CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 77-73
NPDES NO. CA0104876

WASTE DISCHARGE REQUIREMENTS
FOR
MAGMA ELECTRIC COMPANY-
GEOTHERMAL TEST FACILITY-
COOLING POND BLOWDOWN
East Mesa Area - Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. Magma Electric Company (hereinafter also referred to as the discharger), P.O. Box 2082, Escondido, California 92025, by application dated June 7, 1977, has applied for waste discharge requirements and a permit to discharge wastewater under the National Pollutant Discharge Elimination System.

2. The discharger proposes to discharge an average flow of 408,000 gallons-per-operating day of cooling pond blowdown water (from a 10 megawatt geothermal test plant) into Warren Drain in the SW¼ of Section 12, T16S, R16E, SBB&M. The wastewater flows from Warren Drain to Alamo River, a distance of approximately five miles.

3. The report of waste discharge describes the proposed discharge as follows:

   Average Flow: 408,000 gallons-per-day

   Maximum Flow: 486,000 gallons-per-day

   Average Temperature: 78°F Summer; 62°F Winter

Cancelled
Replaced by
82-29

Constituents	Daily Average Milligrams per Liter	Daily Average Pounds per day
BOD	7	23.8
Total Suspended Solids	5	17.0
Chemical Oxygen Demand	15	51.0

Other Constituents	
Specific Conductance	3500 to 4500 micromhos/cm at 25°C
Settleable Matter	Trace (ml/l)
pH Units	7.0 to 9.0

4. EPA and the Regional Board have classified this discharge as a major discharge.

5. The discharger proposes to utilize Imperial Irrigation District water for cooling. Incoming water will be treated with the following chemicals:

Chemical	Usage	Quantity per MG Incoming Water Treated
Sulfuric Acid	pH Control	1000 lb/MG
Anticor 226L*	corrosion inhibitor	120 lb/MG
Chlorine	anti-fouling	120 lb/MG

*Anticor 226L consists of Amino (methylene phosphonic acid,) and Hydroxeyethylidene Diphosphonic acid and zinc chloride.

6. The Water Quality Control Plan for the West Colorado River Basin was adopted on April 10, 1975. The Basin Plan contains water quality objectives for Imperial Valley Drains.

7. The beneficial uses of the Imperial Valley Drains are:

   a. Transport of dissolved solids to Salton Sea for agricultural soil salinity control.

   b. Limited public fishing activity.

   c. Fish and wildlife habitat.

   d. Freshwater replenishment for Salton Sea.

8. The discharger and interested agencies and persons have been notified of the Board's intent to prescribe requirements for the proposed discharge and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations.

9. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

10. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21000) of Division 13 of the Public Resources Code in accordance with Water Code Section 13389.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provisions of the Federal Water Pollution Control Act, as amended, and regulations and guidelines adopted thereunder, that the discharger shall comply with the following:

A. Effluent Limitations

1. Representative samples of wastewater discharged to Warren Drain shall not contain constituents in excess of the following limits:

Constituent	Unit	30-day Arithmetic Mean Discharge Rate	7-day Arithmetic Mean Discharge Rate	Maximum Discharge Rate
Total Dissolved Solids	mg/l	4000		4500
Suspended Solids	lbs/day	17.0	34.0	60.8
	mg/l	5	10	15
Settleable Matter	ml/l	0.3	0.5	1.0
Chlorine	mg/l	-	-	Less than 0.02

2. The 7-day or 30-day mean for the constituents listed in Item 1 above shall be the arithmetic mean of all the values of daily discharge rate calculated using the results of analyses of all samples collected during any 7 or 30 consecutive calendar day period. If fewer than 4 samples are collected and analyzed during any 30 consecutive calendar day period, compliance with the 30-day average limitation shall not be determined. If fewer than 3 samples are collected and analyzed during any 7 consecutive calendar day period, compliance with the 7-day average limitations shall not be determined.

3. The daily weight (lbs/day) listed in Item 1 above is obtained from the following calculation for any calendar day:

$$\text{Daily Weight (lbs/day)} = \frac{8.34}{N} \sum_{1}^{N} Q_i \quad C_i$$

in which N is the number of samples analyzed in any calendar day. Q_i and C_i are the flow rate (MGD) and the constituent concentration (mg/l) respectively, which are associated with each of the N grab samples which may be taken in any calendar day. If a composite sample is taken, C_i is the concentration measured in the composite sample, and Q_i is the average flow rate occurring during the period over which samples are composited.

