STATE OF CALIFORNIA

FACT SHEET FOR NPDES PERMIT NO. CA0023078
FORT BRAGG MUNICIPAL IMPROVEMENT DISTRICT NO. 1

Permit Type:
National Pollutant Discharge Elimination System (NPDES) Permit

Permittee:
Fort Bragg Municipal Improvement District No. 1
ID # 1B84083OMEN

Permit Number:

CA0023078

ID # 1B84083OMEN

Permitting Authority:
Regional Water Quality Control Board
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

March 24, 2004

SUMMARY **3**

PUBLIC INVOLVEMENT OPPORTUNITY **3**

BACKGROUND INFORMATION **3**

DESCRIPTION OF THE FACILITY 3
Location and Site Characteristics *3*
Collection System *4*
Treatment Processes *4*
Sludge Treatment, Handling, and Disposal *4*
Treatment Capacity *4*
Wastewater Characteristics *5*
Treatment Facility Improvements *5*
Wet Weather Flow Management *5*
Storm Water Management *6*
Current Permit Renewal Status *6*
History of Prior Violations and Enforcement Actions *7*
GENERAL BASIS FOR EFFLUENT LIMITATIONS 8
Clean Water Act *8*
Technology-Based Effluent Limitations 9
Water Quality-Based Effluent Limitations 9
Basin Plan *9*
Ocean Plan *10*
Table A Effluent Limitations 10
Table B Water Quality Objectives 10
BASIS FOR DISCHARGE PROHIBITIONS (SECTION A) 11
SPECIFIC BASIS FOR NUMERICAL EFFLUENT LIMITATIONS 12
Effluent Limitations for the Discharges of Conventional Pollutants (Section B) *12*
Effluent Limitations for the Discharges of Toxic Pollutants (Section C) *21*
BASIS FOR RECEIVING WATER LIMITATIONS (SECTION E) 23
BASIS FOR OTHER PERMIT CONDITIONS 23
Solids Disposal and Handling Requirements (Section F) *23*
Source Control Requirements (Section G) *23*
Facility Operation (General Provision 5) *24*
Bypass (General Provision 13) *24*
Upset (General Provision 14) *25*
Wastewater Collection System (General Provision 15) *25*
Sanitary Sewer Overflows (General Provision 16) *26*
BASIS FOR MONITORING REQUIREMENTS 27
Effluent Limitations *27*
Receiving Water Limitations *27*
Whole Effluent Toxicity Monitoring Requirements *30*

SUMMARY

The North Coast Regional Water Quality Control Board (Regional Water Board) is proposing to renew National Pollutant Discharge Elimination System (NPDES) Permit No. CA0023078, issued to the Fort Bragg Municipal Improvement District No. 1 (Permittee or District) for the discharge of municipal wastewater to the Pacific Ocean. The renewed Permit will be effective for five years from the effective date of the Permit.

This fact sheet explains the nature of the proposed discharge and the regulatory and technical basis for effluent and receiving water limitations, discharge prohibitions, and other permit conditions and requirements.

PUBLIC INVOLVEMENT OPPORTUNITY

Interested persons are invited to comment on the tentative decision. Comments on the draft Permit will be received for thirty days following the publication of the notice in the following newspapers: Santa Rosa Press Democrat, Fort Bragg Advocate. The deadline for receipt of written comments is specifically identified in the Notice of Public Hearing for the Permit.

All written comments submitted during the comment period will be retained at the Regional Water Board and considered in making the final decision on the application for the Permit. The Regional Water Board will provide copies of the application, the tentative decision, and the fact sheet upon request. Persons who submit written comments will be notified of the final decision. The Regional Water Board will hold a public hearing to consider the issue on March 24, 2004, at:

Regional Water Quality Control Board Office
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Please submit written comments to the Regional Water Quality Control Board at the following address, to the attention of Mr. Charles Reed:

Regional Water Quality Control Board Office
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Comments received after the deadline in the Notice of Public Hearing may be rejected as untimely.

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

Location and Site Characteristics

The Fort Bragg Municipal Improvement District No. 1 Wastewater Treatment Facility (WWTF), for which application for renewal of a wastewater discharge permit has been made, is located at the west end of Cypress Street in Fort Bragg, Mendocino County. The WWTF is further

described as located in Section 12, T18N, R18W, MDB&M on the Fort Bragg quadrangle as shown in **Attachment A** of the Order.

Collection System

The Fort Bragg Municipal Improvement District No. 1 serves a population of approximately 6,500 using a zoned gravity collection system. The District is bounded on the north by MacKerricher State Park and by South Harbor Drive to the south as shown in Attachment "B" of this Order. The collection system consists of approximately 30 miles of gravity pipeline and pressure mains and six pump station, three constructed in 1970, one in 1975, one in 1987 and the last in 1989. A map of the existing collection system is included as **Attachment B** of the Fact Sheet.

Treatment Processes

The existing treatment facilities include grit removal, comminution, primary clarification, biological secondary treatment using two-stage biofiltration and secondary clarification, and disinfection. The treated wastewater is disinfected using liquid chlorine and dechlorinated with sulfur dioxide prior to discharge to the Pacific Ocean west via a 650-foot outfall with a diffuser system designed to produce 50:1 initial dilution at peak flow conditions. The final point of disposal is located at latitude 39° 26' 20" north, longitude 123° 48' 48" west. A treatment process layout and a flow schematic are included as **Attachment C and D** of the Fact Sheet.

Sludge Treatment, Handling, and Disposal

Wastewater solids removed from the liquid waste stream are directed to a gravity thickener prior to pumping to a single anaerobic digester. Digested sludge is further thickened to a minimum of fifteen percent solids in a gravity belt press. Additional sludge drying takes place in sludge drying beds. Dried and stabilized sludge is disposed of at a legal point of disposal. Since 1996, the Permittee has land applied the sludge (biosolids) under contract at the H-H Ranch in Point Arena. Continued disposal of sludge at this septage disposal site is not currently allowed. Future disposal activities are required to be conducted in accordance with language in this Permit. All other collected screenings, sludges, and other solids removed from liquid wastes are currently disposed of at a legal point of disposal.

Treatment Capacity

The treatment facility was originally designed to treat an average dry weather flow (ADWF) of 1.0 million gallons of wastewater per day (mgd). With the construction of the two-stage biofilter in 1979, the secondary treatment capacity of the WWTF was increased to 2.2 mgd. The average dry weather flow (ADWF), based on the average of the reported lowest consecutive 30-day mean daily influent flows from January 1996 through December 2002, increased from 0.23 mgd in 1996 to 0.55 mgd in 2003 (Figure 1). The average wet weather influent flow to the WWTF over the same period was 1.3 mgd.

An evaluation of the Fort Bragg Municipal Improvement District No.1 was conducted during the week of January 20, 2004, by Tetra Tech, Inc., at the request of the Regional Water Board. The evaluation was based on the NPDES Compliance Inspection Manual (EPA/300/B-94-014) and the Region 4 U.S. Environmental Protection Agency's (U.S. EPA) "Publicly Owned Treatment

Works Management, Operations and Maintenance (MOM) Programs Project." The evaluation included a detailed audit of District's management, operations, and maintenance programs. A report describing the results of the evaluation is available for public review, and is intended to be used to identify areas of concern, and recommend needed improvements to the District.

Wastewater Characteristics

A summary of the wastewater monitoring results for the WWTF is shown in Table 1. The data in Table 1 represent self-monitoring data from January 1996 through November 2003.

Table 1. Wastewater Characteristics

Parameter	Influent (daily average)			Effluent (daily average)		
	Max	Min	Median	Max	Min	Median
BOD_5 (mg/l)	1,300	32	278	118	3	21
BOD_5 (lbs/d)[1]	7,167	69	1,912	1,066	17	120
Suspended Solids (mg/l)	1,800	12	177	76	5	22
Suspended Solids (lbs/d)[1]	9,728	140	1,136	883	29	116
Settleable Solids (ml/l)	---	---	---	0.7	< 0.1	< 0.1
Turbidity (NTU)	---	---	---	68	6	27
Total Coliform (MPN/100 ml)	---	---	---	1,600	< 2	5
Chlorine Residual (mg/l)	---	---	---	0.1	< 0.1	< 0.1
Grease and Oil (mg/l)	---	---	---	60	< 10	19
pH (standard units)	---	---	---	9.7	5.9	6.7
Ammonia (mg/l)	---	---	---	38	3	18

1. Mass loads of BOD_5 and suspended solids discharged are calculated using the formula
   Mass load (lb/day) = concentration (mg/l) x flow (mgd) x 8.34

Treatment Facility Improvements

The Permittee has approved a project to upgrade the existing treatment facilities to bring the Permittee into compliance with its existing Permit. The project consists of the construction of an effluent sand filter and second anaerobic digester. If completed, the effluent filter will be designed to treat up to 4 mgd of secondary-treated wastewater and bring the discharge into consistent compliance with the Permittee's NPDES permit. Completion of the project will also constitute compliance with requirements of Cease and Desist Order No. R1-2003-0069, which directs the Permittee to improve the treated effluent to the quality mandated by Waste Discharge Requirements Order No. 95-47.

