776-8220	11/14/2013

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

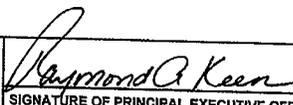
MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 10/01/2013	TO 10/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50080 10 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 10 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	<1	cfu/ 100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 10 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	<1	<1	cfu/ 100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Raymond Keen, Pub Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE	DATE
			575 776-8220	11/14/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

LAB SUMMARY REPORT
October 2005

Date	BOD Data		pH	TSS		TKN		NH ₃		NO ₃		NO ₂		Total P		Flow, mgd			E.Coli	Fecal
	Mg/L	#/day		Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Daily	Weekly Avg.	Weekly Total	CFU	CFU
	2.00	0.65	7.54			0.71	0.23	0.36	0.12	0.10	0.03	0.02	0.01	0.07	0.02	0.039				
			7.58													0.042				
			7.48													0.045				
																0.044				
																0.044				
																0.044				
	2.00	0.73	7.35	0.4	0.16	0.71	0.26	0.36	0.13	0.02	0.01	0.02	0.01	0.06	0.02	0.044	0.043	0.302		
			7.46													0.044				
			7.49													0.037			<1	<1
																0.043				
																0.038				
																0.031				
																0.028				
																0.028	0.035	0.248		
			7.34													0.028				
			7.46													0.028				
																0.037				
			7.56													0.034				
																0.031				
																0.028				
			7.48													0.025	0.030	0.210		
																0.021				
			7.67													0.024				
																0.018			<1	<1
			7.60													0.022				
																0.025				
																0.025				
																0.019	0.022	0.154		
																0.022				
			7.65													0.022				
			7.63													0.030	0.025	0.074		
Total		1.39			0.16		0.49		0.25		0.04		0.01		0.05	0.988	0.155	0.988		
Max	2.00	0.73	7.67	0.4	0.16	0.71	0.26	0.36	0.13	0.10	0.03	0.02	0.01	0.07	0.02	0.045	0.043	0.302	0.00	0.00
Min	2.00	0.65	7.34	0.4	0.16	0.71	0.23	0.36	0.12	0.02	0.01	0.02	0.01	0.06	0.02	0.018	0.022	0.074	0.00	0.00
Avg	2.00	0.69	7.52	0.4	0.16	0.71	0.25	0.36	0.12	0.06	0.02	0.02	0.01	0.07	0.02	0.032	0.031	0.198	#DIV/0!	#DIV/0!

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 11/01/2013	TO 11/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD, 5-day, 20 deg. C 00310 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.42	0.56	lb/d	*****	2.0	2.0	mg/L	0	4/30	COMP-6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
pH 00400 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	7.44	*****	7.73	su	0	13/30	GRAB
	PERMIT REQUIREMENT	*****	*****	*****	6.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended 00530 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.03	0.03	lb/d	*****	0.2	0.2	mg/L	0	2/30	COMP-6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
Nitrogen, total 00600 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.28	0.34	lb/d	*****	1.34	1.83	mg/L	0	4/30	COMP-6
	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L		Weekly	COMP-6
Nitrogen, ammonia total (as N) 00610 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.15	0.28	lb/d	*****	0.69	1.00	mg/L	0	4/30	COMP-6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.24 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Twice Per Month	COMP-6
Phosphorus, total (as P) 00665 1 0 Effluent Gross	SAMPLE MEASUREMENT	0.02	0.03	lb/d	*****	0.08	0.12	mg/L	0	4/30	COMP-6
	PERMIT REQUIREMENT	.8 30DA AVG	1.2 7 DA AVG	lb/d	*****	5 30DA AVG	7.5 7 DA AVG	mg/L		Twice Per Month	COMP-6
Flow, in conduit of thru treatment plant 50050 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	0.025	0.028	0.034	MGD	0	30/30	TOTALZ
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER <i>Ray Keen Public Works Dir</i> TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Ray Keen</i>	TELEPHONE	DATE
			575 776-8220	12/13/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
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TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 11/01/2013	TO 11/30/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	*				
50060 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	cfu/100 ml	0	2/30	GRAB
51040 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	cfu/100 ml	0	2/30	GRAB
74055 1 0 Effluent Gross	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

* chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER <i>Ray Keen, Public Works Dir</i> TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am not aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Ray Keen</i>	TELEPHONE	DATE
			575 776-8220	12/13/2013
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

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TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
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TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 12/01/2013	TO 12/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
BOD ₅ , 5-day, 20 deg. C	SAMPLE MEASUREMENT	1.00	1.57	lb/d	*****	2.67	3.60	mg/l	0	3/31	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
pH	SAMPLE MEASUREMENT	*****	*****	*****	7.38	*****	7.75	su	0	13/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	8.6 MINIMUM	*****	8.8 MAXIMUM	SU		Three Per Week	GRAB
Solids, total suspended	SAMPLE MEASUREMENT	0.19	0.34	lb/d	*****	0.50	0.80	mg/l	0	2/31	comp6
	PERMIT REQUIREMENT	23.8 30DA AVG	35.7 7 DA AVG	lb/d	*****	30 30DA AVG	45 7 DA AVG	mg/L		Twice Per Month	COMP-6
Nitrogen, total	SAMPLE MEASUREMENT	1.79	8.65	lb/d	*****	2.98	12.09	mg/l	0	6/31	comp6
	PERMIT REQUIREMENT	13.65 30DA AVG	20.5 7 DA AVG	lb/d	*****	8.2 30DA AVG	12.3 7 DA AVG	mg/L		Weekly	COMP-6
Nitrogen, ammonia total (as N)	SAMPLE MEASUREMENT	1.55	7.87 *	lb/d	*****	2.43	11.00 *	mg/l	1	6/31	comp6
	PERMIT REQUIREMENT	5.34 30DA AVG	5.34 7 DA AVG	lb/d	*****	3.2 30DA AVG	3.2 7 DA AVG	mg/L		Twice Per Month	COMP-6
Phosphorus, total (as P)	SAMPLE MEASUREMENT	0.03	0.06	lb/d	*****	0.07	0.10	mg/l	0	6/31	comp6
	PERMIT REQUIREMENT	.8 30DA AVG	1.2 7 DA AVG	lb/d	*****	5 30DA AVG	75 7 DA AVG	mg/L		Twice Per Month	COMP-6
Flow, in conduit or thru treatment plant	SAMPLE MEASUREMENT	*****	*****	*****	0.056	0.088	0.090	MGD	0	31/31	totalZ
	PERMIT REQUIREMENT	*****	*****	*****	Req. Mon. 30DA AVG	Req. Mon. 7 DA AVG	Req. Mon. DAILY MX	MGD		Daily	TOTALZ

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Pub Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Ray Keen</i>	TELEPHONE		DATE
			575 776-8220	01/13/2014	
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)			AREA Code	NUMBER	MM/DD/YYYY

* see attached explanation of violation

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

Form Approved
OMB No. 2040-0004

PERMITTEE NAME/ADDRESS (Include Facility Name/Location if Different)

NAME: TAOS SKI VALLEY, VILLAGE OF
ADDRESS: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
FACILITY: TAOS SKI VALLEY, VILLAGE OF
LOCATION: 7 FIREHOUSE RD.
TAOS SKI VALLEY, NM 87525
ATTN: RAYMOND KEEN, OPER. MANAGER

NM0022101	001-A
PERMIT NUMBER	DISCHARGE NUMBER

DMR Mailing ZIP CODE: 87525
MAJOR

MONITORING PERIOD	
MM/DD/YYYY	MM/DD/YYYY
FROM 12/01/2013	TO 12/31/2013

TREATED MUNICIPAL WASTEWATER TO THE
External Outfall

No Discharge

PARAMETER		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		VALUE	VALUE	UNITS	VALUE	VALUE	VALUE	UNITS			
Chlorine, total residual 50060 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	*****	**				
	PERMIT REQUIREMENT	*****	*****	*****	*****	*****	19 INST MAX	ug/L		Daily	GRAB
E. coli 51040 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	126 30DAVGEO	235 DAILY MX	CFU/100m L		Twice Per Month	GRAB
Coliform, fecal general 74055 1 0 Effluent Gross	SAMPLE MEASUREMENT	*****	*****	*****	*****	< 1	< 1	cfu/100ml	0	2/31	grab
	PERMIT REQUIREMENT	*****	*****	*****	*****	200 30DAVGEO	400 DAILY MX	CFU/100m L		Twice Per Month	GRAB

** chlorine is not used in process, therefore it is not monitored

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Ray Keen, Pub Works Dir TYPED OR PRINTED	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT <i>Ray Keen</i>	TELEPHONE	DATE
			575 776-8220	01/13/2014
COMMENTS AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)		AREA Code	NUMBER	MM/DD/YYYY

LAB SUMMARY REPORT
December 2005

Date	BOD Data			TSS		TKN		NH ₃		NO ₃		NO ₂		Total P		Flow, mgd			E.Coli	Fecal
	Mg/L	#/day	pH	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Mg/L	#/day	Daily	Weekly Avg.	Weekly Total	CFU	CFU
	2.00	0.49	7.75	0.2	0.04	0.30	0.07	0.40	0.10	1.70	0.42	0.02	0.00	0.058	0.01	0.030				
			7.58													0.031				
			7.61													0.037				
																0.037				
																0.045				
																0.048				
																0.050	0.040	0.277		
																0.050				
	2.40	0.93	7.44			0.30	0.12	0.40	0.15	0.07	0.03	0.02	0.01	0.068	0.03	0.046			<1	<1
			7.58			0.42	0.17	0.40	0.16	0.07	0.03	0.02	0.01	0.100	0.04	0.046				
			7.59													0.049				
																0.049				
																0.051	0.341			
																0.050				
	3.60	1.57	7.38	0.8	0.34	0.70	0.31	0.40	0.17	0.07	0.03	0.02	0.01	0.047	0.02	0.052				
			7.56													0.054			<1	<1
			7.50													0.054				
						2.00	0.83	2.00	0.83	0.07	0.03	0.02	0.01	0.051	0.02	0.045				
																0.050	0.050	0.349		
																0.059				
			7.43													0.072				
			7.50													0.085				
			7.58													0.088				
						12.00	8.59	11.00	7.87	0.07	0.05	0.02	0.01	0.081	0.06	0.075				
			7.65													0.047				
																0.085	0.073	0.510		
																0.086				
																0.090				
																0.088	0.088	0.264		
Total		2.99			0.38	####		9.29		0.57		0.04		0.18	1.741		0.299	1.741		
Max	3.60	1.57	7.75	0.8	0.34	#####	8.59	11.00	7.87	1.700	0.42	0.015	0.01	0.100	0.06	0.090	0.088	0.510	0.00	0.00
Min	2.00	0.49	7.38	0.2	0.04	0.300	0.07	0.40	0.10	0.065	0.03	0.015	0.00	0.047	0.01	0.030	0.040	0.264	0.00	0.00
Avg	2.67	1.00	7.55	0.5	0.19	2.620	1.68	2.43	1.55	0.338	0.10	0.015	0.01	0.068	0.03	0.056	0.060	0.348	#DIV/0!	#DIV/0!

MicroC 1000™

PRODUCT INFORMATION

MicroC 1000™ is a proprietary, non-hazardous, green chemical designed specifically for use as a carbon source for biological contaminant removal applications in water/wastewater treatment.

NON-HAZARDOUS

- ▶ Eliminates flammability and toxicity concerns of traditional chemicals such as methanol
- ▶ Provides capital cost savings vs. installation of flammable liquid storage and feed system
- ▶ Non-hazardous product enable rapid and flexible deployment of carbon augmentation solutions

PERFORMANCE ADVANTAGES

- ▶ Rapid start-up/acclimation
- ▶ Superior cold weather performance

ENVIRONMENTALLY SUSTAINABLE

- ▶ Derived from abundant, renewable resources produced in the United States vs. largely imported fossil-fuel derived carbon sources (methanol)
- ▶ USDA BioPreferred designation

CONSISTENT AND SUPERIOR QUALITY

- ▶ Rigorous end to end quality control program
- ▶ Consistent Chemical Oxygen Demand (COD) values
- ▶ No product degradation during long-term storage

VALIDATED PERFORMANCE

- ▶ MicroC™ products in use at over 425 plants in North America
- ▶ Performance validated by leading equipment/process suppliers, consulting engineers and academic institutions
- ▶ Full scale, documented performance validation for:
 - ▶ Nitrate removal
 - ▶ Metals removal
 - ▶ BOD augmentation
 - ▶ Fixed film biological processes (i.e. denitrification filters)
 - ▶ Startup/acclimation dynamics
 - ▶ Cold weather performance
- ▶ Denitrification rates and kinetic parameters determined by Northeastern University

TECHNICAL SERVICES

- ▶ Application guidance from team of BNR/contaminant removal experts
- ▶ Dedicated support to ensure achievement of contaminant removal goals

SUPPLY CHAIN EXPERIENCE

- ▶ 11 nationwide MicroC™ manufacturing facilities
- ▶ Over 80 million pounds of MicroC™ products produced and delivered
- ▶ Over 14,000 drums and totes packaged and delivered
- ▶ Over 7,000 customer deliveries completed

PACKAGING

- ▶ Bulk (1000-4500 gallon)*
- ▶ 270-gallon IBC/tote
- ▶ 55-gallon drum
- ▶ 30-gallon drum
- ▶ 5-gallon pail

*Maximum volume 4800 gallons in some markets

TECHNICAL SPECIFICATIONS

PROPERTY	SPECIFICATIONS	TYPICAL VALUE	TEST METHOD
Specific Gravity at 20°C	1.215-1.235	1.220	ASTM D 1298-85
Bulk Density (lbs/gal)	10.13-10.30	10.17	ASTM D 1298-85
pH	4.0, min	5	SM 4500 H B
Viscosity (cPs) at 20°C	60, max	20	ASTM D 2196-86
Flash Point	No Flash	No Flash	ASTM D 93
Solubility	100%, min	100%	ASTM E1148
VOC Concentration	0%, max	0%	EPA 8260B
Freezing Point (°C)	-7, max	-7	ASTM D1177-07
COD (mg/L)	670,000, min	680,000	HACH 8000

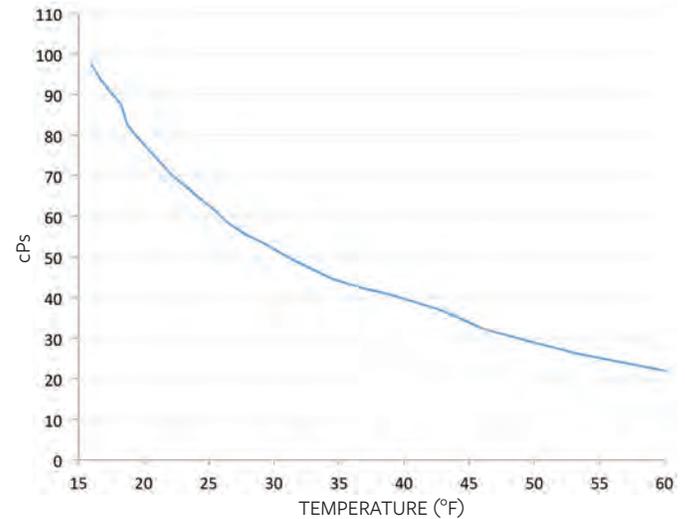
BATCH TEST RESULTS

	NITRATE UPTAKE	HIGH F:M
SDNRmax (mgN/gVSS/hr)	●	
COD:N	●	●
Yobs (gVSS/gCOD)	●	●
Ks (mg COD/L)	●	
μmax (1/day)		●
Theta for SDNR	●	
Theta for μmax		●

Values available for 10°C and 20°C

Denitrification Rates and Kinetics The parameters listed in this table were determined through extensive batch testing at Northeastern University's Department of Civil and Environmental Engineering (Boston, MA). EOSi has experience applying these parameters within mathematical simulators (BioWin, GPS-X™, etc.) to simulate product performance in a variety of operating conditions. Please contact EOSi for parameter values and application guidance.

TEMPERATURE / VISCOSITY RELATIONSHIP



Note: Product freezes at -18°F



ULTRAVIOLET PURIFICATION SYSTEMS INC.
299 Adams Street, Bedford Hills, NY 10507
Tel (914) 666-3355 ITT Telex 4990842

MODEL NUMBER - EP8L

WARNING:

**EXPOSURE TO UV LIGHT WILL CAUSE EYE IRRITATION.
PROTECT EYES WITH SAFETY GLASSES OR FACE SHIELD
WHEN OBSERVING OPERATING UV LAMPS.**

UPDATED: May, 1985

**INSTALLATION & OPERATING INSTRUCTIONS FOR
STANDARD UV WATER PURIFIERS**

The Ultraviolet Purification Systems UV Water Purifiers are water disinfection systems which will produce bacteria free water on a continuous flow basis, without heat or chemicals. They are designed to last for many years and will require very little maintenance.

The purifier consists of the following components:

1. Stainless Steel Purifying Chamber
2. Remote Electrical Control Box. (Except EP-1S)
3. Ultraviolet Lamps.
4. Optional Accessories (Including Solenoid Valves, Flow Controls, and Remote Alarms).

The purifier is delivered fully assembled and ready for easy installation.

TO INSTALL OR REPLACE ULTRAVIOLET LAMPS:

The ultraviolet lamps are packed separately and should be installed as follows:

Remove end cover. Slide UV lamps into quartz sleeves. The UV lamp has a three pin plug built into one end. Insert plug end of lamp into lamp socket. Each lamp socket is numbered and must correspond to lamp number marked on chamber. Note that the Lamp Indicator arrangement and UV Lamp arrangement are the same.

Replace end cover. Power to the lamps will be interrupted as long as the end cover is removed from unit.

ELECTRICAL INSTALLATION:

The electrical hook up consists of making the connection between the remote control box and the purification chamber, and making the connection of line current to the control box.

A flexible conduit, 10' long, is attached to the unit. Connect the numbered wires to the corresponding terminals in the control box.

Line current is brought into the control box through a standard cord and plug, which is provided with the control box, or by connection to "pig tail wires" which are provided in certain instances.

The ultraviolet purifier operates on 115 Volt 60 Cycle unless otherwise specified. The total input wattage may be determined by multiplying the number of lamps x 60 watts for the 36" long models, or multiplying the number of lamps x 90 watts for the 64" models.

PIPING CONNECTIONS:

The ultraviolet purifier should be installed horizontally with the inlet and outlet connections on top. It should be placed after all other treatment devices such as softeners, filters, de-ionizers, etc. It is important to provide at least a 40" clearance on one end, and a 20" clearance on the other end to allow for lamp changing on the 36" models, and 60" and 20" clearance for the 64" models.

Since all connections are stainless steel, it is recommended that a plastic or other electrolytic preventative coupling be used for connections which are to be made to galvanized or iron pipe.

If a flow control accessory is to be used, this is normally connected to the piping just prior to the ultraviolet unit.

When starting up, fill chamber slowly to prevent damage to the quartz sleeves.

DISINFECTION OF DOWNSTREAM PIPING:

Anytime a piping hook up is made, it is good practice to disinfect the downstream piping. This is done by introducing a chlorine or other disinfectant solution directly into the purification chamber before the final piping connections are closed. (A 100 ppm of chlorine is suggested). With the disinfectant in the chamber, turn the ultraviolet system on. (A low reading on the UV Intensity Meter is normal at this time since the chlorine is absorbing ultraviolet energy). Open the downstream outlet until the chlorine odor is noticed. Close the outlet and allow the disinfectant to remain in the pipes for three hours. Then flush the system with ultraviolet purified water. This procedure will disinfect the downstream piping. (Once the disinfectant is flushed out, the reading on the UV Intensity Meter will return to normal level).

OPERATION AND MAINTENANCE

The operating ultraviolet purifier can be checked for proper function by inspecting the lamp indicators on the remote control box. Each indicator shows the operation of an individual UV lamp, and is numbered to provide quick identification. If an indicator is out, it shows that a UV lamp is not working.

The UV Intensity Meter indicates the level of ultraviolet intensity in the chamber and shows the need for cleaning quartz jackets, or other measures.

ULTRAVIOLET LAMP REPLACEMENT

The ultraviolet lamps have a limited effective life, and must be replaced periodically to insure maximum performance.

For proper operation, the ultraviolet lamps should be replaced after 7500 operating hours or approximately once a year. (An ultraviolet lamp will continue to burn with a blue light and an indicator lamp will show a normal condition even though the UV output has diminished).

The Elapsed Time Indicator provides a non-resettable record of the operating hours of the UV purifier. When UV lamps are replaced, note the elapsed time and keep a permanent record .

Order your replacement lamps and other parts from your authorized Ultraviolet Purification Systems Dealer, otherwise the guarantee will be void. Contact Ultraviolet Purification Systems Inc. regarding a long term replacement program.

ULTRAVIOLET INTENSITY MONITOR

The UV Intensity Monitor measures and monitors the ultraviolet energy through the water with a UV selective photocell and an electronic circuit. A meter indication of the UV intensity is provided on the front of the control box.

Under normal operating conditions the UV Intensity Meter will read close to 100. The water quality is SAFE throughout the range of 100 to 25 on the scale. A green pilot light indicating the SAFE condition will remain lit while the meter reads in the safe region of the scale. An amber warning light indicating LOW UV output will light when the meter shows 50% of the original intensity. The chamber may need to be cleaned or lamps may need to be replaced to restore the original UV intensity. A red warning light will signal when the water quality falls below the SAFE level and the meter reads below 25 on the scale (25% of original intensity).

The PUSH-TO-TEST feature is a convenient way to check the accuracy of the UV Intensity Monitor. The full-scale, midpoint, and zero response can be seen by pushing the corresponding switches.

In addition to the pilot lights, the UV Intensity Circuit can control warning buzzers, solenoid valves, and relays.

The UV photocell is usually located on the middle of the long side of the UV chamber. It can easily be unplugged and removed for replacement or testing.

EFFECT OF EXTREME HIGH TEMPERATURE ON WATER QUALITY MONITOR

The unit is designed to operate under all normal temperature situations.

In the event that hot water is to be purified for an industrial application, it should be noted that a temperature of the water in excess of 100 degrees F will cause a lowering of the ultraviolet output and show up as a low meter reading on the UV Intensity Meter. This is normal and as long as the reading does not drop below the preset cut-off point, purification will take place.