4. The average daily flow shall not exceed 408,000 gallons-per-operating day.

5. The effluent values for pH shall remain within the limits of 6.0 to 9.0.

B. Receiving Water Limitations

1. Wastewater discharged to Warren Drain shall not:

   a. Cause the temperature of the waters in said Drain to be increased by more than 5°F.

   b. Cause presence of heavy metals or associated chemicals toxic to fish or other aquatic life.

   c. Cause concentration of zinc to exceed 0.5 mg/l.

2. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board as required by the Federal Water Pollution Control Act and regulations adopted thereunder. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board may revise and modify this Order in accordance with such more stringent standards.

C. Provisions

1. Neither the treatment nor the discharge of waste shall create a pollution or a nuisance as defined in the California Water Code.

2. The discharger shall comply with the attached "Monitoring and Reporting Program No. 77-73", and future revisions thereto, as specified by the Executive Officer.

3. The discharger shall comply with all items of the attached "Standard Provisions and Reporting Requirements" and future revisions thereto, as specified by the Executive Officer.

4. Any proposed change in corrosion control or biological control chemicals shall be reported to the Regional Board, and the discharger shall obtain approval from the Board prior to commencement of discharge.

5. This Order expires September 21, 1982, and the discharger shall file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of this date as an application for issuance of new waste discharge requirements.

6. In the event of any change in operation, or in control or ownership of the land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall:

   a. Notify this Board of such change; and

   b. Notify the succeeding owner or operator by letter of the existence of this Order; and file a copy of said letter with this Board.

This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall become effective ten (10) days after date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Arthur Swajian, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on Sept. 21, 1977.

Arthur Swajian
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

MONITORING AND REPORTING PROGRAM NO. 77-73
FOR
MAGMA ELECTRIC COMPANY-
GEOTHERMAL TEST FACILITY-
COOLING POND BLOWDOWN
East Mesa Area - Imperial County

Location of Discharge SW¼, Section 12, T16S, R16E, SBB&M

EFFLUENT MONITORING

Wastewater discharged into Warren Drain shall be monitored for the following constituents. All samples shall be taken between 6 a.m. and 6 p.m. A sampling station shall be established at the point of discharge and shall be located where representative samples of the effluent can be obtained.

Constituent	Unit	Type of Sample	Sampling Frequency
Total Dissolved Solids	mg/l	Grab	Weekly
Flow	gallons/day	Average Daily	Reported Monthly
pH	pH units	Grab	Weekly
Copper	mg/l	Grab	Monthly
Zinc	mg/l	Grab	Monthly
Lead	mg/l	Grab	Monthly
Suspended Solids	mg/l	Grab	Monthly
Settleable Matter	ml/l	Grab	Weekly
Total Chromium	mg/l	Grab	Monthly
Total Chlorine Residual	mg/l	Grab	Daily

RECEIVING WATER MONITORING

Water in Warren Drain shall be monitored for the following constituents. All samples shall be taken between 6 a.m. and 6 p.m. A sampling station shall be established where representative samples of mixed water can be obtained. Said sampling station shall be located midstream in Warren Drain at a point where the discharge and receiving waters have thoroughly mixed, but not to exceed 30 feet downstream from the point of discharge.

Constituent	Unit	Type of Sample	Sampling Frequency
Zinc	mg/l	Grab	Monthly
Temperature*	^{o}F	Grab	Weekly

REPORTING

1. The discharger shall notify the Board at least 10 days prior to commencement of discharge, and shall also provide at this time an analysis of the wastewater to be discharged in accordance with the "Effluent Monitoring Program" set forth above.

2. Weekly and monthly monitoring reports shall be submitted to the Regional Board by the 15th day of the following month. The annual monitoring report**shall be submitted by January 30 of each year.

Forward monitoring reports to:

California Regional Water Quality Control Board
Colorado River Basin Region
73-271 Highway 111, Suite 21
Palm Desert, CA 92260

*Temperature of the receiving water shall be taken within 30 feet of the point of discharge, both upstream and downstream of the point of discharge. In the event the discharge is at the upper end of the drain, a nearby drain of similar characteristics may be sampled in lieu of the upstream sample.