Wet Weather Flow Management

The Fort Bragg area has an annual average precipitation of approximately 44 inches per year. The combined effect of this high annual precipitation and aging collection system has contributed to significant infiltration and inflow (I/I) within the collection system. Peak influent flows in excess of the 30-day wet weather design flow of 2.2 mgd are common during both high intensity rainfall events and during periods of extended wet weather, resulting in hydraulic overloading of the treatment processes and other operational problems. The Permittee has evaluated potential I/I correction, but has determined that measures to significantly reduce I/I

would not be cost effective at this time. However, high I/I levels not only cause treatment plant problems, but also are an indicator of leakage of sewage in the service area, which poses a threat to public health and water quality. Therefore, the permit requires the implementation of a program to control I/I.

The Permittee has proposed a wet weather flow management plan to address excessive influent flows to the WWTF. As described by the Permittee, the effluent sand filter will be operated as a polishing unit process for secondary treated wastewater flows up to approximately 4.0 mgd. Secondary treated wastewater effluent flows exceeding this flow will not receive polishing by the effluent filter and will be blended, chlorinated, and dechlorinated before final discharge to the Pacific Ocean. Implementation of the plan would commence after the construction of the proposed effluent filters has been completed.

Storm Water Management

Storm water permit WDID No. 1B23S005627 was terminated on June 22, 1995. Storm water management requirements were incorporated into the previous NPDES permit. Under the terms of this Permit, the Permittee is required to seek coverage under the statewide NPDES General Permit No. CAS000001 for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities.

Current Permit Renewal Status

The current Permit for this facility was issued on June 22, 1995. The Permittee submitted a Report of Waste Discharge (ROWD) dated January 20, 2000, and applied for renewal of its NPDES Permit. Supplemental information to complete filing of the application was submitted on February 29, 2000, March 7, 2000, April 4, 2000, September 15, 2000, October 2, 2000, October 13, 2000, and October 26, 2000.

On March 22, 2001, the Regional Water Board considered a draft renewed Permit for the Fort Bragg Municipal Improvement District No. 1, Fort Bragg Wastewater Treatment Facility. In response to an objection by an interested party who alleged a lack of proper notice of late revisions of the Permit, the Regional Water Board did not adopt the Order and postponed the hearing until June 28, 2001. Before that hearing, the Regional Water Board received a letter from legal counsel representing the City of Fort Bragg requesting significant modifications of the draft Order that, if allowed, could affect the necessity of the treatment improvements proposed to satisfy Order No. R1-2001-23. This letter also contained many other, highly technical comments on the draft Permit. Renewal of the Permit was postponed to allow the Regional Water Board time to respond to the June 2001 comments and for the Permittee to provide supplemental information to complete the ROWD. Regional Water Board staff sent a response to these comments to the Permittee on June 25, 2003.

An administrative draft Permit was provided to the Permittee on August 5, 2003. The Permittee responded with comments on the administrative draft on October 1, 2003. The Permittee provided significant comments regarding the designation of “treatment equivalent to secondary treatment,” reasonable potential for water quality-based effluent limitations, the Permit’s renewal’s exemption for CEQA compliance, and the appropriateness of daily and maximum and instantaneous effluent limitations, mass limitations, receiving water limitations, and pretreatment requirements. A final draft Permit was provided to the Permittee on January 16, 2004. The

Permittee responded on February 19, 2004 with comments substantively similar to comments submitted on October 1, 2003. To the extent allowed by federal and state law and best professional judgement, the draft permit was revised to incorporate the Permittee's comments.

Regional Water Board staff responses to the Permittee's comments on the draft Permits are incorporated into the administrative record for the final proposed Permit.

History of Prior Violations and Enforcement Actions

Violation History

Sanitary Sewer Overflows

The Permittee reported five sanitary sewer overflows (SSOs) in 2002 that resulted in the discharge of more than 10 gallons of wastewater to land or discharges to surface waters. In 2003, the Permittee reported five SSOs, two of which were caused by structural damage to sewer pipes. However, the majority of the reported SSOs were reportedly caused by blockage of the sewer line by grease, roots or other debris.

Effluent Limitations

Exceedances of the Table A effluent limitations in Waste Discharge Requirements Order No. 95-47 are shown in Table 2. Table 2 enumerates exceedances reported by the Permittee on self-monitoring reports and exceedances detected by Regional Water Board staff during the review of self-monitoring reports from January 1996 through November 2003.

Table 2. Exceedances of Table A Effluent Limitations

Parameter	Number of Exceedances			
	30-Day Average	7-Day Average	Daily Maximum	Percent Removal
BOD_5 (mg/l)	29	32	5	27
BOD_5 (lbs/d)	13	19	12	
Suspended Solids (mg/l)	25	18	1	33
Suspended Solids (lbs/d)	15	33	17	
Settleable Solids (ml/l) [1]	2	---	4	---
Turbidity (NTU)[1]	0	0	0	---
Total Coliform (MPN/100 ml)[2]	14	---	20	---
pH (standard units)	0			---
Acute Toxicity Bioassay[3]	2			---
Grease & Oil (mg/l)	1	2	0	---
Grease & Oil (lbs/d)	2	1	1	---

1. Based on data from January 1998 through November 2003
2. Median
3. Percent survival of test species less than 70 percent or a TUa greater than 1.5.

Other Discharge Requirements

The file record indicates that the Permittee has committed other Permit violations including incomplete reporting. The occurrences of these violations have been infrequent and minor in nature.

Formal Enforcement Actions

The Regional Water Board has adopted the following enforcement orders since 1995:

Cease and Desist Order No. R1-2003-0069 The Regional Water Board adopted this Order on June 26, 2003 to modify the time schedule to reflect additional delays in NPDES permit renewal.

Cease and Desist Order No. R1-2002-0025 The Regional Water Board adopted this Order on March 28, 2002 to modify the time schedule to reflect a twelve-month delay in NPDES permit renewal.

Cease and Desist Order No. R1-2001-23 The Regional Water Board adopted this Order on March 21, 2001 to modify the time schedule to reflect a nine-month delay in NPDES permit renewal.

Cease and Desist Order No. 98-126 The Regional Water Board adopted this order on December 10, 1998 to again require the Permittee to comply with Order No. 95-47 after the repairs to the secondary biofilter failed to improve effluent quality to the extent of conforming with Order No. 95-47. The Permittee submitted the report on February 26, 1999, as required by Order No. 98-126. The report proposed a Time Schedule for completing an evaluation to determine cost-effective infiltration/inflow reduction and for construction of treatment improvements.

Cease and Desist Order No. 97-2 The Regional Water Board adopted this order on January 23, 1997, requiring the Permittee to repair a secondary biofilter on or before September 22, 1997.

GENERAL BASIS FOR EFFLUENT LIMITATIONS

Clean Water Act

The federal Clean Water Act (CWA) makes the discharge of any pollutant to waters of the United States unlawful without a permit authorizing the discharge (Section 301(a)). Title IV of the CWA established the National Pollutant Discharge Elimination System (NPDES) permit program. Under the program, every point source must obtain a permit from the United States Environmental Protection Agency (U.S. EPA), or an authorized state. The U.S. EPA or the authorized state authority may issue a permit to discharge pollutants (CWA Section 402) upon the condition that the discharge meets certain requirements. The permit must assure that the discharge: (1) meets applicable and appropriate technology-based requirements (i.e., numerical limitations based on current available treatment technologies and/or Best Management Practices to prevent and control discharges of pollutants) and; (2) does not cause or contribute to violations of applicable receiving water standards.

Technology-Based Effluent Limitations

As required by CWA Section 301(b)(1)(B), the U.S. EPA developed wastewater treatment standards for municipal publicly owned treatment works (POTWs) to identify the minimum level of effluent quality attainable by secondary treatment. These technology-based effluent limitations establish a treatment performance level in terms of Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), and pH. As described in 40 CFR Part 133, secondary treatment shall achieve the following effluent standards:

a. BOD_5 and Suspended Solids

   i. The 30-day average shall not exceed 30 mg/l.
   ii. The 7-day average shall not exceed 45 mg/l.
   iii. The 30-day average percent removal shall not be less than 85 percent.

b. pH

   i. The pH shall be maintained within the limits of 6.0 to 9.0.

Water Quality-Based Effluent Limitations

Pursuant to 40 CFR 131.1, states are required to designate the beneficial uses of waters bodies and establish water quality criteria to protect those uses. The State of California specifies the beneficial uses of the waters of the state and water quality objectives within Water Quality Control Plans (Basin Plans). Water quality objectives are enforced by the State and Regional Water Quality Control Boards and apply throughout the bodies of surface water and groundwater for which they were established.

To protect the beneficial uses of waters of the state, NPDES permits are required under federal regulations (40 CFR 122.44(d)(1)(i)) to consider the effect of toxic pollutants in the discharge on the quality of the receiving water. If it is determined through a reasonable potential analysis that a toxic pollutant has the potential to cause or contribute to an excursion above any state water quality objective, a water quality-based effluent limitation (WQBEL) must be developed.

Basin Plan

The California Water Code (CWC) establishes water quality objectives necessary for the protection of beneficial uses of waters of the state. Water quality objectives for specific water quality parameters are contained in the *Water Quality Control Plan* for each Regional Board and have been adopted to conform to the State Water Quality Control Board's "Policy with Respect to Maintaining High Quality Waters in California." *The Water Quality Control Plan for the North Coast Region* (Basin Plan) includes beneficial uses, water quality objectives, implementation plans for point source and non-point source discharges, prohibitions and statewide plans and policies. Permits for discharges of pollutants may not allow the discharge of waste to cause or contribute to the violation of these objectives.

The Basin Plan states that the beneficial uses of groundwaters throughout the Region include domestic, agricultural and industrial supply. The Basin Plan contains water quality objectives set forth in Title 22, Chapter 15 of the California Code of Regulations (CCR) for groundwaters used as domestic and agricultural supply for taste and odors, bacteria, radioactivity and certain

chemical constituents. Permits for discharges of pollutants may not allow the discharge of waste to cause or contribute to the violation of these objectives. These standards do not explicitly provide for a dilution zone in the groundwater formation within which the objectives may be exceeded.

Ocean Plan

The State Water Resources Control Board (State Water Board) adopted a revised *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) on December 3, 2001. The Ocean Plan establishes water quality objectives (for bacteriological, physical, chemical, and biological characteristics, and for radioactivity), general requirements for management of waste discharged to the ocean, quality requirements for waste discharges (effluent quality requirements), discharge prohibitions, and general provisions. The Ocean Plan requires that the discharge of municipal waste to the ocean in accordance with limitations and requirements contained in the Ocean Plan and provides the basis for regulation of wastes discharged into the state's coastal waters.

Table A Effluent Limitations

Unless effluent limitations have been established for the POTW pursuant to Sections 301, 302, 304, or 306 of the CWA, the following effluent limitations are the minimum level of treatment acceptable under the Ocean Plan:

		Limiting Concentrations		
	Unit of Measurement	Monthly (30-day Average)	Weekly (7-day Average)	Maximum at any time
Grease and Oil	mg/l	25	40	75
Suspended Solids		See note[1]		
Settleable Solids	ml/l	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	Standard units	Within limit of 6.0 and 9.0 at all times		

[1] Suspended Solids: Discharges shall, as a 30-day average, remove 75 percent of suspended solids from the influent stream before discharging wastewaters to the ocean, except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Water Boards may recommend that the State Water Board, with the concurrence of the U.S. EPA, adjust the lower effluent concentration limit (60 mg/l) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Water Boards should evaluate effects on existing and potential water reclamation projects.

Table B Water Quality Objectives

Effluent limitations are to be established in permits such that the concentrations set forth, as water quality objectives are not exceeded in the receiving water upon completion of initial dilution. The Regional Water Board may establish more restrictive water quality objectives and effluent limitations than those set forth in the Ocean Plan as necessary for the protection of beneficial uses of ocean waters.

BASIS FOR DISCHARGE PROHIBITIONS (Section A)

a. **Prohibition A.1 (no discharges other than as described in the Permit)**

This prohibition is based on the Basin Plan, previous Order, and State Water Board Order WQO 2002-0012 regarding the petition of Waste Discharge Requirements Order No. 01-072 for the East Bay Municipal Utility District and Bay Area Clean Water Agencies. In State Water Board Order WQO 2002-0012, the State Water Board found that this prohibition is acceptable in permits, but should be interpreted to apply only to constituents that are not reasonably anticipated in the discharge, but have been disclosed as potentially present in the effluent by the discharger. It does not apply to constituents in the discharge that do not have "reasonable potential" to exceed water quality objectives.
During the public comment period on the draft permit, the Permittee raised a concern about the scope of this prohibition. Specifically, the Permittee asserted that so long as it discloses a constituent to the Regional Water Board, the discharge of that constituent should not be prohibited. The State Water Board has not endorsed this interpretation. It has stated instead that the only pollutants permitted to be discharged are those which were "disclosed to the permitting and . . . can be reasonably contemplated." (*In re the Petition of East Bay Municipal Utilities District et al.*, (SWRCB 2002) Order No. WQ 2002-0012, p. 24.) The case cited by the State Water Board reasoned that the permittee is liable for discharges "not within the reasonable contemplation of the permitting authority . . . , whether spills or otherwise . . . ." (*Piney Run Preservation Assn. v. County Commissioners of Carroll County, Maryland* (4th Cir. 2001) 268 F.3d 255, 268.) Thus, State Water Board authority provides that, to be permissible, the constituent discharged (1) must have been disclosed by the permittee and (2) can be reasonably contemplated by the Regional Water Board.

The Regional Water Board has the authority to determine whether the discharge of a constituent is "reasonably contemplated." To give that authority to the Permittee would conflict with the express language of *Piney Run*, which makes clear that the permittee is liable for discharges "not within the reasonable contemplation *of the permitting authority* . . . , whether spills or otherwise . . . ." (268 F.3d 255, 268 [italics added].) In other words, whether or not the Permittee reasonably contemplates the discharge of a constituent is irrelevant. What matters is whether the Permittee disclosed the constituent to the Regional Water Board and the presence of the pollutant can be reasonably contemplated by the Regional Water Board.

b. **Prohibition A.2 (creation of pollution, contamination or nuisance prohibited)**

This prohibition is based on CWC Section 13050.

c. **Prohibition A.3 (discharge of sludge or digester supernatant prohibited)**

This prohibition is based on restrictions on the disposal of sewage sludge found in federal regulations (40 CFR Part 503 (Biosolids) Part 527, and Part 258) and CCR Title 27.

d. **Prohibition A.4 (no discharge of waste from unpermitted points in the WWTF)**

This prohibition is based on the Basin Plan to protect beneficial uses of the receiving water from unpermitted discharges, and the intent of CWC Sections 13260 through 13264 relating to the discharge of waste to waters of the state without filing for and being issued waste discharge requirements. This prohibition applies to, but is not limited to, sanitary sewer overflows, spills, and other unauthorized discharges of wastewater within the collection, treatment, and disposal facilities.

e. **Prohibition A.5 (no discharge of waste to unpermitted land discharge points)**

This prohibition is based on the previous Permit and CWC Sections 13260 through 13264.

f. **Prohibition A.6 (flow limitation)**

This prohibition is based on the engineering design and historic reliable treatment capacity of the WWTF. The Fort Bragg WWTF was originally designed to treat an average dry weather design flow of 1.0 mgd. Accordingly, this prohibition limits the average dry weather flow to the dry weather design flow stated by the Permittee in the Report of Waste Discharge. The average dry weather flow will be reported as the lowest average monthly flow based on the daily flow data for a calendar month.

SPECIFIC BASIS FOR NUMERICAL EFFLUENT LIMITATIONS

Effluent Limitations for the Discharges of Conventional Pollutants (Section B)

a. **Effluent Limitations B.1 (Biochemical Oxygen Demand and Suspended Solids)**

The disinfected effluent discharged from the WWTF to the Pacific Ocean shall not contain pollutants in excess of the following limitations:

Table 2. Effluent Limitations for Surface Water Discharge

Constituent	Unit	Monthly Average	Weekly Average
BOD (20º, 5-day)	mg/l	30	45
	lb./day	250	375
Suspended Solids	mg/l	30	45
	lb./day	250	375

i. Concentration-based Limitations

The concentration-based effluent limitations for BOD and suspended solids have been established pursuant to Sections 301, 302, 304, or 306 of the CWA and are consistent with the technology-based effluent limits derived from federal requirements (40 CFR 133.102) for secondary treatment. They are intended to ensure adequate and reliable secondary level wastewater treatment.

Treatment Equivalent to Secondary Treatment

The Permittee has requested that the Regional Water Board replace the existing concentration-based limitations for secondary treatment with effluent limitations based on the standards for "equivalent to secondary treatment" in accordance with 40 CFR 133.105. The Permittee bases that request on the assertion that the treatment facility is unable to consistently meet secondary treatment standards for BOD and suspended solids, particularly during wet weather. The Permittee has therefore requested that effluent limitations for BOD and suspended solids be expressed as an average monthly limitation of 45 mg/l and an average weekly effluent limitation of 65 mg/l. The Permittee has also requested that the percent removal requirement for BOD and suspended solids be relaxed to require 65 percent removal as set forth in 40 CFR 133.105(c).

Section 301(b)(1)(B) of the CWA requires that POTWs achieve effluent limitations based on secondary treatment as defined by the Administrator of the EPA pursuant to section 304(d)(1) of the Act. Section 304(d) of the Act was amended in 1981 to deem oxidation ponds, lagoons and ditches, and trickling filters as the equivalent of secondary treatment, but left it to the EPA to define the criteria under which treatment facilities would be considered eligible for consideration for effluent limitations described for treatment equivalent to secondary treatment.

In 1984, the US. EPA amended secondary treatment regulations (40 CFR Part 133) to include minimum effluent limitations attainable for facilities eligible for treatment equivalent to secondary treatment. Pursuant to federal regulations in 40 CFR 133.101(g), POTWs shall be eligible for consideration for effluent limitations described for treatment equivalent to secondary treatment if:

1. The BOD_5 and suspended solids effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed secondary treatment standards in 40 CFR 133.102, where effluent concentrations consistently achievable through proper operation and maintenance is determined in accordance with 40 CFR 133.101(f),

2. A trickling filter of waste stabilization pond is used as the principal process, and

3. The treatment works provide significant biological treatment of municipal wastewater.

Regional Water Board staff have determined that the treatment facility is not eligible for designation as a facility "equivalent to secondary treatment" for the following reasons:

1. The facility is consistently achieving secondary treatment standards set forth in 40 CFR 133.102(a).

The effluent concentration consistently achievable through proper operation and maintenance is defined by 40 CFR 133.101(f) as:

"(1) For a given pollutant parameter, the 95th percentile value for the 30-day average effluent quality achieved by a treatment works in a period of at least two years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and (2) a 7-day average value equal to 1.5 times the value derived under [paragraph (1)] of this section."

As shown in the table below, based on effluent data from the most recent two-year period (November 2001 to November 2003), 95th percentile value for the 30-day average values were 21 mg/l for BOD_5 and 29 mg/l for suspended solids.

Monitoring Period	**BOD (mg/l)**		**Suspended Solids (mg/l)**	
	30-Day[1]	**7-Day[2]**	**30-Day**	**7-Day**
Nov 2001 – Nov 2003 [3]	21	32	29	44
Secondary Standards	**30 mg/l**	**45 mg/l**	**30 mg/l**	**45 mg/l**

[1] 30-day values based on daily maximum values (reported weekly) for November 2001 – November 2003.
[2] 7-day value equals 30-day value times 1.5 (40 CFR 133.101(f)(2))
[3] Chemical addition on-line in June 2001

Concededly, the above data were collected after Fort Bragg began adding a chemical flocculent to the WWTF, improving the quality of the effluent.

Available guidance suggests that the use of that data is appropriate, however. Modifications, including chemical addition as used in WWTF, ("add-ons") have been made to trickling filters and waste stabilization ponds to improve their treatment performance. USEPA states that it is generally appropriate for the Regional Water Board to factor-in the benefit from such add-ons, because they offer improved performance at relatively low cost. (49 Federal Register 36986, 36996 [Sept. 20, 1984].)

Chemical addition to trickling filters, however, is a special case. EPA stated that the Regional Water Board "can" exclude this add-on, because of "high operation costs and adverse impacts on sludge management." (Ibid.) Aluminum sulfate (alum) and iron salts, which are common chemical additions, have the drawbacks identified by USEPA—they are expensive and complicate the sludge disposal process. Fort Bragg, by contrast, adds low doses of polymer, at an insignificant cost according to Wastewater Treatment Superintendent Ted Steinhardt, and Regional Water Board staff has observed no impact on sludge. Because the polymer addition by Fort Bragg has neither of the disadvantages mentioned by USEPA, it is not necessary to exclude it when evaluating the WWTF's treatment capability. Therefore, the data

gathered during polymer addition are an appropriate measure of the WWTF's treatment performance. Because those data show that the WWTF consistently achieves secondary treatment, the WWTF is not eligible for equivalent to secondary status.

2. The Permittee submitted a report in 1973 titled " Ocean Plan Technical Report" and a Draft Environmental Impact Report in February 1974 describing the improvements to the wastewater collection, treatment, and disposal system that were necessary to comply with the newly adopted California Ocean Plan and the Clean Water Act. It was concluded that the proposed project was the preferred project to meet the proposed waste discharge requirements for BOD, suspended solids, total coliform bacteria, pH, grease and oil, settleable solids, turbidity, chlorine residual, ammonia, and toxicity.

   The original 1974 NPDES permit, Order No. 74-52, was adopted by the Regional Water Board with the requirement that the discharge would achieve an effluent water quality of 30 mg/l for BOD_5 and suspended solids as a 30-day average, and 45 mg/l as a 7-day average in order to comply with Ocean Plan requirements, and the federal requirements for secondary treatment required of all POTWs.

3. Sufficient receiving water quality data is not available to assure that water quality standards will not be violated the if permit is relaxed in accordance with 40 CFR 103.105.

   In general, federal regulations (40 CFR 124.53) require that any effluent limitations established in NPDES permits must result in compliance with applicable water quality standards, State effluent requirements, and other provisions of the CWA. More specifically, with respect to permit adjustments for facilities deemed equivalent to secondary treatment, Section 304(d)(4) of the CWA requires that water quality will not be adversely affected by deeming facilities as equivalent to secondary treatment.

   The matter of protection of water quality is discussed in 49 FR 36983 (Final rule amending 40 CFR Part 133).

4. The Permittee has not submitted information necessary for the Regional Water Board to make findings as required by the Federal Antidegradation Policy and Resolution No. 68-16 "Statement of Policy with Respect to Maintaining High Quality of Waters in California."

5. Exceedances of effluent limitations for BOD5 and suspended solids are a result of improper operation and maintenance of the collection system and treatment facility.

   In the report Infiltration/Inflow Analysis of 1999 Smoke Testing Program (Nute Engineering, Feb. 2000) for the Fort Bragg Municipal Improvement District No.1, the consulting engineer describes the Permittee's existing sewer

system as mostly consisting of old clay pipes damaged by tree roots and excavations. According to the report, as a result of the high percentage of these damaged sewer lines, the Permittee's sanitary sewer system as "acts like a large French Drain" conveying groundwater and rainfall related I/I to the treatment plant. In addition to creating operational problems relating to hydraulic overloading of treatment processes, the I/I flow introduces a significant load of sand, gravel and rocks to the primary clarifier resulting in plugging of sludge withdrawal line. Operational difficulties related to the "sanding up" of the primary clarifier is documented in the file record back to the early 1980s.

The file record also indicates that the Permittee has acknowledged difficulty in the past in complying with permit effluent limitations for BOD due to high BOD loading of the facility. According to the 1999 report, "City of Fort Bragg Wastewater Treatment Plan Improvement Studies," the WWTF was designed based on a facility BOD loading of 1,700 lbs/day for a design flow of 1.0 mgd. However, influent monitoring data from January 2000 through December 2003 indicate that the actual annual average BOD loading is 3,076 lbs/day (370 mg/l, 1.0 mgd), a loading 80 percent higher than the BOD design criterion. It is unclear whether high BOD loading is contributing to less than expected performance, but, it does indicate that the facility is being operated at an organic loading considerably in excess of the design criteria which would indicate improper operation.

Daily Maximum Effluent Limitations

The Permittee's existing Permit contains daily maximum effluent limitations for BOD and suspended solids. The Permittee has requested that the Regional Water Board remove daily effluent limitations from the draft Permit, citing federal regulation 40 CFR 122.45(d), which states that permit effluent limitations be stated as average weekly and average monthly discharge limitations for POTWs. The State Water Board indicated in State Water Board Order WQO 2002-0012 that a weekly average limitations were effective for monitoring the performance of biological wastewater treatment plants and that the daily and instantaneous maximum limitations were recommended when standard effluent limitations do not adequately protect against acute water quality effects. The daily maximum effluent limitations for BOD and suspended solids have therefore not been included in the new Permit.

ii. Mass-based Limitations

Mass-based effluent limitations have been established for BOD and suspended solids pursuant to Sections 301, 302, 304, or 306 of the CWA and are consistent with federal requirements (40 CFR 122.45(f)) which require that pollutants limited in permits be expressed in terms of mass.

In general, permit requirements such as mass limitations, flow limits and percent removal requirements are necessary to prevent dilution from substituting for wastewater treatment. The District's flow records indicate the potential for

significant dilution of wastewater influent during periods of collection system inundation. Because this Permit does not include a wet weather flow limit to restrict treatment facility inflows to less than or equal to the design capacity, it is necessary to establish mass limitations, in addition to the percent removal requirement, to prevent the Permittee from diluting wastewater flows to meet concentration-based limitations. The WWTF is also capable of re-rating without mass limits. Re-rating could permit the City to increase the capacity of the WWTF, allowing it to treat more wastewater. This increased discharge of effluent would require a permit modification to, among other things, determine that the increased volume would not impair beneficial uses and that it is consistent with the Federal Antidegradation Policy and State Water Resources Control Board Resolution No. 68-16. Accordingly, mass limits are required in this Permit.

The mass-based effluent limitations for BOD and suspended solids included in this Order have been modified to be numerically higher than those included in the Permittee's previous Permit, Waste Discharge Requirements Order No. 95-47. Pursuant to 40 CFR 122.45(b), effluent limitations for POTWs are derived using the design flow of the WWTF. Mass-based effluent limitations in Order No. 95-47 were calculated based on average dry weather design flow of the WWTF, but did not take into account peak wet weather flows. This Order more appropriately calculates mass-based effluent limitations applicable during periods of wet weather flow based on the 30-day wet weather design flow. Mass-based effluent limitations are to be calculated in accordance with the following:

a. The mass effluent limitations (lbs/day) for BOD and suspended solids shall be calculated using the following formula: 8.34 x Q x C, where Q is the average dry weather flow of 1.0 mgd, C is the concentration-based effluent limitation, and 8.34 is a conversion factor.

b. During wet-weather periods when the average weekly flow rate into the WWTF exceeds the dry weather design flow of 1.0 mgd, the average weekly mass effluent limitation shall be calculated using the weekly concentration-based effluent limitation and the calculated average weekly discharge flow rate. When the average weekly flow rate into the WWTF exceeds the 30-day wet weather design flow rate of 2.2 mgd, the weekly average mass emission effluent limitation shall be calculated using the concentration-based effluent limitation and 2.2 mgd.

c. During wet-weather periods when the average monthly flow rate into the WWTF exceeds the dry weather design flow of 1.0 mgd, the average monthly mass effluent limitation shall be calculated using the monthly concentration-based effluent limitation and the calculated average monthly discharge flow rate. When the average monthly flow rate into the WWTF exceeds the 30-day wet weather design flow rate of 2.2 mgd, the monthly average mass emission effluent limitation shall be calculated using the concentration-based effluent limitation and 2.2 mgd.

b. **Settleable Solids and Turbidity**

The effluent limitations for settleable solids and turbidity are derived from Table A of the Ocean Plan. They are standards achievable through proper operation and maintenance of secondary treatment facilities.

The facility has demonstrated consistent compliance with effluent limitations for settleable solids and turbidity.

c. **pH**

This effluent limitation is based on the Ocean Plan Table A, which is derived from federal regulations (40 CFR 133.102). It is a standard secondary treatment technology-based effluent limitation and is unchanged from the existing Permit.

A facility reporting a pH value of greater than 6.0 and less than 9.0, based on a daily grab sample of the discharge, would be in compliance with the effluent limitation. The facility has demonstrated compliance with these effluent limitations through existing plant performance.

d. **Effluent Limitation B.2 (Coliform Organisms)**

The California Ocean Plan contains the following water quality objectives for areas where shellfish may be harvested for human consumption, and are to be maintained throughout the water column:

1. The median total coliform density shall not exceed 70 per 100 milliliters, and not more than 10 percent of the samples analyzed for total coliform bacteria shall exceed an MPN of 230 per 100 milliliters.

Because the Ocean Plan requires this objective to be met "throughout the water column," no allowance for dilution is provided in the area where the objective applies. Accordingly, the objective applies end-of-pipe.

Effluent limitations were established in the Permittee's previous NPDES permits (Order No. 74-52, Order No. 79-90, Order No. 84-83, and Order No. 90-03) to meet bacterial water quality objectives and were based on the numerical water quality objectives in the applicable Ocean Plan. In the Permittee's most recent Permit, Order No. 95-47, effluent limitations established for coliform bacteria were numerically lower than previous permits, and appear to be technology-based (i.e., based on the bacterial effluent quality expected after completion of secondary treatment.) Order No. 95-47 requires the Permittee to meet a 30-day median effluent concentration for total coliform bacteria of 23 MPN per 100 ml and a daily maximum MPN not to exceed 230 per 100 ml. Effluent limitations such as those in Order 95-47 are commonly included in waste discharge requirements for dischargers required to meet secondary treatment standards with disinfection. However, no justification was provided for the more stringent limitations in Order No. 95-47.

Regional Water Board staff have determined that there is a reasonable potential that the discharge can cause or contribute to exceedances of bacterial water quality objectives. This determination is based on the following of factors:

1. Conditions are suitable for shellfish to be present in the vicinity of the outfall. According to the 1973 Ocean Plan Technical Report prepared for the City of Fort Bragg, "the intertidal waters of the Fort Bragg cove support an abundant and varied array of flora and fauna." A biological investigation described in the Report confirmed the presence mussels (*Mytilus californianus*) in the vicinity of the discharge.

2. The Ocean Plan's specifies that shellfish standards shall be maintained throughout the water column (i.e., without credit for dilution);

3. Total coliform bacteria have been shown to be present in the WWTF's discharge in concentrations exceeding the Ocean Plan shellfish standards. For the period from January 2000 through November 2003, the maximum reported effluent concentration of total coliform was 1,600 MPN per 100 ml. Over the same period, the water quality objective of 70 MPN/ 100 ml was exceeded at the end-of-the-pipe 12 times, based on the 7-day median of any reported coliform sample;

4. The Permittee collects the effluent grab samples only once per week, presenting an incomplete representation of the daily effluent quality;

5. Recent receiving water monitoring data are not available for the area in the vicinity of the discharge; and

6. Currently, public access to offshore areas surrounding the facility's outfall is open and unrestricted. Members of the public wishing to harvest shellfish in this area can approach by boat and collect shellfish in accordance with state regulations. Regional Board staff are personally aware of shellfish harvesting occurring in this area. Public access to the shoreline area in the vicinity of the discharge is reasonably expected to increase with the redevelopment of the 400-acre Georgia-Pacific property that is adjacent to the treatment facility. The change in use of the previously restricted Georgia-Pacific property can reasonably be expected to result in increased body contact recreation and shellfish harvesting opportunities for the public.

There is a reasonable potential for coliform bacteria in the effluent to exceed water quality objectives and, therefore, a coliform bacteria effluent limit is required. However, there is no current receiving water data available for coliform bacteria in the area of the discharge. Until sufficient information is available to develop final effluent limitations specific to this discharge, the proposed Permit re-establishes effluent limitations for total coliform bacteria for discharges to surface water as interim water quality-based effluent limitations specified to ensure that the discharge at the end of the pipe meets shellfish harvesting standards containing in the Ocean Plan. These effluent limitations can reasonably be expected to be achieved with the facility's existing facilities. Accordingly, the draft Order contains the following

effluent limitations for total coliform bacteria based on water quality objectives for areas where shellfish may potentially be harvested for human consumption:

a. The monthly median concentration shall not exceed a Most Probable Number (MPN) of 70 per 100 milliliters, using bacteriological results from the calendar month for which analyses have been completed.

b. Not more than 10 percent of the samples analyzed for total coliform bacteria shall exceed an MPN of 230 per 100 milliliters.

These limitations apply at Discharge Serial No.001.

A facility reporting values of non-detect (less than a most probable number of 2 organisms per 100 milliliters in a five-tube multiple-tube fermentation test conducted in accordance with Standard Methods for the Analysis of Water and Wastewater Method 9221B) would be in compliance with these effluent limitations. In sampling periods that include sample results reported as non-detect (ND), the sample results shall be ranked from lowest to highest (ND, and "as measured"), and the median value shall be reported. When there is an even number of samples in a sampling period and one or both of the middle values is ND, the median value shall be considered to be ND.

These effluent limitations are numerically different from the limitations in the previous permit. Order 95-47 contained a 30-day average total coliform limitation of 23 MPN/ 100 ml and a daily maximum limitation of 230 MPN/ 100 ml. The facility has demonstrated sporadic noncompliance with these effluent limitations from 1996 through 2003. Over this period, the discharge has exceeded the daily maximum limitation for total coliform bacteria 23 times out of 391 samples. The monthly median limitation was exceeded 15 out of 87 calculated monthly median values.

c. Effluent Limitation B.3 (Percent Removal)

These standard technology-based effluent limitations are the minimum allowable reductions for BOD and Suspended Solids specified in federal requirements for secondary treatment (40 CFR 133.102; definition in 133.101). Percent removal is determined by comparing the monthly average value of influent wastewater concentration to the monthly average value of effluent concentration for the same constituent over the same time period. These limitations are numerically unchanged from the previous Permit; however, the percent removal requirement in the previous Permit was determined based on mass rather than concentration.

The facility has demonstrated sporadic noncompliance with this effluent limitation since the treatment facility was upgraded to meet secondary standards in 1979. From 1980 to 1993 the Permittee was in general compliance with the percent removal requirement, except during periods when full secondary treatment facilities were out of service or when the highly diluted influent flows would have required the facility to achieve significantly higher performance standard to achieve 85 percent removal. From 1993 until 1998, when repair of the secondary biofilter was completed, percent removal of BOD and Suspended Solids was consistently less than 85 percent. Except

during periods of extraordinary high influent flows, the facility has been in compliance with this effluent limitation since the biofilter was repaired.

Effluent Limitations for the Discharges of Toxic Pollutants (Section C)

a. Reasonable Potential Analysis (RPA)

   a. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for toxic pollutants (including toxicity) that are or may be discharged at levels which cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard. The process for determining reasonable potential and calculation of WQBELs when necessary is intended to protect the beneficial uses of the receiving water as specified in the Ocean Plan, and achieve applicable water quality objectives and criteria (that may be contained in other state plans and policies).

   b. *Methodology:* The RPA was conducted to determine whether reasonable potential existed for the discharge to cause, have a reasonable potential to cause, or contribute to an excursion above water quality objectives contained in Table B of the Ocean Plan. The 2001 Ocean Plan does not currently contain procedures to determine when an effluent limit based on Table B water quality objectives is needed. For the purpose of this Permit, reasonable potential was determined in accordance with Section 3.3 of the Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001)

   c. *Effluent Data:* The RPA is based on effluent data from 1993 to 2003.

   d. *RPA Determination*: Based on recent available effluent monitoring data, the only pollutants with reasonable potential were ammonia, copper, and cyanide. The maximum receiving water concentration (RWC) for ammonia was 38 mg/l (initial dilution (Dm) = 50:1, coefficient of variation (CV) = 1.0). This result exceeded the water quality objective of 30.6 mg/l. The maximum RWC for copper was 133 μg/l (Dm = 50:1, CV = 0.45). This result exceeded the water quality objective of 53 μg/l. The maximum RWC for cyanide was 600 μg/l (Dm = 50:1, CV = 0.98). This result exceeded the water quality objective of 51 μg/l. Accordingly, numeric WQBELs are required in the draft Permit for ammonia, copper and cyanide. A summary of the RPA and reasonable potential calculations for ammonia, arsenic, chromium, copper, and cyanide are included in **Attachment E** to the Fact Sheet. Effluent limitations and monitoring requirements have been established for pollutants having reasonable potential to exceed Table B water quality objectives.

   e. *Permit Reopener:* The Permit includes a reopener provision to allow numeric effluent limits to be added for any constituent that in the future exhibits reasonable potential to cause or contribute to the exceedance of a water quality objective or criterion. This determination, based on monitoring results, will be made by the Regional Water Board.

b. Water Quality-based Effluent Limitations

1. The final effluent limitations in this Order are water quality-based. They were developed for toxic pollutants that were determined to have reasonable potential to cause or contribute to exceedances of Ocean Plan Table B water quality objectives. Final effluent limitations in the following table were calculated based on the appropriate water quality objective, background concentration, and minimum initial dilution used for each pollutant that demonstrated reasonable potential. Mass-based limitations are also prescribed. Table B constituents determined not to have reasonable potential are to be monitored at least every five years to confirm that determination.

Constituent	**Units**	**6-Month Median**	**Daily Maximum**	**Instantaneous Maximum**
Ammonia as N	mg/l	31	122	306
	lb/day	255	1020	2552
Copper	µg/l	53	512	1,430
	lb/day	0.44	4.27	11.9
Cyanide	µg/l	51	204	510
	lb/day	0.43	1.70	4.25

2. Compliance with Effluent Limitations

Compliance with effluent limitations in Table B is to be determined as follows:

a. Compliance with Single-Constituent Effluent Limitations.

The discharge is out of compliance with the effluent limitation if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (ML). The ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specific sample weights, volumes and processing steps have been followed. A table of MLs is included as an appendix to Order No. R1-2004-0009.

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents.

The discharge is out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g., PCBs) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual

pollutants of the group will be considered to have a concentration of zero if the constituent is reported as non-detect (ND) or Detected, but Not Quantified (DNQ) is below the method detection limit (MDL).

c. Multiple Sample Data Reduction.

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of the central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported ML). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

Basis for Receiving Water Limitations (Section E)

Receiving water limitations in this Order implement water quality objectives contained in Section II of the Ocean Plan and were included in the previous permit.

BASIS FOR OTHER PERMIT CONDITIONS

Solids Disposal and Handling Requirements (Section F)

The disposal or reuse of wastewater treatment screenings, sludges, or other solids removed from the liquid waste stream is regulated by 40 CFR Parts 257, 258, 501, and 503, the State Water Board promulgated provisions of Title 27, Division 2, of the California Code of Regulations, and with the Water Quality Control Plan for Ocean Waters of California (California Ocean Plan). From 1996 to 2001, the Permittee land applied biosolids at the H-H Ranch in Point Arena. Other collected screenings, sludges, and solids removed from liquid wastes are currently disposed of at a legal point of disposal.

Source Control Requirements (Section G)

Toxic pollutants have the potential to disrupt the WWTF and/or cause the discharge to exceed Ocean Plan water quality objectives. Although a review of past monitoring data indicates that many toxic pollutants are not evident in the effluent, it has been determined that there is the reasonable potential for some toxic constituents to violate applicable objectives. Frequent monitoring of the WWTF's discharge would ordinarily be adequate for demonstrating that other potentially disruptive pollutants are not present in the wastewater influent. However, this Order requires a complete scan of the Ocean Plan Table B substances less frequently than the annual monitoring recommended in the Ocean Plan. As a result of the less than recommended effluent monitoring for all Table B substances in the proposed Permit, contributions of toxic pollutants from new industrial discharges and slug loads of toxic pollutants from spills and illicit discharges are likely to go undetected. In addition, toxic pollutants, grease and other materials from sources not traditionally covered by the traditional pretreatment program are often discharged into collection systems and may lead to plant upsets, sanitary sewer overflows, water quality violations and unacceptable safety risks to plant operators and collection system workers.

Source control is recognized as a prudent measure to ensure that pollutants do not pass through the treatment facility to impair the beneficial uses of the receiving water and to ensure the efficient operation of the treatment facility. Accordingly, as an alternative to more frequent effluent monitoring for Ocean Plan Table B pollutants consistent with the Ocean Plan, this Order includes source control requirements to minimize the threat that the discharge may contain toxic pollutants that may interfere, pass through, or be incompatible with treatment operations, interfere with the use or disposal of sludge, or pose a health hazard to personnel.

The toxic monitoring requirements and the monitoring, record keeping, reporting and other source control requirements are included pursuant to Sections 13267 and 13383 of the California Water Code in order to comply with toxicity related limitations. Discharges that cause acute or chronic toxicity pose a serious threat to water quality and beneficial uses. If such toxicity arises, costly toxicity identification and reduction activities are required. Accordingly, pursuant to Water Code section 13267, the Regional Water Board concludes that the costs associated with measures intended to reduce discharges of toxic materials into the collection system are reasonable considering the benefit obtained, namely the prevention of toxicity and savings in avoided costs of toxicity identification and reduction activities.

Facility Operation (General Provision 5)

40 CFR 122.41(e) requires proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions.

Bypass (General Provision 13)

Federal regulations (40 CFR 122.41(m)) generally prohibit the intentional diversion of waste streams from any portion of a treatment facility. The previous NPDES Permit, Order No. 95-47, included only the prohibition of bypass and not the full text of 40 CFR 122.41(m). Excluding the full text is a more stringent interpretation of the federal regulation.

The full text of the standard bypass condition has been incorporated into this Permit. Importantly, however, the burden of demonstrating a particular bypass is not prohibited by the condition falls to the Permittee. In many cases, that burden may be difficult to surmount given that the WWTF lacks storage/equalization and the record does not demonstrate that the wastewater collection system has been adequately maintained. To successfully assert that a bypass does not violation the condition, the Permittee will need to demonstrate that these problems were not the cause.

The modification to the bypass provision represents a slight relaxation of the provisions compared to the last permit. This relaxation complies with the antibacksliding prohibition in 40 CFR Section 122.44(*l*)(1) because, unlike the past provision, this one allows the Permittee to establish permissible bypasses in the limited cases contemplated by the standard condition. Thus, the relaxation is appropriate because the prior provision, which flatly prohibited all bypasses, was too stringent. (40 CFR Section 122.62(a)(15).) The relaxation complies with the Antidegradation Policy and Resolution 68-16 because it affords the Permittee protection only for bypasses that are unavoidable in the event the Permittee has employed best practicable treatment or control. The allowance for these unavoidable bypasses is consistent with maximum benefit to people of the State because such flexibility is necessary to enable the Permittee, in full

compliance with the Permit, to either: (1) perform maintenance that cannot feasibly be done any other time; or (2) avoid loss of life, personal injury, or serious property damage.

Upset (General Provision 14)

Federal regulations (40 CFR 122.41(n)) establish a defense to enforcement actions for violations due to an "upset." Upset is conditioned on the permittee demonstrating that the violation in question was not due to "improperly designed" or "inadequate" treatment facilities. (40 CFR 122.41(n).)

The prior permit incorporated the standard upset condition by reference. This Permit, by contrast, contains the actual language of that standard provision. Accordingly, the requirement is not substantively changed from the prior permit. The upset provision specifies that "[a]n 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." The Regional Water Board will construe this list to include lack of collection system maintenance and lack of adequate wastewater storage/equalization when evaluating whether the Permittee has met its burden to show an upset has occurred.

Wastewater Collection System (General Provision 15)

The wastewater collection system for this facility has a number of old pipes that are in need of repair and/or replacement. In addition, studies conducted by the Permittee have identified cross-connections and other collection system problems. Conditions in the collection system have contributed to very high infiltration/inflow conditions at the wastewater treatment facility. In addition, these conditions pose a threat of raw sewage discharges in the service area. If these sewer spills are not fully contained or cleaned up, they pose a threat of discharge into nearby surface waters or to the relatively shallow ground water in the area. Such spills also may contribute to a condition of public nuisance due to odors, vectors, and public contact risks. A provision requiring proper maintenance and operation of the collection system is necessary to reduce the threat of unauthorized discharges from the collection system. Without correction, the continued operation of the collection system poses a threat to violate water quality objectives for surface and ground waters in the area of the collection system.

General Provision 15 is derived from CWA Sections 304(I), 308 and 402(a) of the CWA and federal regulations (40 CFR 122.41 (e)) requiring the proper operation and maintenance of a POTWs wastewater collection system. These requirements are based on the latest version of U.S. EPA's proposed Capacity, Management, Operations, and Maintenance (CMOM) regulations. The U.S. EPA has prepared the draft proposed CMOM rule to address the control of sanitary sewer overflow from municipal wastewater collection systems. The core requirement in the draft Rule is for proper system management under the framework of CMOM to eliminate "preventable" SSOs by requiring entities to implement appropriate capacity, management, operations, and maintenance practices. A CMOM program is a structured program for managers of wastewater collection system to optimize system performance and maintain their facilities. CMOM is an iterative process of evaluating and improving procedures for managing collection systems and ensuring system performance.

Under U.S. EPA's draft proposed sanitary sewer overflow (SSO) Rule, collection system utilities must meet five performance standards:

- Properly manage, operate and maintain all parts of the collection system;
- Provide adequate conveyance capacity;
- Reduce the impact of any SSOs;
- Provide notification to parties who may be exposed to a SSO; and
- Document the CMOM program in a written plan.

The State Water Board is moving forward with implementation of the proposed federal rule, but has not yet promulgated statewide regulations. Nevertheless, proper management of the municipal wastewater collection system is an integral component of a properly operating publicly owned treatment works as required by 40 CFR 122.41(e). The draft Order for the Fort Bragg Municipal Improvement District No. 1 incorporates many of the goals of the U.S. EPA's proposed CMOM program. In addition, entities that comply with the CMOM regulations and have acceptable CMOM programs in place will be better able to assert an affirmative defense for unpreventable SSO incidents, and avoid or mitigate regulatory enforcement actions that will otherwise occur.

The requirement to prepare an operation and maintenance plan and prepare reports on collection system maintenance will involve potentially significant initial capital costs. However, these are costs would not be particularized to Fort Bragg as they are routinely incurred by agencies who properly maintain their collection systems. Once completed, the use of these plans to direct future maintenance and replacement activities should result in long term cost savings. In addition, such activities will help prevent spills and bypasses and help prevent impacts to public health and water quality. The Regional Water Board concludes, pursuant to Water Code section 13267, that the costs of doing the reports is reasonable in relation to the benefit of the collection system maintenance plan and reports, namely the prevention of spills and bypasses and resulting impacts on water quality.

Sanitary Sewer Overflows (General Provision 16)

This Provision H.16 directs the Permittee to prepare a comprehensive Spill Response and Notification Plan for the Fort Bragg Municipal Improvement District No. 1. The purpose of the Plan is to ensure that the Permittee provides an appropriate and timely response to the Regional Water Board in the event of a sanitary sewer overflows. An appropriate and timely response to SSO incidents is necessary to comply with Prohibition A.4 of this Permit, which prohibits the discharge of untreated waste or partially treated waste from anywhere within the collection, treatment, or disposal facility. The Plan also includes provisions to ensure adequate notifications are made to the appropriate local, state, and federal authorities. In addition, the provision requires that the Permittee monitor the effectiveness of the Plan and report annually to the Regional Water Board on progress made toward reducing the frequency and severity of sanitary sewer overflows within the Permittee's wastewater collection system.

The requirement for the reporting of permit violations as a result of sanitary sewer overflows is a common requirement of wastewater permits. The reports help identify problematic areas of the collection system in order to focus maintenance activities. The submittal of reports will provide a public record of areas where the threat to public health and surface waters due to sanitary sewer overflows are prevalent so that maintenance work can be targeted where it is most needed. Pursuant to Water Code section 13267, the Regional Water Board concludes the costs of violation notification and record-keeping are reasonable compared to the benefits of minimizing

sanitary sewer overflows and the associated threat to public health and beneficial uses of surface waters.

BASIS FOR MONITORING REQUIREMENTS

Effluent Limitations

Section 308 of the Clean Water Act and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. In addition, CWC Sections 13267 and 13383 authorize the Regional Water Board to establish monitoring and reporting requirements for dischargers of pollutants to waters of the state. Accordingly, this Order contains a Self-Monitoring and Reporting (M&R) Program that includes requirements for monitoring the discharge for conventional, non-conventional and toxic pollutants, and chronic toxicity. Self-monitoring of treatment facility influent for BOD and suspended solids is also required to assess treatment system performance.

The draft M&R Program includes new monitoring requirements for grease and oil (frequency), and chronic toxicity. Most monitoring parameters and frequencies are unchanged from the existing Order. As in the existing M&R Program No. 95-47, total residual chlorine must be monitored at a point prior to discharge to ensure that no detectable chlorine residual is present. Monitoring requirements for chronic toxicity have been updated or added to conform to federal guidelines for Whole Effluent Toxicity testing and the Ocean Plan.

Receiving Water Limitations

Provision II.A.3 of the Ocean Plan states that compliance with water quality standards shall be determined from samples collected at stations representative of the area within the waste field where initial dilution is completed. Monitoring may also be required to gather data for future effluent limitations or to determine whether the discharge has reasonable potential to cause, or contribute to an excursion above water quality objectives contained in Table B of the Ocean Plan. Compliance with receiving water quality objectives and determination of reasonable potential to exceed water quality objectives will be based on the implementation of a receiving water monitoring program to be developed by the Permittee as a requirement of this Permit. This Order requires the Permittee to submit the plan to the Regional Water Board no later than August 1, 2004. The plan shall describe how the Permittee will comply with Section II of the Ocean Plan (Water Quality Objectives).

Compliance with Receiving Water Limitation E.4 will be determined based on a biological survey of the outfall location. The survey is required at least every five years. It is expected that the biological survey will be conducted by persons qualified to evaluate ocean biological habitat and determine whether the discharge has resulted in an adverse impact. The last survey of the kind was conducted by the Permittee in 1972. By requiring such an evaluation only once during the permit term, the Permittee can prepare the necessary scope of work and evaluate options for ensuring that the study can be conducted in a cost effective manner. In addition, it may be possible to combine this assessment work with other studies of the area being conducted by other parties. The scope and cost of the biological assessment have not yet been determined, but the costs associated with a one-time biological survey is reasonable as compared to the benefits for ensuring that water quality objectives are being met.

The Order also requires the Permittee to inspect the outfall location to determine the structural integrity and operational status of the outfall structure. Regional Water Board staff have information that more than one of the diffuser ports in the outfall structure does not appear to be discharging waste. It is incumbent on the Permittee to maintain the outfall structure so that the outfall's performance is consistent with design specifications. The cost of the outfall inspection has not been determined, but the benefit to water quality to be derived from the information gained from this inspection outweighs the potential cost to the Permittee.

Current receiving water monitoring data are not available, and the Permittee has argued previously that receiving water monitoring for bacteria is not warranted because receiving water monitoring data from 1978 combined with the discharge's 50:1 minimum dilution predict that the discharge will not exceed water quality objectives for total coliform bacteria. In addition, the Permittee has cited the area's limited public access and difficult oceanographic conditions as restricting the opportunity for water-contact recreation. However, over the years the amount of effluent discharged has increased. Other potential sources of pollutants including storm water discharges and potential sewage discharges from the collection system may have changed ambient conditions. It is appropriate to have an ongoing receiving water monitoring program in order to fully determine compliance over time.

The following Table presents the proposed effluent monitoring requirements:

Table 4. Monitoring Requirements

	MONITORING REQUIREMENTS		
Parameter	**Sample Frequency**	**Sample Type**	**Notes**
Influent to Fort Bragg Municipal Improvement District No. 1 WWTF			
Daily Flow, mgd	Continuous	meter	1, 2
BOD_5, mg/l	Weekly	Grab-Composite	3, 4
Suspended Solids, mg/l	Weekly	Grab-Composite	4, 5
Effluent to the Pacific Ocean (Discharge Serial 001)			
Daily Flow, mgd	Continuous	meter	1
BOD_5, mg/l	Weekly	Grab-Composite	3, 4
Suspended Solids, mg/l	Weekly	Grab-Composite	4, 5
Settleable Solids, ml/l	Daily	Grab-Composite	4, 6
Grease and Oil, mg/l	Monthly	Grab	7
Turbidity, NTU	Daily	24-hour Composite	8
pH, Standard Units	Daily	Grab	9
Total Coliform Organisms, MPN/ 100 ml	Daily	Grab	10,11
Residual Chlorine, mg/l	Daily	meter	12
Chronic Toxicity, TUc	Semi-annually	Grab	13
Ammonia as N, mg/l	Weekly	Grab	14
Copper, µg/l	Monthly	24-hour Composite	15
Cyanide, µg/l	Monthly	24-hour Composite	16
Table B Constituents	Every five years	24-hour Composite	17

(1) Daily flow is the average and peak daily wastewater influent flow to the WWTF and average daily effluent flow discharged to the Pacific Ocean in a calendar day, expressed in million gallons per day. The monitoring of influent flows is critical for documenting influent flow variations to determine their correlation to WWTF performance. In addition, influent flow information will allow the Permittee to exercise greater process control (including optimization of chemical addition) over headworks process units and potentially reduce operating costs. The Permittee is also undertaking grant-funded projects to reduce cross connections between the sanitary sewer system and stormwater collection system. Influent flow data will be useful in documenting progress toward reducing I/I from illegal cross connections.

The flow meter should have a one-time cost of about $5-7,000 and minor annual costs for calibration and routine maintenance. The benefit of the information yielded far exceeds these minor costs.

(2) Influent flow shall be monitored continuously by appropriate flowmeter. The flowmeter shall be properly maintained and calibrated as necessary, but at least annually to ensure its continued accuracy. Influent flow shall be reported as average daily and peak daily flow.

(3) 5-day Biochemical Oxygen Demand (BOD_5) shall be measured using methods described in the latest edition of *Standard Methods* (APHA).

(4) Composite samples may be taken by a proportional-sampling device approved by the Regional Water Board Executive Officer (Executive Officer) or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed one hour.

(5) Suspended solids shall be measured using methods described in the latest edition of *Standard Methods* (APHA).

(6) Settleable solids shall be measured using methods described in the latest edition of *Standard Methods* (APHA).

(7) Grease and Oil shall be measured using methods described in the latest edition of *Standard Methods* (APHA).

(8) Turbidity shall be measured using methods described in the latest edition of *Standard Methods* (APHA).

(9) Hydrogen ion (pH) shall be measured using methods described in the latest edition of *Standard Methods* (APHA) or using a meter with an accuracy to 0.1 pH units.

(10) The Most Probable Number (MPN) for total coliform organisms shall be determined using method 9221B in the latest edition of *Standard Methods* (APHA). The discharger shall use a fifteen-tube fermentation test using three sets of five tubes of dilutions 10 ml, 1.0 ml, and 0.1.

(11) "Daily" grab samples are to be collected at least once per week at a point following effluent dechlorination and prior to discharge to the Pacific Ocean.

(12) Residual chlorine shall be expressed as total chlorine and measured using methods described in the latest edition of Standard Methods (APHA) or using an analytical method or chlorine analyzer with a minimum detection level of 0.1 mg/l. This measurement shall be used to monitor that the treated wastewater discharge has been dechlorinated before discharge to the Pacific Ocean. All measuring instruments shall be properly maintained and calibrated as directed in the instrument's operating manual to ensure its continued accuracy.

(13) The presence of chronic toxicity shall be estimated as specified in Order No. R1-2004-0009 and shall be consistent with *Short-Term Methods for Estimating the Chronic*

Toxicity of Effluents and Receiving Water to West Coast Marine and Estuarine Organisms (EPA-600/R-95/136, or subsequent editions). For the first two suites of chronic toxicity tests, the discharger will determine the most sensitive aquatic species and continue to monitor with the most sensitive species. At least once every five years, the discharger will re-screen to re-confirm the most sensitive species.

(14) Ammonia shall be measured using methods described in the latest edition of Standard Methods (APHA), and expressed as Ammonia-nitrogen.
(15) Copper shall be measured using EPA Method 200.
(16) Cyanide shall be measured using EPA Method 200.
(17) Minimum Levels (MLs) for these constituents are specified in Table II-4 of the Ocean Plan.

Whole Effluent Toxicity Monitoring Requirements

Federal regulations (40 CFR 122.44(d)) require that effluent limitations be established for pollutants, including whole effluent toxicity, when a discharge has the reasonable potential to cause or contribute to an exceedance of a State water quality standard, including State narrative objectives for water quality. The previous Permit contained technology-based effluent limitations for acute toxicity as required by the 1997 Ocean Plan. The subsequent revision of the Ocean Plan in 2001 specifies toxicity testing requirements based on the minimum initial dilution factor, expressed as parts seawater per wastewater, for the discharge. Where the minimum initial dilution of the effluent is less than 100:1 at the edge of the mixing zone, dischargers are required to conduct only chronic toxicity monitoring. Acute toxicity testing is required only for discharges having a minimum initial dilution of greater than 1000:1. As the Permittee's calculated minimum initial dilution is 50:1, only short-term chronic toxicity tests on the treated effluent are required. The SWRCB has determined that replacing technology-based effluent limitations for acute toxicity based on best professional judgment with, assuming reasonable potential, water quality-based effluent limitations is not subject to federal anti-backsliding restrictions. (*Final Functional Equivalent Document Amendment of the Water Quality Control Plan for Oceans Waters of California*)

Because the Permittee was not previously required to conduct chronic toxicity monitoring, chronic toxicity data are not available for the Permittee's discharge. As a result, there is no evidence that the discharge has reasonable potential to cause or contribute to an exceedance of the narrative toxicity objective. Accordingly, this Permit does not include water quality-based effluent limitations for toxicity, only requirements to conduct short-term chronic toxicity tests. Consistent with 40 CFR 122.44(d) and the U.S. EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD), if results of toxicity monitoring indicate that the discharge has reasonable potential to cause or contribute to an exceedance of the chronic toxicity objective in the Ocean Plan, then the Permit will be reopened to include effluent limitations for effluent toxicity and/or the constituents causing the toxicity.

In accordance with U.S. EPA guidance document "Regions 9 and 10 Guidance for Implementing Whole Effluent Toxicity Testing Programs", the Permittee is required to conduct routine short-term tests with the red abalone, *Haliotis rufescens* (larval development test), the topsmelt, *Atherinops affinis* (growth and survival test), and the giant kelp, *Macrocyctis pyrifera* (germination and germ-tube length test). Initially, the Permittee is required to determine the most sensitive test species and monitor the discharge for chronic toxicity using that species for no more than five years, whereupon, the Permittee will repeat the screening procedure to confirm

the most sensitive species. For the purpose of gathering adequate information to determine reasonable potential, routine semi-annual monitoring has been specified in this Permit to provide data during dry and wet weather conditions to account for potential seasonal variability of the discharge.

The M&R Program requires the Permittee to collect and analyze at least two additional effluent samples for chronic toxicity in the event that any one routine sample exceeds a “trigger” value of 3.8 chronic toxicity units (TUc). The Permittee may return to routine monitoring if the maximum result of the initial sample and the next two samples does not exceed 5.6 TUc. The single result trigger of 3.8 TUc is derived using the methodology described in Box 3-2 of the TSD, assuming one sample, a default coefficient of variation (CV) of 0.6, and a water quality criterion of 1TUc. The three-sample result trigger of 5.6 TUc is calculated assuming three samples, a CV of 0.6, and a water quality criterion of 1 TUc.

(fortbraggfactsheet)