HEATING OF WATER BY ULTRAVIOLET LAMP

In situations where there is no flow of water through the UV purifier for many hours, the small amount of heat generated by the lamp will cause a lowering of the ultraviolet intensity on the UV Intensity Meter.

When some water is drawn, the fresh water introduced into the chamber will cool the lamp and the meter will return to normal range.

INPLACE CLEANING PROCEDURE

The ultraviolet purifier includes pipe fittings for inplace cleaning of the quartz jacket, quartz sightport and interior of the purification chamber. In areas where hard water is encountered or where there is excessive turbidity in the water, it will be necessary to periodically clean the inside of the purifier chamber. The cleaning procedure should be followed when any coating is visible through the sightport or at any time that the UV Intensity Meter level drops below the safe range.

The Inplace Cleaning Compound sold by Ultraviolet Purification Systems is food grade citric acid.

Refer to INPLACE CLEANING METHOD Drawing 113078.

Inplace cleaning is accomplished as follows:

1. Close the valve at the purifier inlet.
2. Remove the caps from the inplace cleaning nipples and drain approximately two (2) gallons of water from the purifier chamber.
3. Introduce the Inplace Cleaning Compound in the following concentrations:

EP-1S.....one half pound
EP-2L, 4L, and 10S.....two pounds
EP-10L.....three pounds
All larger models.....use one pound for each
20 gal. volume of chamber.
4. If a recirculating pump is employed, connect the pump inlet to the inplace cleaning outlet and the pump discharge to the other inplace cleaning connection and recirculate the solution for approximately 20 minutes. In the event that a recirculating pump is not used, add sufficient water to the chamber to cover the quartz jackets and let the solution sit for approximately 30 minutes.
5. The cleaning solution may be removed from the purification chamber by first capping the cleaning connection closest to the water inlet and leaving the connection closest to the water outlet open. Slowly open the water inlet valve so that fresh water will flow into the purification chamber and out through the open inplace cleaning connection.
6. After the cleaning solution has been flushed out and the UV Intensity Meter shows safe ultraviolet intensity, replace the cap on the open inplace cleaning connection and open the water inlet and outlet valves. If the UV Intensity meter indication is not greater than before cleaning, check the ultraviolet lamp intensity with a radiometer. Change the ultraviolet lamps if the intensity is less than 70% of the intensity of a new lamp.
7. On some models ordered with solenoids, a solenoid bypass switch may be provided. The drop in UV intensity caused by the Inplace Cleaning Compound signals the UV Intensity circuit to activate the solenoid. This switch overrides the automatic cut-off.

The inplace cleaning connections closest to the water outlet may also be used as sampling points for bacteriological tests.

ULTRAVIOLET PURIFICATION SYSTEMS INC.
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Tel (914) 666-3355 ITT Telex 4990842

UPDATED: April, 1985

TROUBLE SHOOTING BULLETIN FOR ULTRAVIOLET WATER PURIFIERS

The Ultraviolet Purification Systems UV Water Purifiers are designed for long use with minimum maintenance. The trouble shooting procedures outlined below should prove helpful if problems occur.

<u>TOPIC</u>	<u>PAGE</u>
WATER LEAKS.....	2
1....From around the outside of the quartz jacket.....	2
2....From inside the quartz jacket.....	2
3....From the sightport.....	2
ELECTRICAL SERVICE.....	3
Lamp Circuit.....	3
4....Lamp indicator doesn't light.....	3
(A)....UV lamp failed.....	3
(B)....Lamp indicator bulb burned out.....	4
(C)....Ballast burned out.....	4
(D)....Open wire connection.....	5
Causes of Ballast and Lamp Failure.....	6
UV Intensity Monitor System.....	7
5....UV Intensity meter reads zero.....	8
(A)....Purifier chamber or water supply dirty.....	8
(B)....UV lamp closest to sightport is out.....	8
(C)....No power or incorrect power to circuit board.....	8
(D)....Defective UV photocell.....	8
(E)....Defective indicating meter.....	8
(F)....Defective circuit board.....	8
6....Meter works, but alarm pilot lights are on all the time.....	9
(A)....Failed circuit board.....	9
(B)....Faulty wiring.....	9
7....Meter works, but red and amber pilot lights never on....	9
(A)....UV Intensity alarm pilot lights burned out.....	9
(B)....Failed circuit board.....	9
Lamp Out Warning System.....	9
8....Alarm pilot light on, but all lamp indicators are lit...10	10
9....Lamp indicator out, but alarm pilot light not on.....11	11
(A)....Lamp indicator bulb burned out.....	11
(B)....Pilot light burned out.....	11
(C)....Failed circuit board.....	11
Operating Voltages of the Lamp Out Circuit.....	11

WARNING:

**EXPOSURE TO UV LIGHT WILL CAUSE EYE IRRITATION.
PROTECT EYES WITH SAFETY GLASSES OR FACE SHIELD
WHEN OBSERVING OPERATING UV LAMPS.**

WATER LEAKS

The purifier chamber is made of type 304 stainless steel. Quartz tubes run the length of the chamber and are secured to the gland nipples on the chamber heads with the gland seal assembly. UV lamps are placed inside the quartz jackets. A small quartz window is located on the long side of the chamber at the sightport fitting. The UV selective photocell is placed in the sightport fitting.

Leaks in the stainless steel chamber can be repaired only by TIG (Heli-Arc) welding. Other methods of welding are not effective and may damage the chamber. If your chamber is still under warranty, return it to the factory for repairs.

Note: When inspecting and repairing water leaks make sure that the control box is unplugged or disconnected from the line.

Refer to GLAND SEAL ASSEMBLY Drawing 120106 for these repairs.

1.....Water leaks around the outside of the quartz jacket.

Cause: The neoprene O-ring around the quartz jacket is not seated properly and water is leaking between the O-ring and jacket.

Fix: Tighten the gland nut to compress the neoprene O-ring, or replace the neoprene O-ring.

2.....Water leaks from inside the quartz jacket.

Cause: Water dripping from inside the jacket is caused by condensation. A steady stream of water is caused by a cracked quartz jacket.

Fix: If condensation occurs inside the quartz jacket, install small neoprene O-rings at both ends of the lamp. The O-rings will hold the UV lamp away from the puddle. When the UV lamps are turned on, the water inside the jacket will evaporate.

A cracked quartz jacket must be replaced. Drain the purifier chamber, remove the gland seal assembly and slide out the damaged quartz.

3.....Water leaks from sightport.

Cause: Neoprene washers not seated properly or quartz disc cracked.

Fix: Tighten the sightport fitting with a wrench or remove fitting and replace quartz disc.

ELECTRICAL SERVICE

Use a multimeter with the following ranges:

AC Volts: 1000 volts max.
DC Volts: 30 volts max.
Ohms: 10 Megohm max.
AC Amps: 2 amps max.

A meter is not required for some procedures.

Refer to WIRING DIAGRAM for your model purifier.

LAMP CIRCUIT

The lamp circuit components are the ballast, the lamp indicator, and the UV lamp.

The ballast provides the high voltage to start the arc within the UV lamp and controls the voltage and current of the operating lamp.

The lamp indicator responds to the current through the UV lamp.

The UV lamp is a low-pressure mercury arc lamp.

The volt-ampere characteristic of a UV lamp does not change throughout its lifetime. Any decrease in UV output from the lamp is caused by degradation of the electrodes. In general, UV output stabilizes at 75% of the initial intensity and remains at that value until the electrodes disintegrate.

Electrode degradation increases with the frequency of ON-OFF cycles. When a lamp (or Lamp Bank) is switched on, it should remain on for a minimum of 4 hours. A shorter cycle time can greatly reduce the lamp life time.

Lamps should be replaced after 7500 hours of use (about 1 year) to insure maximum performance of the purifier.

CAUTION: Turn off electricity to purifier anytime you change an electrical connection.

4.....Lamp indicator doesn't light.

Cause: A) UV lamp failed.
B) Lamp indicator bulb burned out.
C) Ballast burned out.
D) Open wire connection.

Fix: A) To test for a failed UV lamp, unplug the lamp socket from a UV lamp that does work and connect it to the suspect lamp.

Turn the purifier on and check the lamp indicators.

If the UV lamp fails to light, it is bad and must be replaced.

If the UV lamp does light, the fault is with the lamp indicator bulb, ballast, or open wires.

Reconnect the UV lamp to its original socket. Socket numbers are marked on the chamber next to the lamp location or on the plastic sleeve on the end of the quartz tube.

- B) Lamp indicator bulbs burn out from age. The #6PSB bulb has a 40,000 hour lifetime (about 5 years).

To replace an indicator bulb, pop off the green lens from the front of the indicator assembly with a small screwdriver. Pull out the bulb with your fingers. Replace the bulb with a SYLVANIA #6PSB and replace the green lens.

- C) To test for a burned out ballast, measure voltage at both the ballast input (primary side) and ballast output (secondary side).

Make sure that all electrical connections are tight and that all wires are secured to terminal strip.

The voltage supply to the ballasts is either 115 Vac or 220 Vac. The voltage supply rating is printed on the ballast case and on the control box serial number plate.

Locate the power supply terminals and verify that supply voltage matches ballast rated voltage.

Locate the ballast output. The terminal numbers correspond to the lamp numbers. For instance, if you have an EP-12 (12 lamp purifier) terminals #1 thru #12 are the ballast outputs.

Measure voltage with respect to AC neutral (White wire at power supply terminals).

A burned out ballast will not provide the high voltage that starts the arc in the UV lamp.

The high voltage is present when the ballast output sees an open circuit. Unplug the lamp socket and turn on the purifier.

The open circuit voltage is:

450-500 Vac (G36T6 Lamp = L30UT & L30PT)
or
550-600 Vac (G64T5 Lamp = L58UT & L58PT)

When the lamp is operating, the ballast output drops to a lower voltage.

The closed circuit voltage is:

120-130 Vac (G36T6 Lamp = L30UT & L30PT)
or
250-260 Vac (G64T5 Lamp = L58UT & L58PT)

If the fuse blows when the purifier is turned on, find the shorted ballast by checking the resistance between the ballast output and an AC neutral terminal. (AC neutral terminals are disconnected from the AC neutral line when the main switch is OFF.) For units with G36T6 lamps, resistance on red lead is infinite and resistance on blue lead is 70 ohms. For units with G64T5 lamps, resistance on both red and blue leads is 1.5 Megohm.

- D) Test for open wire connections by measuring resistance, voltage and current.

Locate the lamp current return terminals. They are the terminals that immediately follow the ballast outputs. For example, if you have an EP-12 (12 lamp purifier) terminals #13 thru #24 are lamp current return.

On industrial purifiers both the ballast output terminals and the lamp current return terminals correspond to the lamp numbers. Ballast outputs are red or blue wire and lamp current returns are white wire.

Check resistance from the lamp current return terminals to an AC neutral terminal.

With the resistor based indicator circuit the resistance is 3.5 to 4 ohms when the indicator bulb is working. The resistance is 15 ohms when the indicator bulb is removed or is burned out.

With the clipper based indicator circuit the resistance is 4.5 to 5 ohms when the indicator bulb is working. When the bulb is removed or burned out, the exact value of resistance depends on the voltage between the test probes. There will be continuity in the clipper circuit, but you may have to change probe polarity to get it. The resistance value will be anywhere between 1K and 75 Meg.

The voltage on the lamp current return terminals is 5 Vac (ref. to AC neutral) when the UV lamps are operating.

The current through the UV lamp is 425 mA (AC) for both the G36T6 (L30UT & L30PT) and G64T5 (L58UT & L58PT) lamps. The current should be measured at the lamp current return terminal.

At the ballast supply terminals, resistance between the black leads (AC hot) and white leads (AC neutral) is very low because of the current path through the ballast primaries.

Causes of Ballast and Lamp Failure:

Almost all ballast failures are from overheating. Overheating can be caused by poor ventilation of the control box, by repeatedly trying to start a faulty lamp, and by repeatedly trying to start a lamp that is too cold or too hot.

The air temperature inside the control box must not exceed 190 degrees F. A free air space around the grills on both sides of the control box will provide adequate ventilation.

A UV lamp that won't start at normal temperatures should be replaced as soon as possible. If a replacement lamp is not available, disconnect the ballast by removing its power supply fuse. (If your purifier is not supplied with individual ballast fuses, disconnect the black wire from the ballast at the AC supply terminal.)

UV lamps that have been cooled to below 50 degrees F are difficult to start. Cold lamps will consume 1.5 to 2 times normal operating current as they warm up. A typical warm up time is 5 to 10 minutes. Normal current is 425 mA, so a cold lamp will draw 600 to 900 mA. The excessive current thru the lamp can cause accelerated electrode degradation. The ballast will also draw 1.5 to 2 times normal current during a cold start. The excessive current draw causes the ballast to overheat.

Because excess current draw cannot be avoided during a cold start, the only way to minimize damage to lamps and ballasts is to limit the frequency of ON-OFF cycles.

The ideal lamp temperature is 105 degrees F on the bulb wall. If the temperature of the water feed to the purifier is above 105, the UV lamp may not light.

Most lamp failures are caused by electrode disintegration. See the LAMP CIRCUIT section for details.

UNITECH (L30UT & L58UT) lamps are subject to failure from water intrusion between the plug end of the lamp and the socket. The source of the water can be condensation inside the end cover or a slight leak from a gland seal. A typical failure involves melting of the UNITECH socket (LS-3UT) and fusing of the socket to the lamp. Both the UV lamp and UNITECH socket need to be replaced after such a failure.

To prevent failures from water intrusion, the junction of the lamp and socket should be coated with silicone grease (an insulator) before mating the lamp and socket. Use enough grease to make a waterproof connection.

PIGTAIL lamps (L30PT & L58PT) can fail from open wire connections in the plug at the end of the pigtail wires. Check for a solid connection where the small wires from the lamp enter the plug by giving them a light tug.

If the PIGTAIL wires become separated from the plug, remove the plug pin and solder the wire to the pin. To remove the pin, slide a 1/8" dia. thinwall metal tube over the pin (to compress the lances) and insert a metal rod thru the tube to push out the pin. Push the pin back into the plug after repair.

UV INTENSITY MONITOR SYSTEM

The UV Intensity Monitor components are the UV selective photocell, the electronic circuit, the indicating meter, and the alarm condition pilot lights.

The patented UV selective photocell is a photoresistor combined with a beam splitter.

The typical resistance value of the photocell is:

900 to 1100 ohms = 100% UV illumination, 100 on meter.
(New lamp, fresh water, clean chamber)

As the intensity of UV light decreases, the resistance of the cell increases.

The electronic circuit is a quad op-amp used as a difference amplifier and two comparators (There is one comparator for each alarm condition). Some circuits (X suffix) have a 4-20 mA current output signal proportional to the meter indication.

The difference amplifier responds to the resistance change of the photocell and drives the indicating meter. One potentiometer adjusts the meter movement for full scale. At full scale the meter reads 100.

The indicating meter is a DC milliammeter. At full scale the current thru the meter is 1.0 mA (DC). Meter resistance is 35 ohms, so at full scale the voltage across the meter is 0.035 Vdc.

The alarm condition lights operate at 115 Vac. They are switched by triacs on the circuit board. The standard alarm conditions are SAFE (Green), LOW INTENSITY (Amber), and FAIL (Red).

The comparators look at the meter drive signal and control triacs for the alarm conditions. The set point of each comparator is fixed. The LOW alarm setpoint is 50% of full scale. The FAIL alarm setpoint is 25% of full scale.

As the meter indication decreases; LOW signal lights at 50%, FAIL signal lights and SAFE signal goes out at 25%.

As the meter indication increases; FAIL signal goes out and SAFE signal lights at 50%, LOW signal goes out at 75%.

The Push To Test pushbutton switches provide a built in mechanism for testing the performance of the UV Intensity Monitor circuit. When pressed, each pushbutton will substitute a fixed resistor for the UV photocell. The values substituted for the UV photocell correspond to zero, mid-point, and full scale readings. The Push To Test feature is not affected by adjustment of the potentiometer on the UV Intensity Monitor circuit.

Correct operation of Push To Test is as follows:

Push "100%" - Meter indicates 100%, only the SAFE pilot light is on

Push "50%" - Meter indicates 50%, both SAFE and LOW pilot lights on

Push "0%" - Meter indicates 0%, both LOW and FAIL pilot lights on

5.....UV Intensity meter reads zero.

- Cause:
- A) Purifier chamber or water supply dirty.
 - B) UV lamp closest to sightport is out.
 - C) No power or incorrect power to circuit board.
 - D) Defective UV photocell.
 - E) Defective indicating meter.
 - F) Defective circuit board.

Fix: A) Wear safety glasses to protect eyes from UV rays. Remove photocell from sightport fitting and look in. If a film coating or a silt deposit is visible, it is time to clean the chamber (See INPLACE CLEANING METHOD Drawing 113078).

If a quantity of silt particles is present in the flowing water, you may need to filter your supply to achieve effective disinfection.

- B) The UV Intensity Monitor System responds primarily to the lamp closest to the sightport. Check the lamp indicators for proper operation. Refer to Item 4 ("Lamp Indicator Doesn't Light") for the correct procedure.
- C) All UV Intensity Monitor circuits operate at 120 Vac. Models with a 220 Vac power supply are provided with a 220/120V step down transformer for the monitor circuit.

The UV Intensity Monitor circuit is plugged into a 12 contact card edge connector inside the control box. Voltage to the circuit can be measured at the screw terminals on the edge connector. Each screw terminal is identified by a number embossed on the edge connector.

The voltage between terminals 1 and 2 is 120 Vac when the purifier is switched on.

- D) To check for a defective UV photocell, unplug the connector on the cell and measure the resistance across the cell. While the exact resistance will depend on the overall condition of your purifier and your water, it should measure between 900 and 1100 ohms (For a clean unit with fresh water and a good UV lamp).
- E) To test for a defective indicating meter, open the control box door and remove the red wire (+) from the back of the UV Intensity meter.

The resistance across the meter with one lead disconnected is 35 ohms.

- F) To test for a defective circuit board, leave the meter disconnected and measure the current thru the meter. The correct current is 1.0 mA (DC) with the "100%" switch pushed in.

Unplug the photocell and measure the voltage between the two sockets of the female connector. The correct voltage is 20 Vdc.

To test for proper circuit board operation, reconnect the meter and use the Push To Test switches.

6.....Meter works, but UV Intensity alarm pilot lights are on all the time.

Cause: A) Failed circuit board.
B) Faulty wiring.

Fix: A) To check for a short on the circuit board, remove it from the edge connector and turn the purifier on. None of the UV Intensity alarm pilot lights should be on.

B) To check for faulty wiring, remove the circuit board from its edge connector and turn the purifier on. Check the AC voltage between terminal 2 and terminal 8 on the edge connector. It should be zero. Check for zero AC volts between terminal 2 and terminal 9. Check for zero AC volts between terminal 2 and 11.

If the above voltages are not zero, disconnect any accessory devices (solenoid valves and remote alarms) from the terminal strip and check for zero volts with the purifier on.

The circuit board must not be removed from or plugged into its edge connector while the purifier is on because damage to the circuit may occur and you may be subjected to electric shock.

7.....Meter works, but red and amber UV Intensity alarm pilot lights never come on.

Cause: A) UV Intensity alarm pilot lights burned out.
B) Failed circuit board.

Fix: A) To test the pilot lights, remove the circuit board from its edge connector. The green pilot light will come on when terminals 11 and 12 are jumpered together. The amber light will come on when terminals 8 and 12 are jumpered together. The red light will come on when terminals 9 and 12 are jumpered together.

B) If the pilot lights are good, the circuit board must be replaced.

LAMP OUT WARNING SYSTEM

The Lamp Out Warning components are the digital electronic circuit, the lamp indicators, and the alarm pilot light.

The Lamp Out circuit uses a TTL digital logic circuit to monitor the current flow through each UV lamp. Input to the Lamp Out circuit is via the lamp current return terminals. When one or more UV lamps is not conducting, the circuit switches a triac to deliver the alarm signal.

Voltage to power the lamp indicators comes from the Lamp Out circuit.

The alarm pilot light operates at 120 Vac and is activated by the triac on the circuit board.

NOTE: Before trouble shooting the Lamp Out circuit make sure that all circuit boards are firmly seated in their edge connectors and that the numbers on the lamp socket leads correspond to the UV lamp location numbers on the chamber.

8.....Lamp Out alarm pilot light is on, but all lamp indicators are on.

Cause: Defective circuit board.

Fix: Look at the circuit cards while the purifier is on. The red LED on a circuit board may be on. That board has triggered the false alarm and needs to be replaced.

If the red LED is not lit on any circuit board, use the toggle switch to test the alarm for each circuit board. When the toggle is moved to the 'Disable' position (bat lever points away from LEDs), the green LED will light and the triac is removed from the circuit. If the Lamp Out alarm pilot light goes out, gets dim, or blinks, you have located the failed circuit board. (If the green LED does not light, the power supply on the circuit board is bad and the circuit board must be replaced or 120 Vac power is not present between pins #1 & #3 of the card edge connector.)

Return the toggle to 'Normal' position (green LED out and bat lever points to LEDs) and test the next circuit board. Continue testing each circuit board until the one responsible for the false alarm is isolated. It must be replaced.

NOTE: Do not operate the purifier for an extended period of time with any Lamp Out circuit boards removed as damage to ballasts may result.

If a replacement board is not immediately available, the lamp current returns can be bridged together and connected to AC neutral. Although the indicators will not work, the UV lamps will continue to operate with no harm to the ballast.

Bridge together the lamp current returns by inserting #18 ga. jumper wires in the card edge connector. Jumper #12 to #11, #11 to #10, #10 to #9, #9 to #8, #8 to #7, #7 to #6, and #6 to #5. Finally connect #5 to #3 (AC neutral terminal).

The circuit board must not be removed from or plugged into its edge connector while the purifier is on because damage to the circuit may occur and you may be subjected to electric shock.

9.....Lamp indicator(s) out, but alarm pilot light is not on.

Cause: A) Lamp indicator bulb burned out.
B) Pilot light burned out.
C) Failed circuit board.

Fix: A) See Item 4-B to replace the indicator bulb.

B) To test the pilot light, remove one Lamp Out circuit board and jumper together terminal 2 and terminal 3 on the card edge connector. When the purifier is turned on, the Lamp Out alarm pilot light should be on.

C) Note the numbers on the lamp indicators that are out. Each Lamp Out circuit board monitors four, five, six, seven, or eight lamps. The numbers for the lamps monitored by each circuit board are marked on the panel next to each card edge connector. If a lamp was out and its monitor circuit did not trigger the alarm, the circuit board needs to be replaced.

Operating Voltages of The Lamp Out Circuit

Measure all voltages at the screw connections on the 12 contact card edge connector.

Terminal 3 is AC neutral. All voltages are referenced to AC neutral

Terminal 1 = 120 Vac

Terminal 2 = 120 Vac when alarm is off.

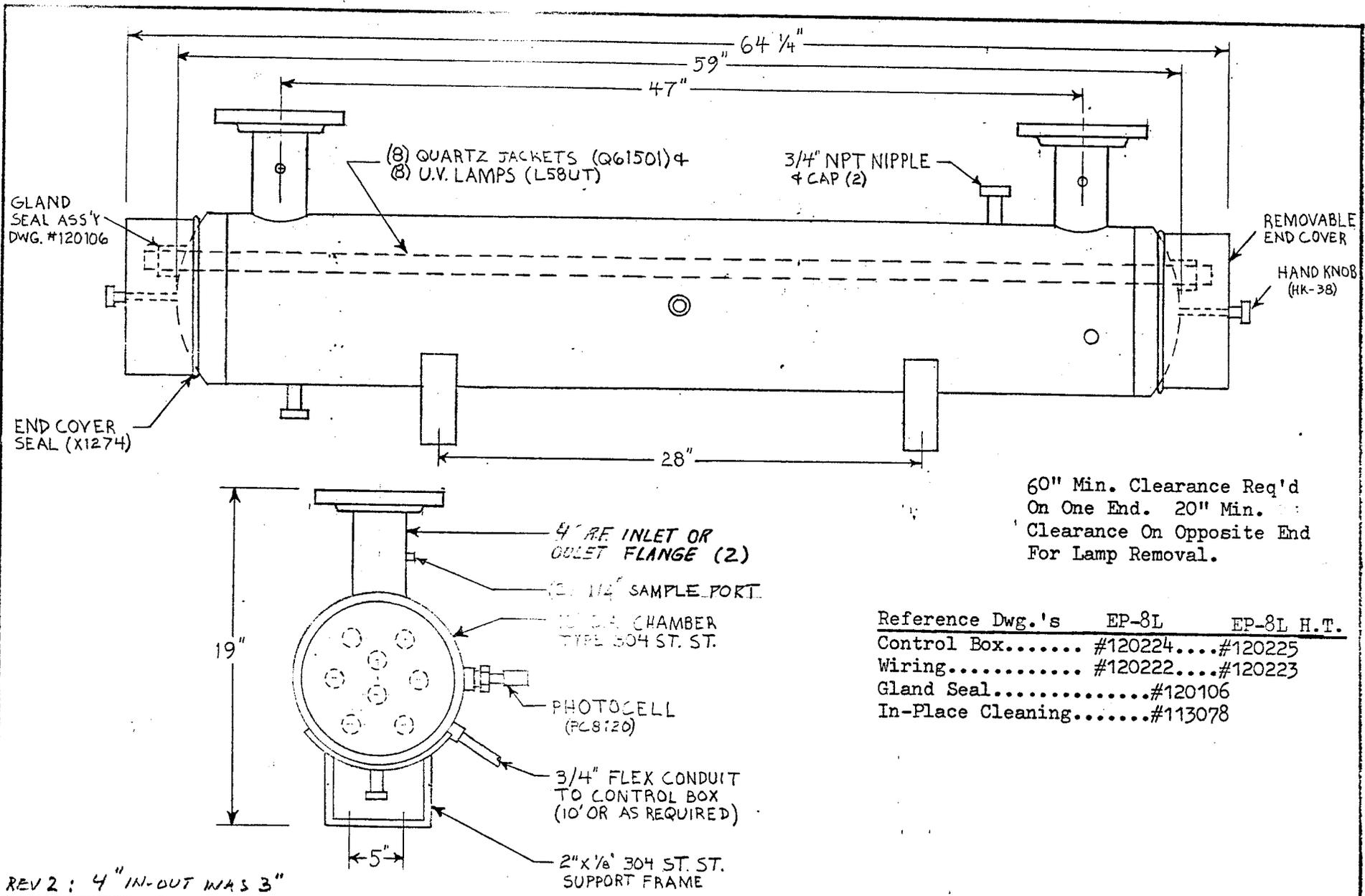
Terminal 2 = 0 Vac when alarm is on.

Terminal 4 = 0 Vac

Terminal 5,6,7,8,9,10,11,12 = 5 Vac (UV lamp is on)

Terminal 5,6,7,8,9,10,11,12 = 0 Vac (Corresponding UV lamp is out)

Note: No connection at terminal 9,10,11,12 with ELW-4
No connection at terminal 10,11,12 with ELW-5
No connection at terminal 11,12 with ELW-6
No connection at terminal 12 with ELW-7



ULTRAVIOLET PURIFICATION SYSTEMS INC.
 299 Adams St., Bedford Hills, NY 10507

EP-8L & EP-8L H.T.
 U.V. WATER PURIFIERS

115V 60Hz 9Amps

Scale: 1/8" = 1"

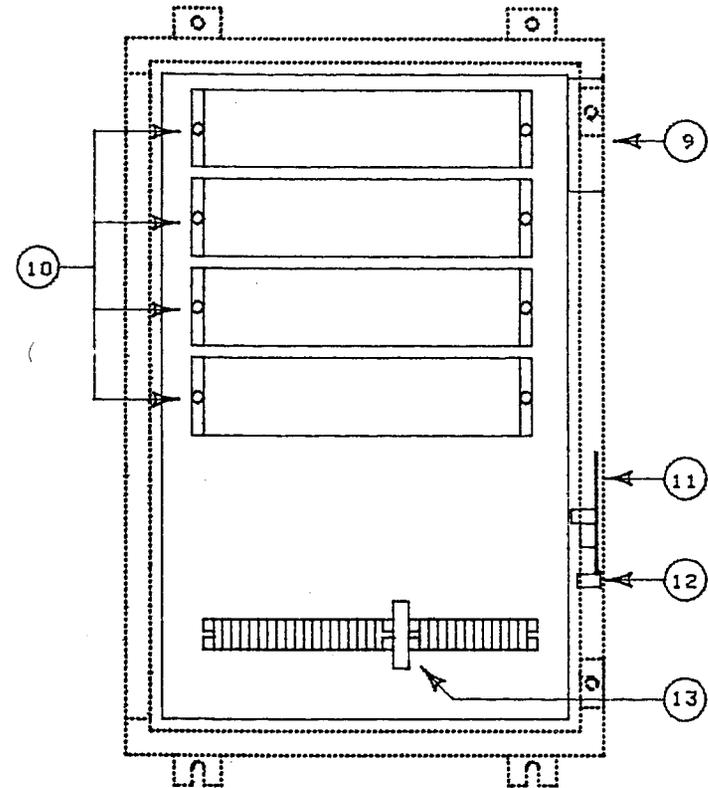
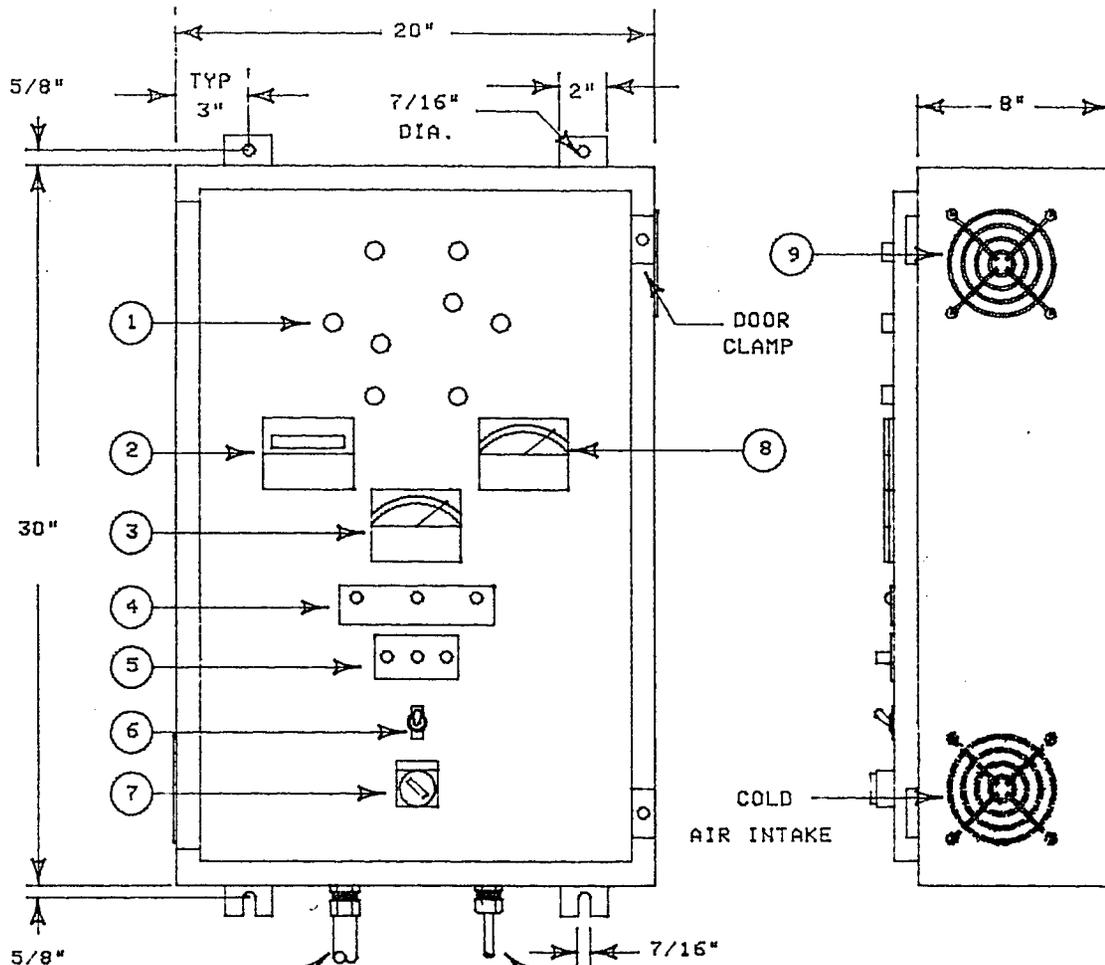
Drawn By: PJV

Date: 8-6-84

Revised: 2-13-86

Drawing No. 120346 REV.3

FACTORY FILE



10' FLEX. CONDUIT TO UV CHAMBER

5' LINE CORD

- 1. Lamp Indicator Lights (30152) & Bulb (6PSB).
- 2. Elapsed Time Indicator (ET8400).
- 3. UV Intensity Meter (WM8400).
- 4. Pilot Lights - Safe = Green (119985)
Low Intensity = Amber (120084) Red = Failure (11984).
- 5. Push To Test (EPT1).
- 6. Buzzer Silencer Switch (119986).
- 7. On/Off Rotary Switch (901KS11B).
- 8. Volt Meter (VM8400).
- 9. Fan (4C549) Fan Guard (4C551).
- 10. Ballast (EP8S : B30211) (EP8L : B58211-650).
- 11. UV Intensity Circuit (EWQM3P).
- 12. Circuit Edge Connector (119974).
- 13. 37 Terminals & Fuse (EP8S : 10A) (EP8L : 10A).

MATERIAL : 14 Gauge Steel

FINISH : Outside Finish Is Acrylic Enamel Top Coat
Over Grey Prime Over Phosphatized Surface.
Inside Finish Is White Enamel. Panel Is White.

WEIGHT : EP8S : 125 Lbs. EP8L : 125 Lbs.

ULTRA VIOLET PURIFICATION SYSTEM INC.
299 Adams Street
Bedford Hills N.Y. 10507

SCALE 1/8"=1"

APPROVED BY:

DRAWN BY G.B.

DATE 12-20-83

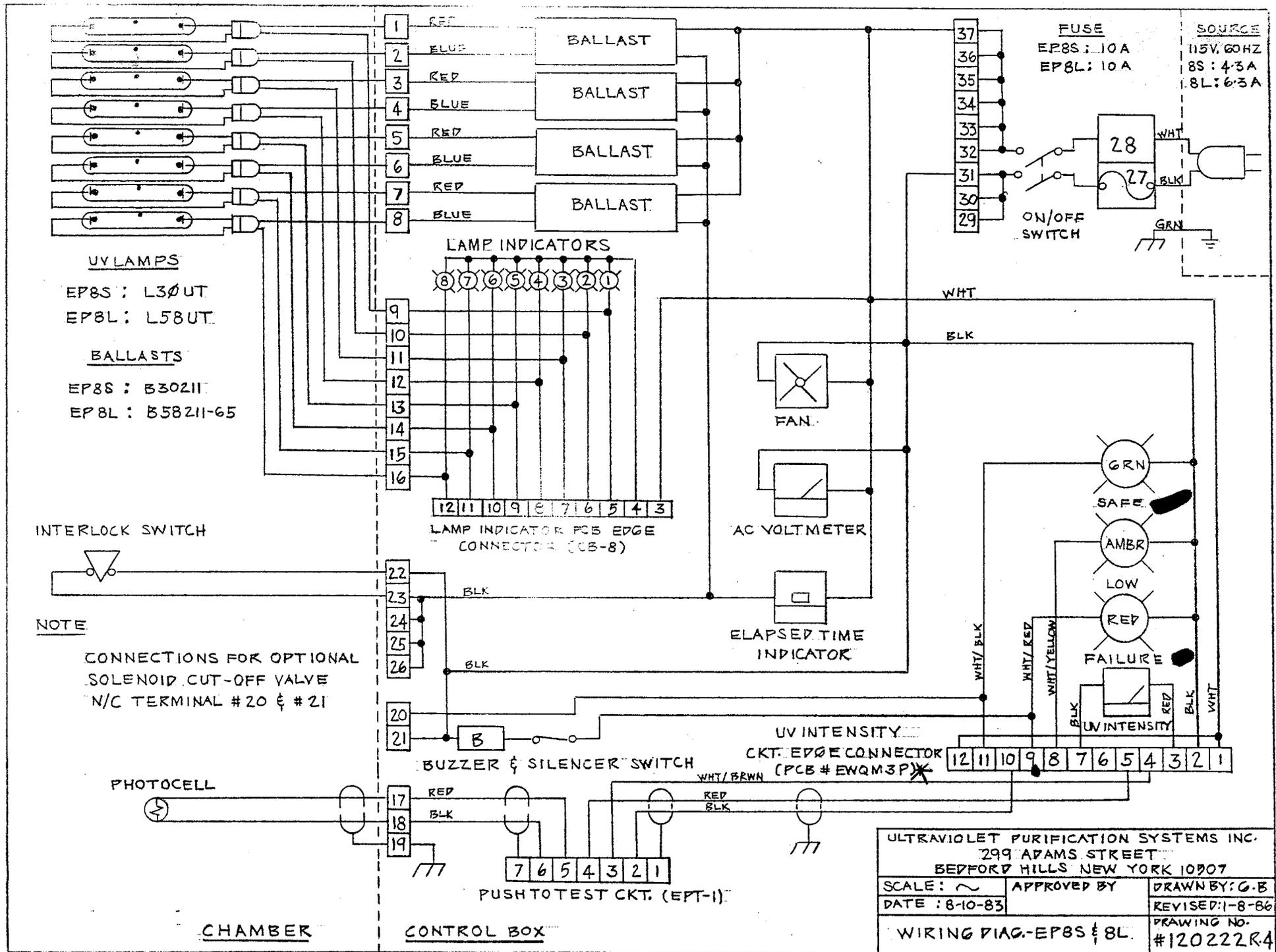
REVISED 10-23-85

NEMA 12 CONTROL BOX - EP8S & 8L

115V, 60HZ, (8S = 4.3A) (8L = 6.3A)

DRAWING NUMBER

#120224 R.2



*replaced #EW0m2P ... #F1.1 @m 3T



ULTRAVIOLET PURIFICATION SYSTEMS INC.

PROCEDURE FOR QUARTZ AND SEAL REPLACEMENT (REF. DWG. #120106)

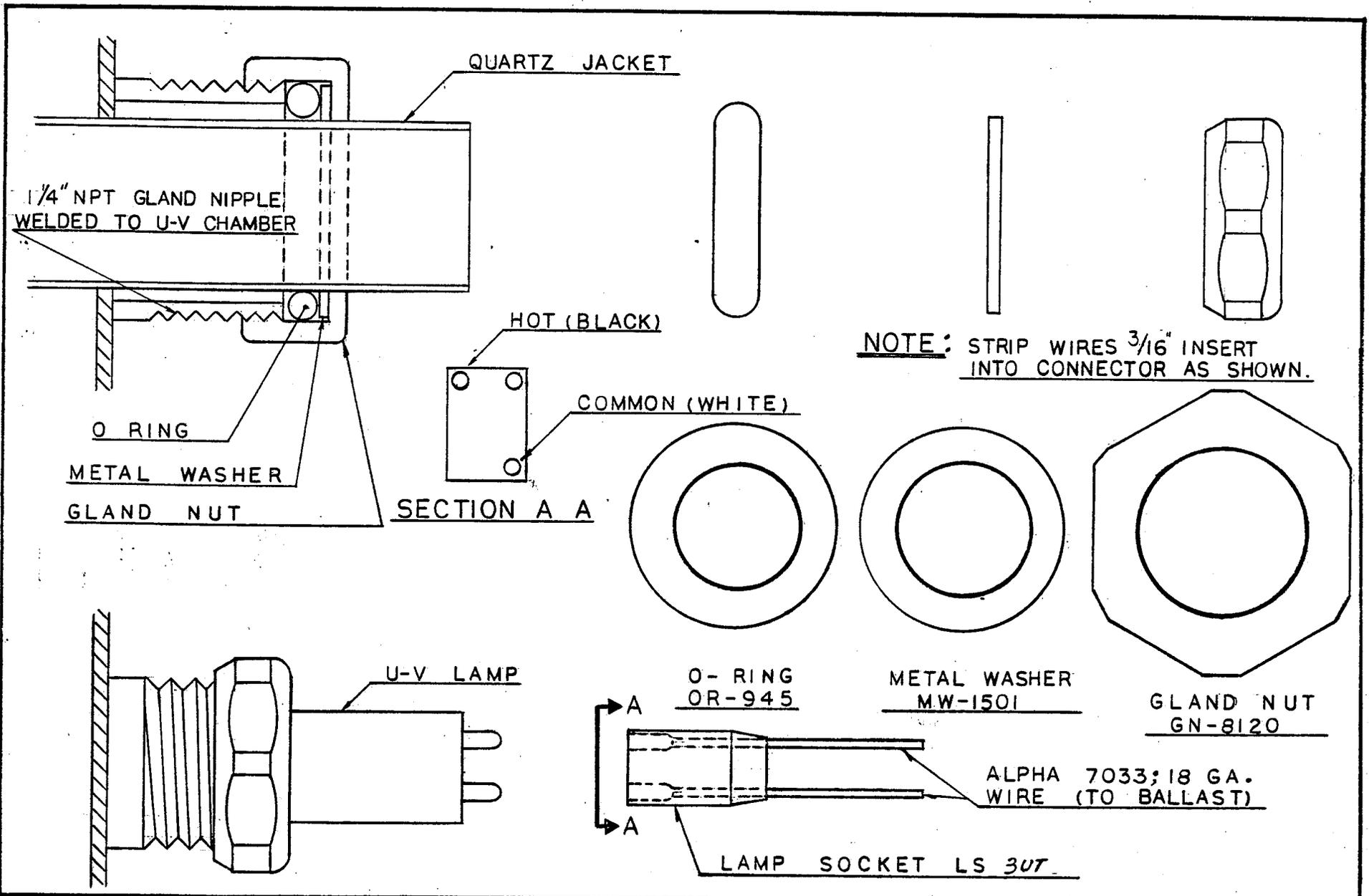
REMOVAL

- Step 1. Remove all lamps. Remove all gland nuts (using deep socket wrench), metal back-up washers, and O-rings from one end of U-V chamber.
- Step 2. Carefully remove gland nut from opposite end and slide quartz jackets from U-V chamber. Be careful not to allow jackets to drop and damage other jackets.

REPLACEMENT

- Step 1. Slightly moisten inside of O-ring with soapy water. Slip O-ring over one end of quartz jacket. Approximately 2" from end.
- Step 2. Carefully slide quartz jacket through U-V chamber. (Two men are needed so one can guide the quartz through the opposite nipple). See note.
- Step 3. With jacket in position, ie. (equal excess on both ends of chamber, and O-ring properly centered) position gland nut and backing metal washer and hand tighten only. Repeat (O-ring, washer, gland nut) and hand tighten other end. Slowly fill chamber and carefully inspect for leaks. Tighten only if necessary.

NOTE: In order to prevent breakage while installing the quartz jacket, $\frac{1}{2}$ " Dia. wooden dowel should be inserted extending through the two nipples on opposite ends of the chamber to guide the quartz jacket into position.



ULTRAVIOLET PURIFICATION SYSTEMS INC.
299 Adams St., Bedford Hills, NY 10507

GLAND SEAL ASSEMBLY

2 OF 2 REV.1

Scale: 1" = 1"

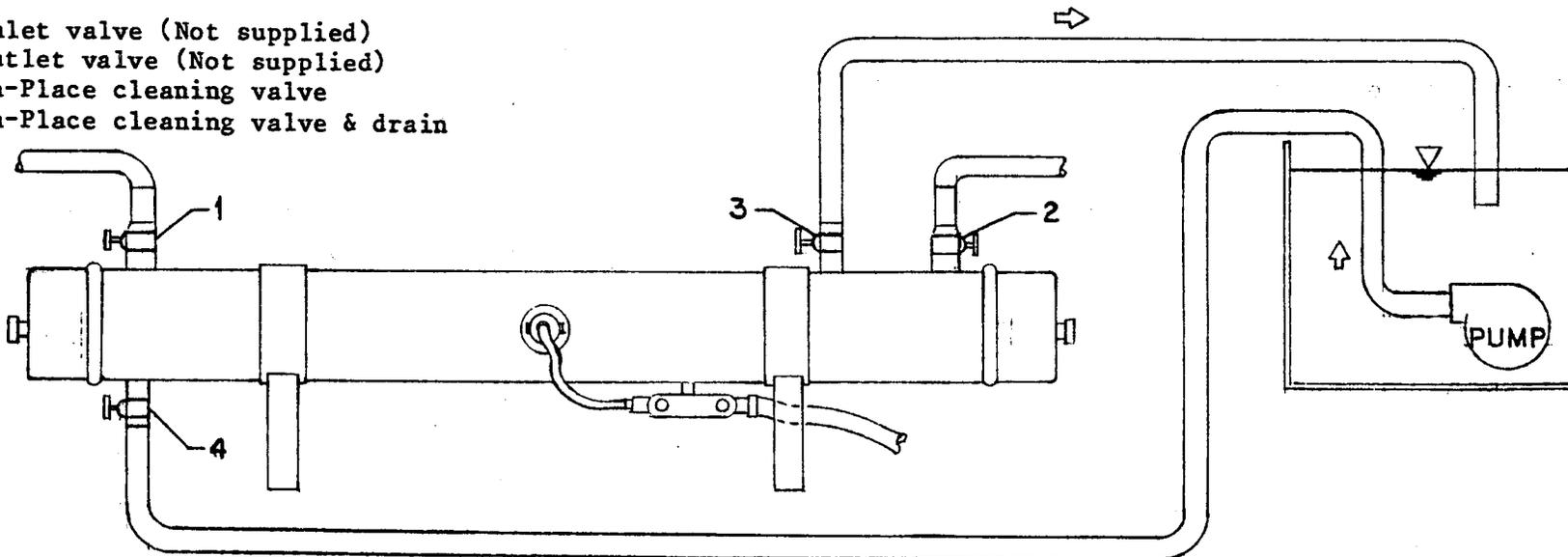
Drawn By: R.H

Date: 2 - 10 - 85

Revised:

Drawing No. 120106

- 1- Inlet valve (Not supplied)
- 2- Outlet valve (Not supplied)
- 3- In-Place cleaning valve
- 4- In-Place cleaning valve & drain



- Shut off the main fluid flow by closing valves 1 & 2.
- Connect flexible hose to 4 and direct opposite end to waste drain.
- Drain chamber by opening valves 3 & 4.
- Connect flexible hose as shown in diagram.
- Begin filling mixing tank with clean water.
- Turn on pump to fill chamber while keeping the water level above the pump by continuing to add water.
- When water returns to the mixing tank via valve 3, the chamber is full.
- After making sure the pump is submersed stop adding water.

- Put proper amount of cleaning compound into the mixing tank and let circulate for 30 min.(see note)
- Turn off pump.
- Close valve 4.
- Move flexible hose that is connected to the pump to a waste drain.
- Open valve 4 and empty chamber.
- Close valves 3 & 4 and open valve 1.
- Unit is ready for operation.
- After turning on lamps, open valve 2.

NOTE: Amount of cleaner compound required depends on the condition of the contact chamber. For custom designed units, start with 1 lb. per 20 gallons of chamber volume. Increase amount if results are not satisfactory.

IN-PLACE CLEANING KIT CONTAINS:

- (1) TEEL submersible pump #2P087
- (1) 16 gal. 14"D x 27"H high density polyethylene tank with cover
- (2) 10' lengths of flexible hose
- (2) 3/4" ball valves

ULTRAVIOLET PURIFICATION SYSTEMS INC.
299 Adams St., Bedford Hills, NY 10507

TYPICAL DRAWING FOR POTABLE
IN-PLACE CLEANING METHOD

Scale:

Drawn By: RJPR

Date: 4-26-85

Revised: 4-26-85

Drawing No. 113078P rev.5



ULTRAVIOLET PURIFICATION SYSTEMS INC.

299 Adams Street, Bedford Hills, N.Y. 10507, Tel.(914) 666-3355, Telex 4990842

January 1985

PURIFIER REPLACEMENT PARTS PRICE LIST

PART #	DESCRIPTION	PRICE FOB, NY
FOR EP-"S" SERIES PURIFIERS		
L30UT	Unitech Ultraviolet Lamp	\$ 85.00
L30UTL	Unitech Ultraviolet Lamp (for Ultrapure Water, Deionized Water applications)	85.00
Q34751	Quartz Jacket	65.00
B30111	Ballast - Single Lamp (115v 60hz)	65.00
B30211	Ballast - Dual Lamp (115v 60hz)	85.00
FOR EP-"L" SERIES PURIFIERS		
L58UT	Unitech Ultraviolet Lamp	100.00
L58UTL	Unitech Ultraviolet Lamp (for Ultrapure Water, Deionized Water applications)	100.00
Q61501	Quartz Jacket	85.00
B58211-65	Ballast - Dual Lamp (115v 60hz)	100.00
Following components are common to all "L" and "S" series Purifiers		
ET8400	Elapsed Time Indicator	70.00
GN8120	Gland Nut	4.00
IPC-2	Inplace Cleaning Compound (2 lb. can)	12.00
IPC-9	Inplace Cleaning Compound (9 lb. can)	50.00
LS3UT	Lamp Socket - Unitech	5.00
ELW4B	Lamp Warning Circuit Board (4 Lamps)	275.00
ELW5B	Lamp Warning Circuit Board (5 Lamps)	275.00
ELW6	Lamp Warning Circuit Board (6 Lamps)	275.00
ELW8	Lamp Warning Circuit Board (8 Lamps)	275.00
MW1501	Metal Washer	1.50
OR945	O-Ring	2.50
PC8120	Photocell	250.00
EWQM3P	UV Intensity Circuit Board	275.00
WM8400	UV Intensity Meter	55.00

NOTE: On both "S" and "L" series purifiers the numerical designation in the model number corresponds to the number of Ultraviolet Lamps and Quartz Jackets in that specific model (EP-12L uses 12 lamps). The number of ballasts is equal to half the number of UV Lamps on all models except the EP-1S where a single lamp ballast is utilized.

OVER FIFTY YEARS OF ULTRAVIOLET PURIFICATION

Prices subject to change without notice

Form PL8

ULTRAVIOLET PURIFICATION SYSTEMS GUARANTEE POLICY

Ultraviolet Purification Systems, Inc. guarantees this water purifier to the original purchaser as follows:

PERFORMANCE GUARANTEE. We guarantee to provide water that is bacteriologically safe for drinking regardless of the degree of contamination, as long as the water is physically and chemically acceptable according to U.S. Public Health Service Standards. We further guarantee an ultraviolet dosage of 35,000 MWS/cm² at rated capacity within the purification chamber to assure complete water disinfection, and to provide that the water at the outlet of the purifier equals or exceeds the highest bacteriological standards established by any health department in the world.

** **ONE YEAR GUARANTEE ON ENTIRE UNIT.** We guarantee this water purifier against defects in material or workmanship under normal use and service for one year from the date of original installation.

ONE YEAR GUARANTEE ON ELECTRICAL COMPONENTS. We guarantee the ultraviolet lamp, lamp ballast, and other wiring to be free from defects in material and workmanship for a period of one year from the date of the initial installation. Also included in this guarantee are photocells, circuits, and alarm or other electrical components where applicable.

**NORMAL UV LAMP LIFE IS 7500 OPERATING HOURS.
REPLACEMENTS WILL BE MADE ON A PRORATED BASIS.

FIVE YEAR GUARANTEE ON PURIFICATION CHAMBER. The stainless steel purification chamber is guaranteed to be free from defects of material and workmanship for five years from date of initial installation at working pressures of up to 100 lbs. per square inch.

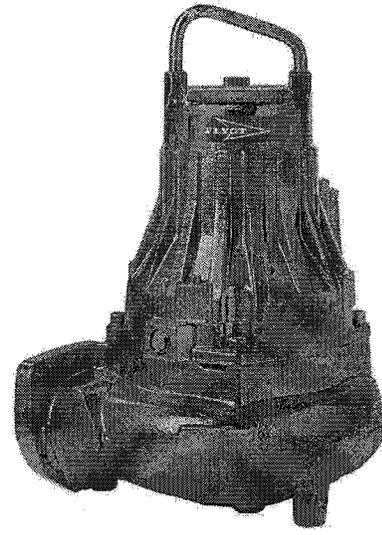
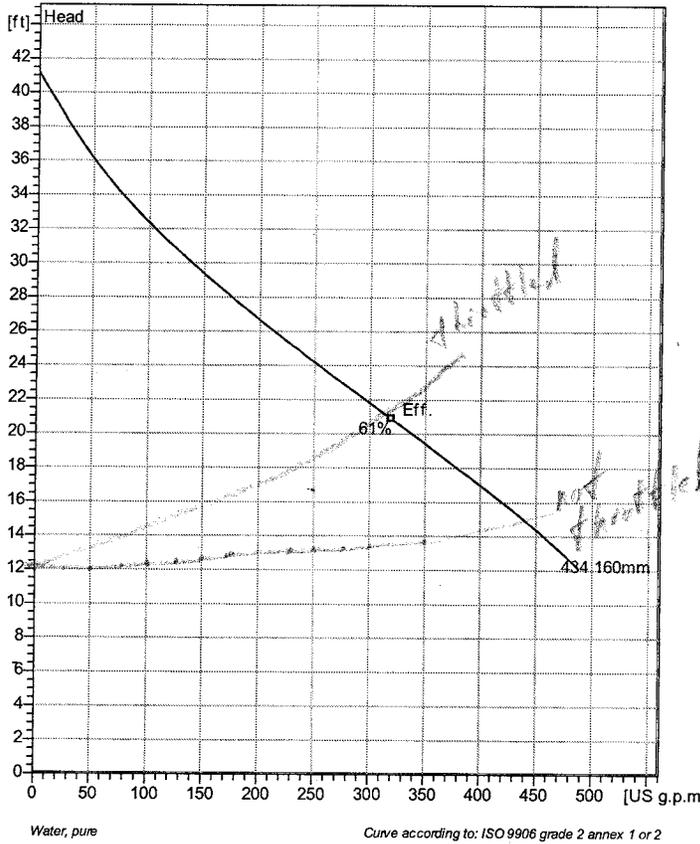
GENERAL CONDITIONS. These guarantees apply only to water purifiers that are installed and serviced in accordance with our written instructions, and which have not been misused, neglected, altered, or was subject to flood, fire, or Acts of God. These guarantees are in effect only if the unit is purchased from an authorized Dealer or Distributor, and if the unit registration card is on file with the manufacturer.

We assume no guarantee liability except as specified herein. These guarantees are in lieu of all other guarantees, expressed or implied. We do not authorize any person or representative to assume on our behalf any other obligation on the purchase of our water purifiers.

Our water purifiers are serviced by the dealer from whom the unit was purchased.

 **ULTRAVIOLET PURIFICATION SYSTEMS INC.**

CP 3085 MT 3~ 434
Technical specification



Note: Picture might not correspond to the current configuration.

General

Shrouded single or multi-channel impeller pumps with large throughlets and single volute pump casing for liquids containing solids and fibres. Cast iron design with double sealing technology. Some models available as stainless steel versions.

Impeller

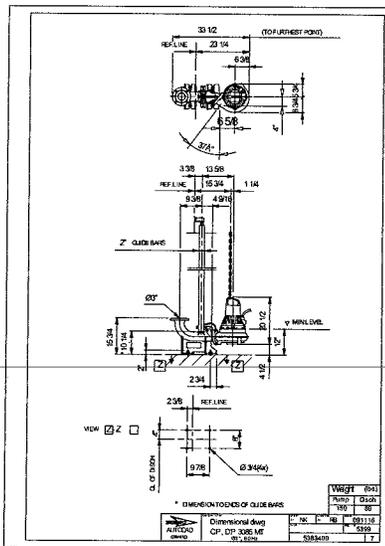
Impeller material	Grey cast iron
Discharge Flange Diameter	3 1/8 inch
Suction Flange Diameter	80 mm
Impeller diameter	160 mm
Number of blades	1
Throughlet diameter	3 inch

Motor

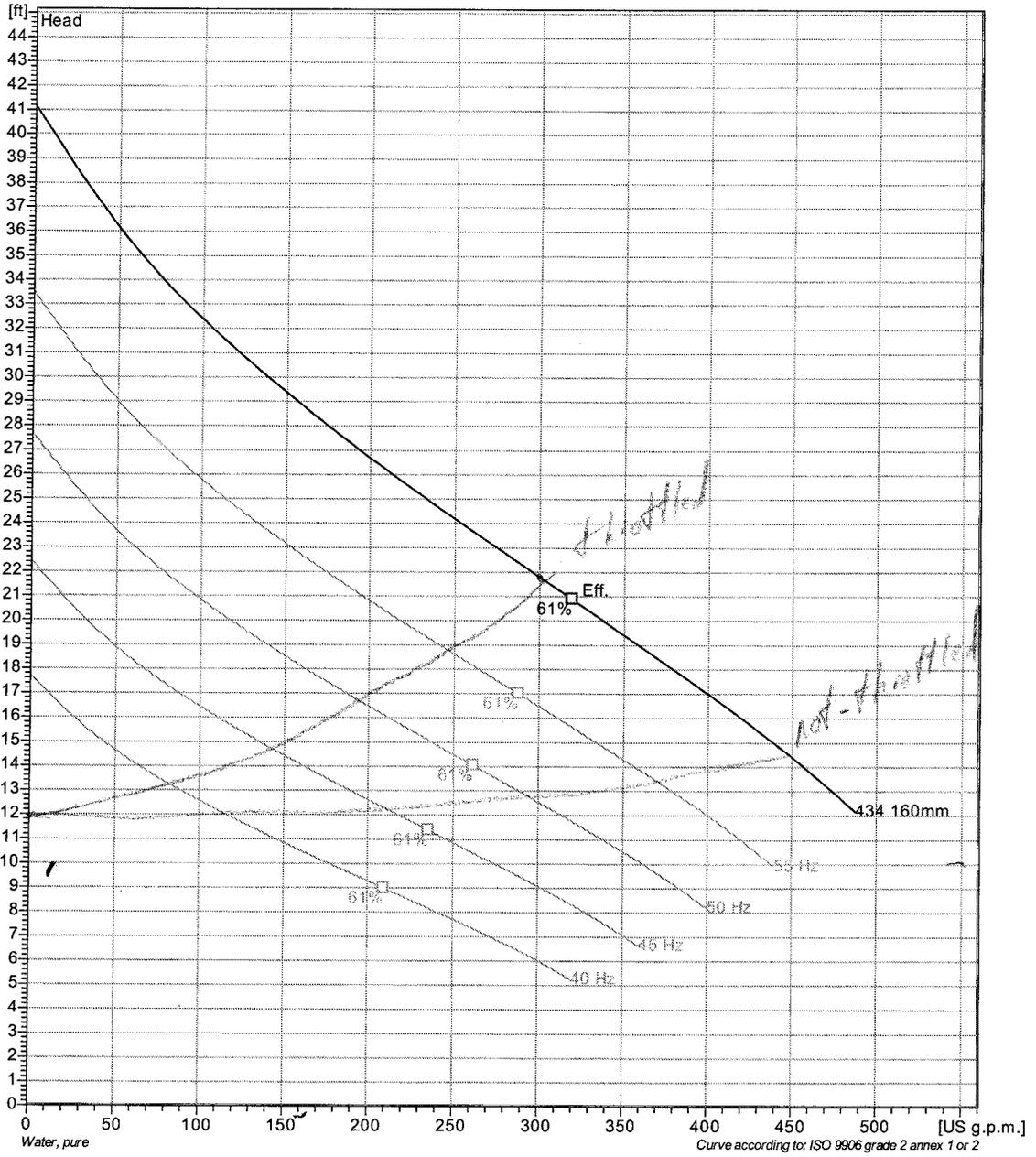
Motor #	C3085.183 15-10-4AL-W 3hp
Stator variant	66
Frequency	60 Hz
Rated voltage	400 V
Number of poles	4
Phases	3~
Rated power	3 hp
Rated current	5.2 A
Starting current	30 A
Rated speed	1710 rpm
Power factor	
1/1 Load	0.79
3/4 Load	0.72
1/2 Load	0.60
Efficiency	
1/1 Load	78.0 %
3/4 Load	78.5 %
1/2 Load	76.0 %

Configuration

Installation: P - Semi permanent, Wet



CP 3085 MT 3~ 434
VFD Analysis



Draft for Board Review

BioWin user and configuration data

Project details

Project name: **CPE-IFAS**

Plant name: **VTSV WWTF**

User name: **Venkat**

Flow: **0.12 MGD**

Yobs: **0.66**

Steady state solution

Total SRT : **15.39 days** Aerobic SRT: **11 days** Anoxic SRT: **4.35 days**

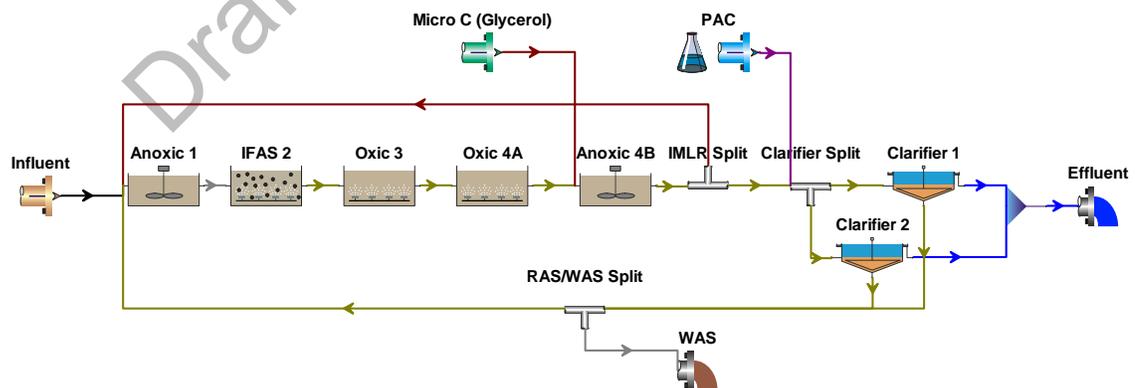
MLSS:**3975 mg/L** WAS: **246 lb/d**

Total MLSS lb in reactors: **3789**

Total Aerobic MLSS lb in reactors: **2719** Total Biofilm/attached lb:**736**

Temperature: **8.0°C**

Flowsheet



Configuration information for all Bioreactor units

Physical data

Element name	Volume [Mil. Gal]	Area [ft2]	Depth [ft]	# of diffusers
Anoxic 1	0.0253	225.4745	15.000	Un-aerated
Oxic 4A	0.0168	149.7222	15.000	51
Anoxic 4B	0.0067	59.7107	15.000	Un-aerated
Oxic 3	0.0253	225.4745	15.000	77

Operating data Average (flow/time weighted as required)

Element name	Average DO Setpoint [mg/L]
Anoxic 1	0
Oxic 4A	0.5
Anoxic 4B	0
Oxic 3	0.5

Local biological parameters

Element name	Max. spec. growth rate [1/d]	Substrate (NH4) half sat. [mgN/L]	Byproduct NH4 logistic slope [-]	Byproduct NH4 inflection point [mgN/L]	AOB denite DO half sat. [mg/L]	AOB denite HNO2 half sat. [mgN/L]	Aerobic decay rate [1/d]	Anoxic/an aerobic decay rate [1/d]	KiHNO2 [mmol/L]
Oxic 4A	0.9000	0.7000	50.0000	1.4000	0.1000	5.000E-6	0.1700	0.0800	0.0050
Anoxic 4B	0.9000	0.7000	50.0000	1.4000	0.1000	5.000E-6	0.1700	0.0800	0.0050

Oxic 3	0.9000	0.7000	50.0000	1.4000	0.1000	5.000E-6	0.1700	0.0800	0.0050
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Element name	Max. spec. growth rate [1/d]	Substrate (NO2) half sat. [mgN/L]	Aerobic decay rate [1/d]	Anoxic/anaerobic decay rate [1/d]	KiNH3 [mmol/L]
Oxic 4A	0.7000	0.1000	0.1700	0.0800	0.0750
Anoxic 4B	0.7000	0.1000	0.1700	0.0800	0.0750
Oxic 3	0.7000	0.1000	0.1700	0.0800	0.0750

Element name	Max. spec. growth rate [1/d]	Substrate (NH4) half sat. [mgN/L]	Substrate (NO2) half sat. [mgN/L]	Aerobic decay rate [1/d]	Anoxic/anaerobic decay rate [1/d]	Ki Nitrite [mgN/L]	Nitrite sensitivity constant [L / (d mgN)]
Oxic 4A	0.1000	2.0000	1.0000	0.0190	0.0095	1000.0000	0.0160
Anoxic 4B	0.1000	2.0000	1.0000	0.0190	0.0095	1000.0000	0.0160
Oxic 3	0.1000	2.0000	1.0000	0.0190	0.0095	1000.0000	0.0160

Aeration equipment parameters

Element name	k_1 in C = $k_1(PC)^{0.25} + k_2$	k_2 in C = $k_1(PC)^{0.25} + k_2$	Y in $Kla = C Usg \wedge Y - Usg$ in [m3/(m2 d)]	Area of one diffuser	% of tank area covered by diffusers [%]
Anoxic 1	0.0500	0.3800	1.0500	0.4413	15.0000
Oxic 4A	0.0500	0.3800	1.0500	0.4413	15.0000
Anoxic 4B	2.5656	0.0432	0.8200	0.4413	10.0000
Oxic 3	0.0500	0.3800	1.0500	0.4413	15.0000

Element name	Alpha (surf) OR Alpha F (diff) [-]	Beta [-]	Surface pressure [kPa]	Fractional effective saturation depth (Fed) [-]
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Anoxic 1	0.8000	0.9500	72.6700	0.3250
Oxic 4A	0.8000	0.9500	72.6700	0.3250
Anoxic 4B	0.5000	0.9500	72.6700	0.3250
Oxic 3	0.8000	0.9500	72.6700	0.3250

Element name	Supply gas CO2 content [vol. %]	Supply gas O2 [vol. %]	Off-gas CO2 [vol. %]	Off-gas O2 [vol. %]	Off-gas H2 [vol. %]	Off-gas NH3 [vol. %]	Off-gas CH4 [vol. %]	Surface turbulence factor [-]
Anoxic 1	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000
Oxic 4A	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000
Anoxic 4B	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000
Oxic 3	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000

Configuration information for all BOD Influent units

Operating data Average (flow/time weighted as required)

Element name	Influent
Flow	0.119999989433119
Total Carbonaceous BOD mgBOD/L	252.00
Volatile suspended solids mgVSS/L	197.76
Total suspended solids mgTSS/L	275.00
Total Kjeldahl Nitrogen mgN/L	40.00
Total P mgP/L	7.00
Nitrate N mgN/L	0
pH	7.30
Alkalinity mmol/L	6.00

Calcium mg/L	80.00
Magnesium mg/L	15.00
Dissolved oxygen mg/L	0

Element name	Influent
Fbs - Readily biodegradable (including Acetate) [gCOD/g of total COD]	0.1600
Fac - Acetate [gCOD/g of readily biodegradable COD]	0.1500
Fxsp - Non-colloidal slowly biodegradable [gCOD/g of slowly degradable COD]	0.7301
Fus - Unbiodegradable soluble [gCOD/g of total COD]	0.0500
Fup - Unbiodegradable particulate [gCOD/g of total COD]	0.1300
Fna - Ammonia [gNH3-N/gTKN]	0.6600
Fnox - Particulate organic nitrogen [gN/g Organic N]	0.5000
Fnus - Soluble unbiodegradable TKN [gN/gTKN]	0.0200
FupN - N:COD ratio for unbiodegradable part. COD [gN/gCOD]	0.0350
Fpo4 - Phosphate [gPO4-P/gTP]	0.5000
FupP - P:COD ratio for unbiodegradable part. COD [gP/gCOD]	0.0110
FZbh - OHO COD fraction [gCOD/g of total COD]	0.0200
FZbm - Methylotroph COD fraction [gCOD/g of total COD]	1.000E-4
FZaob - AOB COD fraction [gCOD/g of total COD]	1.000E-4
FZnob - NOB COD fraction [gCOD/g of total COD]	1.000E-4
FZamob - ANAMMOX COD fraction [gCOD/g of total COD]	1.000E-4
FZbp - PAO COD fraction [gCOD/g of total COD]	1.000E-4
FZbpa - Propionic acetogens COD fraction [gCOD/g of total COD]	1.000E-4
FZbam - Acetoclastic methanogens COD fraction [gCOD/g of total COD]	1.000E-4
FZbhm - H2-utilizing methanogens COD fraction [gCOD/g of total COD]	1.000E-4
FZe - Endogenous products COD fraction [gCOD/g of total COD]	0

Configuration information for all Effluent units

Configuration information for all Ideal clarifier units

Physical data

Element name	Volume [Mil. Gal]	Area [ft2]	Depth [ft]
Clarifier 1	0.0159	177.1267	12.000
Clarifier 2	0.0159	177.1267	12.000

Operating data Average (flow/time weighted as required)

Element name	Split method	Average Split specification
Clarifier 1	Flow paced	25.00 %
Clarifier 2	Flow paced	25.00 %

Element name	Average Temperature	Reactive	Percent removal	Blanket fraction
Clarifier 1	Uses global setting	No	99.80	0.20
Clarifier 2	Uses global setting	No	99.80	0.20

Configuration information for all Media Bioreactor units

Physical data

Element name	Volume [Mil. Gal]	Area [ft2]	Depth [ft]	# of diffusers
IFAS 2	0.0253	225.4745	15.000	255

Element name	Specific area [ft2/ft3]	Specific volume [ft3/ft3]	% of reactor filled with media [%]
IFAS 2	152.4	0.11	65.00

Operating data Average (flow/time weighted as required)

Element name	Average DO Setpoint
IFAS 2	4.0

Local biological parameters

Element name	Max. spec. growth rate [1/d]	Substrate (NH4) half sat. [mgN/L]	Byproduct NH4 logistic slope [-]	Byproduct NH4 inflection point [mgN/L]	AOB denite DO half sat. [mg/L]	AOB denite HNO2 half sat. [mgN/L]	Aerobic decay rate [1/d]	Anoxic/an aerobic decay rate [1/d]	KiHNO2 [mmol/L]
IFAS 2	0.9000	0.7000	50.0000	1.4000	0.1000	5.000E-6	0.1700	0.0800	0.0050

Aeration equipment parameters

Element name	k_1 in C = $k_1(PC)^{0.25} + k_2$	k_2 in C = $k_1(PC)^{0.25} + k_2$	Y in $Kla = C U_{sg} \wedge$ Y - U _{sg} in [m ³ /(m ² d)]	Area of one diffuser	% of tank area covered by diffusers [%]
IFAS 2	0.0500	0.3800	1.0500	0.4413	50.0000

Element name	Alpha (surf) OR Alpha F (diff) [-]	Beta [-]	Surface pressure [kPa]	Fractional effective saturation depth (Fed) [-]
IFAS 2	0.8000	0.9500	72.6700	0.3250

Element name	Supply gas CO ₂ content [vol. %]	Supply gas O ₂ [vol. %]	Off-gas CO ₂ [vol. %]	Off-gas O ₂ [vol. %]	Off-gas H ₂ [vol. %]	Off-gas NH ₃ [vol. %]	Off-gas CH ₄ [vol. %]	Surface turbulence factor [-]
IFAS 2	0.0350	20.9500	2.0000	18.8000	0	0	0	2.0000

Configuration information for all Metal addition units

Operating data Average (flow/time weighted as required)

Element name	PAC
Metal mg/L	57700.00
Other Cations (strong bases) meq/L	5.00
Other Anions (strong acids) meq/L	6434.89
Total CO ₂ mmol/L	7.00

Flow

2.00004649427856E-5

Configuration information for all Splitter units

Operating data Average (flow/time weighted as required)

Element name	Split method	Average Split specification
IMLR Split	Flow paced	300.00 %
Clarifier Split	Ratio	1.00
RAS/WAS Split	Flowrate [Side]	0.00247365275108495

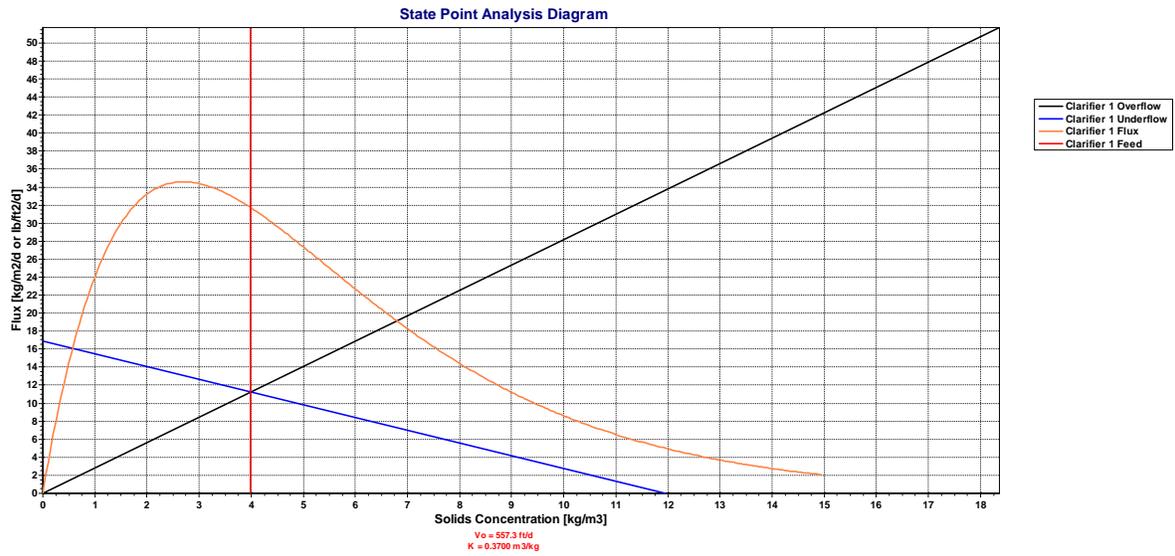
Configuration information for all Stream (SV) Influent units

Operating data Average (flow/time weighted as required)

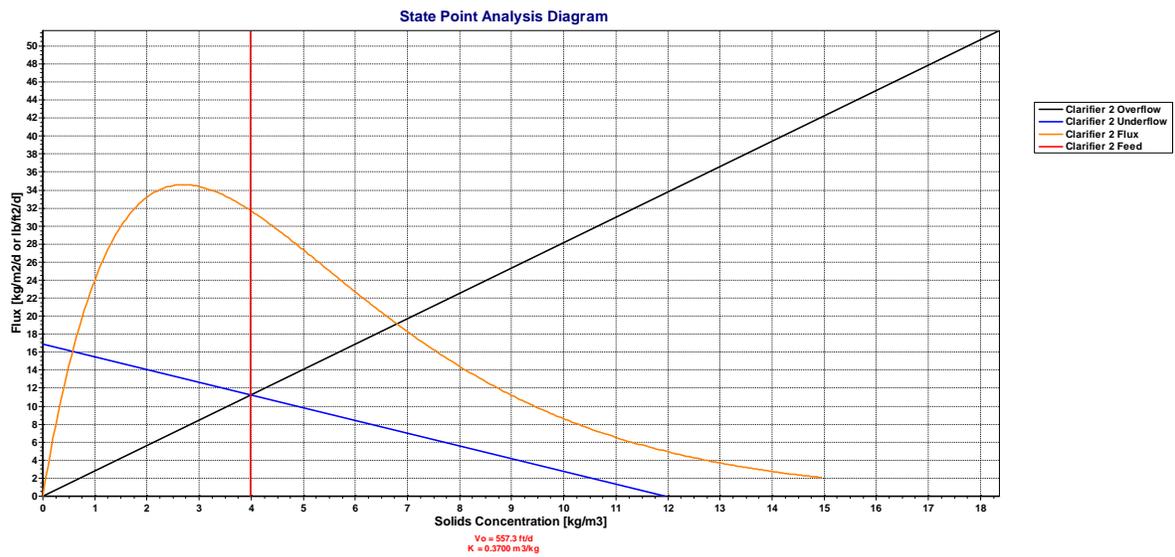
Element name	Micro C (Glycerol)
User defined 1 mg/L	910100.00
Flow	0.002

BioWin Album

Album page - Clarifier 1 SPA



Album page - Clarifier 2 SPA



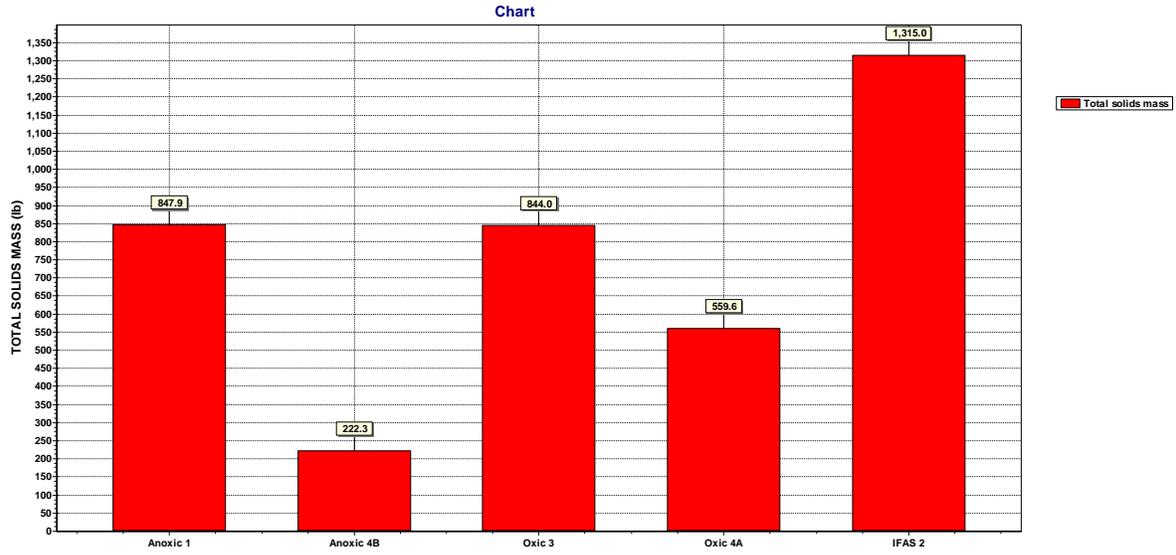
Album page - Influent

Influent			
Parameters	Conc. (mg/L)	Mass rate (lb/d)	Notes
Volatile suspended solids	197.76	198.05	
Total suspended solids	275.67	276.06	
Particulate COD	315.07	315.53	
Filtered COD	195.19	195.47	
Total COD	510.26	511.00	
Soluble PO4-P	3.50	3.51	
Total P	7.00	7.01	
Filtered TKN	32.07	32.11	
Particulate TKN	7.93	7.94	
Total Kjeldahl Nitrogen	40.00	40.06	
Filtered Carbonaceous BOD	120.20	120.38	
Total Carbonaceous BOD	252.00	252.37	
Nitrite + Nitrate	0	0	
Total N	40.00	40.06	
Total inorganic N	26.40	26.44	
Alkalinity	6.00	2.73	mmol/L and kmol/d
pH	7.30		
Volatile fatty acids	12.25	12.26	
ISS precipitate	0	0	
ISS cellular	0.67	0.67	
ISS Total	77.91	78.02	
Ammonia N	26.40	26.44	
Nitrate N	0	0	

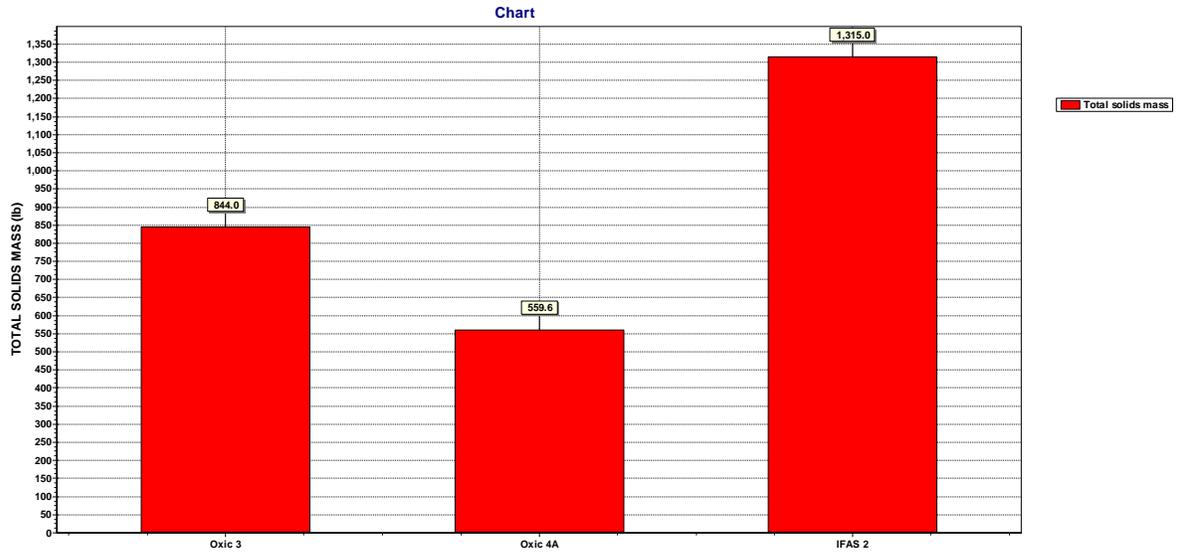
Album page - Effluent

Effluent			
Parameters	Conc. (mg/L)	Mass rate (lb/d)	Notes
Volatile suspended solids	6.34	6.33	
Total suspended solids	12.01	11.98	
Particulate COD	9.38	9.36	
Filtered COD	26.12	26.06	
Total COD	35.50	35.41	
Soluble PO4-P	0.01	0.01	
Total P	0.34	0.34	
Filtered TKN	2.62	2.62	
Particulate TKN	0.54	0.54	
Total Kjeldahl Nitrogen	3.17	3.16	
Filtered Carbonaceous BOD	0.67	0.66	
Total Carbonaceous BOD	3.22	3.21	
Nitrite + Nitrate	4.11	4.10	
Total N	7.28	7.26	
Total inorganic N	5.01	5.00	
Alkalinity	2.95	1.34	mmol/L and kmol/d
pH	6.65		
Volatile fatty acids	0.01	0.01	
ISS precipitate	1.70	1.70	
ISS cellular	0.37	0.37	
ISS Total	5.66	5.65	
Ammonia N	0.90	0.90	
Nitrate N	3.65	3.65	
Parameters	Value	Units	

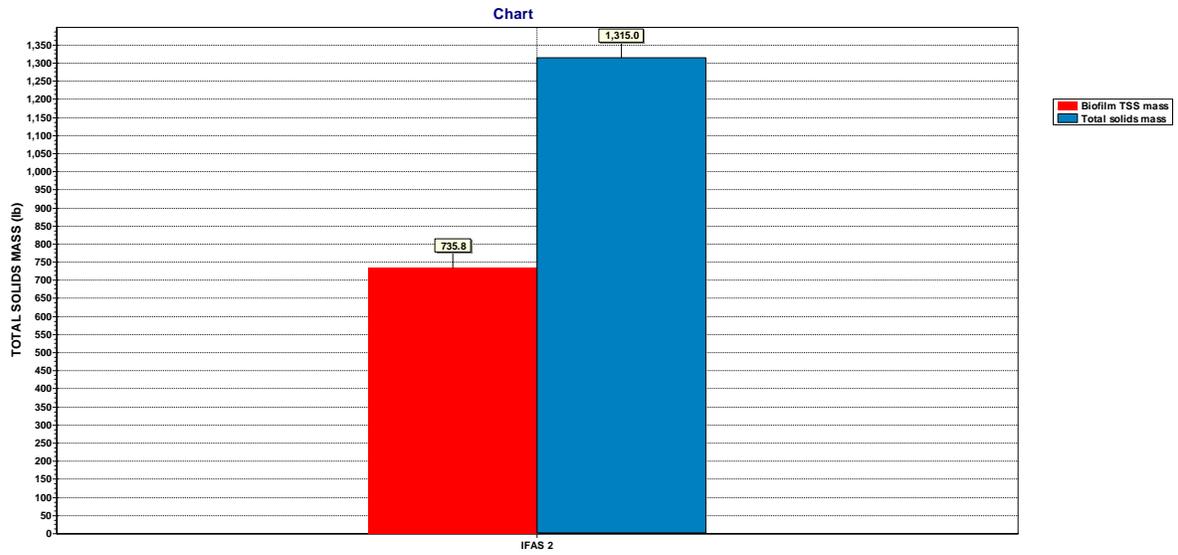
Album page - Total MLSS lbs



Album page - Total Aerobic MLSS lb



Album page - IFAS biofilm lbs



Album page - WAS Concentration and Mass

WAS			
Parameters	Conc. (mg/L)	Mass rate (lb/d)	Notes
Volatile suspended solids	6304.57	130.15	
Total suspended solids	11926.42	246.20	
Particulate COD	9326.18	192.53	
Filtered COD	26.12	0.54	
Total COD	9352.30	193.07	
Soluble PO4-P	0.01	0.00	
Total P	323.32	6.67	
Filtered TKN	2.62	0.05	
Particulate TKN	540.10	11.15	
Total Kjeldahl Nitrogen	542.73	11.20	
Filtered Carbonaceous BOD	0.67	0.01	
Total Carbonaceous BOD	2541.77	52.47	
Nitrite + Nitrate	4.11	0.08	
Total N	546.84	11.29	
Total inorganic N	5.01	0.10	
Alkalinity	3.59	0.03	mmol/L and kmol/d
pH	6.65		
Volatile fatty acids	0.01	0.00	
ISS precipitate	1680.83	34.70	
ISS cellular	367.70	7.59	
ISS Total	5621.85	116.06	
Ammonia N	0.90	0.02	
Nitrate N	3.65	0.08	

OHO

Name	Default	Value
Yield (aerobic) [-]	0.6660	0.6660
Yield (fermentation, low H2) [-]	0.1000	0.1000
Yield (fermentation, high H2) [-]	0.1000	0.1000
H2 yield (fermentation low H2) [-]	0.3500	0.3500
H2 yield (fermentation high H2) [-]	0	0
Propionate yield (fermentation, low H2) [-]	0	0
Propionate yield (fermentation, high H2) [-]	0.7000	0.7000
CO2 yield (fermentation, low H2) [-]	0.7000	0.7000
CO2 yield (fermentation, high H2) [-]	0	0
N in biomass [mgN/mgCOD]	0.0700	0.0700
P in biomass [mgP/mgCOD]	0.0220	0.0220
Endogenous fraction - aerobic [-]	0.0800	0.0800
Endogenous fraction - anoxic [-]	0.1030	0.1030
Endogenous fraction - anaerobic [-]	0.1840	0.1840
COD:VSS ratio [mgCOD/mgVSS]	1.4200	1.4200
Yield (anoxic) [-]	0.5400	0.5400
Yield propionic (aerobic) [-]	0.6400	0.6400
Yield propionic (anoxic) [-]	0.4600	0.4600
Yield acetic (aerobic) [-]	0.6000	0.6000
Yield acetic (anoxic) [-]	0.4300	0.4300
Yield methanol (aerobic) [-]	0.5000	0.5000
Adsorp. max. [-]	1.0000	1.0000
Max fraction to N2O at high FNA over nitrate [-]	0.0500	0.0500
Max fraction to N2O at high FNA over nitrite [-]	0.1000	0.1000

Draft for Board Review

REFERENCE DOCUMENT LIST

1. Village of Taos Ski Valley, Preliminary Engineering Report, McLaughlin Water - August 2011
2. TEC WWTP Improvements Drawings – March 2005

Draft for Board Review

Draft for Board Review



REGION 6
1445 ROSS AVENUE
DALLAS, TEXAS 75202-2733

NPDES Permit No NM0022101

**AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

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

Village of Taos Ski Valley
38 Ocean Blvd.
Taos Ski Valley, NM 87525

is authorized to discharge to receiving waters named Rio Hondo, of the Rio Grande Basin in the Waterbody Segment Code No. 20.6.4.129, from a facility located at 38 Ocean Blvd., Taos Ski Valley, in Taos County, New Mexico.

The discharge is located on that water at the following coordinates:

Outfall 001: Latitude 36° 35' 46" North and Longitude 105° 27' 38" West

in accordance with this cover page and the effluent limitations, monitoring requirements, and other conditions set forth in Part I, Part II, Part III, and Part IV hereof.

This permit supersedes and replaces NPDES Permit No. NM0022101 issued February 27, 2006.

This permit shall become effective on October 1, 2011

This permit and the authorization to discharge shall expire at midnight, September 30, 2016

Issued on August 4, 2011

Prepared by


Miguel I. Flores
Division Director
Water Quality Protection Division (6WQ)


Scott W. Stine, Ph.D.
Life Scientist
Permits & Technical Section (6WQ-PP)

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PART I – REQUIREMENTS FOR NPDES PERMITS

SECTION A. LIMITATIONS AND MONITORING REQUIREMENTS

1. Effluent Limits – 0.167 MGD Design Flow

Beginning the effective date of the permit and lasting through the expiration date of the permit (unless otherwise noted), the permittee is authorized to discharge treated municipal wastewater to the Rio Hondo, in Segment Number 20.6.4.129, from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		Standard Units							
POLLUTANT	STORET CODE	MINIMUM			MAXIMUM			MEASUREMENT FREQUENCY	SAMPLE TYPE
pH	00400	6.6			8.8			Three/Week	Grab

EFFLUENT CHARACTERISTICS		DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS	
		lbs/day, unless noted			mg/L, unless noted (*1)				
POLLUTANT	STORET CODE	30-DAY AVG	DAILY MAX	7-DAY AVG	30-DAY AVG	DAILY MAX	7-DAY AVG	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	50050	Report MGD	Report MGD	Report MGD	N/A	N/A	N/A	Daily	Totalizing Meter
Biochemical Oxygen Demand, 5-day	00310								
November 1- April 30		23.8	N/A	35.7	30	N/A	45	Twice/Month (*2) Once/Month	Grab Grab
May 1 - October 31		23.8	N/A	35.7	30	N/A	45		
Total Suspended Solids	00530								
November 1- April 30		23.8	N/A	35.7	30	N/A	45	Twice/Month (*2) Once/Month	Grab Grab
May 1 - October 31		23.8	N/A	35.7	30	N/A	45		
<i>E. coli</i> Bacteria	51040	N/A	N/A	N/A	126 (*3)	235 (*3)	N/A	Twice/Month (*2)	Grab
Fecal Coliform Bacteria	74055	N/A	N/A	N/A	200 (*3)	400 (*3)	N/A	Twice/Month (*2)	Grab
Total Residual Chlorine	50060	N/A	N/A	N/A	N/A	19 µg/l	N/A	Daily	Instantaneous Grab (*4)

Ammonia-Nitrogen November 1- April 30 May 1 - October 31	00610	5.34 5.34	N/A N/A	5.34 5.34	3.2 3.2	N/A N/A	3.2 3.2	Twice/Month (*2) Once/Month	6-Hour Composite 6-Hour Composite
Total Nitrogen (*5) November 1- April 30 May 1 - June 30 July 1 - August 31 September 1 - October 31	00600	13.65 46.55 27.7 21.1	N/A N/A N/A N/A	20.5 68.8 41.6 31.7	8.2 27.9 16.6 12.7	N/A N/A N/A N/A	12.3 41.2 24.9 19	Once/Week Once/Month Once/Month Once/Month	6-Hour Composite 6-Hour Composite 6-Hour Composite 6-Hour Composite
Total Phosphorus November 1- April 30 May 1 - June 30 July 1 - August 31 September 1 - October 31	00665	0.8 1.6 1.2 0.8	N/A N/A N/A N/A	1.2 2.4 1.8 1.2	0.5 1.0 1.5 2.5	N/A N/A N/A N/A	0.75 1.5 2.25 3.75	Twice/Month (*2) Once/Month Once/Month Once/Month	6-Hour Composite 6-Hour Composite 6-Hour Composite 6-Hour Composite

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING		MONITORING REQUIREMENTS	
	30-DAY AVG MINIMUM	48-HR MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
WHOLE EFFLUENT TOXICITY TESTING (*6) (48-Hour Static Renewal)	Report	Report	1/12 months (*7)	24-Hr Composite
<i>Daphnia pulex</i>	Report	Report	1/12 months (*7)	24-Hr Composite
<i>Pimephales promelas</i>	Report	Report	1/12 months (*7)	24-Hr Composite

Footnotes:

- *1 See Part II, Section A, Minimum Quantification Level (MQL) of permit.
- *2 Sampling at least ten days apart.
- *3 Colony forming units (cfu) per 100 ml.
- *4 The effluent limitation for TRC is the instantaneous maximum grab sample taken during periods of chlorine use and can not be averaged for reporting purposes. Instantaneous maximum is defined in 40 CFR Part 136 as being measured within 15 minutes of sampling.
- *5 Total Nitrogen is defined as the sum of Total Kjeldhal Nitrogen (as N) and Nitrate-Nitrate (as N). See EPA Methods 351 and 353.
- *6 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.
- *7 The discharge shall be tested between November 1 and April 30.

FLOATING SOLIDS, VISIBLE FOAM AND/OR OILS

There shall be no discharge of floating solids or visible foam in other than trace amounts. There shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the final treatment unit prior to the receiving stream.

B. SCHEDULE OF COMPLIANCE

None.

C. MONITORING AND REPORTING (MAJOR DISCHARGERS)

Monitoring information shall be on Discharge Monitoring Report Form(s) EPA 3320-1 as specified in Part III.D.4 of this permit and shall be submitted monthly.

1. The permittee shall effectively monitor the operations and efficiency of all treatment and control facilities and the quantity and quality of the treated discharge.
2. Monitoring results must be reported either using the electronic or paper Discharge Monitoring Report (DMR) approved formats to EPA. If using DMR forms, the report shall be also sent to NMED. See Part III, D.4 of the permit.
 - a. Reporting periods shall end on the last day of the month.
 - b. The permittee is required to submit regular monthly reports as described above postmarked no later than the 15th day of the month following each reporting period.
 - c. The annual sludge report required in Part IV of the permit is due on February 19 of each year and covers the previous calendar year from January 1 through December 31.
3. If any 30 day average, monthly average or daily maximum value exceeds the effluent limitations specified in Part I.A, the permittee shall report the excursion in accordance with the requirements of Part III.D.

4. Any 30-day average, monthly average, or daily maximum value reported in the required Discharge Monitoring Report which is in excess of the effluent limitation specified in Part I.A shall constitute evidence of violation of such effluent limitation and of this permit.
5. Other measurements of oxygen demand (e.g., TOC and COD) may be substituted for five-day Biochemical Oxygen Demand (BOD₅) or for five-day Carbonaceous Biochemical Oxygen Demand (CBOD₅), as applicable, where the permittee can demonstrate long-term correlation of the method with BOD₅ or CBOD₅ values, as applicable. Details of the correlation procedures used must be submitted and prior approval granted by the permitting authority for this procedure to be acceptable. Data reported must also include evidence to show that the proper correlation continues to exist after approval.
6. The permittee shall report all overflows with the Discharge Monitoring Report submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: the date, time, duration, location, estimated volume, and cause of the overflow; observed environmental impacts from the overflow; actions taken to address the overflow; and ultimate discharge location if not contained (e.g., storm sewer system, ditch, tributary). Any noncompliance which may endanger health or the environment shall also be orally reported to the Pueblo of Taos at (575) 751-4601 and the New Mexico Environment Department at (505) 827-0187, as soon as possible, but within 12 hours from the time the permittee becomes aware of the circumstance. A written report of overflows which endanger health or the environment shall be provided to EPA, Pueblo of Taos, and New Mexico Environment Department within 5 days of the time the permittee becomes aware of the circumstance.
7. The permittee shall submit a copy of an annual summary of the data that results from whole effluent toxicity testing to:

Field Supervisor
U.S. Fish and Wildlife Service
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, NM 87113

And

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

And

New Mexico:
Program Manager
Surface Water Quality Bureau
New Mexico Environment Department
P.O. Box 5469
1190 Saint Francis Drive
Santa Fe, NM 87502-5469

And

Pueblo of Taos:
Environmental Office Program Manager
Pueblo of Taos
P.O. Box 1846
Taos, NM 87571

D. OVERFLOW REPORTING

The permittee shall report all overflows with the DMR submittal. These reports shall be summarized and reported in tabular format. The summaries shall include: date, time, duration, location, estimated volume, and cause of the overflow. They shall also include observed environmental impacts from the overflow; actions taken to address the overflow; and, the ultimate discharge location if not contained (e.g., storm sewer system, ditch, tributary).

Overflows that endanger health or the environment shall be orally reported to EPA at (214) 665-6595, Pueblo of Taos at (575) 751-4601 and NMED Surface Water Quality Bureau at (505) 827-0187, within 12 hours from the time the permittee becomes aware of the circumstance. A written report of overflows that endanger health or the environment shall be provided to EPA, Pueblo of Taos, and NMED Surface Water Quality Bureau within 5 days of the time the permittee becomes aware of the circumstance.

E. POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute a program within 12 months of the effective date of the permit (or continue an existing one) directed towards optimizing the efficiency and extending the useful life of the facility. The permittee shall consider the following items in the program:

- a. The influent loadings, flow and design capacity;
- b. The effluent quality and plant performance;
- c. The age and expected life of the wastewater treatment facility's equipment;
- d. Bypasses and overflows of the tributary sewerage system and treatment works;
- e. New developments at the facility;
- f. Operator certification and training plans and status;
- g. The financial status of the facility;
- h. Preventative maintenance programs and equipment conditions and;
- i. An overall evaluation of conditions at the facility.
permit is re-issued.

PART II - OTHER CONDITIONS

A. MINIMUM QUANTIFICATION LEVEL (MQL)

See list of MQL's at Appendix A of Part II below. For pollutants listed on Appendix A of Part II below with MQL's, analyses must be performed to the listed MQL. If any individual analytical test result is less than the MQL listed, a value of zero (0) may be used for that pollutant result for the Discharge Monitoring Report (DMR) calculations and reporting requirements.

In addition, any additional pollutant sampling for purposes of this permit, including renewal applications or any other reporting, shall be tested to the MQL shown on the attached Appendix A of Part II. Results of analyses that are less than the listed MQL may be reported as "non detect" (ND).

B. 24-HOUR ORAL REPORTING: DAILY MAXIMUM LIMITATION VIOLATIONS

Under the provisions of Part III.D.7.b.(3) of this permit, violations of daily maximum limitations for the following pollutants shall be reported orally to EPA Region 6, Compliance and Assurance Division, Water Enforcement Branch (6EN-W), Dallas, Texas, and concurrently to NMED and Pueblo of Taos within 24 hours from the time the permittee becomes aware of the violation followed by a written report in five days.

E. coli Bacteria
Fecal Coliform Bacteria
TRC

C. PERMIT MODIFICATION AND REOPENER

In accordance with 40 CFR Part 122.44(d), the permit may be reopened and modified during the life of the permit if relevant portions of the Pueblo of Taos and/or New Mexico's Water Quality Standards for Interstate and Intrastate Streams are revised, or new Pueblo of Taos and/or State of New Mexico water quality standards are established and/or remanded.

In accordance with 40 CFR Part 122.62(s)(2), the permit may be reopened and modified if new information is received that was not available at the time of permit issuance that would have justified the application of different permit conditions at the time of permit issuance. Permit modifications shall reflect the results of any of these actions and shall follow regulations listed at 40 CFR Part 124.5.

D. CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS

- a. The following pollutants may not be introduced into the treatment facility:
- (1) Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;
 - (2) Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the works are specifically designed to accommodate such discharges;
 - (3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW, resulting in Interference;
 - (4) Any pollutant, including oxygen demanding pollutants (e.g., BOD), released in a discharge at a flow rate and/or pollutant concentration which will cause Interference with the POTW;
 - (5) Heat in amounts which will inhibit biological activity in the POTW resulting in Interference but in no case heat in such quantities that the temperature at the POTW treatment plant exceeds 40 degrees Centigrade (104 degrees Fahrenheit) unless the Approval Authority, upon request of the POTW, approves alternate temperature limits;
 - (6) Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 - (7) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute worker health and safety problems; and
 - (8) Any trucked or hauled pollutants, except at discharge points designated by the POTW.
- b. The permittee shall require any indirect discharger to the treatment works to comply with the reporting requirements of Sections 204(b), 307, and 308 of the Act, including any requirements established under 40 CFR Part 403.
- c. The permittee shall provide adequate notice of the following:

- (1) Any new introduction of pollutants into the treatment works from an indirect discharger which would be subject to Sections 301 and 306 of the Act if it were directly discharging those pollutants; and
- (2) Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Any notice shall include information on (i) the quality and quantity of effluent to be introduced into the treatment works, and (ii) any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

E. WHOLE EFFLUENT TOXICITY TESTING (48-HOUR ACUTE NOEC FRESHWATER)

It is unlawful and a violation of this permit for a permittee or his designated agent, to manipulate test samples in any manner, to delay sample shipment, or to terminate or to cause to terminate a toxicity test. Once initiated, all toxicity tests must be completed unless specific authority has been granted by EPA Region 6 or the State NPDES permitting authority.

1. SCOPE AND METHODOLOGY

- a. The permittee shall test the effluent for toxicity in accordance with the provisions in this section.

APPLICABLE TO FINAL OUTFALL(S): 001

REPORTED AS FINAL OUTFALL: 001

CRITICAL DILUTION (%): 44%

EFFLUENT DILUTION SERIES (%): 19%, 25%, 33%, 44%, 59%.

COMPOSITE SAMPLE TYPE: Defined at PART I

TEST SPECIES/METHODS: 40 CFR Part 136

Daphnia pulex acute static renewal 48 hour definitive toxicity test using EPA 821 R 02 012, or the latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

Pimephales promelas (Fathead minnow) acute static renewal 48-hour definitive toxicity test using EPA 821 R 02 012, or the latest update thereof. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

- b. The NOEC (No Observed Lethal Effect Concentration) is defined as the greatest effluent dilution at and below which lethality that is statistically different from the control (0% effluent) at the 95% confidence level does not occur. Acute test failure is defined as a demonstration of a statistically significant lethal effect at test completion to a test species at or below the critical dilution.
- c. This permit may be reopened to require whole effluent toxicity limits, chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity.

- d. Test failure is defined as a demonstration of statistically significant lethal effects to a test species at or below the effluent critical dilution.
- e. This permit does not establish requirements to automatically increase the WET testing frequency after a test failure, or to begin a toxicity reduction evaluation (TRE) in the event of multiple test failures. However, upon failure of any WET test, the permittee must report the test results to NMED, Surface Water Quality Bureau, in writing, within 5 business days of notification the test failure. NMED will review the test results and determine the appropriate action necessary, if any.

2. REQUIRED TOXICITY TESTING CONDITIONS

a. Test Acceptance

The permittee shall repeat a test, including the control and all effluent dilutions, if the procedures and quality assurance requirements defined in the test methods or in this permit are not satisfied, including the following additional criteria:

- i. Each toxicity test control (0% effluent) must have a survival equal to or greater than 90%.
- ii. The percent coefficient of variation between replicates shall be 40% or less in the control (0% effluent) for: *Daphnia pulex* survival test; and Fathead minnow survival test.
- iii. The percent coefficient of variation between replicates shall be 40% or less in the critical dilution, unless significant lethal effects are exhibited for: *Daphnia pulex* survival test; and Fathead minnow survival test.

Test failure may not be construed or reported as invalid due to a coefficient of variation value of greater than 40%. A repeat test shall be conducted within the required reporting period of any test determined to be invalid.

b. Statistical Interpretation

For the *Daphnia pulex* survival test and the Fathead minnow survival test, the statistical analyses used to determine if there is a statistically significant difference between the control and the critical dilution shall be in accordance with the methods for determining the No Observed Effect Concentration (NOEC) as described in EPA 821 R 02 012 or the most recent update thereof.

If the conditions of Test Acceptability are met in Item 2.a above and the percent survival of the test organism is equal to or greater than 90% in the critical dilution concentration and all lower dilution concentrations, the test shall be considered to be a passing test, and the permittee shall report an NOEC of not

less than the critical dilution for the reporting requirements found in Item 3 below.

c. Dilution Water

i. Dilution water used in the toxicity tests will be receiving water collected as close to the point of discharge as possible but unaffected by the discharge. The permittee shall substitute synthetic dilution water of similar pH, hardness, and alkalinity to the closest downstream perennial water for;

(A) toxicity tests conducted on effluent discharges to receiving water classified as intermittent streams; and

(B) toxicity tests conducted on effluent discharges where no receiving water is available due to zero flow conditions.

ii. If the receiving water is unsatisfactory as a result of instream toxicity (fails to fulfill the test acceptance criteria of Item 3.a), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:

(A) a synthetic dilution water control which fulfills the test acceptance requirements of Item 3.a was run concurrently with the receiving water control;

(B) the test indicating receiving water toxicity has been carried out to completion (i.e., 48 hours);

(C) the permittee includes all test results indicating receiving water toxicity with the full report and information required by Item 4 below; and

(D) the synthetic dilution water shall have a pH, hardness, and alkalinity similar to that of the receiving water or closest downstream perennial water not adversely affected by the discharge, provided the magnitude of these parameters will not cause toxicity in the synthetic dilution water.

d. Samples and Composites

i. The permittee shall collect two flow weighted composite samples from the outfall(s) listed at Item 1.a above.

- ii. The permittee shall collect a second composite sample for use during the 24 hour renewal of each dilution concentration for both tests. The permittee must collect the composite samples so that the maximum holding time for any effluent sample shall not exceed 36 hours. The permittee must have initiated the toxicity test within 36 hours after the collection of the last portion of the first composite sample. Samples shall be chilled to 6 degrees Centigrade during collection, shipping, and/or storage.
- iii. The permittee must collect the composite samples such that the effluent samples are representative of any periodic episode of chlorination, biocide usage or other potentially toxic substance discharged on an intermittent basis.
- iv. If the flow from the outfall(s) being tested ceases during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions and the sample holding time are waived during that sampling period. However, the permittee must collect an effluent composite sample volume during the period of discharge that is sufficient to complete the required toxicity tests with daily renewal of effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days. The effluent composite sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report required in Item 3 of this section.

3. REPORTING

- a. The permittee shall prepare a full report of the results of all tests conducted pursuant to this Part in accordance with the Report Preparation Section of EPA 821 R 02 012, for every valid or invalid toxicity test initiated, whether carried to completion or not. The permittee shall retain each full report pursuant to the provisions of PART III.C.3 of this permit. The permittee shall submit full reports upon the specific request of the Agency. For any test which fails, is considered invalid or which is terminated early for any reason, the full report must be submitted for agency review.
- b. A valid test for each species must be reported during each reporting period specified in PART I of this permit unless the permittee is performing a TRE which may increase the frequency of testing and reporting. Only ONE set of biomonitoring data for each species is to be recorded for each reporting period. The data submitted should reflect the LOWEST Survival results for each species during the reporting period. All invalid tests, repeat tests (for invalid tests), and retests (for tests previously failed) performed during the reporting period must be attached for EPA review.

- c. The permittee shall report the following results of each valid toxicity test. Submit retest information, if required, clearly marked as such. Only results of valid tests are to be reported.
- i. Pimephales promelas (Fathead minnow)
- (A) If the No Observed Effect Concentration (NOEC) for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM6C.
- (B) Report the NOEC value for survival, Parameter No. TOM6C.
- (C) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM6C.
- ii. Daphnia pulex
- (A) If the NOEC for survival is less than the critical dilution, enter a "1"; otherwise, enter a "0" for Parameter No. TEM3D.
- (B) Report the NOEC value for survival, Parameter No. TOM3D.
- (C) Report the highest (critical dilution or control) Coefficient of Variation, Parameter No. TQM3D.
- d. If retests are required by NMED, enter the following codes:
- i. For retest number 1, Parameter 22415, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
- ii. For retest number 2, Parameter 22416, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."

PART III - STANDARD CONDITIONS FOR NPDES PERMITS**A. GENERAL CONDITIONS****1. INTRODUCTION**

In accordance with the provisions of 40 CFR Part 122.41, et. seq., this permit incorporates by reference ALL conditions and requirements applicable to NPDES Permits set forth in the Clean Water Act, as amended, (hereinafter known as the "Act") as well as ALL applicable regulations.

2. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. TOXIC POLLUTANTS

a. Notwithstanding Part III.A.5, if any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

b. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

4. DUTY TO REAPPLY

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date. Continuation of expiring permits shall be governed by regulations promulgated at 40 CFR Part 122.6 and any subsequent amendments.

5. PERMIT FLEXIBILITY

This permit may be modified, revoked and reissued, or terminated for cause in accordance with 40 CFR 122.62-64. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

7. DUTY TO PROVIDE INFORMATION

The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

8. CRIMINAL AND CIVIL LIABILITY

Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of the permit, the Act, or applicable regulations, which avoids or effectively defeats the regulatory purpose of the Permit may subject the Permittee to criminal enforcement pursuant to 18 U.S.C. Section 1001.

9. OIL AND HAZARDOUS SUBSTANCE LIABILITY

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.

10. STATE LAWS

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Act.

11. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

B. PROPER OPERATION AND MAINTENANCE**1. NEED TO HALT OR REDUCE NOT A DEFENSE**

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. The permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failure either by means of alternate power sources, standby generators or retention of inadequately treated effluent.

2. DUTY TO MITIGATE

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

3. PROPER OPERATION AND MAINTENANCE

- a. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by 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. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.
- b. The permittee shall provide an adequate operating staff which is duly qualified to carry out operation, maintenance and testing functions required to insure compliance with the conditions of this permit.

4. BYPASS OF TREATMENT FACILITIES**a. BYPASS NOT EXCEEDING LIMITATIONS**

The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Parts III.B.4.b. and 4.c.

b. NOTICE**(1) ANTICIPATED BYPASS**

If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(2) UNANTICIPATED BYPASS

The permittee shall, within 24 hours, submit notice of an unanticipated bypass as required in Part III.D.7.

c. PROHIBITION OF BYPASS

- (1) Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
 - (c) The permittee submitted notices as required by Part III.B.4.b.
- (2) The Director may allow an anticipated bypass after considering its adverse effects, if the Director determines that it will meet the three conditions listed at Part III.B.4.c(1).

5. UPSET CONDITIONS

a. EFFECT OF AN UPSET

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Part III.B.5.b. are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

b. CONDITIONS NECESSARY FOR A DEMONSTRATION OF UPSET

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

- (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
- (2) The permitted facility was at the time being properly operated;
- (3) The permittee submitted notice of the upset as required by Part III.D.7; and,
- (4) The permittee complied with any remedial measures required by Part III.B.2.

c. BURDEN OF PROOF

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

6. REMOVED SUBSTANCES

Unless otherwise authorized, solids, sewage sludges, filter backwash, or other pollutants removed in the course of treatment or wastewater control shall be disposed of in a manner such as to prevent any pollutant from such materials from entering navigable waters.

7. PERCENT REMOVAL (PUBLICLY OWNED TREATMENT WORKS)

For publicly owned treatment works, the 30-day average (or Monthly Average) percent removal for Biochemical Oxygen Demand and Total Suspended Solids shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR 133.103.

C. MONITORING AND RECORDS

1. INSPECTION AND ENTRY

The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by the law to:

- a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and
- d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

2. REPRESENTATIVE SAMPLING

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

3. RETENTION OF RECORDS

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings 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.

4. RECORD CONTENTS

Records of monitoring information shall include:

- a. The date, exact place, and time of sampling or measurements;

- 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; and
- f. The results of such analyses.

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 this permit or approved by the Regional Administrator.
- b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to insure accuracy of measurements and shall maintain appropriate records of such activities.
- c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

6. FLOW MEASUREMENTS

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

D. REPORTING REQUIREMENTS

1. PLANNED CHANGES

a. INDUSTRIAL PERMITS

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

- (1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b); or,
- (2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements listed at Part III.D.10.a.

b. MUNICIPAL PERMITS

Any change in the facility discharge (including the introduction of any new source or significant discharge or significant changes in the quantity or quality of existing discharges of pollutants) must be reported to the permitting authority. In no case are any new connections, increased flows, or significant changes in influent quality permitted that will cause violation of the effluent limitations specified herein.

2. ANTICIPATED NONCOMPLIANCE

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. TRANSFERS

This permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Act.

4. DISCHARGE MONITORING REPORTS AND OTHER REPORTS

Monitoring results must be reported to EPA on either the electronic or paper Discharge Monitoring Report (DMR) approved formats. Monitoring results can be submitted electronically in lieu of the paper DMR Form. To submit electronically, access the NetDMR website at www.epa.gov/netdmr and contact the R6NetDMR.epa.gov in-box for further instructions. Until you

are approved for Net DMR, you must report on the Discharge Monitoring Report (DMR) Form EPA No. 3320-1 in accordance with the "General Instructions" provided on the form. No additional copies are needed if reporting electronically, however when submitting paper form EPA No. 3320-1, the permittee shall submit the original DMR signed and certified as required by Part III.D.11 and all other reports required by Part III.D. to the EPA at the address below. Duplicate copies of paper DMR's and all other reports shall be submitted to the appropriate State agency (ies) at the following address (es):

EPA:

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 5469
1190 Saint Francis Drive
Santa Fe, NM 87502-5469

5. ADDITIONAL MONITORING BY THE PERMITTEE
If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.
6. AVERAGING OF MEASUREMENTS
Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.
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 noncompliance 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.
 - b. The following shall be included as information which must be reported within 24 hours:
 - (1) Any unanticipated bypass which exceeds any effluent limitation in the permit;
 - (2) Any upset which exceeds any effluent limitation in the permit; and,
 - (3) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in Part II (industrial permits only) of the permit to be reported within 24 hours.
 - c. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.
8. OTHER NONCOMPLIANCE
The permittee shall report all instances of noncompliance not reported under Parts III.D.4 and D.7 and Part I.B (for industrial permits only) at the time monitoring reports are submitted. The reports shall contain the information listed at Part III.D.7.
9. OTHER INFORMATION
Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall promptly submit such facts or information.
10. CHANGES IN DISCHARGES OF TOXIC SUBSTANCES
All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Director as soon as it knows or has reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2, 4-dinitro-phenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Director.
- b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - (1) Five hundred micrograms per liter (500 µg/L);
 - (2) One milligram per liter (1 mg/L) for antimony;
 - (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - (4) The level established by the Director.

11. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Director shall be signed and certified.

- a. ALL PERMIT APPLICATIONS shall be signed as follows:

- (1) FOR A CORPORATION - by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(a) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or,

(b) The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- (2) FOR A PARTNERSHIP OR SOLE PROPRIETORSHIP - by a general partner or the proprietor, respectively.

- (3) FOR A MUNICIPALITY, STATE, FEDERAL, OR OTHER PUBLIC AGENCY - by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(a) The chief executive officer of the agency, or

(b) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency.

- b. ALL REPORTS required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described above;
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental

matters for the company. A duly authorized representative may thus be either a named individual or an individual occupying a named position; and,

(3) The written authorization is submitted to the Director.

c. CERTIFICATION

Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

12. AVAILABILITY OF REPORTS

Except for applications, effluent data permits, and other data specified in 40 CFR 122.7, any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

E. PENALTIES FOR VIOLATIONS OF PERMIT CONDITIONS

1. CRIMINAL

a. NEGLIGENT VIOLATIONS

The Act provides that any person who negligently violates permit conditions implementing Section 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both.

b. KNOWING VIOLATIONS

The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

c. KNOWING ENDANGERMENT

The Act provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than \$250,000, or by imprisonment for not more than 15 years, or both.

d. FALSE STATEMENTS

The Act provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the Clean Water Act)

2. CIVIL PENALTIES

The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$27,500 per day for each violation.

3. ADMINISTRATIVE PENALTIES

The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

a. CLASS I PENALTY

Not to exceed \$11,000 per violation nor shall the maximum amount exceed \$27,500.

b. CLASS II PENALTY

Not to exceed \$11,000 per day for each day during which the violation continues nor shall the maximum amount exceed \$137,500.

F. DEFINITIONS

All definitions contained in Section 502 of the Act shall apply to this permit and are incorporated herein by reference. Unless otherwise specified in this permit, additional definitions of words or phrases used in this permit are as follows:

1. ACT means the Clean Water Act (33 U.S.C. 1251 et. seq.), as amended.
2. ADMINISTRATOR means the Administrator of the U.S. Environmental Protection Agency.
3. APPLICABLE EFFLUENT STANDARDS AND LIMITATIONS means all state and Federal effluent standards and limitations to which a discharge is subject under the Act, including, but not limited to, effluent limitations, standards or performance, toxic effluent standards and prohibitions, and pretreatment standards.
4. APPLICABLE WATER QUALITY STANDARDS means all water quality standards to which a discharge is subject under the Act.
5. BYPASS means the intentional diversion of waste streams from any portion of a treatment facility.
6. DAILY DISCHARGE means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the sampling day. "Daily discharge" determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the "daily discharge" determination of concentration shall be arithmetic average (weighted by flow value) of all samples collected during that sampling day.
7. DAILY MAXIMUM discharge limitation means the highest allowable "daily discharge" during the calendar month.
8. DIRECTOR means the U.S. Environmental Protection Agency Regional Administrator or an authorized representative.
9. ENVIRONMENTAL PROTECTION AGENCY means the U.S. Environmental Protection Agency.
10. GRAB SAMPLE means an individual sample collected in less than 15 minutes.
11. INDUSTRIAL USER means a non-domestic discharger, as identified in 40 CFR 403, introducing pollutants to a publicly owned treatment works.
12. MONTHLY AVERAGE (also known as DAILY AVERAGE) discharge limitations means the highest allowable average of "daily discharge(s)" over a calendar month, calculated as the sum of all "daily discharge(s)" measured during a calendar month divided by the number of "daily discharge(s)" measured during that month. When the permit establishes daily average concentration effluent limitations or conditions, the daily average concentration means the arithmetic average (weighted by flow) of all "daily discharge(s)" of concentration determined during the calendar month where C = daily concentration, F = daily flow, and n = number of daily samples; daily average discharge =

$$\frac{C_1F_1 + C_2F_2 + \dots + C_nF_n}{F_1 + F_2 + \dots + F_n}$$
13. NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the Act.
14. SEVERE PROPERTY DAMAGE means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
15. SEWAGE SLUDGE means the solids, residues, and precipitates separated from or created in sewage by the unit processes of a publicly owned treatment works. Sewage as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff that are discharged to or otherwise enter a publicly owned treatment works.
16. TREATMENT WORKS means any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage and industrial wastes of a liquid nature to implement Section 201 of the Act, or necessary to recycle or reuse water at

the most economical cost over the estimated life of the works, including intercepting sewers, sewage collection systems, pumping, power and other equipment, and their appurtenances, extension, improvement, remodeling, additions, and alterations thereof.

17. UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
18. FOR FECAL COLIFORM BACTERIA, a sample consists of one effluent grab portion collected during a 24-hour period at peak loads.
19. The term "MGD" shall mean million gallons per day.
20. The term "mg/L" shall mean milligrams per liter or parts per million (ppm).
21. The term "µg/L" shall mean micrograms per liter or parts per billion (ppb).
22. MUNICIPAL TERMS
 - a. 7-DAY AVERAGE or WEEKLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.
 - b. 30-DAY AVERAGE or MONTHLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.
 - c. 24-HOUR COMPOSITE SAMPLE consists of a minimum of 12 effluent portions collected at equal time intervals over the 24-hour period and combined proportional to flow or a sample collected at frequent intervals proportional to flow over the 24-hour period.
 - d. 12-HOUR COMPOSITE SAMPLE consists of 12 effluent portions collected no closer together than one hour and composited according to flow. The daily sampling intervals shall include the highest flow periods.
 - e. 6-HOUR COMPOSITE SAMPLE consists of six effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.
 - f. 3-HOUR COMPOSITE SAMPLE consists of three effluent portions collected no closer together than one hour (with the first portion collected no earlier than 10:00 a.m.) and composited according to flow.

MAJOR - SEWAGE SLUDGE REQUIREMENTS

INSTRUCTIONS TO PERMITTEES

Select only those Elements and Sections which apply to your sludge reuse or disposal practice.

If your facility utilizes more than one type of disposal or reuse method (for example, Element I and Element II apply) or the quality of your sludge varies (for example, Section II and Section III of Element I apply) use a separate Discharge Monitoring Report (DMR) for each Section that is applicable.

The sludge DMRs shall be due by February 19th of each year and shall cover the previous January through December time period. (The sludge DMRs for permits in Texas shall be due by September 1 of each year, with the reporting period of August 1 to July 31)

The sludge conditions do not apply to wastewater treatment lagoons where sludge is not wasted for final reuse/disposal. If the sludge is not removed, the permittee shall indicate on the DMR "No Discharge".

ELEMENT 1 - LAND APPLICATION

- SECTION I: Page 2 - Requirements Applying to All Sewage Sludge Land Application
- SECTION II: Page 6 - Requirements Specific to Bulk Sewage Sludge for Application to the Land Meeting Class A or B Pathogen Reduction and the Cumulative Loading Rates in Table 2, or Class B Pathogen Reduction and the Pollutant Concentrations in Table 3
- SECTION III: Page 10 - Requirements Specific to Bulk Sewage Sludge Meeting Pollutant Concentrations in Table 3 and Class A Pathogen Reduction Requirements
- SECTION IV: Page 11 - Requirements Specific to Sludge Sold or Given Away in a Bag or Other Container for Application to the Land that does not Meet the Pollutant Concentrations in Table 3

ELEMENT 2 - SURFACE DISPOSAL

- SECTION I: Page 13 - Requirements Applying to All Sewage Sludge Surface Disposal
- SECTION II: Page 18 - Requirements Specific to Surface Disposal Sites Without a Liner and Leachate Collection System
- SECTION III: Page 20 - Requirements Specific to Surface Disposal Sites With a Liner and Leachate Collection System

ELEMENT 3 - MUNICIPAL SOLID WASTE LANDFILL DISPOSAL

- SECTION I: Page 21 - Requirements Applying to All Municipal Solid Waste Landfill Disposal Activities

ELEMENT 1 - LAND APPLICATION

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE LAND APPLICATION

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present in the sludge.
2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act. If new limits for Molybdenum are promulgated prior to permit expiration, then those limits shall become directly enforceable.
3. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge to assure compliance with these regulations.
4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).

B. Testing Requirements

1. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.
2. Sewage sludge shall not be applied to the land if the concentration of the pollutants exceed the pollutant concentration criteria in Table 1. The frequency of testing for pollutants in Table 1 is found in Element 1, Section I.C.

TABLE 1

<u>Pollutant</u>	<u>Ceiling Concentration (milligrams per kilogram)*</u>
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75

Nickel	420
PCBs	49
Selenium	100
Zinc	7500

* Dry weight basis

3. Pathogen Control

All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by either the Class A or Class B pathogen requirements. Sewage sludge that is applied to a lawn or home garden shall be treated by the Class A pathogen requirements. Sewage sludge that is sold or given away in a bag shall be treated by Class A pathogen requirements.

- a. Six alternatives are available to demonstrate compliance with Class A sewage sludge. All 6 options require either the density of fecal coliform in the sewage sludge be less than 1000 Most Probable Number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land. Below are the additional requirements necessary to meet the definition of a Class A sludge. Alternatives 5 and 6 are not authorized to demonstrate compliance with Class A sewage sludge in Texas permits.

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. See 503.32(a)(3)(ii) for specific information. This alternative is not applicable to composting.

Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours. The pH shall be defined as the logarithm of the reciprocal of the hydrogen ion concentration measured at 25°C or measured at another temperature and then converted to an equivalent value at 25°C.

The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(ii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(iii) for specific information.

Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sludge is prepared for sale or give away in a bag or other container for application to the land.

The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land.

Alternative 5 - Sewage sludge shall be treated by one of the Processes to Further Reduce Pathogens (PFRP) described in 503 Appendix B. PFRPs include composting, heat drying, heat treatment, and thermophilic aerobic digestion.

Alternative 6 - Sewage sludge shall be treated by a process that is equivalent to a Process to Further Reduce Pathogens, if individually approved by the Pathogen Equivalency Committee representing the EPA.

- b. Three alternatives are available to demonstrate compliance with Class B sewage sludge. Alternatives 2 and 3 are not authorized to demonstrate compliance with Class B sewage sludge in Texas permits.

- Alternative 1 - (i) Seven representative samples of the sewage sludge that is used shall be collected for one monitoring episode at the time the sewage sludge is used or disposed.
- (ii) The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge shall be treated in one of the Processes to significantly Reduce Pathogens described in 503 Appendix B.

Alternative 3 - Sewage sludge shall be treated in a process that is equivalent to a PSRP, if individually approved by the Pathogen Equivalency Committee representing the EPA.

In addition, the following site restrictions must be met if Class B sludge is land applied:

- i. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.
- ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge remains on the land surface for 4 months or longer prior to incorporation into the soil.
- iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 months prior to incorporation into the soil.
- iv. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of sewage sludge.
- v. Animals shall not be grazed on the land for 30 days after application of sewage sludge.
- vi. Turf grown on land where sewage sludge is applied shall not be harvested for 1 year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.
- vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of sewage sludge.
- viii. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

4. Vector Attraction Reduction Requirements

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following alternatives 1 through 10 for Vector Attraction Reduction. If bulk sewage sludge is applied to a home garden, or bagged sewage sludge is applied to the land, only alternative 1 through alternative 8 shall

be used.

- Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.
- Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. Volatile solids must be reduced by less than 17 percent to demonstrate compliance.
- Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. Volatile solids must be reduced by less than 15 percent to demonstrate compliance.
- Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.
- Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.
- Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container.
- Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.
- Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.
- Alternative 9 -
- (i) Sewage sludge shall be injected below the surface of the land.
 - (ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.
 - (iii) When sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.
- Alternative 10 -
- (i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.
 - (ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within

eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test - Once/Permit Life, performed within one year from the effective date of the permit

PCBs - Once/Year

All other pollutants shall be monitored at the frequency shown below:

Amount of sewage sludge* (metric tons per 365 day period)	Frequency
0 ≤ Sludge < 290	Once/Year
290 ≤ Sludge < 1,500	Once/Quarter
1,500 ≤ Sludge < 15,000	Once/Two Months
15,000 ≤ Sludge	Once/Month

* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 CFR 503.8(b).

SECTION II. REQUIREMENTS SPECIFIC TO BULK SEWAGE SLUDGE FOR APPLICATION TO THE LAND MEETING CLASS A or B PATHOGEN REDUCTION AND THE CUMULATIVE LOADING RATES IN TABLE 2, OR CLASS B PATHOGEN REDUCTION AND THE POLLUTANT CONCENTRATIONS IN TABLE 3

For those permittees meeting Class A or B pathogen reduction requirements and that meet the cumulative loading rates in Table 2 below, or the Class B pathogen reduction requirements and contain concentrations of pollutants below those listed in Table 3 found in Element I, Section III, the following conditions apply:

1. Pollutant Limits

Table 2

<u>Pollutant</u>	<u>Cumulative Pollutant Loading Rate (kilograms per hectare)</u>
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report
Nickel	420
Selenium	100
Zinc	2800

2. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, or lawn or home garden shall be treated by either Class A or Class B pathogen reduction requirements as defined above in Element I, Section I.B.3.

3. Management Practices

- a. Bulk sewage sludge shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the U.S., as defined in 40 CFR 122.2, except as provided in a permit issued pursuant to section 404 of the CWA.
- b. Bulk sewage sludge shall not be applied within 10 meters of a water of the U.S.
- c. Bulk sewage sludge shall be applied at or below the agronomic rate in accordance with recommendations from the following references:
 - i. STANDARDS 1992, Standards, Engineering Practices and Data, 39th Edition (1992) American Society of Agricultural Engineers, 2950 Niles Road, St. Joseph, MI 49085-9659.
 - ii. National Engineering Handbook Part 651, Agricultural Waste Management Field Handbook (1992), P.O. Box 2890, Washington, D.C. 20013.
 - iii. Recommendations of local extension services or Soil Conservation Services.
 - iv. Recommendations of a major University's Agronomic Department.
- d. An information sheet shall be provided to the person who receives bulk sewage sludge sold or given away. The information sheet shall contain the following information:
 - i. The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.
 - ii. A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.
 - iii. The annual whole sludge application rate for the sewage sludge that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Element I, Section III below are met.

4. Notification requirements

- a. If bulk sewage sludge is applied to land in a State other than the State in which the sludge is prepared, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk sewage sludge is proposed to be applied. The notice shall include:
 - i. The location, by either street address or latitude and longitude, of each land application site.
 - ii. The approximate time period bulk sewage sludge will be applied to the site.
 - iii. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk sewage sludge.
 - iv. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk sewage sludge.
- b. The permittee shall give 60 days prior notice to the Director of any change planned in the sewage sludge practice. Any change shall include any planned physical alterations or additions to the permitted treatment works, changes in the permittee's sludge use or disposal practice, and also alterations, additions, or deletions of disposal sites. These changes may justify the application of permit conditions that are different from or absent in the existing permit, including notification of

additional disposal sites not reported during the permit application process or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR 122.62(a)(1).

- c. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely effect a National Historic Site, cease use of such area.

5. Recordkeeping Requirements - The sludge documents will be retained on site at the same location as other NPDES records.

The person who prepares bulk sewage sludge or a sewage sludge material shall develop the following information and shall retain the information for five years. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for recordkeeping found in 40 CFR 503.17 for persons who land apply.

- a. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 3 found in Element I, Section III and the applicable pollutant concentration criteria (mg/Kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (kg/ha) listed in Table 2 above.
- b. A description of how the pathogen reduction requirements are met (including site restrictions for Class B sludges, if applicable).
- c. A description of how the vector attraction reduction requirements are met.
- d. A description of how the management practices listed above in Section II.3 are being met.
- e. The recommended agronomic loading rate from the references listed in Section II.3.c. above, as well as the actual agronomic loading rate shall be retained.
- f. A description of how the site restrictions in 40 CFR Part 503.32(b)(5) are met for each site on which Class B bulk sewage sludge is applied.
- g. The following certification statement:
 "I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in §503.14 have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."
- h. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 40 CFR 503.17(a)(4)(i)(B) or 40 CFR Part 503.17(a)(5)(i)(B) as applicable to the permittees sludge treatment activities.
- i. The permittee shall maintain information that describes future geographical areas where sludge may be land applied.
- j. The permittee shall maintain information identifying site selection criteria regarding land application sites not identified at the time of permit application submission.

- k. The permittee shall maintain information regarding how future land application sites will be managed.

The person who prepares bulk sewage sludge or a sewage sludge material shall develop the following information and shall retain the information indefinitely. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for recordkeeping found in 40 CFR 503.17 for persons who land apply.

- a. The location, by either street address or latitude and longitude, of each site on which sludge is applied.
- b. The number of hectares in each site on which bulk sludge is applied.
- c. The date and time sludge is applied to each site.
- d. The cumulative amount of each pollutant in kilograms/hectare listed in Table 2 applied to each site.
- e. The total amount of sludge applied to each site in metric tons.
- f. The following certification statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the requirements to obtain information in §503.12(e)(2) have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

- g. A description of how the requirements to obtain information in §503.12(e)(2) are met.

6. Reporting Requirements - The permittee shall report annually on the DMR the following information:

- a. Pollutant Table (2 or 3) appropriate for permittee's land application practices.
- b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.
- c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).
- d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/Kg) listed in Table 3 found in Element 1, Section III, or the applicable pollutant loading rate limit (kg/ha) listed in Table 2 above if it exceeds 90% of the limit.
- e. Level of pathogen reduction achieved (Class A or Class B).
- f. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B sludge, include information on how site restrictions were met in the DMR comment section or attach a separate sheet to the DMR.
- g. Vector attraction reduction alternative used as listed in Section I.B.4.
- h. Annual sludge production in dry metric tons/year.
- i. Amount of sludge land applied in dry metric tons/year.
- j. Amount of sludge transported interstate in dry metric tons/year.
- k. The certification statement listed in 503.17(a)(4)(i)(B) or 503.17(a)(5)(i)(B) whichever applies to the

permittees sludge treatment activities shall be attached to the DMR.

- I. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the DMR.
 - i. The location, by either street address or latitude and longitude.
 - ii. The number of hectares in each site on which bulk sewage sludge is applied.
 - iii. The date and time bulk sewage sludge is applied to each site.
 - iv. The cumulative amount of each pollutant (i.e., kilograms/hectare) listed in Table 2 in the bulk sewage sludge applied to each site.
 - v. The amount of sewage sludge (i.e., metric tons) applied to each site.
 - vi. The following certification statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the requirements to obtain information in 40 CFR 503.12(e)(2) have been met for each site on which bulk sewage sludge is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

- vii. A description of how the requirements to obtain information in 40 CFR 503.12(e)(2) are met.

SECTION III. REQUIREMENTS SPECIFIC TO BULK OR BAGGED SEWAGE SLUDGE MEETING POLLUTANT CONCENTRATIONS IN TABLE 3 AND CLASS A PATHOGEN REDUCTION REQUIREMENTS

For those permittees with sludge that contains concentrations of pollutants below those pollutant limits listed in Table 3 for bulk or bagged (containerized) sewage sludge and also meet the Class A pathogen reduction requirements, the following conditions apply (Note: All bagged sewage sludge must be treated by Class A pathogen reduction requirements.):

1. Pollutant limits - The concentration of the pollutants in the municipal sewage sludge is at or below the values listed.

Table 3

<u>Pollutant</u>	Monthly Average Concentration (<u>milligrams per kilogram</u>)*
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report
Nickel	420
Selenium	100
Zinc	2800

* Dry weight basis

2. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, or lawn or home garden shall be treated by the Class A pathogen reduction requirements as defined above in Element I, Section I.B.3. All bagged sewage sludge must be treated by Class A pathogen reduction requirements.

3. Management Practices - None.
4. Notification Requirements - None.
5. Recordkeeping Requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.
 - a. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 3 and the applicable pollutant concentration criteria listed in Table 3.
 - b. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 503.17(a)(1)(ii) or 503.17(a)(3)(i)(B), whichever applies to the permittees sludge treatment activities.
 - c. A description of how the Class A pathogen reduction requirements are met.
 - d. A description of how the vector attraction reduction requirements are met.
6. Reporting Requirements - The permittee shall report annually on the DMR the following information:
 - a. Pollutant Table 3 appropriate for permittee's land application practices.
 - b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.
 - c. Toxicity Characteristic Leaching Procedure (TCLP) results. (Pass/Fail).
 - d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) found in Element 1, Section I. In addition, the applicable pollutant concentration criteria listed in Table 3 should be included on the DMR.
 - e. Pathogen reduction Alternative used for Class A bagged or bulk sludge as listed in Section I.B.3.a.
 - f. Vector attraction reduction Alternative used as listed in Section I.B.4.
 - g. Annual sludge production in dry metric tons/year.
 - h. Amount of sludge land applied in dry metric tons/year.
 - i. Amount of sludge transported interstate in dry metric tons/year.
 - j. The certification statement listed in 503.17(a)(1)(ii) or 503.17(a)(3)(i)(B), whichever applies to the permittees sludge treatment activities, shall be attached to the DMR.

SECTION IV. REQUIREMENTS SPECIFIC TO SLUDGE SOLD OR GIVEN AWAY IN A BAG OR OTHER CONTAINER FOR APPLICATION TO THE LAND THAT DOES NOT MEET THE MINIMUM POLLUTANT CONCENTRATIONS

1. Pollutant Limits

Table 4

<u>Pollutant</u>	<u>Annual Pollutant Loading Rate (kilograms per hectare per 365 day period)</u>
Arsenic	2
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Molybdenum	Report
Nickel	21
Selenium	5
Zinc	140

2. Pathogen Control

All sewage sludge that is sold or given away in a bag or other container for application to the land shall be treated by the Class A pathogen requirements as defined in Section I.B.3.a.

3. Management Practices

Either a label shall be affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet shall be provided to the person who receives sewage sludge sold or given away in an other container for application to the land. The label or information sheet shall contain the following information:

- a. The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land.
- b. A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet.
- c. The annual whole sludge application rate for the sewage sludge that will not cause any of the annual pollutant loading rates in Table 4 above to be exceeded.

4. Notification Requirements - None.

5. Recordkeeping Requirements - The sludge documents will be retained on site at the same location as other NPDES records.

The person who prepares sewage sludge or a sewage sludge material shall develop the following information and shall retain the information for five years.

- a. The concentration in the sludge of each pollutant listed above in found in Element I, Section I, Table 1.
- b. The following certification statement found in 503.17(a)(6)(iii).

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in §503.14(e), the Class A pathogen requirement in §503.32(a), and the vector attraction reduction requirement in (insert vector attraction reduction option) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment".
- c. A description of how the Class A pathogen reduction requirements are met.

- d. A description of how the vector attraction reduction requirements are met.
 - e. The annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant loading rates in Table 4 to be exceeded. See Appendix A to Part 503 - Procedure to Determine the Annual Whole Sludge Application Rate for a Sewage Sludge.
6. Reporting Requirements - The permittee shall report annually on the DMR the following information:
- a. List Pollutant Table 4 appropriate for permittee's land application practices.
 - b. The frequency of monitoring listed in Element 1, Section I.C. which applies to the permittee.
 - c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).
 - d. The concentration (mg/Kg) in the sludge of each pollutant listed above in Table 1 (defined as a monthly average) found in Element 1, Section I.
 - e. Class A pathogen reduction Alternative used as listed in Section I.B.3.a. Alternatives describe how the pathogen reduction requirements are met.
 - f. Vector attraction reduction Alternative used as listed in Section I.B.4.
 - g. Annual sludge production in dry metric tons/year.
 - h. Amount of sludge land applied in dry metric tons/year.
 - i. Amount of sludge transported interstate in dry metric tons/year.
 - j. The following certification statement found in § 503.17(a)(6)(iii) shall be attached to the DMR.

"I certify, under penalty of law, that the information that will be used to determine compliance with the management practice in §503.14(e), the Class A pathogen requirement in §503.32(a), and the vector attraction reduction requirement (insert appropriate option) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel gather and evaluate the information used to determine that the management practice, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

ELEMENT 2- SURFACE DISPOSAL

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE SURFACE DISPOSAL

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants which may be present.
2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act.
3. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person (owner or operator of a sewage sludge unit) for disposal in a surface disposal site, the permit holder shall provide all necessary information to the parties who receive the sludge to assure compliance with these regulations.

4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).
5. The permittee or owner/operator shall submit a written closure and post closure plan to the permitting authority 180 days prior to the closure date. The plan shall include the following information:
 - (a) A discussion of how the leachate collection system will be operated and maintained for three years after the surface disposal site closes if it has a liner and leachate collection system.
 - (b) A description of the system used to monitor continuously for methane gas in the air in any structures within the surface disposal site. The methane gas concentration shall not exceed 25% of the lower explosive limit for methane gas for three years after the sewage sludge unit closes. A description of the system used to monitor for methane gas in the air at the property line of the site shall be included. The methane gas concentration at the surface disposal site property line shall not exceed the lower explosive limit for methane gas for three years after the sewage sludge unit closes.
 - (c) A discussion of how public access to the surface disposal site will be restricted for three years after it closes.

B. Management Practices

1. An active sewage sludge unit located within 60 meters of a fault that has displacement in Holocene time shall close by March 22, 1994.
2. An active sewage sludge unit located in an unstable area shall close by March 22, 1994.
3. An active sewage sludge unit located in a wetland shall close by March 22, 1994.
4. Surface disposal shall not restrict the flow of the base 100-year flood.
5. The run-off collection system for an active sewage sludge unit shall have the capacity to handle run-off from a 25-year, 24-hour storm event.
6. A food crop, feed crop, or a fiber crop shall not be grown on a surface disposal site.
7. Animals shall not be grazed on a surface disposal site.
8. Public access shall be restricted on the active surface disposal site and for three years after the site closes.
9. Placement of sewage sludge shall not contaminate an aquifer. This shall be demonstrated through one of the following:
 - (a) Results of a ground-water monitoring program developed by a qualified ground-water scientist.
 - (b) A certification by a qualified ground-water scientist may be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer.
10. When a cover is placed on an active surface disposal site, the concentration of methane gas in air in any structure within the surface disposal site shall not exceed 25 percent of the lower explosive limit for methane gas during the period that the sewage sludge unit is active. The concentration of methane gas in air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas during the period that the sewage sludge unit is active. Monitoring shall be continuous.

C. Testing Requirements

1. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.
2. Sewage sludge shall be tested at the frequency show below in Element 2, Section I.D. for PCBs. Any sludge exceeding a concentration of 50 mg/Kg shall not be surface disposed.
3. Pathogen Control

All sewage sludge that is disposed of in a surface disposal site shall be treated by either the Class A or Class B pathogen requirements unless sewage sludge is placed on an active surface disposal site and is covered with soil or other material at the end of each operating day. When reporting on the DMR, list pathogen reduction level attained as A, B, or C (daily cover). When reporting how compliance was met, list Alternative 1, 2, 3, 4, 5 or 6 for Class A, or Alternative Number 1, 2, 3, or 4 for Class B, on DMR.

(a) Six alternatives are available to demonstrate compliance with Class A sewage sludge. All 6 alternatives require either the density of fecal coliform in the sewage sludge be less than 1000 MPN per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land. Below are the additional requirements necessary to meet the definition of a Class A sludge. Alternatives 5 and 6 are not authorized to demonstrate compliance with Class A sewage sludge in Texas permits.

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. See 503.32(a)(3)(ii) for specific information. This alternative is not applicable to composting

Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours. The pH shall be defined as the logarithm of the reciprocal of the hydrogen ion concentration measured at 25°C or measured at another temperature and then converted to an equivalent value at 25°C.

The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(ii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 503.32(a)(5)(iii) for specific information.

Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit

per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sludge is prepared for sale or give away in a bag or other container for application to the land.

The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed or at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land.

Alternative 5 - Sewage sludge shall be treated by one of the Processes to Further Reduce Pathogens (PFRP) described in 503 Appendix B. PFRPs include composting, heat drying, heat treatment, and thermophilic aerobic digestion.

Alternative 6 - Sewage sludge shall be treated by a process that is equivalent to a Process to Further Reduce Pathogens, if individually approved by the Pathogen Equivalency Committee representing the EPA.

(b) Four alternatives are available to demonstrate compliance with Class B sewage sludge. Alternatives 2, 3, and 4 are not authorized to demonstrate compliance with Class B sewage sludge in Texas permits.

Alternative 1 - (i) Seven representative samples of the sewage sludge that is disposed shall be collected for one monitoring episode at the time the sewage sludge is used or disposed.

(ii) The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge shall be treated in one of the Processes to significantly Reduce Pathogens described in 503 Appendix B.

Alternative 3 - Sewage sludge shall be treated in a process that is equivalent to a PSRP, if individually approved by the Pathogen Equivalency Committee representing the EPA.

Alternative 4 - Sewage sludge placed on an active surface disposal site is covered with soil or other material at the end of each operating day.

4. Vector Attraction Reduction Requirements

All sewage sludge that is disposed of in a surface disposal site shall be treated by one of the following alternatives 1 through 11 for Vector Attraction Reduction.

Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. Volatile solids must be reduced by less than 17 percent to demonstrate compliance.

Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with a percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. Volatile solids must be reduced by less than 15 percent to demonstrate compliance.

Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours at the time the sewage sludge is disposed.

Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or an anaerobic treatment process at the time the sewage sludge is disposed.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials at the time the sewage sludge is disposed. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or an anaerobic treatment process.

Alternative 9 -

- (i) Sewage sludge shall be injected below the surface of the land.
- (ii) No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.
- (iii) When sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

Alternative 10 -

- (i) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.
- (ii) When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

Alternative 11 - Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

5. Methane Gas Control Within a Structure On Site

When cover is placed on an active surface disposal site, the methane gas concentration in the air in any structure shall not exceed 25% of the lower explosive limit (LEL) for methane gas during the period that the disposal site is active.

6. Methane Gas Control at Property Line

The concentration of methane gas in air at the property line of the surface disposal site shall not exceed the LEL for methane gas during the period that the disposal site is active.

D. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test - Once/Permit Life, performed within one year from the effective date of the permit

PCBs

- Once/Year

Methane Gas in covered structures on site - Continuous

Methane Gas at property line - Continuous

All other pollutants shall be monitored at the frequency shown below:

<u>Amount of sewage sludge*</u> <u>(metric tons per 365 day period)</u>	<u>Frequency</u>
0 ≤ Sludge < 290	Once/Year
290 ≤ Sludge < 1,500	Once/Quarter
1,500 ≤ Sludge < 15,000	Once/Two Months
15,000 ≤ Sludge	Once/Month

* Amount of sewage sludge placed on an active sewage sludge unit (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 CFR 503.8(b).

SECTION II. REQUIREMENTS SPECIFIC TO SURFACE DISPOSAL SITES WITHOUT A LINER AND LEACHATE COLLECTION SYSTEM.

1. Pollutant limits - Sewage sludge shall not be applied to a surface disposal site if the concentration of the listed pollutants exceed the corresponding values based on the surface disposal site boundary to the property line distance:

TABLE 5

<u>Unit boundary to property line distance (meters)</u>	<u>Pollutant Concentrations*</u>			
	<u>Arsenic (mg/kg)</u>	<u>Chromium (mg/kg)</u>	<u>Nickel (mg/kg)</u>	<u>PCB's (mg/kg)</u>
0 to less than 25	30	200	210	49
25 to less than 50	34	220	240	49
50 to less than 75	39	260	270	49
75 to less than 100	46	300	320	49
100 to less than 125	53	360	390	49
125 to less than 150	62	450	420	49
≥ 150	73	600	420	49

* Dry weight basis

2. Management practices - Listed in Section I.B. above.

3. Notification requirements -

- a. The permittee shall assure that the owner of the surface disposal site provide written notification to the subsequent site owners that sewage sludge was placed on the land.

- b. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.

4. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.
- a. The distance of the surface disposal site from the property line and the concentration (mg/Kg) in the sludge of each pollutant listed above in Table 5, as well as the applicable pollutant concentration criteria listed in Table 5.
- b. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 503.27(a)(1)(ii) or 503.27(a)(2)(ii) as applicable to the permittees sludge disposal activities.
- c. A description of how either the Class A or Class B pathogen reduction requirements are met, or whether sewage sludge placed on a surface disposal site is covered with soil or other material at the end of each operating day.
- d. A description of how the vector attraction reduction requirements are met.
- e. Results of a groundwater monitoring program developed by a qualified ground-water scientist, or a certification by a qualified groundwater scientist may be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer. A qualified groundwater scientist is an individual with a baccalaureate or post graduate degree in the natural sciences or engineering who has sufficient training and experience in groundwater hydrology and related fields, as may be demonstrated by State registration, professional certification or completion of accredited university programs, to make sound professional judgements regarding groundwater monitoring, pollutant fate and transport, and corrective action.
5. Reporting Requirements - The permittee shall report annually on the DMR the following information:
- a. Report No for no liner and leachate collection system at surface disposal site.
- b. The frequency of monitoring listed in Element II, Section I.D. which applies to the permittee.
- c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).
- d. The concentration (mg/Kg) in the sludge of each pollutant listed in Table 5 as well as the applicable pollutant concentration criteria listed in Table 5.
- e. The concentration (mg/Kg) of PCB's in the sludge.
- f. The distance between the property line and the surface disposal site boundary.
- g. Level of pathogen reduction achieved (Class A or Class B), unless Vector attraction reduction alternative no. 11 is utilized.
- h. List Alternative used as listed in Section I.C.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met.

- i. Vector attraction reduction Alternative used as listed in Section I.C.4.
- j. Annual sludge production in dry metric tons/year.
- k. Amount of sludge surface disposed in dry metric tons/year.
- l. Amount of sludge transported interstate in dry metric tons/year.
- m. A narrative description explaining how the management practices in §503.24 are met shall be attached to the DMR.
- n. The certification statement listed in 503.27(a)(1)(ii) or 503.27(a)(2)(ii) as applicable to the permittees sludge disposal activities, shall be attached to the DMR.

SECTION III. REQUIREMENTS SPECIFIC TO SURFACE DISPOSAL SITES WITH A LINER AND LEACHATE COLLECTION SYSTEM.

- 1. Pollutant limits - None.
- 2. Management Practices - Listed in Section I.B. above.
- 3. Notification requirements -
 - a. The permittee shall assure that the owner of the surface disposal site provide written notification to the subsequent owner of the site that sewage sludge was placed on the land.
 - b. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.
- 4. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years. The sludge documents will be retained on site at the same location as other NPDES records.
 - a. The following certification statement found in 503.27(a)(1)(ii):

"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements (define option used) and the vector attraction reduction requirements (define option used) have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine the (pathogen requirements and vector attraction reduction requirements, if appropriate) have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."
 - b. A description of how either the Class A or Class B pathogen reduction requirements are met or whether sewage sludge placed on a surface disposal site is covered with soil or other material at the end of each operating day.
 - c. A description of how the vector attraction reduction requirements are met.
 - d. Results of a ground-water monitoring program developed by a qualified ground-water scientist. A certification by a qualified ground-water scientist may be used to demonstrate that sewage sludge

placed on an active sewage sludge unit does not contaminate an aquifer.

5. Reporting Requirements - The permittee shall report annually on the DMR the following information:
 - a. Report YES for liner and leachate collection system at surface disposal site.
 - b. The frequency of monitoring listed in Element 2, Section I.D. which applies to the permittee.
 - c. Toxicity Characteristic Leaching Procedure (TCLP) results (Pass/Fail).
 - d. The concentration (mg/Kg) in the sludge of PCBs.
 - e. Level of pathogen reduction achieved (Class A or Class B), unless Vector attraction reduction alternative no. 11 is used.
 - f. List Alternative used as listed in Section I.C.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met.
 - g. Vector attraction reduction Alternative used as listed in Section I.B.4.
 - h. Annual sludge production in dry metric tons/year.
 - i. Amount of sludge surface disposed in dry metric tons/year.
 - j. Amount of sludge transported interstate in dry metric tons/year.
 - k. A narrative description explaining how the management practices in §503.24 are met shall be attached to the DMR.
 - l. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment (See 503.27(a)(1)(ii) or 503.27(a)(2)(ii) whichever applies to the permittees sludge disposal activities) shall be attached to the DMR.

ELEMENT 3 - MUNICIPAL SOLID WASTE LANDFILL DISPOSAL

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE DISPOSED IN A MUNICIPAL SOLID WASTE LANDFILL

1. The permittee shall handle and dispose of sewage sludge in accordance with Section 405 of the Clean Water Act and all other applicable Federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge meets the requirements in 40 CFR 258 concerning the quality of the sludge disposed in the municipal solid waste landfill unit.
2. If requirements for sludge management practices or pollutant criteria become more stringent than the sludge pollutant limits or acceptable management practices in this permit, or control a pollutant not listed in this permit, this permit may be modified or revoked and reissued to conform to the requirements promulgated at Section 405(d)(2) of the Clean Water Act.
3. If the permittee generates sewage sludge and supplies that sewage sludge to the owner or operator of a MSWLF for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.
4. The permittee shall give prior notice to EPA (Chief, Permits Branch, Water Management Division, Mail Code 6W-P, EPA Region 6, 1445 Ross Avenue, Dallas, Texas 75202) of any planned changes in the sewage sludge disposal practice, in accordance with 40 CFR Part 122.41(l)(1)(iii). These changes may justify the application of permit conditions that are different from or absent in the existing permit. Change in the sludge use or

disposal practice may be cause for modification of the permit in accordance with 40 CFR Part 122.62(a)(1).

5. The permittee shall provide the location of all new sludge disposal/use sites where previously undisturbed ground is proposed for disturbance to the State Historical Commission within 90 days of the effective date of this permit. In addition, the permittee shall provide the location of any new disposal/use site to the State Historical Commission prior to use of the site.

The permittee shall within 30 days after notification by the State Historical Commission that a specific sludge disposal/use area will adversely affect a National Historic Site, cease use of such area.

6. Sewage sludge shall be tested once during the life of the permit within one year from the effective date of the permit in accordance with the method specified at 40 CFR 268, Appendix I (Toxicity Characteristic Leaching Procedure (TCLP)) or other approved methods. Sludge shall be tested after final treatment prior to leaving the POTW site. Sewage sludge determined to be a hazardous waste in accordance with 40 CFR Part 261, shall be handled according to RCRA standards for the disposal of hazardous waste in accordance with 40 CFR Part 262. The disposal of sewage sludge determined to be a hazardous waste, in other than a certified hazardous waste disposal facility shall be prohibited. The Information Management Section, telephone no. (214) 665-6750, and the appropriate state agency shall be notified of test failure within 24 hours. A written report shall be provided to this office within 7 days after failing the TCLP. The report will contain test results, certification that unauthorized disposal has not occurred and a summary of alternative disposal plans that comply with RCRA standards for the disposal of hazardous waste. The report shall be addressed to: Director, Multimedia Planning and Permitting Division, EPA Region 6, Mail Code 6PD, 1445 Ross Avenue, Dallas, Texas 75202. A copy of this report shall be sent to the Chief, Water Enforcement Branch, Compliance Assurance and Enforcement Division, Mail Code 6EN-W, at the same street address.
7. Sewage sludge shall be tested as needed, or at a minimum, once/year in accordance with the method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).
8. Recordkeeping requirements - The permittee shall develop the following information and shall retain the information for five years.
 - a. The description, including procedures followed, and results of the Paint Filter Tests performed.
 - b. The description, including procedures followed, and results of the TCLP Test.
9. Reporting requirements - The permittee shall report annually on the Discharge Monitoring Report the following information:
 - a. Results of the Toxicity Characteristic Leaching Procedure Test conducted on the sludge to be disposed (Pass/Fail).
 - b. Annual sludge production in dry metric tons/year.
 - c. Amount of sludge disposed in a municipal solid waste landfill in dry metric tons/year.
 - d. Amount of sludge transported interstate in dry metric tons/year.
 - e. A certification that sewage sludge meets the requirements in 40 CFR 258 concerning the quality of the sludge disposed in a municipal solid waste landfill unit shall be attached to the DMR.