**Required in Standard Provisions and Reporting Requirements.

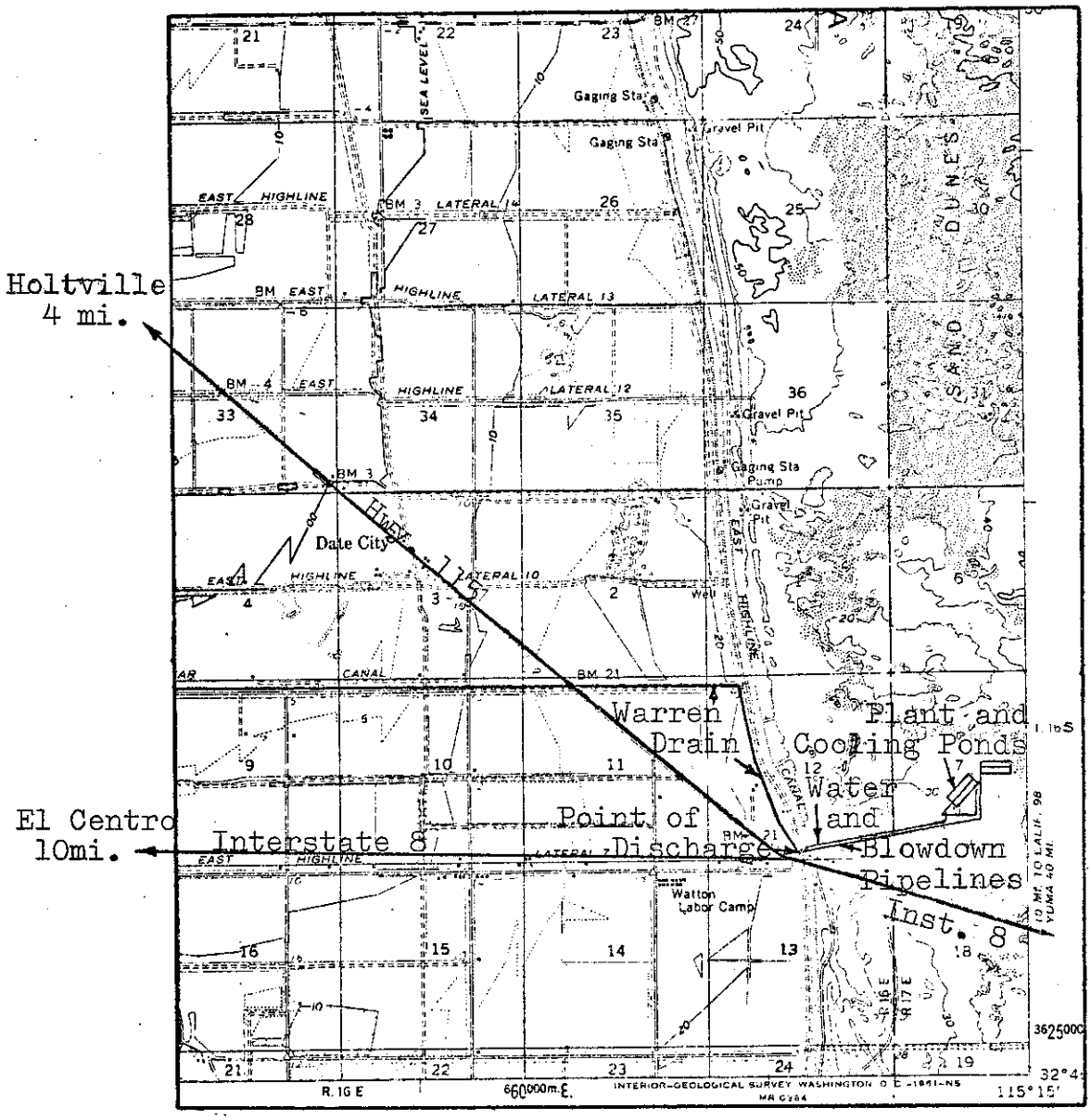
and also to:

Regional Administrator
Environmental Protection Agency
Region 9, E-5-1
100 California Street
San Francisco, CA 94111

ORDERED BY Arthur Lazarus
Executive Officer

Sept. 21, 1977
Date

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD-7



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Scale:
1"=1mi.

SITE MAP

MAGMA ELECTRIC COMPANY
GEOTHERMAL TEST FACILITY
East Mesa Area - Imperial County
SW¼ of Section 12, T16S, R16E, SBB&M
U.S.G.S. Holtville 15 min. Topographic Map

Order No. 77-73

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
INDUSTRIAL DISCHARGES

A. General Provisions

1. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the discharger from his liabilities under federal, state, or local laws, nor guarantee the discharger a capacity right in the receiving waters.

2. The discharger shall permit the Regional Board and the Environmental Protection Agency:

   (a) Entry upon premises in which an effluent source is located or in which any required records are kept;

   (b) Access to copy any records required to be kept under terms and conditions of this order;

   (c) Inspection of monitoring equipment or records; and

   (d) Sampling of any discharge.

3. All discharges authorized by this Order shall be consistent with the terms and conditions of this Order. The discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by this Order shall constitute a violation of the terms and conditions of this Order.

4. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

   (a) Violation of any term or condition contained in this Order;

(b) Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;

(c) A change in any condition that required either a temporary or permanent reduction or elimination of the authorized discharge.

5. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307 (a) of the Federal Water Pollution Control Act, or amendments thereto, for a toxic pollutant which is present in the discharge authorized herein and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition and so notify the discharger.

6. If more stringent applicable water quality standards are approved pursuant to Section 303 of the Federal Water Pollution Control Act, or amendments thereto, the Board will revise and modify this order in accordance with such more stringent standards.

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

8. The discharger shall, within ninety (90) days of the effective date of this permit, submit to the Regional Board and the Regional Administrator a description of the proposed safeguard to be provided to assure, that, should there be reduction, loss, or failure of electric power, the discharger shall comply with the terms and conditions of this Order. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures or other means. The adequacy of the safeguards is subject to the approval of the Regional Board.

9. Any diversion from or bypass of facilities necessary to maintain compliance with the terms and conditions of this Order is prohibited, except (a) where unavoidable to prevent loss of life or severe property damage, or (b) where excessive storm drainage or runoff would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this Order. The discharger shall promptly notify the Board and the Regional Administrator of EPA in writing of each such diversion or bypass.

10. Except for data determined to be confidential under Section 308 of the Federal Water Pollution Control Act, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Regional Water Quality Control Board, and the Regional Administrator of EPA. As required by the Federal Water Pollution Control Act, effluent data shall not be considered confidential. Knowingly making any false statements of any such report may result in the imposition of criminal penalties as provided for in Section 309 of the Act.

11. The discharger shall take all resonable steps to minimize any adverse impact to receiving waters resulting from noncompliance with any effluent limitations specified in this Order, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

12. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this Board.

13. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

B. Provision for Monitoring

1. Water quality analysis shall be performed in accordance with the latest edition of "Guidelines Establishing Test Procedure for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.

2. The laboratory which performs the sample analysis must be identified in all monitoring reports submitted to the Regional Board Executive Officer and the Regional Administrator (EPA).

3. Effluent samples shall be taken downstream of the last addition of waste to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters.

4. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accurancy.

C. General Reporting Requirements

1. The discharger shall submit to the Board on or before each compliance report date, a report detailing his compliance or noncompliance with the specific schedule date and task.

   If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the discharger will be in compliance. The discharger shall notify the Board by letter when he has returned to compliance with the time schedule.

2. In the event the discharger does not comply or will be unable to comply with any prohibition, daily maximum effluent limitation, or receiving water limitation of this Order for any reason, the discharger shall notify the Executive Officer by telephone (714) 346-7491 as soon as he or his agents have knowledge of such noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the nature, time and cause of noncompliance, and shall describe the measures being taken to prevent recurrences.

3. This Board requires the discharger to file with the Board, within ninety (90) days after the effective date of this Order, a technical report on his preventive (failsafe) and contingency (cleanup) plans for controlling accidential dischargers, and for minimizing the effect of such events. The technical report should:

   (a) Identify the possible sources of accidental loss, untreated waste bypass, and contaiminated drainage.

Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.

b. Evaluate the effectiveness of present facilities and procedures and state when they became operational.

Describe facilities and procedures needed for effective preventive and contingency plans.

c. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational. (Reference: Section 13267(b) and 13268, California Water Code.

This Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges to minimize the effects of such events. Such conditions may be incorporated as part of this Order, upon notice to the discharger.

4. Monitoring reports shall be submitted on forms to be supplied by the Board to the extent that the information reported may be entered on the forms. The results of all monitoring required by this Order shall be reported to the Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the 30-day average and the daily maximum discharge flows.

5. The discharger shall file with the Board a report on waste discharge at least 120 days before making any material change or proposed change in the character, location or volume of the discharge.

6. The results of any analysis of samples taken more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Board.

D. Reporting Requirements for Monitoring

1. For every item of monitoring data where the requirements are not met, the discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for such corrective actions. The discharger shall submit such information, in writing, within two weeks of becoming aware of noncompliance.

2. By January 30 of each year, the discharger shall submit an annual report to the Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements.

3. The discharger shall maintain records of all sampling and analytical results, including strip charts; the date, exact place and time of sampling; the analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge of when requested by the Board. Monitoring results shall be submitted on forms provided by the Board.

4. The discharger shall file with the Board technical reports on self-monitoring work performed according to the detailed specifications contained in any Monitoring and Reporting Program as directed by the Executive Officer.

5. All reports shall be signed by:

   a. In the case of corporations, by a principal executive officer at least of the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;

   b. In the case of a partnership, by a general partner;

   c. In the case of a sole proprietorship, by the proprietor;

d. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

6. The discharger shall mail a copy of each monitoring report on the appropriate form to be supplied by the Board and any other reports required by this Order to:

a. California Regional Water Quality Control Board
Colorado River Basin Region
73-271 Highway 111, Suite 21
Palm Desert, CA 92260

b. A copy of such monitoring report for those discharges designated as a major discharge shall be mailed to:

Regional Administrator
Environmental Protection Agency
Region 9, Attention: E-5-1
100 California Street
San Francisco, CA 94111

E. Definitions

1. The daily discharge rate is obtained from the following calculation of any calendar day:

$$\text{Daily discharge rate (lbs/day)} = \frac{8.34}{N} \sum_{1}^{N} Q_i C_i$$

$$\text{Daily discharge rate (kg/day)} = \frac{3.78}{N} \sum_{1}^{N} Q_i C_i$$

in which N is the number of samples analyzed in any calendar day. Q_i and C_i are the flow rate (MGD) and the constituent concentration (mg/l) respectively, which are associated with each of the N grab samples which may be taken in any calendar day. If a composite sample is taken, C_i is the concentration measured in the composite sample and Q_i is the average flow rate occurring during the period over which samples are composited.

2. The "30-day, or 7-day average" discharge is the total discharge by weight during a 30, or 7, consecutive calendar day period, respectively, divided by the number of days in the period that the facility was discharging. Where less than daily sampling is required by this permit, the 30-day or 7-day, average discharge shall be determined by the summation of all the measured discharges by weight divided by the number of days during the 30, or 7, consecutive calendar day period when the measurements were made.

   If 30-day, or less than three during a 7-day, consecutive calendar day period, then compliance or noncompliance with the 30, or 7, day average discharge limitation shall not be determined.

   For other than 7-day or 30-day periods, compliance shall be based upon the average of all measurements made during the specified period. If fewer than four measurements are made during the period, compliance shall be based upon the last four consecutive samples.

3. The "daily maximum" discharge means the total discharge weight during any calendar day.

4. The "30-day, or 7-day average" concentration other than for fecal or total coliform bacteria, is the arithmetic mean of measurements made during a 30, or 7, consecutive calendar day period, respectively. The "30-day, or 7-day average" concentration for fecal or total coliform bacteria is the geometric mean of measurements made during a 30, or 7, consecutive calendar day period, respectively. The geometric mean is the n^{th} root of the product of n numbers.

   If fewer than four measurements are made during a 30, or 7, consecutive calendar day period, then compliance or noncompliance with the 30, or 7, day average concentration limitation shall not be determined.

5. The "daily maximum" concentration is defined as the measurement made on any single discrete sample or composite sample.

6. A "grab" sample is defined as any individual sample collected in less than 15 minutes.

7. A composite sample is a combination of no fewer than three individual samples obtained at equal time intervals over the specified sampling period. The volume of each individual sample is proportional to the discharge flow rate at the time of sampling. The sampling period shall be specified in the monitoring and reporting program ordered by the Executive Officer.

8. An "industry" is defined as any facility identified in the Standard Industrial Classification Manual, 1972 Office of Management and Budget, as amended and supplemented, under the following divisions:

   a. Division A - Agriculture, Forestry, and Fishing

   b. Division B - Mining

   c. Division D - Manufacturing

   d. Division I - Services

   A facility in the Divisions listed may be excluded if it is determined by the Board that it introduces primarily domestic wastes or wastes from sanitary conveniences.

9. "Prohibited wastes" is any of the following wastes, which shall not be introduced into the treatment works:

   a. Wastes which create a fire or explosion hazard in the treatment works;

   b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0 unless the works is designed to accommodate such wastes;

   c. Solids or viscous wastes in amounts which would cause obstruction to the flow in sewers, or other interference with the proper operation of the treatment works, or;

   d. Wastes at a flow rate and/or pollutant discharge rate which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency.