MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD98-01 Special

EFFECTIVE DATE: March 1, 1998

EXPIRATION DATE: February 28, 2001

PERMITTEE: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATOR: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATED AT: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER: FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to StarKist Samoa, Inc. The Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from StarKist Samoa's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. StarKist Samoa, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply to this permit.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not accurately disclose all relevant facts in the permit application or monitoring reports; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator or his delegate in writing of any change in the designated fish processing waste transporter at least 30 days before the transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. If material which is regulated by this permit is disposed of, due to an emergency, such as to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on March 1, 1998 and it shall expire three years from the effective data at midnight on February 28, 2001.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14⌒ 24.00' South latitude by 170⌒ 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a combined waste stream total maximum of 200,000 gallons per day of fish processing wastes. The fish processing wastes-- Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor/water-- are combined and stored in the permittee's onshore storage tanks prior to transport to the ocean disposal site.

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor/water, which are combined and stored in an onshore storage tank prior to transport to the ocean disposal site (see Table 3 - following page).

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Solids (mg/L)	101,800
Total Volatile Solids (mg/L)	84,100
5-Day BOD (mg/L)	129,390
Oil and Grease (mg/L)	62,940
Total Phosphorus (mg/L)	1,750
Total Nitrogen (mg/L)	10,980
Ammonia (mg/L)	11,810
pH (pH units)	6.2 to 7.1
Density (g/mL)	0.97 to 1.03

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste were calculated based on an analysis of data over a 4-year period from the permittee's previous Special Ocean Dumping Permit, number OD 93-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R. §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. **The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.**

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.1.2. The parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples.

Table 4. Physical and Chemical Parameters and Associated Method Detection Limits for Analyses of Onshore Storage Tank Waste

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.2.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.2.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, WA.; and

3.1.2.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided to EPA Region IX.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volume of fish processing waste (total combined waste streams of DAF Sludge, Cooker Juice and Press Liquor) generated at the permittee's facility and pumped into the permittee's onshore storage tanks to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volume of fish processing waste disposed at the ocean disposal site to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a LOTUS spreadsheet format (i.e., wk1), including name of cannery, permit number, and months for which the data is submitted.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 60 days after the permit expires. Delay or non-compliance with this requirement will (respectively) delay or preclude renewal of the permit. All fish processing waste data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Twenty-four months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of confirmatory suspended phase acute toxicity bioassay tests and dilution model calculations (i.e., Limiting Permissible Concentration) of the predicted concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

If changes in processing and /or disposal operations should occur, an additional re-evaluation of the disposal model may also be required. These evaluations (bioassays and/or modeling) would be used to confirm the toxicity of the fish processing wastes and to evaluate the disposal operations based on the use of a different disposal vessel or different mode of disposal.

The confirmatory bioassay report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, and the design of the new bioassay tests. If modeling analysis is necessary, then previous modeling at the ocean disposal site should also be included.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) If modeling analysis is required as stipulated in Special Condition 3.3.5., description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modeling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (i.e., on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending position and time of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a target area defined by an oval shape track along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. Deviations from normal disposal operations (as described in Section 4.4.1) must be reported within 30 days of the date of occurrence. If such deviation should occur, the master of the disposal vessel shall describe the adverse conditions in the log and submit a record of the disposal trip, including the computer-generated navigational plot. Minor deviations in the vessel's track due to adverse ocean conditions (e.g. large waves, strong winds, etc.) are allowed as long as disposal operations occur in the prescribed target area thereby allowing the fish waste to disperse within the disposal site boundaries. If adverse sea state conditions prevent ocean disposal operations in this manner, then all operations shall cease until sea state conditions are compatible with the required disposal operations.

4.4.1.3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal operation must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system before the date of the first disposal operations under this permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and unique consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site;

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of any visible (previous) disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in Special Condition 4.4.2 and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, and quality assurance/quality control data. An annual report shall include: an annual compilation of data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by EPA Region IX, ASEPA, USCG or American Samoa Department of Public Safety personnel; or a USCG ship rider and/or a ASEPA or EPA Region IX ship rider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a ship rider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-2170

6.2.2. One copy of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this 13th day of December, 1997

For the Regional Administrator:

Alexis Strauss, Acting Director
Water Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 98-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. The required site monitoring may be accomplished jointly through an agreement between permittee and other permittees authorized to use the disposal site. Any such agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4.

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

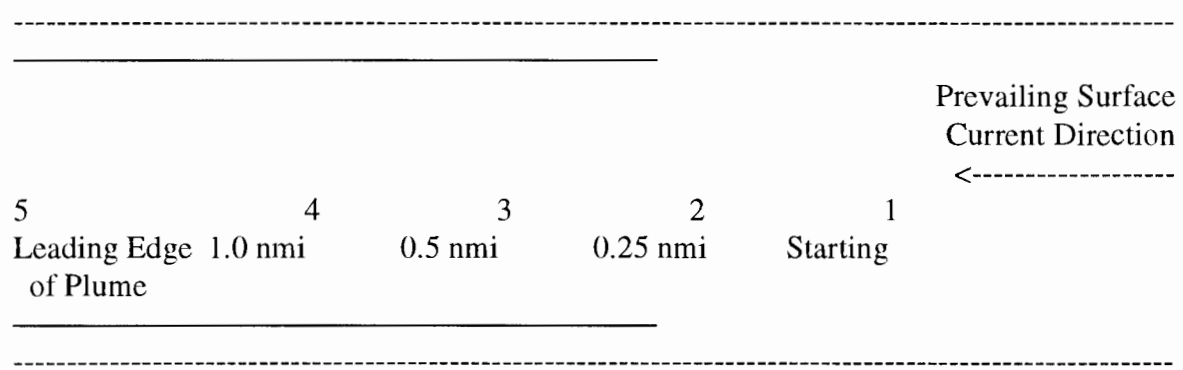

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. **Water Column Characteristics to Be Measured**

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated at 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. Frequency of Sampling

7.3.1. Water samples shall be collected in association with active dumping operations. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control

sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded beyond the disposal site boundary within four hours after dumping or at any point in the marine environment after four hours. The LPC, as defined at 40 C.F.R. §227.27, shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

APPENDIX B - REPORT FORM 1

Monthly Volumes of StarKist Samoa Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site
Volume Limit = 200,000 Gallons
Month _____ 19__

<< Conversion Note: For a Lotus spreadsheet (i.e., wk1), use 3-column format. >>

Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)	Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					
SUBTOTAL			SUBTOTAL		
			GRAND TOTAL		

NOTE: An asterisk (*) to the right of the date of fish processing waste volume signifies that a violation of the permit limit has occurred. Total number of violations this month = _____.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month
Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2

Data Form for 3-Month Report on Waste Stream Analyses for StarKist Samoa MPRSA § 102 Permit #OD 98-01

Reporting Period: From _____ 19__ To _____ 19__

StarKist Samoa - On-Shore Storage Tank Waste

<< Conversion Note: For a Lotus spreadsheet, use wk1 format with layout below. >>

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 98-01 Permit Limits	101,800		84,100		129,390		62,940		1,750		10,980		11,810		6.2 to 7.1		0.97 to 1.03	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

Cumulative Yearly Data on Fish Processing Wastes
Generated at StarKist Samoa's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 98-01

Reporting Period:

From _____ **19**__
To _____ **19**__

<< Conversion Note: For a Lotus, use wk1 format with layout below. >>

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.

ROUTING AND TRANSMITTAL SLIP

12/16/97

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. Carl Goldstein/Mike Lee		
2. John Ong (WTR-2)		
3. Alexis Strauss (WTR-1)		
4. → Signature	@ 4-2170	
5. Return to Goldstein for mailing		

	Action		File		Note and Return
	Approval		For Clearance		Per Conversation
	As Requested		For Correction		Prepare Reply
	Circulate		For Your Information		See Me
	Comment		Investigate		Signature
	Coordination		Justify		

REMARKS

Renewal of permits for fish waste disposal in American Samoa — draft permits for Public Notice. No problems indicated by monitoring of the disposal site.

⊛ Signature by Division Director is requested here.

DO NOT use this form as a RECORD of approvals, concurrences, disposals, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
12/16/97 Allan Ota (WTR-2)	Phone No. 4-1980

5041-102

OPTIONAL FORM 41 (Rev. 7-76)
Prescribed by GSA
FPMR (41 CFR) 101-11.206

* U.S. GPO: 1990 — 262-080

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	2520
CONNECTION TEL	90116846334864
CONNECTION ID	SAMOA NEWS
START TIME	01/06 14:59
USAGE TIME	02'49
PAGES	4
RESULT	OK

5599
SAMOA NEWS
P.O. BOX 909
PAGO PAGO, AS 96799

ATTN: EVAGA
ADV. COORD.

1/7/98

ALLAN,

I spoke w/ Evaga @ Samoa News - she is the Advertising Coordinator.

She has given me a quote for a 3 colums by 16 inch ad (6 inches wide, 16 inches tall)

of: $150/day for 1-4 days

or $75/day for 5 days or more.

She said she would fax me the quote, but it would not be wise to wait for it.

Carl

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105
PACIFIC INSULAR AREA PROGRAMS (CMD-5)

DATE: 1/6/98 PAGES (incl. cover) :4

TO: American Samoa News; Public Notice Advertising Section

FROM: Carl L. Goldstein
FAX: 415/744-1604 Phone: 415/744-2170
E-MAIL Address: goldstein.carl@epamail.epa.gov

RE: Cost Estimate for Public Notice Publication

We would like to place a public notice in your paper, to be published one time only, sometime during the month of January 1998. We would like to have an estimate of the cost for publication. There are 3 pages of single spaced text, on 81/2" by 11' sheets of paper, printed in 12 pt. Font. A copy of the notice is attached.

We published a very similar notice about 4 years ago and you informed us that it would fit in your 3 columns by 16 inch ad (6 inches wide, 16 inches tall).

Please fax me a cost estimate. My fax number is 415-744-1604.

Thank you. Carl Goldstein

Carl Goldstein

NOTICE OF APPLICATION AND PROPOSED ACTION
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION IX
75 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105-3901

Applications for Permits to Transport
and Dump Materials into Ocean Waters

Public Notice for Ocean Dumping Permit Numbers
OD 98-01 and OD 98-02

Pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended (33 U.S.C. § 1401 et seq.) and 40 C.F.R. § 222.3 of EPA's Ocean Dumping Regulations (42 Fed. Reg. 2462, Jan. 11, 1977), notice is hereby given by this office of complete applications for permits to transport and dispose fish processing wastes into ocean waters of Tutuila Island, American Samoa. The permit applicants are: STARKIST SAMOA, INC., P.O. Box 368, Pago Pago, American Samoa 96799 and VCS SAMOA PACKING COMPANY, INC., P.O. Box 957, Pago Pago, American Samoa 96799.

EPA has made a tentative decision to issue special ocean dumping permits to StarKist Samoa and VCS Samoa Packing Company for a three-year period. The Agency has determined that these permits are required for ocean disposal of fish processing wastes produced at canneries in Pago Pago, American Samoa. The fish processing wastes to be disposed from StarKist Samoa are: dissolved air flotation (DAF) sludge, cooker juice and press liquor. The fish processing wastes to be disposed from VCS Samoa Packing are: DAF sludge, precooker water and press water. Based on dilution levels expected at the designated ocean disposal site, the fish processing wastes are not expected to cause significant long-term impacts to oceanic water quality, marine ecosystems or human health.

The fish processing wastes will be disposed at an ocean disposal site 5.45 nautical miles southeast of Tutuila Island. The ocean disposal site has center coordinates of 14° 24.00' South latitude by 170° 38.20' West longitude and a radius of 1.5 nautical miles. The water depth at the disposal site is about 9,000 feet. This site was designated for use on February 6, 1990 (55 Fed. Reg. 3948) and was used by the two American Samoa canneries for disposal of fish processing wastes under MPRSA § 102 special permits OD 90-01 and 93-01 (StarKist Samoa), and OD 90-02 and 93-02 (VCS Samoa Packing Company) for a cumulative total of six years. No significant long-term environmental impacts were found at the site during site monitoring activities.

During the term of special permits OD 98-01 and OD 98-02, the permittees must continue monitoring programs for the combined fish processing waste streams, disposal vessel navigation and monthly ocean disposal site monitoring. Information compiled during the term of these permits and any previous information about ocean disposal of fish processing wastes off American Samoa will be used by EPA Region IX to determine compliance with EPA's Ocean Dumping Regulations defined at 40 C.F.R. Parts 220 through 228 and the Special MPRSA § 102 permits.

SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

DAF sludge is waste material that remains after treatment of fish processing wastes to remove grease and suspended particulate matter. DAF sludge also contains aluminum sulfate or alum (an odor reducing chemical) and coagulant polymers (to coagulate suspended matter) that are added during the waste treatment process. Cooker juice or precooker water is a combination of stick water and other process water that collects under the steam precookers at the fish plants. Press liquor or press water is waste water produced at the fish meal plants when fish scrap is cooked and pressed before being dried to produce livestock food meal. The three waste streams will be combined in an onshore storage tank prior to transport to the ocean disposal site.

There are no changes in the overall volumes of fish processing wastes proposed for disposal by either applicant. The proposed disposal volumes are:

Fish Processing Waste	**StarKist Samoa (gallons/day)**	**VCS Samoa Packing (gallons/day)**	**Total Volume (gallons/day)**
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

Based on EPA Region IX's review of data collected under the previous MPRSA § 102 special permits, the following changes are proposed for the new permits: 1) new permit limits for the combined fishwaste have been calculated which are higher than the previous permit limits for the separate waste streams, 2) a new set of confirmatory suspended phase acute toxicity bioassays are required to confirm that disposal operations are similar to the previous permitted actions, 3) a clarification of the requirements for disposal operations within the disposal site, and 4) reporting forms have been modified to simplify the reporting of permit monitoring information. All other general and special conditions are similar to existing conditions in MPRSA § 102 special permits OD 93-01 and OD 93-02.

INITIATION OF HEARINGS AND PUBLIC COMMENTS

Within 30 days of the date of this notice, any person may request a public hearing to consider the issuance of, or the conditions to be imposed upon, these permits. Any such request for a public hearing must: 1) be in writing, 2) identify the person requesting the hearing, 3) state any objections to the issuance of, or to the conditions to be imposed upon, these permits, and 4) state the issues which are proposed to be considered at the hearing. Under 40 C.F.R § 222.4, the Regional Administrator's determination on whether to hold a public hearing shall be based on whether the request presents genuine issues of policy or facts amenable to resolution by public hearing.

Comments on the tentative determination and requests for public hearings may be submitted in writing within 30 days of the date of publication of this notice to: Mr. John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, Region IX, 75 Hawthorne Street, San Francisco, CA 94105-3901, telephone (415) 744-1156.

The Administrative Record, which includes the applications, the proposed permits, the fact sheet describing the permits, is available for public review Monday to Friday from 9:00 a.m. to 4:00 p.m. at the: EPA Region IX Library, 13th Floor, 75 Hawthorne Street, San Francisco, CA, (415) 744-1510; EPA Pacific Island Contact Office, 300 Ala Moana Boulevard, Room 5124, Honolulu, HI, (808) 541-2710; and American Samoa EPA, Executive Office Building, Office of the Governor, Pago Pago, American Samoa, (684) 633-2304.

Norman S. Wei
Corporate Environmental Manager
StarKist Foods, Inc.
1054 Ways Street
Terminal Island, CA 90731

Barry Mills
General Manager
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P.O. Box 368
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Nancy Fanning, Director
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Territorial and International Affairs
Department of the Interior
Washington, D.C. 20460

John Lishman
OWOW (WH-556F)
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Commanding Officer
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San Francisco, CA 94102

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Herman Gebauer
General Manager
Tri-Union Samoa Packing Corp.
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Pago Pago, American Samoa 96799

FV TASMAN SEA
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Attn: Bud Hayes
P.O. Box 368
Pago Pago, American Samoa 96799

David Dressel, Chief
Shellfish Sanitation Branch (HFF-334)
U.S. FDA, Room 3029
200 C Street, S.W.
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Francesca Cava, Chief
Sanctuaries and Reserves Division
NOAA
1305 East-West Highway
Silver Spring, MD 20910

Chief, Environmental Branch
Corps of Engineers, Honolulu District
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Dr. John Naughton Southwest Region
NMFS, ~~Pacific Area Office~~
~~Western Pacific Program Office~~
2570 Dole Street, Rm. 105
Honolulu, HI 96822-2396

Kitty Simonds, Executive Director
Western Pacific Regional
Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, HI 96813

John Malek
Environmental Evaluation Branch (WD-138)
U.S. EPA, Region X
1200 Sixth Avenue
Seattle, WA 98101

~~Hilda Diaz-Soltero~~, Regional Director
National Marine Fisheries Service
Southwest Regional Office
501 West Ocean Boulevard, Suite 4200
Long Beach, CA 90802-4213

Togipa Tausaga, Director
American Samoa Environmental Protection Agency
Office of the Governor
American Samoa Government
Pago Pago, American Samoa 96799

Liaison Officer
U.S. Coast Guard Liaison Office
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Pago Pago, American Samoa 96799

Director
Department of Marine and Wildlife Resources
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Dr. Steve Costa
gdc
P.O. Box 1125
Arcata, CA 95518-2681

NOTICE OF APPLICATION AND PROPOSED ACTION
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION IX
75 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105-3901

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Public Notice for Ocean Dumping Permit Numbers
OD 98-01 and OD 98-02

Pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended (33 U.S.C. § 1401 et seq.) and 40 C.F.R. § 222.3 of EPA's Ocean Dumping Regulations (42 Fed. Reg. 2462, Jan. 11, 1977), notice is hereby given by this office of complete applications for permits to transport and dispose fish processing wastes into ocean waters of Tutuila Island, American Samoa. The permit applicants are: STARKIST SAMOA, INC., P.O. Box 368, Pago Pago, American Samoa 96799 and VCS SAMOA PACKING COMPANY, INC., P.O. Box 957, Pago Pago, American Samoa 96799.

EPA has made a tentative decision to issue special ocean dumping permits to StarKist Samoa and VCS Samoa Packing Company for a three-year period. The Agency has determined that these permits are required for ocean disposal of fish processing wastes produced at canneries in Pago Pago, American Samoa. The fish processing wastes to be disposed from StarKist Samoa are: dissolved air flotation (DAF) sludge, cooker juice and press liquor. The fish processing wastes to be disposed from VCS Samoa Packing are: DAF sludge, precooker water and press water. Based on dilution levels expected at the designated ocean disposal site, the fish processing wastes are not expected to cause significant long-term impacts to oceanic water quality, marine ecosystems or human health.

The fish processing wastes will be disposed at an ocean disposal site 5.45 nautical miles southeast of Tutuila Island. The ocean disposal site has center coordinates of 14° 24.00' South latitude by 170° 38.20' West longitude and a radius of 1.5 nautical miles. The water depth at the disposal site is about 9,000 feet. This site was designated for use on February 6, 1990 (55 Fed. Reg. 3948) and was used by the two American Samoa canneries for disposal of fish processing wastes under MPRSA § 102 special permits OD 90-01 and 93-01 (StarKist Samoa), and OD 90-02 and 93-02 (VCS Samoa Packing Company) for a cumulative total of six years. No significant long-term environmental impacts were found at the site during site monitoring activities.

During the term of special permits OD 98-01 and OD 98-02, the permittees must continue monitoring programs for the combined fish processing waste streams, disposal vessel navigation and monthly ocean disposal site monitoring. Information compiled during the term of these permits and any previous information about ocean disposal of fish processing wastes off American Samoa will be used by EPA Region IX to determine compliance with EPA's Ocean Dumping Regulations defined at 40 C.F.R. Parts 220 through 228 and the Special MPRSA § 102 permits.

SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

DAF sludge is waste material that remains after treatment of fish processing wastes to remove grease and suspended particulate matter. DAF sludge also contains aluminum sulfate or alum (an odor reducing chemical) and coagulant polymers (to coagulate suspended matter) that are added during the waste treatment process. Cooker juice or precooker water is a combination of stick water and other process water that collects under the steam precookers at the fish plants. Press liquor or press water is waste water produced at the fish meal plants when fish scrap is cooked and pressed before being dried to produce livestock food meal. The three waste streams will be combined in an onshore storage tank prior to transport to the ocean disposal site.

There are no changes in the overall volumes of fish processing wastes proposed for disposal by either applicant. The proposed disposal volumes are:

Fish Processing Waste	**StarKist Samoa (gallons/day)**	**VCS Samoa Packing (gallons/day)**	**Total Volume (gallons/day)**
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

Based on EPA Region IX's review of data collected under the previous MPRSA § 102 special permits, the following changes are proposed for the new permits: 1) new permit limits for the combined fishwaste have been calculated which are higher than the previous permit limits for the separate waste streams, 2) a new set of confirmatory suspended phase acute toxicity bioassays are required to confirm that disposal operations are similar to the previous permitted actions, 3) a clarification of the requirements for disposal operations within the disposal site, and 4) reporting forms have been modified to simplify the reporting of permit monitoring information. All other general and special conditions are similar to existing conditions in MPRSA § 102 special permits OD 93-01 and OD 93-02.

INITIATION OF HEARINGS AND PUBLIC COMMENTS

Within 30 days of the date of this notice, any person may request a public hearing to consider the issuance of, or the conditions to be imposed upon, these permits. Any such request for a public hearing must: 1) be in writing, 2) identify the person requesting the hearing, 3) state any objections to the issuance of, or to the conditions to be imposed upon, these permits, and 4) state the issues which are proposed to be considered at the hearing. Under 40 C.F.R § 222.4, the Regional Administrator's determination on whether to hold a public hearing shall be based on whether the request presents genuine issues of policy or facts amenable to resolution by public hearing.

Comments on the tentative determination and requests for public hearings may be submitted in writing within 30 days of the date of publication of this notice to: Mr. John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, Region IX, 75 Hawthorne Street, San Francisco, CA 94105-3901, telephone (415) 744-1156.

The Administrative Record, which includes the applications, the proposed permits, the fact sheet describing the permits, is available for public review Monday to Friday from 9:00 a.m. to 4:00 p.m. at the: EPA Region IX Library, 13th Floor, 75 Hawthorne Street, San Francisco, CA, (415) 744-1510; EPA Pacific Island Contact Office, 300 Ala Moana Boulevard, Room 5124, Honolulu, HI, (808) 541-2710; and American Samoa EPA, Executive Office Building, Office of the Governor, Pago Pago, American Samoa, (684) 633-2304.

FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

I. SUMMARY

The U.S. Environmental Protection Agency (EPA) Region IX has received complete applications from StarKist Samoa, Incorporated and VCS Samoa Packing Company, Incorporated for continued ocean disposal of fish processing wastes off Pago Pago, American Samoa. Disposal of fish processing wastes was permitted under two previous Marine Protection Research and Sanctuaries Act (MPRSA) 102 Special Permits, OD 93-01 (StarKist Samoa) and OD 93-02 (VCS Samoa Packing). These permits began on September 1, 1993 and were effective until August 31, 1996. Administrative extensions have allowed use of the site since that date. Disposal operations occurred at a designated site (55 FR 3948, February 6, 1990) located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in about 1,500 fathoms of water. The Regional Administrator has tentatively decided to issue special ocean dumping permits (OD 98-01 and OD 98-02, respectively) to the applicants for ocean disposal of fish processing wastes over a three-year period. This decision has been made according to EPA's authority established in Title I of the Marine Protection, Research and Sanctuaries Act of1972 (MPRSA) (33 U.S.C. section 1401 et seq.). Section 104B(k)(3)(B) of MPRSA contains an exclusion from the ban on disposal of industrial waste for tuna canneries in American Samoa. The conditions and monitoring activities defined in OD 98-01 and OD 98-02 are similar to those in previous special and research ocean dumping permits. However, several changes and/or clarifications have been made to: 1) permitted waste concentrations, 2) combined waste stream monitoring from the onshore storage tank, 3) reporting requirements, and 4) disposal vessel operations. The changes are based on evaluation of waste stream data, confirmation of past toxicity tests and plume modeling and new navigation requirements for the disposal vessel. EPA Region IX has tentatively decided to proceed with issuance of these special permits. Comments on our proposed action will be requested from the permit applicants, the American Samoa Government, Federal agencies, and the public as required under EPA's Ocean Dumping Regulations at 40 C.F.R Parts 220 through 228. Draft special permits and supporting documents are available for public review at the U.S. EPA's Regional Office in the Library on the 13th Floor at 75 Hawthorne Street, San Francisco, California; the U.S. EPA's Pacific Island Contact Office, 300 Ala Moana Boulevard, Honolulu, Hawaii; and the American Samoa Environmental Protection Agency, Executive Office Building, Office of the Governor, Pago Pago, American Samoa. These documents define the principal facts and significant legal, administrative and policy questions considered in the development of the special permits.

II. TENTATIVE DECISION

On February 23, 1996 and February 26, 1996, respectively, StarKist Samoa and VCS Samoa Packing Company applied for ocean dumping permits to dispose of their fish cannery wastes at a designated ocean disposal site near Pago Pago, American Samoa. The designated site, used for the past 3 years by both canneries, is located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in 1,502 fathoms of water [40 C.F.R. 228.12(b)(74)]. EPA Region IX is planning to grant their applications by issuing a special ocean dumping permit to each cannery which will last for three years. Current information indicates that disposal of fish processing wastes at the designated site complies with EPA's Ocean Dumping Regulations at 40 C.F.R. Parts 227 and 228. Information obtained during the term of the special permits will be used to evaluate whether the disposal of fish processing wastes continues to comply with criteria defined in EPA's Ocean Dumping Regulations. The permittees must conduct a site monitoring program, including field and laboratory analyses. Results of the monitoring program will be used to document the extent of effects at the ocean disposal site and whether the dumping continues to comply with EPA's Ocean Dumping Regulations. The proposed dumping during the term of the special permits is expected to have minimal impacts on human health and/or the marine environment, as demonstrated by the monitoring results of the previous special and research ocean dumping permits. The primary environmental impact of the proposed discharges would be short-term increases in turbidity, inorganic nutrients, oil and grease, and ammonia during the dumping events. Past monitoring studies on the disposal of fish processing wastes off American Samoa show that water quality parameters return to ambient conditions at the boundary of the disposal site following the four-hour period of initial mixing (40 C.F.R. 227.29). To be certain that American Samoa Water Quality Standards would not be violated by the disposal of fish processing wastes, the center of the disposal site was designated 5.45 nautical miles offshore, and restrictive navigation requirements, disposal rates and limitations on the waste material constituents are included in the special ocean dumping permits.

III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

Data from the previous special ocean dumping permit issued to each cannery were used to calculate all permit limits. The data for each cannery were evaluated separately. The following calculations were made for each set of data using the LOTUS spreadsheet program, version 4: maximum and minimum levels; mean, standard deviation and the number of data points. Any data values greater than or less than the mean plus or minus 2 standard deviations, were considered to be outliers. Outlier data points were not used in the permit limit calculations. All procedures for calculating permit limits are discussed in Sections 3.1.1 and 3.1.2 (pages 3-1 to 3-9) of EPA's Guidance Document for Ocean Dumping Permit (January 30, 1988).

V. FACTORS CONSIDERED IN REACHING THE PERMIT DECISIONS

Overview of Disposal Operations

The two fish canneries in American Samoa, StarKist Samoa and VCS Samoa Packing Company, propose to dispose of fish processing wastes at an ocean dump site centered approximately 5.45 nautical miles south of Tutuila Island in 1,502 fathoms of water. The center coordinates of the site are: 14° 24.00' South latitude by 170° 38.20' West longitude. The fish processing wastes will be transported to the upcurrent quadrant of the site and discharged at a rate less than or equal to 1,400 gallons per minute, depending on the season, at a maximum speed of 10 knots (see Special Condition 4.4.1). The disposal vessel will discharge the fish processing wastes within a target area defined by an oval-shaped track with the center axis of the oval perpendicular to the current direction. This target area for disposal is located within the boundary of the designated ocean disposal site. On each trip, the master of the disposal vessel will document current direction at the center of the disposal site. He will then proceed to a point 1.1 nautical miles upcurrent of the prevailing surface current to discharge the waste. The fish processing wastes may be discharged only after this procedure has been conducted. This will ensure that the waste plume has an adequate area for mixing within the disposal site boundary. Receiving waters at the disposal site are outside the American Samoa territorial sea. Though the ocean disposal site is outside these waters, the MPRSA 102 special permits are designed to comply with oceanic water quality standards defined in § 24.0207(g)(1-7) of the American Samoa Water Quality Standards (see Table 1 under General Condition 1.5). This will ensure that oceanic waters inside American Samoa's territorial sea are not affected by the ocean disposal operations. Within four hours after dumping has ceased, concentrations of the fish processing wastes must reach ambient levels at the disposal site boundary. After four hours, these concentrations must not exceed ambient levels at any point in the marine environment (40 C.F.R. section 227.29). Disposal site monitoring requirements are contained in the special permits. EPA Region IX will evaluate potential impacts to water quality based on the site monitoring reports.

Changes from the Previous MPRSA 102 Special Permits

The ocean disposal vessel FV TASMAN SEA will be authorized for the 1998 special permits (see page 1 of each permit). This disposal vessel is owned by Blue North Fisheries, Inc., at 1130 N.W. 45th Street, Seattle, WA 98107-4626. EPA Region IX reviewed waste stream monitoring data (covering a four-year period) submitted by each permittee. The characteristics of the waste streams at the two canneries are entirely different; therefore, separate permits were necessary. Appendix A of this fact sheet contains the tables used to calculate the new permit limits for each permittee's waste stream defined in Section III.B above. In general, the limits for the combined fish waste are increased relative to the previously analyzed individual waste streams, as would be expected.

Results of new confirmatory suspended phase acute toxicity bioassays will be used to calculate new Limiting Permissible Concentration (LPC) values. The new LPC values will be used to rerun the dilution model and confirm compliance with water quality standards at the ocean disposal site. A report will be prepared by each permittee discussing the test procedures and results of the bioassay tests and new model runs. EPA Region IX will review the report to determine whether any changes in the ocean dumping permits are necessary. A computerized navigation system is specified in Special Condition 4.3.4 and 4.5 to simplify plotting of the disposal vessel's track once inside the ocean disposal site and during disposal operations. This system will provide a continuous plot of the disposal vessel's track and a hard copy of each plot will be sent with the 6-month report.

VI. EPA'S AUTHORITY TO ISSUE OCEAN DUMPING PERMITS

EPA's authority to issue special ocean dumping permits is defined under Title I of MPRSA and at 40 C.F.R. 220.4. The authority to issue special permits was delegated to the Regional Administrator on January 11, 1977 (42 FR 2462). The Regional Administrator's authority to issue special permits was redelegated to the EPA Region IX Water Division Director on January 25, 1982 (EPA Region IX Order R1250.5A). Section 102 of MPRSA authorizes EPA to issue permits for ocean dumping. The Agency must determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In addition to these requirements, EPA must evaluate each permit application to determine whether the dumping will comply with the criteria at 40 C.F.R. Part 227 and whether the designated site complies with the criteria at 40 C.F.R. Part 228. The American Samoa Fish Processing Waste disposal site was designated, through the publication of a Final Rule, on February 6, 1990 (55 FR 3948) at 40 C.F.R. 228.12(b)(74). The designation process consisted of publication of an environmental impact statement (EIS) according to EPA's voluntary EIS policy. The draft EIS for this project was published on September 16, 1988 (53 FR 38118) and a final EIS was published on March 3, 1989 (54 FR 9083). The final rule designating the ocean disposal site was published on February 6, 1990 (55 FR 3948). EPA Region IX will periodically evaluate the special permits to determine whether the fish canneries disposal operations comply with the special permit conditions. If unacceptable impacts are detected at the site (40 C.F.R. §§ 228.10), or significant

permit violations are found, EPA will determine whether use of the site should be restricted (40 C.F.R. §§ 228.10 and 228.11), or whether enforcement actions should be initiated under MPRSA.

VII. ADMINISTRATIVE PROCEDURES AND THE PUBLIC HEARING PROCESS

The processing of an ocean dumping permit consists of the following actions. EPA receives a completed application (40 C.F.R. §§ 221). EPA issues a tentative decision whether to grant or deny the special permit (40 C.F.R. §§ 222.2). A draft permit is the means by which EPA documents the intent to grant an ocean dumping permit. A public notice is issued to announce EPA's intent to issue the permit (40 C.F.R. §§ 222.3). The notice contains the following elements: summary, tentative determination, factors considered in reaching the tentative determination, hearing process, and the location of all information on the draft permit. Public notices describing EPA's intent to issue a permit are published in a daily newspaper in closest proximity to the proposed dump site and in a daily newspaper in the city in which EPA's Regional Office is located. Before a final decision can be made on the special permit, formal consultation must be documented with the following agencies: American Samoa Government, U.S. Army Corps of Engineers, U.S. Coast Guard, National Marine Fisheries Service, U.S. Fish and Wildlife Service and the Shellfish Sanitation Branch of the Food and Drug Administration.

Initiation of a Public Hearing

Within 30 days of the date of the public notice, any person may request a public hearing to consider issuance or denial of the special permit or conditions to be imposed upon this permit. Any request for a hearing must be made in writing; must identify the person requesting the hearing; and must clearly state any objections to issuance or denial of the permit or to the conditions to be imposed upon the permit, and the issues to be considered at the hearing. According to 40 C.F.R. §§ 222.4, the Regional Administrator may schedule a hearing, at his discretion, based on genuine issues presented in the written request. Upon receipt of a written request presenting genuine issues amenable to resolution by a public hearing, the Regional Administrator may determine a time and place for the hearing and publish a notice of the hearing. All interested parties will be invited to express their views on the proposed issuance or denial of the permit at the hearing if one is held. If a request for a public hearing is made within 30 days of the date of this notice and does not meet the above criteria, the Regional Administrator must advise the requesting person of his decision to deny the hearing in writing and proceed to rule on the application. Following adjournment of the public hearing, the Presiding Officer, appointed by the Regional Administrator, prepares written recommendations about the issuance, denial or conditions to be imposed upon the permit after full consideration of the views and arguments expressed at the hearing (40 C.F.R. §§ 222.6 through 222.8). The Presiding Officer's recommendations and the record of the hearing are forwarded to the Regional Administrator within 30 days of the hearing. The Regional Administrator makes a determination whether to issue, deny or impose conditions on the permit within 30 days of receipt of the Presiding Officer's recommendations. He must give written notice of the decision to any person appearing

at the public hearing (40 C.F.R. §§ 222.9). A final permit becomes effective 10 days after issuance, if no requests for an adjudicatory hearing are received. Requests for an adjudicatory hearing may be made to the Regional Administrator within 10 days of receipt of the notice to issue or deny the permit (40 C.F.R. §§ 222.10 and §§ 222.11). An appeal of the Regional Administrator's adjudicatory hearing decision may be made in writing to the Administrator of EPA within 10 days following receipt of the Regional Administrator's determination on the need for an adjudicatory hearing (40 C.F.R. §§ 222.12).

VIII. ADDITIONAL INFORMATION

For further information on the special permits, requests for copies of the permits or questions pertaining to MPRSA regulations, please contact either of the following people at EPA Region IX: John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-1156, Carl Goldstein, Office of Pacific Island and Native American Programs (E-4), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-2170.

APPENDIX A

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Solids (mg/L)	Column C Transformed Total Solids (mg/L)	Column D Untransformed Mean Minus Untransformed Total Solids Value	Column E Transformed Mean Minus Transforme Total Solids Value	Column F Column D Squared	Column G Column E Squared
1	58,300	10.97335737	-2343.606557	-0.094996169	5492491.696	0.00902427
2	35,800	10.48570317	20156.39344	0.392658031	406280196.6	0.15418033
3	35,400	10.4744671	20556.39344	0.403894104	422565311.4	0.16313045
4	70,140	11.15824852	-14183.60656	-0.279887321	201174695	0.07833691
5	109,000	11.59910316	-53043.60656	-0.720741958	2813624197	0.51946897
6	50,600	10.83170686	5356.393443	0.046654348	28690950.71	0.00217663
7	50,200	10.82377031	5756.393443	0.054590897	33136065.47	0.00298017
8	69,900	11.15482093	-13943.60656	-0.276459725	194424163.8	0.07642998
9	46,300	10.74289724	9656.393443	0.135463963	93245934.32	0.01835049
10	51,300	10.84544603	4656.393443	0.032915172	21681999.89	0.00108341
11	42,100	10.64780302	13856.39344	0.230558183	191999639.2	0.05315708
12	73,600	11.2064003	-17643.60656	-0.328039102	311296852.4	0.10760965
13	30,600	10.32875529	25356.39344	0.549605915	642946688.4	0.30206666
14	39,100	10.57387775	16856.39344	0.304483457	284137999.9	0.09271018
15	46,600	10.74935582	9356.393443	0.129005383	87542098.25	0.01664239
16	36,700	10.51053203	19256.39344	0.367829169	370808688.4	0.1352983
17	48,600	10.79137881	7356.393443	0.086982393	54116524.48	0.00756594
18	55,100	10.916905	856.3934426	-0.038543792	733409.7286	0.00148562
19	37,100	10.52137225	18856.39344	0.356988955	355563573.7	0.12744111
20	54,200	10.90043619	1756.393443	-0.022074984	3084917.925	0.0004873
21	48,200	10.7831143	7756.393443	0.095246903	60161639.24	0.00907197
22	49,700	10.81376021	6256.393443	0.064600991	39142458.91	0.00417329
23	36,700	10.51053203	19256.39344	0.367829169	370808688.4	0.1352983
24	88,900	11.39526742	-32943.60656	-0.516906218	1085281213	0.26719204
25	60,800	11.01534507	-4843.606557	-0.136983865	23460524.48	0.01876458
26	64,000	11.06663836	-8043.606557	-0.188277159	64699606.45	0.03544829
27	64,300	11.07131491	-8343.606557	-0.192953707	69615770.38	0.03723113
28	56,300	10.93844981	-343.6065574	-0.060088611	118065.4663	0.00361064
29	53,600	10.88930435	2356.393443	-0.010943144	5552590.056	0.00011975
30	61,100	11.02026715	-5143.606557	-0.141905942	26456688.42	0.0201373
31	27,300	10.21464198	28656.39344	0.663719222	821188885.1	0.44052321
32	79,300	11.28099341	-23343.60656	-0.402632204	544923967.1	0.16211269
33	46,400	10.74505474	9556.393443	0.133306465	91324655.63	0.01777061
34	41,500	10.63344871	14456.39344	0.244912497	208987311.4	0.05998213
35	53,200	10.88181368	2756.393443	-0.003452472	7597704.811	1.192E-05
36	62,600	11.04452056	-6643.606557	-0.166159354	44137508.09	0.02760893
37	65,700	11.0928542	-9743.606557	-0.214493001	94937868.74	0.04600725
38	60,000	11.00209984	-4043.606557	-0.123738638	16350753.99	0.01531125
39	32,500	10.38899537	23456.39344	0.489365835	550202393.3	0.23947892
40	46,200	10.74073508	9756.393443	0.137626126	95187213.01	0.01894095
41	42,500	10.65725935	13456.39344	0.221101848	181074524.5	0.04888603
42	86,800	11.3713619	-30843.60656	-0.493000698	951328065.5	0.24304969
43	42,700	10.6619542	13256.39344	0.216407004	175731967.1	0.04683199
44	48,500	10.78931908	7456.393443	0.089042126	55597803.17	0.0079285
45	22,400	10.01681624	33556.39344	0.861544965	1126031541	0.74225973
46	80,700	11.29849385	-24743.60656	-0.420132651	612246065.5	0.17651144
47	35,200	10.46880136	20756.39344	0.409559842	430827868.7	0.16773926
48	50,300	10.82576036	5656.393443	0.052600847	31994786.78	0.00276685
49	39,900	10.5941316	16056.39344	0.2842296	257807770.4	0.08078647
50	51,800	10.85514543	4156.393443	0.023215775	17275606.45	0.00053897
51	109,400	11.60276617	-53443.60656	-0.724404966	2856219082	0.52476255
52	62,100	11.03650127	-6143.606557	-0.158140065	37743901.53	0.02500828
53	77,200	11.25415474	-21243.60656	-0.375793533	451290819.6	0.14122078
54	81,900	11.31325427	-25943.60656	-0.434893067	673070721.2	0.18913198
55	74,300	11.21586623	-18343.60656	-0.337505028	336487901.5	0.11390964
56	59,400	10.99204951	-3443.606557	-0.113688302	11858426.12	0.01292503
57	79,600	11.28476937	-23643.60656	-0.406408169	559020131	0.1651676
58	92,600	11.43604442	-36643.60656	-0.557683217	1342753902	0.31101057
59	54,000	10.89673933	1956.393443	-0.018378122	3827475.302	0.00033776
60	48,200	10.7831143	7756.393443	0.095246903	60161639.24	0.00907197
61	34,900	10.46024211	21056.39344	0.418119095	443371704.8	0.17482358
Column Sum	3,413,340	663.5800334			21358403607	6.61308965
Column Sum/N	55,956	10.8783612				
Column Sum/(N-1)					355973393.4	0.11021816
SQRT(Column Sum/(N-1))					18867.25718	0.33199121

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	55956.39344	10.8783612	53016.64518
Std Dev	18867.25718	0.331991206	1.393740592
Permit Limit	93030.5538	11.53072392	101795.7794

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Vol. Solids (mg/L)	Column C Transformed Total Vol. Solids (mg/L)	Column D Untransformed Mean Minus Untransformed Total Vol. Solids Val	Column E Transformed Mean Minus Transforme Total Vol. Solids V	Column F Column D Squared	Column G Column E Squared
1	45,300	10.72106231	-6529.508197	-0.247615014	42634477.29	0.0613132
2	20,800	9.942708266	17970.4918	0.530739032	322938575.7	0.28168392
3	17,400	9.764225485	21370.4918	0.709221813	456697919.9	0.50299558
4	52,600	10.8704714	-13829.5082	-0.397024101	191255297	0.15762814
5	89,300	11.39975677	-50529.5082	-0.926309469	2553231199	0.85804923
6	34,300	10.44290063	4470.491803	0.030546665	19985296.96	0.0009331
7	29,200	10.28192399	9570.491803	0.191523309	91594313.36	0.03668118
8	46,800	10.75363848	-8029.508197	-0.280191184	64473001.88	0.0785071
9	26,200	10.17351469	12570.4918	0.299932608	158017264.2	0.08995957
10	32,900	10.40122794	5870.491803	0.072219361	34462674.01	0.00521564
11	25,700	10.15424627	13070.4918	0.319201027	170837756	0.1018893
12	58,100	10.96992094	-19329.5082	-0.496473645	373629887.1	0.24648608
13	12,800	9.45720045	25970.4918	1.016246848	674466444.5	1.03275766
14	28,900	10.27159687	9870.491803	0.201850424	97426608.44	0.04074359
15	27,000	10.20359214	11770.4918	0.269855153	138544477.3	0.0728218
16	19,600	9.883284845	19170.4918	0.590162453	367507756	0.34829172
17	35,800	10.48570317	2970.491803	-0.012255875	8823821.553	0.00015021
18	38,500	10.55841352	270.4918033	-0.084966223	73165.81564	0.00721926
19	24,200	10.09410791	14570.4918	0.379339386	212299231.4	0.14389837
20	35,300	10.47163824	3470.491803	0.001809055	12044313.36	3.2727E-06
21	26,400	10.18111929	12,370	0.292328009	153029067.5	0.08545566
22	33,300	10.41331268	5,470	0.060134622	29926280.57	0.00361617
23	21,200	9.961756461	17,570	0.511690837	308722182.2	0.26182751
24	63,200	11.05405958	-24,430	-0.580612282	596800870.7	0.33711062
25	44,000	10.69194491	-5,230	-0.218497615	27347755.98	0.04774121
26	44700	10.70772878	-5,930	-0.234281483	35159067.45	0.05488781
27	49400	10.8077057	-10,630	-0.334258405	112986444.5	0.11172868
28	40700	10.61398337	-1,930	-0.140536074	3723001.881	0.01975039
29	38,600	10.56100756	170	-0.087560258	29067.45499	0.0076668
30	84,100	11.33976185	-45,330	-0.866314548	2054764313	0.7505009
31	39,300	10.5789798	-530	-0.1055325	280378.9304	0.01113711
32	20,700	9.937888979	18,070	0.535558318	326542674	0.28682271
33	60,300	11.00708738	-21,530	-0.533640085	463519723.2	0.28477174
34	33,600	10.42228135	5,170	0.051165952	26733985.49	0.00261795
35	29300	10.2853428	9,470	0.188104503	89690215	0.0353833
36	38800	10.56617553	-30	-0.092728228	870.7336737	0.00859852
37	46900	10.75577295	-8,130	-0.282325657	66088903.52	0.07970778
38	45000	10.71441777	-6,230	-0.240970471	38806772.37	0.05806677
39	36800	10.51325312	1,970	-0.039805826	3882837.947	0.0015845
40	18600	9.83091686	20,170	0.642530438	406848739.6	0.41284536
41	30,800	10.33526997	7,970	0.138177329	63528739.59	0.01909297
42	25,000	10.1266311	13,770	0.346816194	189626444.5	0.12028147
43	58,000	10.96819829	-19,230	-0.494750992	369773985.5	0.24477854
44	27,100	10.20728901	11,670	0.266158291	136200378.9	0.07084024
45	26,800	10.19615717	11,970	0.277290131	143292674	0.07688982
46	10,300	9.239899174	28,470	1.233548124	810568903.5	1.52164097
47	61,600	11.02841715	-22,830	-0.554969852	521186444.5	0.30799154
48	22,900	10.03889219	15,870	0.434555108	251872510.1	0.18883814
49	35,700	10.48290597	3,070	-0.00945867	9427919.914	8.9466E-05
50	24,400	10.10233841	14,370	0.371108886	206511034.7	0.13772181
51	36,900	10.51596683	1,870	-0.042519532	3498739.586	0.00180791
52	43,400	10.67821472	-4,630	-0.204767422	21432346.14	0.0419297
53	70,300	11.16052708	-31,530	-0.68707978	994109887.1	0.47207862
54	57,800	10.96474405	-19,030	-0.491296757	362122182.2	0.2413725
55	47,600	10.77058804	-8,830	-0.297140742	77960215	0.08829262
56	44,200	10.69648007	-5,430	-0.22303277	29479559.26	0.04974362
57	63,400	11.05721914	-24,630	-0.583771843	606612674	0.34078956
58	70,500	11.16336799	-31,730	-0.689920691	1006761690	0.47599056
59	38,600	10.56100756	170	-0.087560258	29067.45499	0.0076668
60	34,100	10.43705266	4,670	0.036394634	21813493.68	0.00132457
61	20,000	9.903487553	18,770	0.569959745	352331362.5	0.32485411
Column Sum	2,365,000	638.8802852			16913966885	11.663065
Column Sum/N	38,770	10.4734473				
Column Sum/(N-1)					281899448.1	0.19438442
SQRT(Column Sum/(N-1))					16789.86147	0.44089048

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	38,770	10.4734473	35363.91743
Std Dev	16789.86147	0.440890481	1.55409049
Permit Limit	71762.56959	11.33979709	84102.96428

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A	Column B	Column C	Column D	Column E	Column F	Column G
Sample Number	Untransformed 5-Day BOD (mg/L)	Transformed 5-Day BOD (mg/L)	Untransformed Mean Minus Untransformed 5-Day BOD Value	Transformed Mean Minus Transformed 5-Day BOD Value	Column D Squared	Column E Squared
1	73,527	11.20540796	5023.555556	0.029551741	25236110.42	0.00087331
2	67,247	11.11612769	11303.55556	0.118832019	127770368.2	0.01412105
3	57,425	10.95823503	21125.55556	0.276724678	446289097.5	0.07657655
4	60,958	11.01794038	17592.55556	0.217019324	309498011	0.04709739
5	73,236	11.20144238	5314.555556	0.033517323	28244500.75	0.00112341
6	54,610	10.9079723	23940.55556	0.32698741	573150200.3	0.10692077
7	65,167	11.08470848	13383.55556	0.150251221	179119559.3	0.02257543
8	112,261	11.6285818	-33710.44444	-0.393622091	1136394065	0.15493835
9	77,425	11.257065	1125.555556	-0.022105299	1266875.309	0.00048864
10	71,905	11.18310108	6645.555556	0.051858623	44163408.64	0.00268932
11	58,327	10.97382039	20223.55556	0.261139319	408992199.3	0.06819374
12	125,375	11.73906453	-46824.44444	-0.50410482	2192528598	0.25412167
13	67,282	11.11664802	11268.55556	0.118311685	126980344.3	0.01399765
14	38,781	10.56568571	39769.55556	0.669273991	1581617549	0.44792767
15	103,767	11.54990328	-25216.44444	-0.314943575	635869070.4	0.09918946
16	131,250	11.78485918	-52699.44444	-0.549899475	2777231445	0.30238943
17	96,833	11.48074312	-18282.44444	-0.245783419	334247774.9	0.06040949
18	103,072	11.54318305	-24521.44444	-0.308223347	601301237.6	0.09500163
19	95,483	11.4667035	-16932.44444	-0.231743795	286707674.9	0.05370519
20	102,428	11.53691539	-23877.44444	-0.301955686	570132353.2	0.09117724
21	95,567	11.46758285	-17016.44444	-0.232623146	289559381.5	0.05411353
22	96,644	11.4787894	-18093.44444	-0.243829697	327372731.9	0.05945292
23	66,709	11.10809516	11841.55556	0.12686455	140222438	0.01609461
24	66,366	11.10294016	12184.55556	0.132019549	148463394.1	0.01742916
25	99,026	11.50313772	-20475.44444	-0.268178015	419243825.2	0.07191945
26	100,911	11.52199422	-22360.44444	-0.287034514	499989475.8	0.08238881
27	74,889	11.2237623	3661.555556	0.011197409	13406989.09	0.00012538
28	82,339	11.31860015	-3788.444444	-0.083640445	14352311.31	0.00699572
29	95139	11.46309426	-16588.44444	-0.228134554	275176489.1	0.05204537
30	101978	11.53251238	-23427.44444	-0.297552677	548845153.2	0.0885376
31	106,856	11.57923741	-28305.44444	-0.344277707	801198185.2	0.11852714
32	94,628	11.45770869	-16077.44444	-0.222748989	258484219.9	0.04961711
33	93,505	11.44577019	-14954.44444	-0.210810484	223635408.6	0.04444106
34	50,893	10.83748067	27657.55556	0.397479037	764940379.3	0.15798958
35	111,611	11.62277489	-33060.44444	-0.387815185	1092992987	0.15040062
36	63726	11.06234792	14824.55556	0.172611784	219767447.4	0.02979483
37	113300	11.63779445	-34749.44444	-0.402834741	1207523889	0.16227583
38	95850	11.47053975	-17299.44444	-0.235580043	299270778.1	0.05549796
39	67268	11.11643992	11282.55556	0.118519786	127296059.9	0.01404694
40	77311	11.25559153	1239.555556	-0.020631822	1536497.975	0.00042567
41	64220	11.07006997	14330.55556	0.164889738	205364822.5	0.02718863
42	51,950	10.858037	26,601	0.376922709	707589555.9	0.14207073
43	93,550	11.44625133	-14,999	-0.211291626	224983333.6	0.04464415
44	122,500	11.71586631	-43,949	-0.480906603	1931553667	0.23127116
45	72,289	11.18842725	6,262	0.046532453	39207077.98	0.00216527
46	74,089	11.21302235	4,462	0.021937353	19905477.98	0.00048125
47	70,686	11.16600281	7,865	0.068956893	61851234.09	0.00475505
48	95,661	11.46856597	-17,110	-0.233606265	292767309.1	0.05457189
49	60,901	11.01700487	17,650	0.217954832	311506811.3	0.04750431
50	62,132	11.03701643	16,419	0.197943272	269568966.5	0.03918154
51	63,229	11.05451834	15,322	0.18044137	234750064.6	0.03255909
52	64,295	11.07123715	14,256	0.163722559	203220864.2	0.02680508
53	68,756	11.13831928	9,795	0.096640421	95933318.53	0.00933937
54	66,239	11.10102469	12,312	0.133935013	151574400.2	0.01793859
55	69,327	11.14658972	9,224	0.088369986	85073977.09	0.00780925
56	66,493	11.10485196	12,058	0.130107748	145384646	0.01692803
57	55,259	10.9197865	23,292	0.315173204	542496560.2	0.09933415
58	58,049	10.96904276	20,502	0.265916945	420313780.2	0.07071182
59	57,818	10.96505542	20,733	0.269904281	429838859.9	0.07284832
60	55,617	10.92624419	22,934	0.308715517	525947970.4	0.09530527
61	63,379	11.05688786	15,172	0.17807185	230176098	0.03170958
62	58,238	10.97229334	20,313	0.262666364	412599913.2	0.06899362
63	43,133	10.67204364	35,418	0.562916061	1254403242	0.31687449
Column Sum	4,948,685	707.8024615			28856030434	4.60662731
Column Sum/N	78,551	11.23495971				
Column Sum/(N-1)					465419845.7	0.07430044
SQRT(Column Sum/(N-1))					21573.5914	0.27258107

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	78,551	11.23495971	75732.27523
Std Dev	21573.5914	0.272581071	1.31334993
Permit Limit	120942.6626	11.77058151	129389.3702

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Oil & Grease (mg/L)	Column C Transformed Oil & Grease (mg/L)	Column D Untransformed Mean Minus Untransformed Oil & Grease Value	Column E Transformed Mean Minus Transformed Oil & Grease Value	Column F Column D Squared	Column G Column E Squared
1	4,950	8.507142856	16798.91452	1.30245035	282203528.9	1.69637691
2	10,100	9.220290703	11648.91452	0.589302503	135697209.4	0.34727744
3	8,110	9.000853147	13638.91452	0.808740058	186019989.2	0.65406048
4	19,700	9.888373915	2048.914516	-0.078780709	4198050.694	0.0062064
5	29,800	10.30226367	-8051.085484	-0.492670467	64819977.47	0.24272419
6	14,600	9.588776808	7148.914516	0.220816398	51106978.76	0.04875988
7	4,500	8.411832676	17248.91452	1.39776053	297525052	1.9537345
8	20,100	9.908475094	1648.914516	-0.098881889	2718919.082	0.00977763
9	6,100	8.71604405	15648.91452	1.093549155	244888525.5	1.19584975
10	7,660	8.943767263	14088.91452	0.865825943	198497512.2	0.74965456
11	13,669	9.522885774	8079.914516	0.286707431	65285018.59	0.08220115
12	22,352	10.01467108	-603.0854839	-0.205077876	363712.1009	0.04205694
13	6,535	8.784927626	15213.91452	1.024665579	231463194.9	1.04993955
14	23,013	10.04381455	-1264.085484	-0.234221347	1597912.111	0.05485964
15	26,415	10.18168731	-4666.085484	-0.372094104	21772353.74	0.13845402
16	14,979	9.614404499	6769.914516	0.195188706	45831742.56	0.03809863
17	51,903	10.85713187	-30154.08548	-1.047538666	909268871.4	1.09733726
18	32,696	10.39500803	-10947.08548	-0.58541482	119838680.6	0.34271051
19	13,433	9.505469645	8315.914516	0.30412356	69154434.24	0.09249114
20	15,008	9.616338671	6740.914516	0.193254534	45439928.51	0.03734731
21	14,123	9.555559953	7625.914516	0.254033252	58154572.21	0.06453289
22	18,779	9.840494503	2969.914516	-0.030901298	8820392.233	0.00095489
23	16,179	9.691469384	5569.914516	0.118123821	31023947.72	0.01395324
24	30,084	10.31174875	-8335.085484	-0.502155543	69473650.02	0.25216019
25	25,340	10.14013945	-3591.085484	-0.330546248	12895894.95	0.10926082
26	22,721	10.03104489	-972.0854839	-0.221451681	944950.188	0.04904085
27	56793	10.94716836	-35044.08548	-1.137575152	1228087927	1.29407723
28	50204	10.82384998	-28455.08548	-1.014256778	809691889.9	1.02871681
29	39,360	10.58050535	-17611.08548	-0.770912146	310150331.9	0.59430554
30	36,286	10.49918727	-14537.08548	-0.689594066	211326854.4	0.47553998
31	40,968	10.62054655	-19219.08548	-0.810953348	369373246.8	0.65764533
32	17,648	9.778377741	4100.914516	0.031215464	16817499.87	0.00097441
33	31,841	10.36851005	-10092.08548	-0.558916841	101850189.4	0.31238804
34	16,791	9.728598308	4957.914516	0.080994898	24580916.35	0.00656017
35	18098	9.803556714	3650.914516	0.006036491	13329176.8	3.6439E-05
36	13526	9.512369038	8222.914516	0.297224167	67616323.14	0.08834221
37	35005	10.46324619	-13256.08548	-0.653652982	175723802.4	0.42726222
38	18619	9.831937844	3129.914516	-0.022344638	9796364.878	0.00049928
39	13579	9.516279761	8169.914516	0.293313445	66747503.2	0.08603278
40	9103	9.116359309	12645.91452	0.693233897	159919153.9	0.48057324
41	5,134	8.543640361	16,615	1.265952844	276055384.4	1.6026366
42	10,898	9.296334565	10,851	0.51325864	117742345.8	0.26343443
43	14,635	9.591171199	7,114	0.218422006	50607779.74	0.04770817
44	13,504	9.510741217	8,245	0.298851989	67978615.38	0.08931251
45	33,710	10.42554981	-11,961	-0.615956603	143067566	0.37940254
46	5,038	8.524764457	16,711	1.284828748	279254664	1.65078491
47	22,771	10.03324308	-1,022	-0.22364987	1044658.736	0.05001926
48	11,239	9.327118458	10,510	0.482474747	110464609.2	0.23278188
49	21,140	9.958922259	609	-0.149329054	370776.888	0.02229917
50	40,929	10.61959414	-19,180	-0.810000932	367875679.2	0.65610151
51	34,066	10.4360551	-12,317	-0.626461893	151710594.8	0.3924545
52	49,715	10.81406198	-27,966	-1.004468772	782101937.3	1.00895751
53	23,065	10.0460716	-1,316	-0.236478391	1732081.001	0.05592203
54	24,258	10.09650174	-2,509	-0.286908533	6295509.965	0.08231651
55	31,960	10.3722404	-10,211	-0.562647194	104266266.8	0.31657187
56	16,153	9.68986107	5,596	0.119732135	31314259.27	0.01433578
57	22,319	10.01319361	-570	-0.203600407	324997.4589	0.04145313
58	25,354	10.14069179	-3,605	-0.331098582	12996641.35	0.10962627
59	27,124	10.20817422	-5,375	-0.398581018	28891543.96	0.15886683
60	26,426	10.18210365	-4,677	-0.372510448	21875128.62	0.13876403
61	11,480	9.34836167	10,269	0.461231536	105450605.3	0.21273453
62	6,845	8.831273738	14,904	0.978319468	222126667.9	0.95710898
Column Sum	1,348,433	608.1947787			9607564493	24.3063674
Column Sum/N	21,749	9.809593205				
Column Sum/(N-1)					157501057.3	0.39846504
SQRT(Column Sum/(N-1))					12549.94252	0.63124087

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	21,749	9.809593205	18207.57883
Std Dev	12549.94252	0.631240873	1.879941901
Permit Limit	46409.55157	11.04998152	62942.79143

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
Sample Number	Untransformed Total Phos (mg/L)	Transformed Total Phos (mg/L)	Untransformed Mean Minus Untransformed Total Phos Value	Transformed Mean Minus Transformed Total Phos Value	Column D Squared	Column E Squared
1	651	6.478509642	265.3770492	0.272109115	70424.97823	0.07404337
2	502	6.21860012	414.3770492	0.532018637	171708.3389	0.28304383
3	526	6.265301213	390.3770492	0.485317544	152394.2405	0.23553312
4	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
5	1,250	7.13089883	-333.6229508	-0.380280073	111304.2733	0.14461293
6	915	6.818924065	1.37704918	-0.068305308	1.896264445	0.00466562
7	897	6.799055862	19.37704918	-0.048437105	375.4700349	0.00234615
8	985	6.892641641	-68.62295082	-0.142022884	4709.109379	0.0201705
9	798	6.682108597	118.3770492	0.06851016	14013.12577	0.00469364
10	655	6.484635236	261.3770492	0.265983521	68317.96184	0.07074723
11	1,072	6.977281342	-155.6229508	-0.226662585	24218.50282	0.05137593
12	608	6.410174882	308.3770492	0.340443875	95096.40446	0.11590203
13	734	6.598509029	182.3770492	0.152109728	33261.38807	0.02313737
14	1,740	7.461640392	-823.6229508	-0.711021635	678354.7651	0.50555177
15	674	6.513230111	242.3770492	0.237388646	58746.63397	0.05635337
16	2,530	7.835974582	-1613.622951	-1.085355825	2603779.027	1.17799727
17	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
18	1,270	7.146772179	-353.6229508	-0.396153422	125049.1913	0.15693753
19	618	6.426488457	298.3770492	0.3241303	89028.86348	0.10506045
20	620	6.429719478	296.3770492	0.320899279	87839.35528	0.10297635
21	512	6.238324625	404.3770492	0.512294132	163520.7979	0.26244528
22	950	6.856461985	-33.62295082	-0.105843228	1130.502822	0.01120279
23	662	6.495265556	254.3770492	0.255353201	64707.68315	0.06520526
24	1,180	7.073269717	-263.6229508	-0.32265096	69497.0602	0.10410364
25	1,110	7.012115294	-193.6229508	-0.261496537	37489.84708	0.06838044
26	789	6.670766321	127.3770492	0.079852436	16224.91266	0.00637641
27	1,110	7.012115294	-193.6229508	-0.261496537	37489.84708	0.06838044
28	997	6.90475077	-80.62295082	-0.154132013	6500.060199	0.02375668
29	612	6.416732283	304.3770492	0.333886475	92645.38807	0.11148018
30	933	6.838405201	-16.62295082	-0.087786444	276.322494	0.00770646
31	361	5.888877958	555.3770492	0.861740799	308443.6668	0.7425972
32	1,400	7.244227516	-483.6229508	-0.493608759	233891.1586	0.24364961
33	666	6.501289671	250.3770492	0.249329087	62688.66676	0.06216499
34	502	6.21860012	414.3770492	0.532018637	171708.3389	0.28304383
35	791	6.673297968	125.3770492	0.077320789	15719.40446	0.0059785
36	940	6.845879875	-23.62295082	-0.095261118	558.0438054	0.00907468
37	1,100	7.003065459	-183.6229508	-0.252446702	33717.38807	0.06372934
38	817	6.705639095	99.3770492	0.044979662	9875.797904	0.00202317
39	525	6.263398263	391.3770492	0.487220494	153175.9946	0.23738381
40	652	6.480044562	264.3770492	0.270574195	69895.22413	0.0732104
41	667	6.502790046	249.3770492	0.247828711	62188.91266	0.06141907
42	2,200	7.696212639	-1283.622951	-0.945593882	1647687.88	0.89414779
43	626	6.439350371	290.3770492	0.311268386	84318.83069	0.09688801
44	691	6.538139824	225.3770492	0.212478933	50794.8143	0.0451473
45	609	6.411818268	307.3770492	0.338800489	94480.65036	0.11478577
46	1,070	6.975413927	-153.6229508	-0.22479517	23600.01102	0.05053287
47	846	6.74051936	70.3770492	0.010099397	4952.929051	0.000102
48	975	6.882437471	-58.62295082	-0.131818714	3436.650363	0.01737617
49	639	6.459904454	277.3770492	0.290714303	76938.02741	0.08451481
50	935	6.840546529	-18.62295082	-0.089927772	346.8142972	0.008087
51	1,290	7.162397497	-373.6229508	-0.41177874	139594.1094	0.16956173
52	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
53	1,450	7.279318835	-533.6229508	-0.528700078	284753.4536	0.27952377
54	1,430	7.265429723	-513.6229508	-0.514810966	263808.5356	0.26503033
55	906	6.809039306	10.3770492	-0.058420549	107.6831497	0.00341296
56	811	6.698268054	105.3770492	0.052350703	11104.32249	0.0027406
57	981	6.88857246	-64.62295082	-0.137953703	4176.125773	0.01903122
58	902	6.80461452	14.3770492	-0.053995763	206.6995431	0.00291554
59	771	6.647688374	145.3770492	0.102930383	21134.48643	0.01059466
60	694	6.542471961	222.3770492	0.208146797	49451.552	0.04332509
61	632	6.448889394	284.3770492	0.301729363	80870.3061	0.09104061
Column Sum	55,899	411.7877442			8887580.328	7.96288736
Column Sum/N	916	6.750618757				
Column Sum/(N-1)					148126.3388	0.13271479
SQRT(Column Sum/(N-1))					384.8718472	0.36430041
			Untransformed	Transformed	Transformed converted to Untransformed	
		Mean	916	6.750618757	854.5873809	
		Std Dev	384.8718472	0.364300411	1.439506593	
		Permit Limit	1672.650229	7.466469064	1748.422207	
		Table 3-2 Constant = 1.965				

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Nitrogen (mg/L)	Column C Transformed Total Nitrogen (mg/L)	Column D Untransformed Mean Minus Untransformed Total Nitrogen Value	Column E Transformed Mean Minus Transformed Total Nitrogen Valu	Column F Column D Squared	Column G Column E Squared
1	7,000	8.853665428	-1369.032258	-0.277032399	1874249.324	0.07674695
2	5,110	8.538954683	520.9677419	0.037678345	271407.3881	0.00141966
3	6,380	8.760923376	-749.0322581	-0.184290348	561049.3236	0.03396293
4	7,850	8.968268811	-2219.032258	-0.391635782	4924104.162	0.15337859
5	7,290	8.894258825	-1659.032258	-0.317625796	2752388.033	0.10088615
6	7,480	8.919988071	-1849.032258	-0.343355042	3418920.291	0.11789269
7	1,750	7.467371067	3880.967742	1.109261962	15061910.61	1.2304621
8	2,530	7.835974582	3100.967742	0.740658447	9616000.937	0.54857494
9	5,630	8.635864721	0.967741935	-0.059231692	0.936524454	0.00350839
10	5,120	8.540909718	510.9677419	0.035723311	261088.0333	0.00127615
11	6,900	8.839276691	-1269.032258	-0.262643662	1610442.872	0.06898169
12	4,940	8.50512061	690.9677419	0.071512418	477436.4204	0.00511403
13	4,600	8.433811582	1030.967742	0.142821446	1062894.485	0.02039797
14	7,090	8.86644062	-1459.032258	-0.289807591	2128775.13	0.08398844
15	5,390	8.592300664	240.9677419	-0.015667635	58065.45265	0.00024547
16	5,330	8.581106517	300.9677419	-0.004473488	90581.58169	2.0012E-05
17	3,180	8.064636476	2450.967742	0.511996553	6007242.872	0.26214047
18	5,190	8.554488976	440.9677419	0.022144053	194452.5494	0.00049036
19	5,120	8.540909718	510.9677419	0.035723311	261088.0333	0.00127615
20	5,540	8.61974978	90.96774194	-0.043116751	8275.130073	0.00185905
21	5,040	8.525161361	590.9677419	0.051471668	349242.872	0.00264933
22	8,290	9.022805248	-2659.032258	-0.446172219	7070452.549	0.19906965
23	6,150	8.724207361	-519	-0.147574332	269394.4849	0.02177818
24	5,060	8.529121762	570.9677419	0.047511266	326004.1623	0.00225732
25	2,370	7.770645234	3260.967742	0.805987795	10633910.61	0.64961632
26	4,100	8.318742253	1530.967742	0.257890776	2343862.227	0.06650765
27	6660	8.803874764	-1029.032258	-0.227241735	1058907.388	0.05163881
28	6660	8.803874764	-1029.032258	-0.227241735	1058907.388	0.05163881
29	3940	8.278936002	1690.967742	0.297697026	2859371.904	0.08862352
30	4500	8.411832676	1130.967742	0.164800353	1279088.033	0.02715916
31	4370	8.382518288	1260.967742	0.194114741	1590039.646	0.03768053
32	2820	7.944492164	2810.967742	0.632140865	7901539.646	0.39960207
33	1790	7.489970899	3840.967742	1.08666213	14753033.19	1.18083458
34	6390	8.762489547	-759.0322581	-0.185856519	576129.9688	0.03454265
35	4820	8.480529207	810.9677419	0.096103822	657668.6785	0.00923594
36	2870	7.962067309	2760.967742	0.61456572	7622942.872	0.37769102
37	5570	8.625150333	60.96774194	-0.048517304	3717.065557	0.00235393
38	9640	9.173676388	-4009.032258	-0.597043359	16072339.65	0.35646077
39	5920	8.686091728	-289.0322581	-0.109458699	83539.6462	0.01198121
40	6350	8.756210092	-719.0322581	-0.179577063	517007.3881	0.03224792
41	3490	8.157657015	2140.967742	0.418976013	4583742.872	0.1755409
42	3,250	8.086410275	2380.967742	0.490222753	5669007.388	0.24031835
43	4,980	8.51318517	650.9677419	0.063447859	423759.001	0.00402563
44	6,490	8.77801781	-859.0322581	-0.201384781	737936.4204	0.04055583
45	5,820	8.669055541	-189.0322581	-0.092422512	35733.19459	0.00854192
46	4,220	8.347590407	1410.967742	0.229042622	1990829.969	0.05246052
47	5,430	8.599694413	200.9677419	-0.023061384	40388.0333	0.00053183
48	8,120	9.002085433	-2489.032258	-0.425452404	6195281.582	0.18100975
49	5,010	8.519191194	620.9677419	0.057441835	385600.9365	0.00329956
50	4,330	8.373322821	1300.967742	0.203310208	1692517.066	0.04133504
51	5,020	8.521185213	610.9677419	0.055447816	373281.5817	0.00307446
52	6,720	8.812843434	-1089.032258	-0.236210405	1185991.259	0.05579536
53	8,250	9.017968479	-2619.032258	-0.441335451	6859329.969	0.19477698
54	8,930	9.097171674	-3299.032258	-0.520538645	10883613.84	0.27096048
55	7,020	8.856518497	-1389.032258	-0.279885468	1929410.614	0.07833588
56	9,160	9.122601458	-3529.032258	-0.545968429	12454068.68	0.29808153
57	6,170	8.727454117	-539.0322581	-0.150821088	290555.7752	0.022747
58	8,290	9.022805248	-2659.032258	-0.446172219	7070452.549	0.19906965
59	6,850	8.832003931	-1219.032258	-0.255370903	1486039.646	0.0652143
60	6,890	8.837826364	-1259.032258	-0.261193335	1585162.227	0.06822196
61	6,100	8.71604405	-469.0322581	-0.139411021	219991.2591	0.01943543
62	5,850	8.67419694	-219.0322581	-0.097563912	47975.13007	0.00951872
Column Sum	349,120	531.7512478			193808141.9	8.34904264
Column Sum/N	5,631	8.576633029				
Column Sum/(N-1)					3177182.655	0.13686955
SQRT(Column Sum/(N-1))					1782.465331	0.36995885

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	5,631	8.576633029	5306.209559
Std Dev	1782.465331	0.369958851	1.447675043
Permit Limit	9133.512117	9.303602171	10977.49087

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Ammonia (mg/L)	Column C Transformed Ammonia (mg/L)	Column D Untransformed Mean Minus Untransformed Ammonia Value	Column E Transformed Mean Minus Transformed Ammonia Value	Column F Column D Squared	Column G Column E Squared
1	4,190	8.340456013	-538.3492063	-0.267534819	289819.868	0.07157488
2	3,040	8.019612794	611.6507937	0.0533084	374116.6934	0.00284179
3	4,930	8.503094267	-1278.349206	-0.430173073	1634176.693	0.18504887
4	4,230	8.349957272	-578.3492063	-0.277036078	334487.8045	0.07674899
5	3,690	8.213381737	-38.34920635	-0.140460543	1470.661628	0.01972916
6	4,140	8.328451067	-488.3492063	-0.255529873	238484.9473	0.06529552
7	283	5.645446898	3368.650794	2.427474297	11347808.17	5.89263146
8	5,400	8.594154233	-1748.349206	-0.521233038	3056724.947	0.27168388
9	3,960	8.283999304	-308.3492063	-0.21107811	95079.23306	0.04455397
10	3,510	8.163371316	141.6507937	-0.090450122	20064.94734	0.00818122
11	4,410	8.391629968	-758.3492063	-0.318708774	575093.5188	0.10157528
12	3,420	8.13739583	231.6507937	-0.064474636	53662.0902	0.00415698
13	2,290	7.736307097	1361.650794	0.336614098	1854092.884	0.11330905
14	5,200	8.556413905	-1548.349206	-0.48349271	2397385.265	0.2337652
15	4,470	8.405143688	-818.3492063	-0.332222493	669695.4235	0.11037179
16	1,910	7.554858521	1741.650794	0.518062673	3033347.487	0.26838893
17	282	5.641907071	3369.650794	2.431014123	11354546.47	5.90982967
18	4,580	8.429454277	-928.3492063	-0.356533083	861832.2489	0.12711584
19	3,990	8.29154651	-338.3492063	-0.218625316	114480.1854	0.04779703
20	3,060	8.026170195	591.6507937	0.046750999	350050.6616	0.00218566
21	3,900	8.268731832	-248.3492063	-0.195810638	61677.32829	0.03834181
22	4,300	8.366370302	-648.3492063	-0.293449107	420356.6934	0.08611238
23	4,220	8.347590407	-568.3492063	-0.274669213	323020.8204	0.07544318
24	3,390	8.1285852	261.6507937	-0.055664006	68461.13782	0.00309848
25	295	5.686975356	3356.650794	2.385945838	11267104.55	5.69273754
26	4,800	8.476371197	-1148.349206	-0.403450003	1318705.9	0.1627719
27	5160	8.548691858	-1508.349206	-0.475770664	2275117.328	0.22635772
28	5170	8.550627968	-1518.349206	-0.477706773	2305384.312	0.22820376
29	3330	8.110727583	321.6507937	-0.037806389	103459.2331	0.00142932
30	3650	8.202482447	1.650793651	-0.129561252	2.725119678	0.01678612
31	3720	8.221478947	-68.34920635	-0.148557753	4671.614009	0.02206941
32	2290	7.736307097	1361.650794	0.336614098	1854092.884	0.11330905
33	1560	7.3524411	2091.650794	0.720480094	4375003.043	0.51909157
34	434	6.073044534	3217.650794	1.99987666	10353276.63	3.99950666
35	4050	8.30647216	-398.3492063	-0.233550966	158682.0902	0.05454605
36	2310	7.745002804	1341.650794	0.327918391	1800026.852	0.10753047
37	3870	8.261009786	-218.3492063	-0.188088592	47676.37591	0.03537732
38	5230	8.562166557	-1578.349206	-0.489245363	2491186.217	0.23936103
39	4470	8.405143688	-818.3492063	-0.332222493	669695.4235	0.11037179
40	3990	8.29154651	-338.3492063	-0.218625316	114480.1854	0.04779703
41	2990	8.003028666	661.6507937	0.069892528	437781.7727	0.00488497
42	2,910	7.97590836	741.6507937	0.097012834	550045.8997	0.00941149
43	3,060	8.026170195	591.6507937	0.046750999	350050.6616	0.00218566
44	3,850	8.255828427	-198.3492063	-0.182907233	39342.40766	0.03345506
45	4,210	8.345217927	-558.3492063	-0.272296732	311753.8362	0.07414551
46	3,410	8.13446757	241.6507937	-0.061546376	58395.10607	0.00378796
47	3,880	8.263590433	-228.3492063	-0.190669238	52143.36004	0.03635476
48	4,610	8.435983136	-958.3492063	-0.363061942	918433.2013	0.13181397
49	3,870	8.261009786	-218.3492063	-0.188088592	47676.37591	0.03537732
50	3,740	8.22684089	-88.34920635	-0.153919696	7805.582263	0.02369127
51	3,260	8.089482474	391.6507937	-0.01656128	153390.3442	0.00027428
52	3,840	8.253227646	-188.3492063	-0.180306451	35475.42353	0.03251042
53	5,810	8.66733585	-2158.349206	-0.594414656	4658471.297	0.35332878
54	4,950	8.507142856	-1298.349206	-0.434221661	1685710.662	0.18854845
55	5,070	8.531096097	-1418.349206	-0.458174902	2011714.471	0.20992424
56	1,770	7.478734826	1881.650794	0.594186369	3540609.709	0.35305744
57	4,390	8.387084506	-738.3492063	-0.314163312	545159.5505	0.09869859
58	3,140	8.051978079	511.6507937	0.020943115	261786.5346	0.00043861
59	4,550	8.422882512	-898.3492063	-0.349961318	807031.2965	0.12247292
60	4,970	8.511175119	-1318.349206	-0.438253925	1738044.63	0.1920665
61	3,980	8.289037098	-328.3492063	-0.216115904	107813.2013	0.04670608
62	3,180	8.064636476	471.6507937	0.008284718	222454.4712	6.8637E-05
63	3,490	8.157657015	161.6507937	-0.084735821	26130.97909	0.00718016
Column Sum	230,054	508.5940352			97235722.32	27.2974108
Column Sum/N	3,652	8.072921194				
Column Sum/(N-1)					1568318.102	0.44028082
SQRT(Column Sum/(N-1))					1252.325078	0.6635366

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	3,652	8.072921194	3206.454839
Std Dev	1252.325078	0.6635366	1.941647035
Permit Limit	6112.469573	9.376770613	11810.81142

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed pH (pH Units)	Column C Transformed pH (pH Units)	Column D Untransformed Mean Minus Untransformed pH Value	Column E Transformed Mean Minus Transformed pH Value	Column F Column D Squared	Column G Column E Squared
1	6.86	1.925707442	-0.252903226	-0.038152461	0.063960042	0.00145561
2	6.5	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
3	6.93	1.935859813	-0.322903226	-0.048304832	0.104266493	0.00233336
4	6.88	1.928618652	-0.272903226	-0.041063671	0.074476171	0.00168623
5	6.5	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
6	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
7	6.98	1.943048917	-0.372903226	-0.055493936	0.139056816	0.00307958
8	7.13	1.964311234	-0.522903226	-0.076756254	0.273427784	0.00589152
9	6.85	1.924248652	-0.242903226	-0.036693671	0.059001977	0.00134643
10	6.74	1.908059925	-0.132903226	-0.020504944	0.017663267	0.00042045
11	6.84	1.922787732	-0.232903226	-0.035232751	0.054243913	0.00124135
12	6.18	1.821318271	0.427096774	0.066236709	0.182411655	0.0043873
13	6.46	1.865629318	0.147096774	0.021925663	0.021637461	0.00048073
14	6.23	1.829376333	0.377096774	0.058178648	0.142201977	0.00338476
15	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
16	6.68	1.899117988	-0.072903226	-0.011563007	0.00531488	0.0001337
17	6.52	1.874874376	0.087096774	0.012680605	0.007585848	0.0001608
18	6.96	1.940179474	-0.352903226	-0.052624493	0.124540687	0.00276934
19	6.62	1.89009537	-0.012903226	-0.002540389	0.000166493	6.4536E-06
20	6.35	1.848454813	0.257096774	0.039100168	0.066098751	0.00152882
21	6.52	1.874874376	0.087096774	0.012680605	0.007585848	0.0001608
22	6.71	1.903598951	-0.102903226	-0.01604397	0.010589074	0.00025741
23	6.63	1.891604804	-0.022903226	-0.004049823	0.000524558	1.6401E-05
24	6.1	1.808288771	0.507096774	0.07926621	0.257147138	0.00628313
25	6.4	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
26	6.9	1.931521412	-0.292903226	-0.043966431	0.0857923	0.00193305
27	6.8	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
28	6.44	1.86252854	0.167096774	0.025026441	0.027921332	0.00062632
29	6.3	1.840549633	0.307096774	0.047005347	0.094308429	0.0022095
30	6.2	1.824549292	0.407096774	0.063005689	0.165727784	0.00396972
31	6.4	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
32	6.6	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
33	6.3	1.840549633	0.307096774	0.047005347	0.094308429	0.0022095
34	6.6	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
35	6.49	1.870262531	0.117096774	0.01729245	0.013711655	0.00029903
36	6.75	1.909542505	-0.142903226	-0.021987524	0.020421332	0.00048345
37	6.76	1.91102289	-0.152903226	-0.023467909	0.023379396	0.00055074
38	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
39	6.71	1.903598951	-0.102903226	-0.01604397	0.010589074	0.00025741
40	6.56	1.880990603	0.047096774	0.006564378	0.002218106	4.3091E-05
41	6.00	1.791759469	0.607096774	0.095795512	0.368566493	0.00917678
42	6.40	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
43	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
44	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
45	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
46	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
47	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
48	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
49	6.46	1.865629318	0.147096774	0.021925663	0.021637461	0.00048073
50	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
51	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
52	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
53	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
54	6.40	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
55	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
56	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
57	7.00	1.945910149	-0.392903226	-0.058355168	0.154372945	0.00340533
58	6.80	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
59	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
60	6.80	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
61	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
62	6.51	1.873339456	0.097096774	0.014215525	0.009427784	0.00020208
Column Sum	409.64	117.0284088			3.162277419	0.07342409
Column Sum/N	6.61	1.887554981				
Column Sum/(N-1)					0.051840613	0.00120367
SQRT(Column Sum/(N-1))					0.227685339	0.034694

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	6.61	1.887554981	6.603203968
Std Dev	0.227685339	0.034693999	1.035302857
Upper Permit Limit	7.054498465	1.955728689	7.069068303
Lower Permit Limit	6.159695084	1.819381272	6.168040931

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Density (g/mL)	Column C Transformed Density (g/mL)	Column D Untransformed Mean Minus Untransformed Density Value	Column E Transformed Mean Minus Transformed Density Value	Column F Column D Squared	Column G Column E Squared
1	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
2	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
3	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
4	0.98	-0.020202707	0.022258065	0.022349608	0.000495421	0.0004995
5	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
6	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
7	0.96	-0.040821995	0.042258065	0.042968895	0.001785744	0.00184633
8	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
9	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
10	1	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
11	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
12	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
13	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
14	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
15	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
16	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
17	0.98	-0.020202707	0.022258065	0.022349608	0.000495421	0.0004995
18	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
19	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
20	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
21	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
22	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
23	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
24	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
25	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
26	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
27	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
28	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
29	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
30	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
31	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
32	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
33	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
34	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
35	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
36	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
37	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
38	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
39	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
40	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
41	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
42	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
43	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
44	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
45	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
46	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
47	1.04	0.039220713	-0.037741935	-0.037073813	0.001424454	0.00137447
48	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
49	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
50	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
51	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
52	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
53	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
54	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
55	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
56	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
57	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
58	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
59	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
60	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
61	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
62	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
Column Sum	62.14	0.133107832			0.013483871	0.01349263
Column Sum/N	1.00	0.002146901				
Column Sum/(N-1)					0.000221047	0.00022119
SQRT(Column Sum/(N-1))					0.014867652	0.01487248

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1.00	0.002146901	1.002149207
Std Dev	0.014867652	0.014872478	1.014983624
Upper Permit Limit	1.031473	0.03137132	1.031868586
Lower Permit Limit	0.973043129	-0.027077519	0.97328579

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Solids (mg/L)	Column C Transformed Total Solids (mg/L)	Column D Untransformed Mean Minus Untransformed Total Solids Value	Column E Transformed Mean Minus Transformed Total Solids Value	Column F Column D Squared	Column G Column E Squared
1	17,300	9.75846178	2091.147541	0.010281173	4372898.038	0.000105703
2	6,790	8.823206221	12601.14754	0.945536733	158788919.3	0.894039713
3	8,480	9.045465729	10911.14754	0.723277224	119053140.7	0.523129943
4	19,200	9.862665558	191.147541	-0.093922605	36537.38242	0.008821456
5	27,500	10.22194128	-8108.852459	-0.45319833	65753488.2	0.205388727
6	17,600	9.775654181	1791.147541	-0.006911228	3208209.514	4.77651E-05
7	12,100	9.400960732	7291.147541	0.367782222	53160832.46	0.135263763
8	33,200	10.41030515	-13808.85246	-0.641562202	190684406.2	0.411602059
9	15,600	9.655026193	3791.147541	0.11371676	14372799.68	0.012931502
10	7,730	8.952864142	11661.14754	0.815878812	135982362	0.665658235
11	16,300	9.698920387	3091.147541	0.069822566	9555193.12	0.004875191
12	14,500	9.581903928	4891.147541	0.186839025	23923324.27	0.034908821
13	11,900	9.384293679	7491.147541	0.384449274	56117291.48	0.147801244
14	9,900	9.200290036	9491.147541	0.568452917	90081881.64	0.323138719
15	12,000	9.392661929	7391.147541	0.376081025	54629061.97	0.141436937
16	12,700	9.449357272	6691.147541	0.319385681	44771455.42	0.102007213
17	5,390	8.592300664	14001.14754	1.176442289	196032132.5	1.38401646
18	9,350	9.143131622	10041.14754	0.625611331	100824643.9	0.391389537
19	33,500	10.41930072	-14108.85246	-0.650557765	199059717.7	0.423225405
20	45,900	10.7342204	-26508.85246	-0.965477443	702719258.7	0.932146692
21	22,000	9.998797732	-2608.852459	-0.230054779	6806111.153	0.052925201
22	18,700	9.836278803	691.147541	-0.06753585	477684.9234	0.004561091
23	45,300	10.72106231	-25908.85246	-0.952319358	671268635.7	0.90691216
24	16,200	9.692766521	3191.147541	0.075976432	10183422.63	0.005772418
25	26,000	10.16585182	-6608.852459	-0.397108864	43676930.83	0.15769545
26	22,600	10.02570519	-3208.852459	-0.256962232	10296734.1	0.066029589
27	24,600	10.11050172	-5208.852459	-0.341758769	27132143.94	0.116799056
28	20,700	9.937888979	-1308.852459	-0.169146026	1713094.759	0.028610378
29	18,400	9.820105944	991.147541	-0.05136299	982373.448	0.002638157
30	22,600	10.02570519	-3208.852459	-0.256962232	10296734.1	0.066029589
31	10,000	9.210340372	9391.147541	0.558402581	88193652.14	0.311813443
32	12,300	9.417354541	7091.147541	0.351388412	50284373.45	0.123473816
33	13,700	9.525151112	5691.147541	0.243591841	32389160.33	0.059336985
34	12,600	9.441452093	6791.147541	0.32729086	46119684.92	0.107119307
35	16,900	9.735068901	2491.147541	0.033674052	6205816.071	0.001133942
36	16,700	9.723163998	2691.147541	0.045578955	7242275.087	0.002077441
37	19,300	9.867860375	91.14754098	-0.099117422	8307.874227	0.009824263
38	24,000	10.08580911	-4608.852459	-0.317066156	21241520.99	0.100530947
39	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
40	16,100	9.686574551	3291.147541	0.082168402	10831652.14	0.006751646
41	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
42	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
43	15,600	9.655026193	3791.147541	0.11371676	14372799.68	0.012931502
44	17,000	9.740968623	2391.147541	0.02777433	5717586.563	0.000771413
45	14,700	9.595602773	4691.147541	0.173140181	22006865.25	0.029977522
46	10,600	9.26860928	8791.147541	0.500133673	77284275.09	0.250133691
47	37,000	10.51867319	-17608.85246	-0.749930238	310071684.9	0.562395362
48	35,400	10.4744671	-16008.85246	-0.705724146	256283357.1	0.49804657
49	14,700	9.595602773	4691.147541	0.173140181	22006865.25	0.029977522
50	18,700	9.836278803	691.147541	-0.06753585	477684.9234	0.004561091
51	16,600	9.717157974	2791.147541	0.051584979	7790504.596	0.00266101
52	18,200	9.809176873	1191.147541	-0.04043392	1418832.464	0.001634902
53	22,500	10.02127059	-3108.852459	-0.252527635	9664963.612	0.063770206
54	13,200	9.487972109	6191.147541	0.280770845	38330307.87	0.078832267
55	9,740	9.183996397	9651.147541	0.584746557	93144648.86	0.341928536
56	21,600	9.980448594	-2208.852459	-0.21170564	4879029.186	0.044819278
57	35,100	10.46595641	-15708.85246	-0.697213456	246768045.6	0.486106603
58	16,280	9.69769264	3111.147541	0.071050314	9679239.022	0.005048147
59	34,400	10.44581184	-15008.85246	-0.67706889	225265652.1	0.458422282
60	37,400	10.52942598	-18008.85246	-0.76068303	324318766.9	0.578638672
61	31,400	10.35456317	-12008.85246	-0.585820219	144212537.4	0.343185329
	1,182,860	595.8933201				
Column Sum	19391.14754	9.768742953			5123045220	12.7003691
Column Sum/N						
Column Sum/(N-1)					85384086.99	0.211672818
SQRT(Column Sum/(N-1))					9240.351021	0.460079144

		Untransformed	Transformed	Transformed converted to Untransformed
	Mean	19391.14754	9.768742953	17478.78176
	Std Dev	9240.351021	0.460079144	1.584199359
	Permit Limit	37548.4373	10.67279847	43165.5702

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Vol. Solids (mg/L)	Column C Transformed Total Vol. Solids (mg/L)	Column D Untransformed Mean Minus Untransformed Total Vol. Solids Val	Column E Transformed Mean Minus Transformed Total Vol. Solids V	Column F Column D Squared	Column G Column E Squared
1	9,920	9.2023082	1305.032787	-0.130220301	1703110.575	0.016957327
2	897	6.799055862	10328.03279	2.273032038	106668261.2	5.166674644
3	3,390	8.1285852	7835.032787	0.943502699	61387738.77	0.890197344
4	9,270	9.134538659	1955.032787	-0.062450759	3822153.198	0.003900097
5	13,900	9.539644119	-2674.967213	-0.467556219	7155449.591	0.218608818
6	8,890	9.092682329	2335.032787	-0.020594429	5452378.116	0.00042413
7	6,270	8.743531634	4955.032787	0.328556266	24552349.92	0.10794922
8	25,000	10.1266311	-13774.96721	-1.054543204	189749721.7	1.112061369
9	7,170	8.877660934	4055.032787	0.194426966	16443290.9	0.037801845
10	2,440	7.799753318	8785.032787	1.272334581	77176801.07	1.618835287
11	8,430	9.039552051	2795.032787	0.032535849	7812208.28	0.001058581
12	7,050	8.860782896	4175.032787	0.211305004	17430898.77	0.044649805
13	5,090	8.53503311	6135.032787	0.53705479	37638627.3	0.288427848
14	2,870	7.962067309	8355.032787	1.110020591	69806572.87	1.232145712
15	5,820	8.669055541	5405.032787	0.403032359	29214379.43	0.162435082
16	5,980	8.696175847	5245.032787	0.375912053	27510368.94	0.141309871
17	1,430	7.265429723	9795.032787	1.806658176	95942667.3	3.264013767
18	5,940	8.689464412	5285.032787	0.382623487	27931571.56	0.146400733
19	27,000	10.20359214	-15774.96721	-1.131504245	248849590.6	1.280301857
20	38,400	10.55581274	-27174.96721	-1.483724839	738478843	2.201439397
21	16,400	9.705036614	-5174.967213	-0.632948714	26780285.66	0.400624075
22	10,700	9.27799902	525	-0.205911121	275659.4273	0.04239939
23	35,300	10.47163824	-24,075	-1.399550343	579604046.3	1.958741163
24	8,300	9.024010794	2,925	0.048077106	8555816.804	0.002311408
25	20,000	9.903487553	-8,775	-0.831399653	77000049.59	0.691225383
26	10,300	9.239899174	925	-0.167811274	855685.6568	0.028160624
27	15,400	9.642122788	-4,175	-0.570034889	17430351.23	0.324939774
28	11,000	9.305650552	225	-0.233562652	50639.75517	0.054551512
29	8,850	9.088172738	2,375	-0.016084838	5640780.739	0.000258722
30	13,000	9.472704636	-1,775	-0.400616737	3150508.608	0.16049377
31	3,190	8.067776196	8,035	1.004311704	64561751.89	1.008641999
32	3,420	8.13739583	7,805	0.93469207	60918536.8	0.873649265
33	5,730	8.65347081	5,495	0.41861709	30195385.33	0.175240268
34	2,170	7.682482447	9,055	1.389605453	81993618.77	1.931003316
35	7,200	8.881836305	4,025	0.190251595	16200888.94	0.036195669
36	7,490	8.921324077	3,735	0.150763823	13950469.92	0.02272973
37	12,200	9.409191231	-975	-0.337103331	950561.0666	0.113638656
38	16,100	9.686574551	-4,875	-0.614486651	23765305.33	0.377593845
39	9,500	9.159047078	1,725	-0.086959178	2975738.116	0.007561899
40	8,690	9.069928218	2,535	0.002159681	6426391.231	4.66422E-06
41	7,460	8.917310693	3,765	0.154777207	14175471.89	0.023955984
42	7,280	8.892886141	3,945	0.179201759	15563283.69	0.03211327
43	7,260	8.890135108	3,965	0.181952792	15721485	0.033106818
44	7,510	8.923990745	3,715	0.148097155	13801468.61	0.021932767
45	6,640	8.800867242	4,585	0.271220657	21022525.66	0.073560645
46	3,860	8.258422462	7,365	0.813665437	54243707.95	0.662051444
47	27,900	10.23638197	-16,675	-1.164294068	278054531.6	1.355580677
48	25,200	10.13459927	-13,975	-1.062511374	195299708.6	1.128930419
49	7,540	8.927977461	3,685	0.144110439	13579466.64	0.020767819
50	9,760	9.186047679	1,465	-0.11395978	2146321.067	0.012986831
51	7,860	8.969541885	3,365	0.102546014	11323445.66	0.010515685
52	11,900	9.384293679	-675	-0.312205779	455580.7388	0.097472449
53	13,400	9.503009986	-2,175	-0.430922086	4730482.378	0.185693844
54	6,130	8.720950029	5,095	0.351137871	25959359.1	0.123297804
55	4,530	8.418477218	6,695	0.653610681	44823464.02	0.427206923
56	10,400	9.249561085	825	-0.177473185	680679.0994	0.031496732
57	23,900	10.08163374	-12,675	-1.009545838	160654793.9	1.019182799
58	10,400	9.249561085	825	-0.177473185	680679.0994	0.031496732
59	22,700	10.0301202	-11,475	-0.958032304	131674872.5	0.917825895
60	26,300	10.17732422	-15,075	-1.105236318	227254636.5	1.22154732
61	16,700	9.723163998	-5,475	-0.651076099	29975265.98	0.423900086
Column Sum	684,727	553.3973619			4077830684	34.00018081
Column Sum/N	11,225	9.0720879				
Column Sum/(N-1)					67963844.73	0.56666968
SQRT(Column Sum/(N-1))					8244.018725	0.752774654

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	11,225	9.0720879	8708.787913
Std Dev	8244.018725	0.752774654	2.122882116
Permit Limit	27424.52958	10.5512901	38226.72264

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed 5-Day BOD (mg/L)	Column C Transformed 5-Day BOD (mg/L)	Column D Untransformed Mean Minus Untransformed 5-Day BOD Value	Column E Transformed Mean Minus Transformed 5-Day BOD Value	Column F Column D Squared	Column G Column E Squared
1	33,500	10.41930072	-7254.098361	-0.341824912	52621943.03	0.116844271
2	30,700	10.33201793	-4454.098361	-0.254542128	19838992.21	0.064791695
3	32,000	10.37349118	-5754.098361	-0.296015376	33109647.94	0.087625103
4	27,100	10.20728901	-854.0983607	-0.129813201	729484.0097	0.016851467
5	13,800	9.532423871	12445.90164	0.545051934	154900467.6	0.297081611
6	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
7	24,400	10.10233841	1845.901639	-0.024862606	3407352.862	0.000618149
8	13,200	9.487972109	13045.90164	0.589503697	170195549.6	0.347514609
9	24,100	10.08996712	2145.901639	-0.012491314	4604893.846	0.000156033
10	18,000	9.798127037	8245.901639	0.279348769	67994893.85	0.078035735
11	19,900	9.898475011	6345.901639	0.179000795	40270467.62	0.032041285
12	20,100	9.908475094	6145.901639	0.169000712	37772106.96	0.02856124
13	18,900	9.846917201	7345.901639	0.230558605	53962270.89	0.05315727
14	19,300	9.867860375	6945.901639	0.209615431	48245549.58	0.043938629
15	11,300	9.332558005	14945.90164	0.744917801	223379975.8	0.55490253
16	14,400	9.574983486	11845.90164	0.50249232	140325385.6	0.252498532
17	22,500	10.02127059	3745.901639	0.056205217	14031779.09	0.003159026
18	54,500	10.90595598	-28254.09836	-0.828480175	798294074.2	0.686379401
19	73,200	11.2009507	-46954.09836	-1.123474894	2204687353	1.262195838
20	26,400	10.18111929	-154.0983607	-0.103643484	23746.30476	0.010741972
21	57,800	10.96474405	-31554.09836	-0.887268249	995661123.4	0.787244946
22	99,800	11.51092346	-73554.09836	-1.433447657	5410205386	2.054772185
23	21,600	9.980448594	4645.901639	0.097027212	21584402.04	0.00941428
24	23,300	10.05620864	2945.901639	0.021267166	8678336.469	0.000452292
25	24,200	10.09410791	2045.901639	-0.016632107	4185713.518	0.000276627
26	20,700	9.937888979	5545.901639	0.139586826	30757024.99	0.019484482
27	16,000	9.680344001	10245.90164	0.397131804	104978500.4	0.15771367
28	15,600	9.655026193	10645.90164	0.422449612	113335221.7	0.178463675
29	32,400	10.3859137	-6154.098361	-0.308437896	37872926.63	0.095133936
30	16,500	9.71111566	9745.901639	0.366360146	94982598.76	0.134219756
31	20,300	9.918376165	5945.901639	0.159099641	35353746.3	0.025312696
32	18,600	9.83091686	7645.901639	0.246558946	58459811.88	0.060791314
33	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
34	39,100	10.57387775	-12854.09836	-0.49640194	165227844.7	0.246414886
35	21,500	9.975808214	4745.901639	0.101667591	22523582.37	0.010336299
36	26,600	10.18866649	-354.0983607	-0.111190689	125385.649	0.012363369
37	36,200	10.4968144	-9954.098361	-0.419338592	99084074.17	0.175844855
38	22,900	10.03889219	3345.901639	0.038583616	11195057.78	0.001488695
39	29,100	10.27849345	-2854.098361	-0.201017648	8145877.452	0.040408095
40	27,400	10.21829829	-1154.098361	-0.140822487	1331943.026	0.019830973
41	19,400	9.873028345	6845.901639	0.204447461	46866369.26	0.041798764
42	18,000	9.798127037	8245.901639	0.279348769	67994893.85	0.078035735
43	20,500	9.928180165	5745.901639	0.14929564	33015385.65	0.022289188
44	18,700	9.836278803	7545.901639	0.241197003	56940631.55	0.058175994
45	18,900	9.846917201	7345.901639	0.230558605	53962270.89	0.05315727
46	43,500	10.68051622	-17254.09836	-0.603040412	297703910.2	0.363657738
47	32,000	10.37349118	-5754.098361	-0.296015376	33109647.94	0.087625103
48	29,200	10.28192399	-2954.098361	-0.204448183	8726697.124	0.041799059
49	24,600	10.11050172	1645.901639	-0.033025916	2708992.206	0.001090711
50	23,900	10.08163374	2345.901639	-0.004157932	5503254.501	1.72884E-05
51	41,300	10.62861778	-15054.09836	-0.551141973	226625877.5	0.303757475
52	23,100	10.0475879	3145.901639	0.029887909	9896697.124	0.000893287
53	27,000	10.20359214	-754.0983607	-0.126116339	568664.3375	0.015905331
54	14,200	9.560997244	12045.90164	0.516478562	145103746.3	0.266750105
55	12,500	9.433483923	13745.90164	0.643991882	188949811.9	0.414725544
56	21,700	9.98506754	4545.901639	0.092408266	20665221.71	0.008539288
57	29,500	10.29214554	-3254.098361	-0.214669737	10589156.14	0.046083096
58	18,400	9.820105944	7845.901639	0.257369862	61558172.53	0.066239246
59	19,400	9.873028345	6845.901639	0.204447461	46866369.26	0.041798764
60	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
61	15,300	9.635608107	10945.90164	0.441867698	119812762.7	0.195247063
Column Sum	1,601,000	614.7260241			12811811475	10.12167116
Column Sum/N	26,246	10.07747581				
Column Sum/(N-1)					213530191.3	0.168694519
SQRT(Column Sum/(N-1))					14612.67228	0.410724384

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	26,246	10.07747581	23800.83173
Std Dev	14612.67228	0.410724384	1.507909695
Permit Limit	54959.80268	10.88454922	53345.73018

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Oil & Grease (mg/L)	Column C Transformed Oil & Grease (mg/L)	Column D Untransformed Mean Minus Untransformed Oil & Grease Value	Column E Transformed Mean Minus Transformed Oil & Grease Value	Column F Column D Squared	Column G Column E Squared
1	20,588	9.932463661	1362.233333	-0.54074514	1855679.654	0.292405306
2	33,370	10.41541257	-11419.76667	-1.023694051	130411070.7	1.04794951
3	5,680	8.644706512	16270.23333	0.747012009	264720492.7	0.558026942
4	16,700	9.723163998	5250.233333	-0.331445477	27564950.05	0.109856104
5	8,520	9.05017162	13430.23333	0.341546901	180371167.4	0.116654286
6	14,580	9.587406006	7370.233333	-0.195687485	54320339.39	0.038293592
7	4,006	8.295548516	17944.23333	1.096170005	321995509.9	1.201588679
8	5,240	8.564076777	16710.23333	0.827641744	279231898.1	0.684990856
9	2,460	7.807916629	19490.23333	1.583801892	379869195.4	2.508428433
10	10,240	9.234056899	11710.23333	0.157661622	137129564.7	0.024857187
11	7,240	8.887376485	14710.23333	0.504342036	216390964.7	0.254360889
12	3,700	8.216088099	18250.23333	1.175630422	333071016.7	1.38210689
13	1,958	7.579678823	19992.23333	1.812039698	399689393.7	3.283487867
14	17,440	9.766521697	4510.233333	-0.374803176	20342204.72	0.140477421
15	19,040	9.854297308	2910.233333	-0.462578787	8469458.054	0.213979134
16	16,200	9.692766521	5750.233333	-0.301048	33065183.39	0.090629898
17	9,780	9.188094763	12170.23333	0.203623758	148114579.4	0.041462635
18	8,880	9.091556836	13070.23333	0.300161685	170830999.4	0.090097037
19	28,120	10.24423635	-6169.766667	-0.852517825	38066020.72	0.726786642
20	37,900	10.54270639	-15949.76667	-1.15098787	254395056.7	1.324773077
21	7,212	8.883501584	14738.23333	0.508216937	217215521.8	0.258284455
22	28,840	10.26951859	-6889.766667	-0.87780007	47468884.72	0.770532964
23	5,788	8.663542088	16162.23333	0.728176433	261217786.3	0.530240918
24	57,260	10.95535758	-35309.76667	-1.563639058	1246779622	2.444967103
25	37,660	10.5363538	-15709.76667	-1.144635281	246796768.7	1.310189927
26	19,460	9.876116356	2490.233333	-0.484397835	6201262.054	0.234641262
27	15,940	9.676586952	6010.233333	-0.284868431	36122904.72	0.081150023
28	919	6.823286122	21031.23333	2.568432399	442312775.5	6.596844986
29	1,789	7.489412084	20161.23333	1.902306438	406475329.5	3.618769782
30	13,360	9.500020447	8590.233333	-0.108301926	73792108.72	0.011729307
31	1,161	7.057036982	20789.23333	2.334681539	432192222.6	5.45073789
32	62,820	11.04802877	-40869.76667	-1.656310252	1670337827	2.743363651
33	62,000	11.03488966	-40049.76667	-1.643171143	1603983810	2.700011405
34	68,020	11.12755706	-46069.76667	-1.735838538	2122423401	3.013135428
35	49,140	10.80242865	-27189.76667	-1.410710125	739283411.4	1.990103057
36	10,460	9.255313738	11490.23333	0.136404783	132025462.1	0.018606265
37	7,600	8.935903526	14350.23333	0.455814995	205929196.7	0.207767309
38	9,360	9.144200569	12590.23333	0.247517952	158513975.4	0.061265136
39	7,600	8.935903526	14350.23333	0.455814995	205929196.7	0.207767309
40	11,440	9.344871265	10510.23333	0.046847256	110465004.7	0.002194665
41	2,240	7.714231145	19710.23333	1.677487376	388493298.1	2.813963897
42	14,780	9.601030195	7170.233333	-0.209311673	51412246.05	0.043811377
43	15,580	9.653743319	6370.233333	-0.262024798	40579872.72	0.068656995
44	78,640	11.27263575	-56689.76667	-1.880917234	3213729645	3.53784964
45	10,120	9.222268943	11830.23333	0.169449578	139954420.7	0.02871316
46	23,800	10.07744086	-1849.766667	-0.685722339	3421636.721	0.470215126
47	20,500	9.928180165	1450.233333	-0.536461644	2103176.721	0.287791096
48	24,600	10.11050172	-2649.766667	-0.718783201	7021263.388	0.51664929
49	59,920	11.00076562	-37969.76667	-1.609047097	1441703181	2.589032561
50	115,060	11.65320901	-93109.76667	-2.261490489	8669428649	5.114339234
51	12,468	9.430920641	9482.233333	-0.03920212	89912748.99	0.001536806
52	97,560	11.48822285	-75609.76667	-2.096504331	5716836815	4.395330411
53	5,590	8.628734566	16360.23333	0.762983955	267657234.7	0.582144515
54	62,200	11.03811028	-40249.76667	-1.646391758	1620043717	2.71060582
55	3,760	8.232174236	18190.23333	1.159544285	330884588.7	1.344542948
56	5,200	8.556413905	16750.23333	0.835304616	280570316.7	0.697733802
57	3,860	8.258422462	18090.23333	1.133296059	327256542.1	1.284359956
58	6,380	8.760923376	15570.23333	0.630795145	242432166.1	0.397902515
59	4,375	8.383661799	17575.23333	1.008056722	308888826.7	1.016178355
60	910	6.8134446	21040.23333	2.578273921	442691418.7	6.647496414
Column Sum	1,317,014	563.5031113			37350392981	80.93236915
Column Sum/N	21,950	9.391718521				
Column Sum/(N-1)					633057508.1	1.37173507
SQRT(Column Sum/(N-1))					25160.6341	1.171210942

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	21,950	9.391718521	11988.68445
Std Dev	25160.6341	1.171210942	3.225896648
Permit Limit	71390.87933	11.69314802	119748.3842

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Phos (mg/L)	Column C Transformed Total Phos (mg/L)	Column D Untransformed Mean Minus Untransformed Total Phos Value	Column E Transformed Mean Minus Transformed Total Phos Value	Column F Column D Squared	Column G Column E Squared
1	750	6.620073207	410.359375	0.310354791	168394.8167	0.096320097
2	1,400	7.244227516	-239.640625	-0.313799518	57427.62915	0.098470137
3	2,400	7.783224016	-1239.640625	-0.852796018	1536708.879	0.727261049
4	2,100	7.649692624	-939.640625	-0.719264626	882924.5042	0.517341602
5	2,200	7.696212639	-1039.640625	-0.765784641	1080852.629	0.586426117
6	600	6.396929655	560.359375	0.533498343	314002.6292	0.284620482
7	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
8	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
9	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
10	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
11	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
12	600	6.396929655	560.359375	0.533498343	314002.6292	0.284620482
13	800	6.684611728	360.359375	0.24581627	129858.8792	0.060425639
14	1,900	7.549609165	-739.640625	-0.619181167	547068.2542	0.383385318
15	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
16	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
17	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
18	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
19	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
20	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
21	700	6.551080335	460.359375	0.379347663	211930.7542	0.143904649
22	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
23	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
24	2,400	7.783224016	-1239.640625	-0.852796018	1536708.879	0.727261049
25	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
26	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
27	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
28	1,700	7.43838353	-539.640625	-0.507955532	291212.0042	0.258018823
29	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
30	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
31	1,500	7.313220387	-339.640625	-0.382792389	115355.7542	0.146530013
32	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
33	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
34	1,300	7.170119543	-139.640625	-0.239691546	19499.50415	0.057452037
35	1,700	7.43838353	-539.640625	-0.507955532	291212.0042	0.258018823
36	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
37	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
38	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
39	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
40	1,800	7.495541944	-639.640625	-0.565113946	409140.1292	0.319353772
41	1,300	7.170119543	-139.640625	-0.239691546	19499.50415	0.057452037
42	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
43	700	6.551080335	460.359375	0.379347663	211930.7542	0.143904649
44	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
45	287	5.659482216	873.359375	1.270945782	762756.5979	1.615303181
46	310	5.736572297	850.359375	1.1938557	723111.0667	1.425291433
47	333	5.80814249	827.359375	1.122285508	684523.5354	1.259524761
48	507	6.228511004	653.359375	0.701916994	426878.4729	0.492687467
49	780	6.65929392	380.359375	0.271134078	144673.2542	0.073513688
50	793	6.675823222	367.359375	0.254604776	134952.9104	0.064823592
51	368	5.908082938	792.359375	1.02234506	627833.3792	1.045189421
53	1,059	6.965080346	101.359375	-0.034652348	10273.7229	0.001200785
54	655	6.484635236	505.359375	0.445792762	255388.0979	0.198731187
55	616	6.423246964	544.359375	0.507181034	296327.1292	0.257232602
56	1,287	7.160069208	-126.640625	-0.22964121	16037.8479	0.052735085
57	984	6.891625897	176.359375	0.038802101	31102.62915	0.001505603
58	818	6.706862337	342.359375	0.223565661	117209.9417	0.049981605
59	371	5.916202063	789.359375	1.014225935	623088.2229	1.028654248
60	736	6.601230119	424.359375	0.329197879	180080.8792	0.108371244
61	404	6.001414878	756.359375	0.92901312	572079.5042	0.863065377
62	2,156	7.676009932	-995.640625	-0.745581934	991300.2542	0.555892421
63	2,163	7.679251426	-1002.640625	-0.748823428	1005288.223	0.560736526
64	427	6.056784013	733.359375	0.873643985	537815.9729	0.763253812
65	759	6.632001777	401.359375	0.29842622	161089.3479	0.089058209
Column Sum	74,263	443.5473919			19511390.73	17.79163027
Column Sum/N	1,160	6.930427998				
Column Sum/(N-1)					304865.4802	0.277994223
SQRT(Column Sum/(N-1))					552.1462489	0.527251575

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1,160	6.930427998	1022.931699
Std Dev	552.1462489	0.527251575	1.694269331
Permit Limit	2245.326754	7.966477342	2882.684745

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Nitrogen (mg/L)	Column C Transformed Total Nitrogen (mg/L)	Column D Untransformed Mean Minus Untransformed Total Nitrogen Value	Column E Transformed Mean Minus Transformed Total Nitrogen Valu	Column F Column D Squared	Column G Column E Squared
1	2,940	7.98616486	3073.206349	0.659880311	9444597.265	0.435442025
2	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
3	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
4	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
5	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
6	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
7	8,120	9.002085433	-2106.793651	-0.356040262	4438579.487	0.126764668
8	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
9	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
10	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
11	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
12	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
13	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
14	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
15	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
16	1,960	7.580699752	4053.206349	1.065345419	16428481.71	1.134960862
17	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
18	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
19	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
20	2,800	7.937374696	3213.206349	0.708670475	10324695.04	0.502213842
21	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
22	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
23	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
24	3,920	8.273846933	2,093	0.372198238	4381512.82	0.138531529
25	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
26	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
27	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
28	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
29	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
30	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
31	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
32	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
33	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
34	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
35	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
36	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
37	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
38	5,264	8.568646473	749.2063492	0.077398698	561310.1537	0.005990558
39	6,348	8.755895082	-334.7936508	-0.10984991	112086.7886	0.012067003
40	5,040	8.525161361	973.2063492	0.12088381	947130.5981	0.014612896
41	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
42	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
43	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
44	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
45	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
46	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
47	8,400	9.035986985	-2386.793651	-0.389941814	5696783.931	0.152054618
48	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
49	8,120	9.002085433	-2106.793651	-0.356040262	4438579.487	0.126764668
50	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
51	8,400	9.035986985	-2386.793651	-0.389941814	5696783.931	0.152054618
52	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
53	6,720	8.812843434	-706.7936508	-0.166798262	499557.2648	0.02782166
54	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
55	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
56	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
57	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
58	5,600	8.630521877	413.2063492	0.015523294	170739.487	0.000240973
59	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
60	11,760	9.372459221	-5746.793651	-0.72641405	33025637.26	0.527677372
61	3,640	8.199738961	2373.206349	0.446306211	5632108.376	0.199189234
62	3,360	8.119696253	2653.206349	0.526348918	7039503.931	0.277043184
63	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
Column Sum	378,832	544.7008458			225057012.3	7.632815473
Column Sum/N	6,013	8.646045171				
Column Sum/(N-1)					3629951.812	0.123109927
SQRT(Column Sum/(N-1))					1905.243242	0.350870242

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	6,013	8.646045171	5687.608677
Std Dev	1905.243242	0.350870242	1.420303019
Permit Limit	9757.00932	9.335505197	11333.3524

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Ammonia (mg/L)	Column C Transformed Ammonia (mg/L)	Column D Untransformed Mean Minus Untransformed Ammonia Value	Column E Transformed Mean Minus Transformed Ammonia Value	Column F Column D Squared	Column G Column E Squared
1	560	6.327936784	1876.349206	1.420116254	3520686.344	2.016730174
2	840	6.733401892	1596.349206	1.014651146	2548330.789	1.029516947
3	3,450	8.14612951	-1013.650794	-0.398076473	1027487.931	0.158464878
4	3,480	8.154787573	-1043.650794	-0.406734535	1089206.979	0.165432982
5	1,880	7.539027056	556.3492063	0.209025982	309524.4394	0.043691861
6	1,180	7.073269717	1256.349206	0.67478332	1578413.328	0.455332529
7	2,650	7.882314919	-213.6507937	-0.134261882	45646.66163	0.018026253
8	1,850	7.522940918	586.3492063	0.225112119	343805.3918	0.050675466
9	2,390	7.779048645	46.34920635	-0.030995608	2148.248929	0.000960728
10	2,000	7.60090246	436.3492063	0.147150578	190400.6299	0.021653293
11	2,290	7.736307097	146.3492063	0.011745941	21418.0902	0.000137967
12	2,500	7.824046011	-63.65079365	-0.075992973	4051.423532	0.005774932
13	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
14	2,300	7.740664402	136.3492063	0.007388635	18591.10607	5.45919E-05
15	1,960	7.580699752	476.3492063	0.167353285	226908.5664	0.028007122
16	1,590	7.371489295	846.3492063	0.376563742	716306.9791	0.141800252
17	2,030	7.615791072	406.3492063	0.132261965	165119.6775	0.017493227
18	2,250	7.718685495	186.3492063	0.029367542	34726.02671	0.000862453
19	1,220	7.106606138	1216.349206	0.6414469	1479505.392	0.411454125
20	1,440	7.272398393	996.3492063	0.475654645	992711.741	0.226247341
21	2,800	7.937374696	-363.6507937	-0.189321659	132241.8997	0.03584269
22	2,240	7.714231145	196.3492063	0.033821893	38553.01083	0.00114392
23	3,370	8.122668023	-933.6507937	-0.374614986	871703.8045	0.140336388
24	3,530	8.16905315	-1093.650794	-0.421000113	1196072.058	0.177241095
25	2,960	7.992944547	-523.6507937	-0.24489151	274210.1537	0.059971852
26	2,170	7.682482447	266.3492063	0.065570591	70941.89972	0.004299502
27	3,340	8.113726086	-903.6507937	-0.365673049	816584.7569	0.133716778
28	3,240	8.083328609	-803.6507937	-0.335275571	645854.5981	0.112409709
29	3,530	8.16905315	-1093.650794	-0.421000113	1196072.058	0.177241095
30	3,930	8.276394705	-1493.650794	-0.528341667	2230992.693	0.279144918
31	3,310	8.104703468	-873.6507937	-0.356650431	763265.7092	0.12719953
32	2,800	7.937374696	-363.6507937	-0.189321659	132241.8997	0.03584269
33	3,320	8.107720062	-883.6507937	-0.359667025	780838.7251	0.129360369
34	2,870	7.962067309	-433.6507937	-0.214014271	188053.0108	0.045802108
35	3,720	8.221478947	-1283.650794	-0.47342591	1647759.36	0.224132092
36	2,710	7.904703914	-273.6507937	-0.156650876	74884.75687	0.024539497
37	2,550	7.843848638	-113.6507937	-0.095795601	12916.5029	0.009176797
38	2,690	7.897296473	-253.6507937	-0.149243435	64338.72512	0.022273603
39	2,730	7.912056888	-293.6507937	-0.164003851	86230.78861	0.026897263
40	2,420	7.791522819	16.34920635	-0.043469782	267.2965482	0.001889622
41	2,340	7.757906208	96.34920635	-0.009853171	9283.169564	9.7085E-05
42	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
43	2,170	7.682482447	266.3492063	0.065570591	70941.89972	0.004299502
44	2,210	7.700747795	226.3492063	0.047305243	51233.96321	0.002237786
45	2,400	7.783224016	36.34920635	-0.035170979	1321.264802	0.001236998
46	2,290	7.736307097	146.3492063	0.011745941	21418.0902	0.000137967
47	2,300	7.740664402	136.3492063	0.007388635	18591.10607	5.45919E-05
48	2,760	7.922985959	-323.6507937	-0.174932921	104749.8362	0.030601527
49	2,900	7.972466016	-463.6507937	-0.224412979	214972.0585	0.050361185
50	2,870	7.962067309	-433.6507937	-0.214014271	188053.0108	0.045802108
51	2,670	7.889833751	-233.6507937	-0.141780714	54592.69337	0.020101771
52	2,790	7.933796875	-353.6507937	-0.185743837	125068.8838	0.034500773
53	1,260	7.138867	1176.349206	0.609186037	1383797.455	0.371107628
54	2,150	7.673223121	286.3492063	0.074829916	81995.86798	0.005599516
55	3,080	8.032684876	-643.6507937	-0.284631839	414286.3442	0.081015284
56	1,930	7.565275282	506.3492063	0.182777755	256389.5188	0.033407708
57	1,730	7.455876687	706.3492063	0.29217635	498929.2013	0.085367019
58	2,440	7.799753318	-3.650793651	-0.051700281	13.32829428	0.002672919
59	2,440	7.799753318	-3.650793651	-0.051700281	13.32829428	0.002672919
60	1,840	7.517520851	596.3492063	0.230532187	355632.3759	0.053145089
61	2,420	7.791522819	16.34920635	-0.043469782	267.2965482	0.001889622
62	2,260	7.723120092	176.3492063	0.024932945	31099.04258	0.000621652
63	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
Column Sum	153,490	488.1273414			29869460.32	7.432697151
Column Sum/N	2,436	7.748053037				
Column Sum/(N-1)					481765.489	0.119882212
SQRT(Column Sum/(N-1))					694.0932855	0.346240108

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	2,436	7.748053037	2317.056797
Std Dev	694.0932855	0.346240108	1.413742025
Permit Limit	3800.242512	8.428414849	4575.241892

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed pH (pH Units)	Column C Transformed pH (pH Units)	Column D Untransformed Mean Minus Untransformed pH Value	Column E Transformed Mean Minus Transformed pH Value	Column F Column D Squared	Column G Column E Squared
1	6.65	1.894616855	-0.056333333	-0.010424592	0.003173444	0.000108672
2	7.06	1.954445052	-0.466333333	-0.070252789	0.217466778	0.004935454
3	6.61	1.888583654	-0.016333333	-0.004391391	0.000266778	1.92843E-05
4	7.39	2.000127735	-0.796333333	-0.115935472	0.634146778	0.013441034
5	6.73	1.906575144	-0.136333333	-0.022382881	0.018586778	0.000500993
6	6.87	1.927164106	-0.276333333	-0.042971843	0.076360111	0.001846579
7	6.43	1.860974538	0.163666667	0.023217725	0.026786778	0.000539063
8	6.28	1.83736998	0.313666667	0.046822282	0.098386778	0.002192326
9	6.86	1.925707442	-0.266333333	-0.041515179	0.070933444	0.00172351
10	6.74	1.908059925	-0.146333333	-0.023867662	0.021413444	0.000569665
11	6.93	1.935859813	-0.336333333	-0.05166755	0.113120111	0.002669536
12	6.96	1.940179474	-0.366333333	-0.055987211	0.134200111	0.003134568
13	6.94	1.937301775	-0.346333333	-0.053109512	0.119946778	0.00282062
14	6.68	1.899117988	-0.086333333	-0.014925725	0.007453444	0.000222777
15	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
16	6.72	1.905088155	-0.126333333	-0.020895892	0.015960111	0.000436638
17	7.36	1.996059933	-0.766333333	-0.11186767	0.587266778	0.012514376
18	6.32	1.843719208	0.273666667	0.040473055	0.074893444	0.001638068
19	6.02	1.795087259	0.573666667	0.089105004	0.329093444	0.007939702
20	6.16	1.818076778	0.433666667	0.066115485	0.188066778	0.004371257
21	6.25	1.832581464	0.343666667	0.051610799	0.118106778	0.002663675
22	6.20	1.824549292	0.393666667	0.059642971	0.154973444	0.003557284
23	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
24	6.02	1.795087259	0.573666667	0.089105004	0.329093444	0.007939702
25	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
26	6.03	1.796747011	0.563666667	0.087445252	0.317720111	0.007646672
27	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
28	5.90	1.774952351	0.693666667	0.109239912	0.481173444	0.011933358
29	5.60	1.722766598	0.993666667	0.161425665	0.987373444	0.026058245
30	5.40	1.686398954	1.193666667	0.197793309	1.424840111	0.039122193
31	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
32	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
33	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
34	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
35	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
36	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
37	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
38	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
39	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
40	6.90	1.931521412	-0.306333333	-0.047329149	0.093840111	0.002240048
41	7.10	1.960094784	-0.506333333	-0.075902521	0.256373444	0.005761193
42	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
43	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
44	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
45	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
46	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
47	6.20	1.824549292	0.393666667	0.059642971	0.154973444	0.003557284
48	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
49	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
50	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
51	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
52	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
53	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
54	6.90	1.931521412	-0.306333333	-0.047329149	0.093840111	0.002240048
55	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
56	7.30	1.987874348	-0.706333333	-0.103682085	0.498906778	0.010749975
57	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
58	6.54	1.877937165	0.053666667	0.006255097	0.002880111	3.91262E-05
59	6.61	1.888583654	-0.016333333	-0.004391391	0.000266778	1.92843E-05
60	6.46	1.865629318	0.133666667	0.018562945	0.017866778	0.000344583
Column Sum	395.62	113.0515358			9.692193333	0.233981264
Column Sum/N	6.59	1.884192263				
Column Sum/(N-1)					0.164274463	0.003965784
SQRT(Column Sum/(N-1))					0.405307862	0.062974472

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	6.59	1.884192263	6.581036547
Std Dev	0.405307862	0.062974472	1.064999652
Upper Permit Limit	7.390096616	2.007937101	7.447937144
Lower Permit Limit	5.797236717	1.760447425	5.815038607

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Density (g/mL)	Column C Transformed Density (g/mL)	Column D Untransformed Mean Minus Untransformed Density Value	Column E Transformed Mean Minus Transformed Density Value	Column F Column D Squared	Column G Column E Squared
1	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
2	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
3	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
4	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
5	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
6	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
7	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
8	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
9	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
10	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
11	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
12	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
13	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
14	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
15	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
16	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
17	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
18	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
19	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
20	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
21	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
22	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
23	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
24	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
25	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
26	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
27	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
28	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
29	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
30	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
31	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
32	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
33	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
34	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
35	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
36	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
37	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
38	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
39	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
40	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
41	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
42	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
43	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
44	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
45	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
46	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
47	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
48	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
49	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
50	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
51	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
52	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
53	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
54	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
55	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
56	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
57	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
58	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
59	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
60	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
61	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
62	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
63	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
Column Sum	62.99	-0.012750711			0.005498413	0.005499804
Column Sum/N	1.00	-0.000202392				
Column Sum/(N-1)					8.86841E-05	8.87065E-05
SQRT(Column Sum/(N-1))					0.009417222	0.009418414

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1.00	-0.000202392	0.999797628
Std Dev	0.009417222	0.009418414	1.009462907
Upper Permit Limit	1.018346112	0.018304791	1.01847335
Lower Permit Limit	0.981336428	-0.018709575	0.981464363

Table 3-2 Constant = 1.965

FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

I. SUMMARY

The U.S. Environmental Protection Agency (EPA) Region IX has received complete applications from StarKist Samoa, Incorporated and VCS Samoa Packing Company, Incorporated for continued ocean disposal of fish processing wastes off Pago Pago, American Samoa. Disposal of fish processing wastes was permitted under two previous Marine Protection Research and Sanctuaries Act (MPRSA) 102 Special Permits, OD 93-01 (StarKist Samoa) and OD 93-02 (VCS Samoa Packing). These permits began on September 1, 1993 and were effective until August 31, 1996. Administrative extensions have allowed use of the site since that date. Disposal operations occurred at a designated site (55 FR 3948, February 6, 1990) located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in about 1,500 fathoms of water. The Regional Administrator has tentatively decided to issue special ocean dumping permits (OD 98-01 and OD 98-02, respectively) to the applicants for ocean disposal of fish processing wastes over a three-year period. This decision has been made according to EPA's authority established in Title I of the Marine Protection, Research and Sanctuaries Act of1972 (MPRSA) (33 U.S.C. section 1401 et seq.). Section 104B(k)(3)(B) of MPRSA contains an exclusion from the ban on disposal of industrial waste for tuna canneries in American Samoa. The conditions and monitoring activities defined in OD 98-01 and OD 98-02 are similar to those in previous special and research ocean dumping permits. However, several changes and/or clarifications have been made to: 1) permitted waste concentrations, 2) combined waste stream monitoring from the onshore storage tank, 3) reporting requirements, and 4) disposal vessel operations. The changes are based on evaluation of waste stream data, confirmation of past toxicity tests and plume modeling and new navigation requirements for the disposal vessel. EPA Region IX has tentatively decided to proceed with issuance of these special permits. Comments on our proposed action will be requested from the permit applicants, the American Samoa Government, Federal agencies, and the public as required under EPA's Ocean Dumping Regulations at 40 C.F.R Parts 220 through 228. Draft special permits and supporting documents are available for public review at the U.S. EPA's Regional Office in the Library on the 13th Floor at 75 Hawthorne Street, San Francisco, California; the U.S. EPA's Pacific Island Contact Office, 300 Ala Moana Boulevard, Honolulu, Hawaii; and the American Samoa Environmental Protection Agency, Executive Office Building, Office of the Governor, Pago Pago, American Samoa. These documents define the principal facts and significant legal, administrative and policy questions considered in the development of the special permits.

II. TENTATIVE DECISION

On February 23, 1996 and February 26, 1996, respectively, StarKist Samoa and VCS Samoa Packing Company applied for ocean dumping permits to dispose of their fish cannery wastes at a designated ocean disposal site near Pago Pago, American Samoa. The designated site, used for the past 3 years by both canneries, is located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in 1,502 fathoms of water [40 C.F.R. 228.12(b)(74)]. EPA Region IX is planning to grant their applications by issuing a special ocean dumping permit to each cannery which will last for three years. Current information indicates that disposal of fish processing wastes at the designated site complies with EPA's Ocean Dumping Regulations at 40 C.F.R. Parts 227 and 228. Information obtained during the term of the special permits will be used to evaluate whether the disposal of fish processing wastes continues to comply with criteria defined in EPA's Ocean Dumping Regulations. The permittees must conduct a site monitoring program, including field and laboratory analyses. Results of the monitoring program will be used to document the extent of effects at the ocean disposal site and whether the dumping continues to comply with EPA's Ocean Dumping Regulations. The proposed dumping during the term of the special permits is expected to have minimal impacts on human health and/or the marine environment, as demonstrated by the monitoring results of the previous special and research ocean dumping permits. The primary environmental impact of the proposed discharges would be short-term increases in turbidity, inorganic nutrients, oil and grease, and ammonia during the dumping events. Past monitoring studies on the disposal of fish processing wastes off American Samoa show that water quality parameters return to ambient conditions at the boundary of the disposal site following the four-hour period of initial mixing (40 C.F.R. 227.29). To be certain that American Samoa Water Quality Standards would not be violated by the disposal of fish processing wastes, the center of the disposal site was designated 5.45 nautical miles offshore, and restrictive navigation requirements, disposal rates and limitations on the waste material constituents are included in the special ocean dumping permits.

III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

Data from the previous special ocean dumping permit issued to each cannery were used to calculate all permit limits. The data for each cannery were evaluated separately. The following calculations were made for each set of data using the LOTUS spreadsheet program, version 4: maximum and minimum levels; mean, standard deviation and the number of data points. Any data values greater than or less than the mean plus or minus 2 standard deviations, were considered to be outliers. Outlier data points were not used in the permit limit calculations. All procedures for calculating permit limits are discussed in Sections 3.1.1 and 3.1.2 (pages 3-1 to 3-9) of EPA's Guidance Document for Ocean Dumping Permit (January 30, 1988).

V. FACTORS CONSIDERED IN REACHING THE PERMIT DECISIONS

Overview of Disposal Operations

The two fish canneries in American Samoa, StarKist Samoa and VCS Samoa Packing Company, propose to dispose of fish processing wastes at an ocean dump site centered approximately 5.45 nautical miles south of Tutuila Island in 1,502 fathoms of water. The center coordinates of the site are: 14° 24.00' South latitude by 170° 38.20' West longitude. The fish processing wastes will be transported to the upcurrent quadrant of the site and discharged at a rate less than or equal to 1,400 gallons per minute, depending on the season, at a maximum speed of 10 knots (see Special Condition 4.4.1). The disposal vessel will discharge the fish processing wastes within a target area defined by an oval-shaped track with the center axis of the oval perpendicular to the current direction. This target area for disposal is located within the boundary of the designated ocean disposal site. On each trip, the master of the disposal vessel will document current direction at the center of the disposal site. He will then proceed to a point 1.1 nautical miles upcurrent of the prevailing surface current to discharge the waste. The fish processing wastes may be discharged only after this procedure has been conducted. This will ensure that the waste plume has an adequate area for mixing within the disposal site boundary. Receiving waters at the disposal site are outside the American Samoa territorial sea. Though the ocean disposal site is outside these waters, the MPRSA 102 special permits are designed to comply with oceanic water quality standards defined in § 24.0207(g)(1-7) of the American Samoa Water Quality Standards (see Table 1 under General Condition 1.5). This will ensure that oceanic waters inside American Samoa's territorial sea are not affected by the ocean disposal operations. Within four hours after dumping has ceased, concentrations of the fish processing wastes must reach ambient levels at the disposal site boundary. After four hours, these concentrations must not exceed ambient levels at any point in the marine environment (40 C.F.R. section 227.29). Disposal site monitoring requirements are contained in the special permits. EPA Region IX will evaluate potential impacts to water quality based on the site monitoring reports.

Changes from the Previous MPRSA 102 Special Permits

The ocean disposal vessel FV TASMAN SEA will be authorized for the 1998 special permits (see page 1 of each permit). This disposal vessel is owned by Blue North Fisheries, Inc., at 1130 N.W. 45th Street, Seattle, WA 98107-4626. EPA Region IX reviewed waste stream monitoring data (covering a four-year period) submitted by each permittee. The characteristics of the waste streams at the two canneries are entirely different; therefore, separate permits were necessary. Appendix A of this fact sheet contains the tables used to calculate the new permit limits for each permittee's waste stream defined in Section III.B above. In general, the limits for the combined fish waste are increased relative to the previously analyzed individual waste streams, as would be expected.

Results of new confirmatory suspended phase acute toxicity bioassays will be used to calculate new Limiting Permissible Concentration (LPC) values. The new LPC values will be used to rerun the dilution model and confirm compliance with water quality standards at the ocean disposal site. A report will be prepared by each permittee discussing the test procedures and results of the bioassay tests and new model runs. EPA Region IX will review the report to determine whether any changes in the ocean dumping permits are necessary. A computerized navigation system is specified in Special Condition 4.3.4 and 4.5 to simplify plotting of the disposal vessel's track once inside the ocean disposal site and during disposal operations. This system will provide a continuous plot of the disposal vessel's track and a hard copy of each plot will be sent with the 6-month report.

VI. EPA'S AUTHORITY TO ISSUE OCEAN DUMPING PERMITS

EPA's authority to issue special ocean dumping permits is defined under Title I of MPRSA and at 40 C.F.R. 220.4. The authority to issue special permits was delegated to the Regional Administrator on January 11, 1977 (42 FR 2462). The Regional Administrator's authority to issue special permits was redelegated to the EPA Region IX Water Division Director on January 25, 1982 (EPA Region IX Order R1250.5A). Section 102 of MPRSA authorizes EPA to issue permits for ocean dumping. The Agency must determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In addition to these requirements, EPA must evaluate each permit application to determine whether the dumping will comply with the criteria at 40 C.F.R. Part 227 and whether the designated site complies with the criteria at 40 C.F.R. Part 228. The American Samoa Fish Processing Waste disposal site was designated, through the publication of a Final Rule, on February 6, 1990 (55 FR 3948) at 40 C.F.R. 228.12(b)(74). The designation process consisted of publication of an environmental impact statement (EIS) according to EPA's voluntary EIS policy. The draft EIS for this project was published on September 16, 1988 (53 FR 38118) and a final EIS was published on March 3, 1989 (54 FR 9083). The final rule designating the ocean disposal site was published on February 6, 1990 (55 FR 3948). EPA Region IX will periodically evaluate the special permits to determine whether the fish canneries disposal operations comply with the special permit conditions. If unacceptable impacts are detected at the site (40 C.F.R. §§ 228.10), or significant

permit violations are found, EPA will determine whether use of the site should be restricted (40 C.F.R. §§ 228.10 and 228.11), or whether enforcement actions should be initiated under MPRSA.

VII. ADMINISTRATIVE PROCEDURES AND THE PUBLIC HEARING PROCESS

The processing of an ocean dumping permit consists of the following actions. EPA receives a completed application (40 C.F.R. §§ 221). EPA issues a tentative decision whether to grant or deny the special permit (40 C.F.R. §§ 222.2). A draft permit is the means by which EPA documents the intent to grant an ocean dumping permit. A public notice is issued to announce EPA's intent to issue the permit (40 C.F.R. §§ 222.3). The notice contains the following elements: summary, tentative determination, factors considered in reaching the tentative determination, hearing process, and the location of all information on the draft permit. Public notices describing EPA's intent to issue a permit are published in a daily newspaper in closest proximity to the proposed dump site and in a daily newspaper in the city in which EPA's Regional Office is located. Before a final decision can be made on the special permit, formal consultation must be documented with the following agencies: American Samoa Government, U.S. Army Corps of Engineers, U.S. Coast Guard, National Marine Fisheries Service, U.S. Fish and Wildlife Service and the Shellfish Sanitation Branch of the Food and Drug Administration.

Initiation of a Public Hearing

Within 30 days of the date of the public notice, any person may request a public hearing to consider issuance or denial of the special permit or conditions to be imposed upon this permit. Any request for a hearing must be made in writing; must identify the person requesting the hearing; and must clearly state any objections to issuance or denial of the permit or to the conditions to be imposed upon the permit, and the issues to be considered at the hearing. According to 40 C.F.R. §§ 222.4, the Regional Administrator may schedule a hearing, at his discretion, based on genuine issues presented in the written request. Upon receipt of a written request presenting genuine issues amenable to resolution by a public hearing, the Regional Administrator may determine a time and place for the hearing and publish a notice of the hearing. All interested parties will be invited to express their views on the proposed issuance or denial of the permit at the hearing if one is held. If a request for a public hearing is made within 30 days of the date of this notice and does not meet the above criteria, the Regional Administrator must advise the requesting person of his decision to deny the hearing in writing and proceed to rule on the application. Following adjournment of the public hearing, the Presiding Officer, appointed by the Regional Administrator, prepares written recommendations about the issuance, denial or conditions to be imposed upon the permit after full consideration of the views and arguments expressed at the hearing (40 C.F.R. §§ 222.6 through 222.8). The Presiding Officer's recommendations and the record of the hearing are forwarded to the Regional Administrator within 30 days of the hearing. The Regional Administrator makes a determination whether to issue, deny or impose conditions on the permit within 30 days of receipt of the Presiding Officer's recommendations. He must give written notice of the decision to any person appearing

at the public hearing (40 C.F.R. §§ 222.9). A final permit becomes effective 10 days after issuance, if no requests for an adjudicatory hearing are received. Requests for an adjudicatory hearing may be made to the Regional Administrator within 10 days of receipt of the notice to issue or deny the permit (40 C.F.R. §§ 222.10 and §§ 222.11). An appeal of the Regional Administrator's adjudicatory hearing decision may be made in writing to the Administrator of EPA within 10 days following receipt of the Regional Administrator's determination on the need for an adjudicatory hearing (40 C.F.R. §§ 222.12).

VIII. ADDITIONAL INFORMATION

For further information on the special permits, requests for copies of the permits or questions pertaining to MPRSA regulations, please contact either of the following people at EPA Region IX: John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-1156, Carl Goldstein, Office of Pacific Island and Native American Programs (E-4), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-2170.

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Solids (mg/L)	Column C Transformed Total Solids (mg/L)	Column D Untransformed Mean Minus Untransformed Total Solids Value	Column E Transformed Mean Minus Transformed Total Solids Value	Column F Column D Squared	Column G Column E Squared
1	58,300	10.97335737	-2343.606557	-0.094996169	5492491.696	0.00902427
2	35,800	10.48570317	20156.39344	0.392658031	406280196.6	0.15418033
3	35,400	10.4744671	20556.39344	0.403894104	422565311.4	0.16313045
4	70,140	11.15824852	-14183.60656	-0.279887321	201174695	0.07833691
5	109,000	11.59910316	-53043.60656	-0.720741958	2813624197	0.51946897
6	50,600	10.83170686	5356.393443	0.046654348	28690950.71	0.00217663
7	50,200	10.82377031	5756.393443	0.054590897	33136065.47	0.00298017
8	69,900	11.15482093	-13943.60656	-0.276459725	194424163.8	0.07642998
9	46,300	10.74289724	9656.393443	0.135463963	93245934.32	0.01835049
10	51,300	10.84544603	4656.393443	0.032915172	21681999.89	0.00108341
11	42,100	10.64780302	13856.39344	0.230558183	191999639.2	0.05315708
12	73,600	11.2064003	-17643.60656	-0.328039102	311296852.4	0.10760965
13	30,600	10.32875529	25356.39344	0.549605915	642946688.4	0.30206666
14	39,100	10.57387775	16856.39344	0.304483457	284137999.9	0.09271018
15	46,600	10.74935582	9356.393443	0.129005383	87542098.25	0.01664239
16	36,700	10.51053203	19256.39344	0.367829169	370808688.4	0.1352983
17	48,600	10.79137881	7356.393443	0.086982393	54116524.48	0.00756594
18	55,100	10.916905	856.3934426	-0.038543792	733409.7286	0.00148562
19	37,100	10.52137225	18856.39344	0.356988955	355563573.7	0.12744111
20	54,200	10.90043619	1756.393443	-0.022074984	3084917.925	0.0004873
21	48,200	10.7831143	7756.393443	0.095246903	60161639.24	0.00907197
22	49,700	10.81376021	6256.393443	0.064600991	39142458.91	0.00417329
23	36,700	10.51053203	19256.39344	0.367829169	370808688.4	0.1352983
24	88,900	11.39526742	-32943.60656	-0.516906218	1085281213	0.26719204
25	60,800	11.01534507	-4843.606557	-0.136983865	23460524.48	0.01876458
26	64,000	11.06663836	-8043.606557	-0.188277159	64699606.45	0.03544829
27	64,300	11.07131491	-8343.606557	-0.192953707	69615770.38	0.03723113
28	56,300	10.93844981	-343.6065574	-0.060088611	118065.4663	0.00361064
29	53,600	10.88930435	2356.393443	-0.010943144	5552590.056	0.00011975
30	61,100	11.02026715	-5143.606557	-0.141905942	26456688.42	0.0201373
31	27,300	10.21464198	28656.39344	0.663719222	821188885.1	0.44052321
32	79,300	11.28099341	-23343.60656	-0.402632204	544923967.1	0.16211269
33	46,400	10.74505474	9556.393443	0.133306465	91324655.63	0.01777061
34	41,500	10.63344871	14456.39344	0.244912497	208987311.4	0.05998213
35	53,200	10.88181368	2756.393443	-0.003452472	7597704.811	1.192E-05
36	62,600	11.04452056	-6643.606557	-0.166159354	44137508.09	0.02760893
37	65,700	11.0928542	-9743.606557	-0.214493001	94937868.74	0.04600725
38	60,000	11.00209984	-4043.606557	-0.123738638	16350753.99	0.01531125
39	32,500	10.38899537	23456.39344	0.489365835	550202393.3	0.23947892
40	46,200	10.74073508	9756.393443	0.137626126	95187213.01	0.01894095
41	42,500	10.65725935	13456.39344	0.221101848	181074524.5	0.04888603
42	86,800	11.3713619	-30843.60656	-0.493000698	951328065.5	0.24304969
43	42,700	10.6619542	13256.39344	0.216407004	175731967.1	0.04683199
44	48,500	10.78931908	7456.393443	0.089042126	55597803.17	0.0079285
45	22,400	10.01681624	33556.39344	0.861544965	1126031541	0.74225973
46	80,700	11.29849385	-24743.60656	-0.420132651	612246065.5	0.17651144
47	35,200	10.46880136	20756.39344	0.409559842	430827868.7	0.16773926
48	50,300	10.82576036	5656.393443	0.052600847	31994786.78	0.00276685
49	39,900	10.5941316	16056.39344	0.2842296	257807770.4	0.08078647
50	51,800	10.85514543	4156.393443	0.023215775	17275606.45	0.00053897
51	109,400	11.60276617	-53443.60656	-0.724404966	2856219082	0.52476255
52	62,100	11.03650127	-6143.606557	-0.158140065	37743901.53	0.02500828
53	77,200	11.25415474	-21243.60656	-0.375793533	451290819.6	0.14122078
54	81,900	11.31325427	-25943.60656	-0.434893067	673070721.2	0.18913198
55	74,300	11.21586623	-18343.60656	-0.337505028	336487901.5	0.11390964
56	59,400	10.99204951	-3443.606557	-0.113688302	11858426.12	0.01292503
57	79,600	11.28476937	-23643.60656	-0.406408169	559020131	0.1651676
58	92,600	11.43604442	-36643.60656	-0.557683217	1342753902	0.31101057
59	54,000	10.89673933	1956.393443	-0.018378122	3827475.302	0.00033776
60	48,200	10.7831143	7756.393443	0.095246903	60161639.24	0.00907197
61	34,900	10.46024211	21056.39344	0.418119095	443371704.8	0.17482358
Column Sum	3,413,340	663.5800334			21358403607	6.61308965
Column Sum/N	55,956	10.8783612				
Column Sum/(N-1)					355973393.4	0.11021816
SQRT(Column Sum/(N-1))					18867.25718	0.33199121

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	55956.39344	10.8783612	53016.64518
Std Dev	18867.25718	0.331991206	1.393740592
Permit Limit	93030.5538	11.53072392	101795.7794

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Untransformed	Transformed	Untransformed Mean	Transformed Mean		
Sample Number	Total Vol. Solids	Total Vol. Solids	Minus Untransformed	Minus Transforme	Column D	Column E
	(mg/L)	(mg/L)	Total Vol. Solids Val	Total Vol. Solids V	Squared	Squared
1	45,300	10.72106231	-6529.508197	-0.247615014	42634477.29	0.0613132
2	20,800	9.942708266	17970.4918	0.530739032	322938575.7	0.28168392
3	17,400	9.764225485	21370.4918	0.709221813	456697919.9	0.50299558
4	52,600	10.8704714	-13829.5082	-0.397024101	191255297	0.15762814
5	89,300	11.39975677	-50529.5082	-0.926309469	2553231199	0.85804923
6	34,300	10.44290063	4470.491803	0.030546665	19985296.96	0.0009331
7	29,200	10.28192399	9570.491803	0.191523309	91594313.36	0.03668118
8	46,800	10.75363848	-8029.508197	-0.280191184	64473001.88	0.0785071
9	26,200	10.17351469	12570.4918	0.299932608	158017264.2	0.08995957
10	32,900	10.40122794	5870.491803	0.072219361	34462674.01	0.00521564
11	25,700	10.15424627	13070.4918	0.319201027	170837756	0.1018893
12	58,100	10.96992094	-19329.5082	-0.496473645	373629887.1	0.24648608
13	12,800	9.45720045	25970.4918	1.016246848	674466444.5	1.03275766
14	28,900	10.27159687	9870.491803	0.201850424	97426608.44	0.04074359
15	27,000	10.20359214	11770.4918	0.269855153	138544477.3	0.0728218
16	19,600	9.883284845	19170.4918	0.590162453	367507756	0.34829172
17	35,800	10.48570317	2970.491803	-0.012255875	8823821.553	0.00015021
18	38,500	10.55841352	270.4918033	-0.084966223	73165.81564	0.00721926
19	24,200	10.09410791	14570.4918	0.379339386	212299231.4	0.14389837
20	35,300	10.47163824	3470.491803	0.001809055	12044313.36	3.2727E-06
21	26,400	10.18111929	12,370	0.292328009	153029067.5	0.08545566
22	33,300	10.41331268	5,470	0.060134622	29926280.57	0.00361617
23	21,200	9.961756461	17,570	0.511690837	308722182.2	0.26182751
24	63,200	11.05405958	-24,430	-0.580612282	596800870.7	0.33711062
25	44,000	10.69194491	-5,230	-0.218497615	27347755.98	0.04774121
26	44700	10.70772878	-5,930	-0.234281483	35159067.45	0.05488781
27	49400	10.8077057	-10,630	-0.334258405	112986444.5	0.11172868
28	40700	10.61398337	-1,930	-0.140536074	3723001.881	0.01975039
29	38,600	10.56100756	170	-0.087560258	29067.45499	0.0076668
30	84,100	11.33976185	-45,330	-0.866314548	2054764313	0.7505009
31	39,300	10.5789798	-530	-0.1055325	280378.9304	0.01113711
32	20,700	9.937888979	18,070	0.535558318	326542674	0.28682271
33	60,300	11.00708738	-21,530	-0.533640085	463519723.2	0.28477174
34	33,600	10.42228135	5,170	0.051165952	26733985.49	0.00261795
35	29300	10.2853428	9,470	0.188104503	89690215	0.0353833
36	38800	10.56617553	-30	-0.092728228	870.7336737	0.00859852
37	46900	10.75577295	-8,130	-0.282325657	66088903.52	0.07970778
38	45000	10.71441777	-6,230	-0.240970471	38806772.37	0.05806677
39	36800	10.51325312	1,970	-0.039805826	3882837.947	0.0015845
40	18600	9.83091686	20,170	0.642530438	406848739.6	0.41284536
41	30,800	10.33526997	7,970	0.138177329	63528739.59	0.01909297
42	25,000	10.1266311	13,770	0.346816194	189626444.5	0.12028147
43	58,000	10.96819829	-19,230	-0.494750992	369773985.5	0.24477854
44	27,100	10.20728901	11,670	0.266158291	136200378.9	0.07084024
45	26,800	10.19615717	11,970	0.277290131	143292674	0.07688982
46	10,300	9.239899174	28,470	1.233548124	810568903.5	1.52164097
47	61,600	11.02841715	-22,830	-0.554969852	521186444.5	0.30799154
48	22,900	10.03889219	15,870	0.434555108	251872510.1	0.18883814
49	35,700	10.48290597	3,070	-0.00945867	9427919.914	8.9466E-05
50	24,400	10.10233841	14,370	0.371108886	206511034.7	0.13772181
51	36,900	10.51596683	1,870	-0.042519532	3498739.586	0.00180791
52	43,400	10.67821472	-4,630	-0.204767422	21432346.14	0.0419297
53	70,300	11.16052708	-31,530	-0.68707978	994109887.1	0.47207862
54	57,800	10.96474405	-19,030	-0.491296757	362122182.2	0.2413725
55	47,600	10.77058804	-8,830	-0.297140742	77960215	0.08829262
56	44,200	10.69648007	-5,430	-0.22303277	29479559.26	0.04974362
57	63,400	11.05721914	-24,630	-0.583771843	606612674	0.34078956
58	70,500	11.16336799	-31,730	-0.689920691	1006761690	0.47599056
59	38,600	10.56100756	170	-0.087560258	29067.45499	0.0076668
60	34,100	10.43705266	4,670	0.036394634	21813493.68	0.00132457
61	20,000	9.903487553	18,770	0.569959745	352331362.5	0.32485411
Column Sum	2,365,000	638.8802852			16913966885	11.663065
Column Sum/N	38,770	10.4734473				
Column Sum/(N-1)					281899448.1	0.19438442
SQRT(Column Sum/(N-1))					16789.86147	0.44089048
					Transformed converted	
			Untransformed	Transformed	to Untransformed	
		Mean	38,770	10.4734473	35363.91743	
		Std Dev	16789.86147	0.440890481	1.55409049	
		Permit Limit	71762.56959	11.33979709	84102.96428	
		Table 3-2 Constant = 1.965				

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed 5-Day BOD (mg/L)	Column C Transformed 5-Day BOD (mg/L)	Column D Untransformed Mean Minus Untransformed 5-Day BOD Value	Column E Transformed Mean Minus Transformed 5-Day BOD Value	Column F Column D Squared	Column G Column E Squared
1	73,527	11.20540796	5023.555556	0.029551741	25236110.42	0.00087331
2	67,247	11.11612769	11303.55556	0.118832019	127770368.2	0.01412105
3	57,425	10.95823503	21125.55556	0.276724678	446289097.5	0.07657655
4	60,958	11.01794038	17592.55556	0.217019324	309498011	0.04709739
5	73,236	11.20144238	5314.555556	0.033517323	28244500.75	0.00112341
6	54,610	10.9079723	23940.55556	0.32698741	573150200.3	0.10692077
7	65,167	11.08470848	13383.55556	0.150251221	179119559.3	0.02257543
8	112,261	11.6285818	-33710.44444	-0.393622091	1136394065	0.15493835
9	77,425	11.257065	1125.555556	-0.022105299	1266875.309	0.00048864
10	71,905	11.18310108	6645.555556	0.051858623	44163408.64	0.00268932
11	58,327	10.97382039	20223.55556	0.261139319	408992199.3	0.06819374
12	125,375	11.73906453	-46824.44444	-0.50410482	2192528598	0.25412167
13	67,282	11.11664802	11268.55556	0.118311685	126980344.3	0.01399765
14	38,781	10.56568571	39769.55556	0.669273991	1581617549	0.44792767
15	103,767	11.54990328	-25216.44444	-0.314943575	635869070.4	0.09918946
16	131,250	11.78485918	-52699.44444	-0.549899475	2777231445	0.30238943
17	96,833	11.48074312	-18282.44444	-0.245783419	334247774.9	0.06040949
18	103,072	11.54318305	-24521.44444	-0.308223347	601301237.6	0.09500163
19	95,483	11.4667035	-16932.44444	-0.231743795	286707674.9	0.05370519
20	102,428	11.53691539	-23877.44444	-0.301955686	570132353.2	0.09117724
21	95,567	11.46758285	-17016.44444	-0.232623146	289559381.5	0.05411353
22	96,644	11.4787894	-18093.44444	-0.243829697	327372731.9	0.05945292
23	66,709	11.10809516	11841.55556	0.12686455	140222438	0.01609461
24	66,366	11.10294016	12184.55556	0.132019549	148463394.1	0.01742916
25	99,026	11.50313772	-20475.44444	-0.268178015	419243825.2	0.07191945
26	100,911	11.52199422	-22360.44444	-0.287034514	499989475.8	0.08238881
27	74,889	11.2237623	3661.555556	0.011197409	13406989.09	0.00012538
28	82,339	11.31860015	-3788.444444	-0.083640445	14352311.31	0.00699572
29	95139	11.46309426	-16588.44444	-0.228134554	275176489.1	0.05204537
30	101978	11.53251238	-23427.44444	-0.297552677	548845153.2	0.0885376
31	106,856	11.57923741	-28305.44444	-0.344277707	801198185.2	0.11852714
32	94,628	11.45770869	-16077.44444	-0.222748989	258484219.9	0.04961711
33	93,505	11.44577019	-14954.44444	-0.210810484	223635408.6	0.04444106
34	50,893	10.83748067	27657.55556	0.397479037	764940379.3	0.15798958
35	111,611	11.62277489	-33060.44444	-0.387815185	1092992987	0.15040062
36	63726	11.06234792	14824.55556	0.172611784	219767447.4	0.02979483
37	113300	11.63779445	-34749.44444	-0.402834741	1207523889	0.16227583
38	95850	11.47053975	-17299.44444	-0.235580043	299270778.1	0.05549796
39	67268	11.11643992	11282.55556	0.118519786	127296059.9	0.01404694
40	77311	11.25559153	1239.555556	-0.020631822	1536497.975	0.00042567
41	64220	11.07006997	14330.55556	0.164889738	205364822.5	0.02718863
42	51,950	10.858037	26,601	0.376922709	707589555.9	0.14207073
43	93,550	11.44625133	-14,999	-0.211291626	224983333.6	0.04464415
44	122,500	11.71586631	-43,949	-0.480906603	1931553667	0.23127116
45	72,289	11.18842725	6,262	0.046532453	39207077.98	0.00216527
46	74,089	11.21302235	4,462	0.021937353	19905477.98	0.00048125
47	70,686	11.16600281	7,865	0.068956893	61851234.09	0.00475505
48	95,661	11.46856597	-17,110	-0.233606265	292767309.1	0.05457189
49	60,901	11.01700487	17,650	0.217954832	311506811.3	0.04750431
50	62,132	11.03701643	16,419	0.197943272	269568966.5	0.03918154
51	63,229	11.05451834	15,322	0.18044137	234750064.6	0.03255909
52	64,295	11.07123715	14,256	0.163722559	203220864.2	0.02680508
53	68,756	11.13831928	9,795	0.096640421	95933318.53	0.00933937
54	66,239	11.10102469	12,312	0.133935013	151574400.2	0.01793859
55	69,327	11.14658972	9,224	0.088369986	85073977.09	0.00780925
56	66,493	11.10485196	12,058	0.130107748	145384646	0.01692803
57	55,259	10.9197865	23,292	0.315173204	542496560.2	0.09933415
58	58,049	10.96904276	20,502	0.265916945	420313780.2	0.07071182
59	57,818	10.96505542	20,733	0.269904281	429838859.9	0.07284832
60	55,617	10.92624419	22,934	0.308715517	525947970.4	0.09530527
61	63,379	11.05688786	15,172	0.17807185	230176098	0.03170958
62	58,238	10.97229334	20,313	0.262666364	412599913.2	0.06899362
63	43,133	10.67204364	35,418	0.562916061	1254403242	0.31687449
Column Sum	4,948,685	707.8024615			28856030434	4.60662731
Column Sum/N	78,551	11.23495971				
Column Sum/(N-1)					465419845.7	0.07430044
SQRT(Column Sum/(N-1))					21573.5914	0.27258107

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	78,551	11.23495971	75732.27523
Std Dev	21573.5914	0.272581071	1.31334993
Permit Limit	120942.6626	11.77058151	129389.3702

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Oil & Grease (mg/L)	Column C Transformed Oil & Grease (mg/L)	Column D Untransformed Mean Minus Untransformed Oil & Grease Value	Column E Transformed Mean Minus Transformed Oil & Grease Value	Column F Column D Squared	Column G Column E Squared
1	4,950	8.507142856	16798.91452	1.30245035	282203528.9	1.69637691
2	10,100	9.220290703	11648.91452	0.589302503	135697209.4	0.34727744
3	8,110	9.000853147	13638.91452	0.808740058	186019989.2	0.65406048
4	19,700	9.888373915	2048.914516	-0.078780709	4198050.694	0.0062064
5	29,800	10.30226367	-8051.085484	-0.492670467	64819977.47	0.24272419
6	14,600	9.588776808	7148.914516	0.220816398	51106978.76	0.04875988
7	4,500	8.411832676	17248.91452	1.39776053	297525052	1.9537345
8	20,100	9.908475094	1648.914516	-0.098881889	2718919.082	0.00977763
9	6,100	8.71604405	15648.91452	1.093549155	244888525.5	1.19584975
10	7,660	8.943767263	14088.91452	0.865825943	198497512.2	0.74965456
11	13,669	9.522885774	8079.914516	0.286707431	65285018.59	0.08220115
12	22,352	10.01467108	-603.0854839	-0.205077876	363712.1009	0.04205694
13	6,535	8.784927626	15213.91452	1.024665579	231463194.9	1.04993955
14	23,013	10.04381455	-1264.085484	-0.234221347	1597912.111	0.05485964
15	26,415	10.18168731	-4666.085484	-0.372094104	21772353.74	0.13845402
16	14,979	9.614404499	6769.914516	0.195188706	45831742.56	0.03809863
17	51,903	10.85713187	-30154.08548	-1.047538666	909268871.4	1.09733726
18	32,696	10.39500803	-10947.08548	-0.58541482	119838680.6	0.34271051
19	13,433	9.505469645	8315.914516	0.30412356	69154434.24	0.09249114
20	15,008	9.616338671	6740.914516	0.193254534	45439928.51	0.03734731
21	14,123	9.555559953	7625.914516	0.254033252	58154572.21	0.06453289
22	18,779	9.840494503	2969.914516	-0.030901298	8820392.233	0.00095489
23	16,179	9.691469384	5569.914516	0.118123821	31023947.72	0.01395324
24	30,084	10.31174875	-8335.085484	-0.502155543	69473650.02	0.25216019
25	25,340	10.14013945	-3591.085484	-0.330546248	12895894.95	0.10926082
26	22,721	10.03104489	-972.0854839	-0.221451681	944950.188	0.04904085
27	56793	10.94716836	-35044.08548	-1.137575152	1228087927	1.29407723
28	50204	10.82384998	-28455.08548	-1.014256778	809691889.9	1.02871681
29	39,360	10.58050535	-17611.08548	-0.770912146	310150331.9	0.59430554
30	36,286	10.49918727	-14537.08548	-0.689594066	211326854.4	0.47553998
31	40,968	10.62054655	-19219.08548	-0.810953348	369373246.8	0.65764533
32	17,648	9.778377741	4100.914516	0.031215464	16817499.87	0.00097441
33	31,841	10.36851005	-10092.08548	-0.558916841	101850189.4	0.31238804
34	16,791	9.728598308	4957.914516	0.080994898	24580916.35	0.00656017
35	18098	9.803556714	3650.914516	0.006036491	13329176.8	3.6439E-05
36	13526	9.512369038	8222.914516	0.297224167	67616323.14	0.08834221
37	35005	10.46324619	-13256.08548	-0.653652982	175723802.4	0.42726222
38	18619	9.831937844	3129.914516	-0.022344638	9796364.878	0.00049928
39	13579	9.516279761	8169.914516	0.293313445	66747503.2	0.08603278
40	9103	9.116359309	12645.91452	0.693233897	159919153.9	0.48057324
41	5,134	8.543640361	16,615	1.265952844	276055384.4	1.6026366
42	10,898	9.296334565	10,851	0.51325864	117742345.8	0.26343443
43	14,635	9.591171199	7,114	0.218422006	50607779.74	0.04770817
44	13,504	9.510741217	8,245	0.298851989	67978615.38	0.08931251
45	33,710	10.42554981	-11,961	-0.615956603	143067566	0.37940254
46	5,038	8.524764457	16,711	1.284828748	279254664	1.65078491
47	22,771	10.03324308	-1,022	-0.22364987	1044658.736	0.05001926
48	11,239	9.327118458	10,510	0.482474747	110464609.2	0.23278188
49	21,140	9.958922259	609	-0.149329054	370776.888	0.02229917
50	40,929	10.61959414	-19,180	-0.810000932	367875679.2	0.65610151
51	34,066	10.4360551	-12,317	-0.626461893	151710594.8	0.3924545
52	49,715	10.81406198	-27,966	-1.004468772	782101937.3	1.00895751
53	23,065	10.0460716	-1,316	-0.236478391	1732081.001	0.05592203
54	24,258	10.09650174	-2,509	-0.286908533	6295509.965	0.08231651
55	31,960	10.3722404	-10,211	-0.562647194	104266266.8	0.31657187
56	16,153	9.68986107	5,596	0.119732135	31314259.27	0.01433578
57	22,319	10.01319361	-570	-0.203600407	324997.4589	0.04145313
58	25,354	10.14069179	-3,605	-0.331098582	12996641.35	0.10962627
59	27,124	10.20817422	-5,375	-0.398581018	28891543.96	0.15886683
60	26,426	10.18210365	-4,677	-0.372510448	21875128.62	0.13876403
61	11,480	9.34836167	10,269	0.461231536	105450605.3	0.21273453
62	6,845	8.831273738	14,904	0.978319468	222126667.9	0.95710898
Column Sum	1,348,433	608.1947787			9607564493	24.3063674
Column Sum/N	21,749	9.809593205				
Column Sum/(N-1)					157501057.3	0.39846504
SQRT(Column Sum/(N-1))					12549.94252	0.63124087

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	21,749	9.809593205	18207.57883
Std Dev	12549.94252	0.631240873	1.879941901
Permit Limit	46409.55157	11.04998152	62942.79143

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Phos (mg/L)	Column C Transformed Total Phos (mg/L)	Column D Untransformed Mean Minus Untransformed Total Phos Value	Column E Transformed Mean Minus Transformed Total Phos Value	Column F Column D Squared	Column G Column E Squared
1	651	6.478509642	265.3770492	0.272109115	70424.97823	0.07404337
2	502	6.21860012	414.3770492	0.532018637	171708.3389	0.28304383
3	526	6.265301213	390.3770492	0.485317544	152394.2405	0.23553312
4	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
5	1,250	7.13089883	-333.6229508	-0.380280073	111304.2733	0.14461293
6	915	6.818924065	1.37704918	-0.068305308	1.896264445	0.00466562
7	897	6.799055862	19.37704918	-0.048437105	375.4700349	0.00234615
8	985	6.892641641	-68.62295082	-0.142022884	4709.109379	0.0201705
9	798	6.682108597	118.3770492	0.06851016	14013.12577	0.00469364
10	655	6.484635236	261.3770492	0.265983521	68317.96184	0.07074723
11	1,072	6.977281342	-155.6229508	-0.226662585	24218.50282	0.05137593
12	608	6.410174882	308.3770492	0.340443875	95096.40446	0.11590203
13	734	6.598509029	182.3770492	0.152109728	33261.38807	0.02313737
14	1,740	7.461640392	-823.6229508	-0.711021635	678354.7651	0.50555177
15	674	6.513230111	242.3770492	0.237388646	58746.63397	0.05635337
16	2,530	7.835974582	-1613.622951	-1.085355825	2603779.027	1.17799727
17	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
18	1,270	7.146772179	-353.6229508	-0.396153422	125049.1913	0.15693753
19	618	6.426488457	298.3770492	0.3241303	89028.86348	0.10506045
20	620	6.429719478	296.3770492	0.320899279	87839.35528	0.10297635
21	512	6.238324625	404.3770492	0.512294132	163520.7979	0.26244528
22	950	6.856461985	-33.62295082	-0.105843228	1130.502822	0.01120279
23	662	6.495265556	254.3770492	0.255353201	64707.68315	0.06520526
24	1,180	7.073269717	-263.6229508	-0.32265096	69497.0602	0.10410364
25	1,110	7.012115294	-193.6229508	-0.261496537	37489.84708	0.06838044
26	789	6.670766321	127.3770492	0.079852436	16224.91266	0.00637641
27	1,110	7.012115294	-193.6229508	-0.261496537	37489.84708	0.06838044
28	997	6.90475077	-80.62295082	-0.154132013	6500.060199	0.02375668
29	612	6.416732283	304.3770492	0.333886475	92645.38807	0.11148018
30	933	6.838405201	-16.62295082	-0.087786444	276.322494	0.00770646
31	361	5.888877958	555.3770492	0.861740799	308443.6668	0.7425972
32	1,400	7.244227516	-483.6229508	-0.493608759	233891.1586	0.24364961
33	666	6.501289671	250.3770492	0.249329087	62688.66676	0.06216499
34	502	6.21860012	414.3770492	0.532018637	171708.3389	0.28304383
35	791	6.673297968	125.3770492	0.077320789	15719.40446	0.0059785
36	940	6.845879875	-23.62295082	-0.095261118	558.0438054	0.00907468
37	1,100	7.003065459	-183.6229508	-0.252446702	33717.38807	0.06372934
38	817	6.705639095	99.37704918	0.044979662	9875.797904	0.00202317
39	525	6.263398263	391.3770492	0.487220494	153175.9946	0.23738381
40	652	6.480044562	264.3770492	0.270574195	69895.22413	0.0732104
41	667	6.502790046	249.3770492	0.247828711	62188.91266	0.06141907
42	2,200	7.696212639	-1283.622951	-0.945593882	1647687.88	0.89414779
43	626	6.439350371	290.3770492	0.311268386	84318.83069	0.09688801
44	691	6.538139824	225.3770492	0.212478933	50794.8143	0.0451473
45	609	6.411818268	307.3770492	0.338800489	94480.65036	0.11478577
46	1,070	6.975413927	-153.6229508	-0.22479517	23600.01102	0.05053287
47	846	6.74051936	70.37704918	0.010099397	4952.929051	0.000102
48	975	6.882437471	-58.62295082	-0.131818714	3436.650363	0.01737617
49	639	6.459904454	277.3770492	0.290714303	76938.02741	0.08451481
50	935	6.840546529	-18.62295082	-0.089927772	346.8142972	0.008087
51	1,290	7.162397497	-373.6229508	-0.41177874	139594.1094	0.16956173
52	1,040	6.946975992	-123.6229508	-0.196357235	15282.63397	0.03855616
53	1,450	7.279318835	-533.6229508	-0.528700078	284753.4536	0.27952377
54	1,430	7.265429723	-513.6229508	-0.514810966	263808.5356	0.26503033
55	906	6.809039306	10.37704918	-0.058420549	107.6831497	0.00341296
56	811	6.698268054	105.3770492	0.052350703	11104.32249	0.0027406
57	981	6.88857246	-64.62295082	-0.137953703	4176.125773	0.01903122
58	902	6.80461452	14.37704918	-0.053995763	206.6995431	0.00291554
59	771	6.647688374	145.3770492	0.102930383	21134.48643	0.01059466
60	694	6.542471961	222.3770492	0.208146797	49451.552	0.04332509
61	632	6.448889394	284.3770492	0.301729363	80870.3061	0.09104061
Column Sum	55,899	411.7877442			8887580.328	7.96288736
Column Sum/N	916	6.750618757				
Column Sum/(N-1)					148126.3388	0.13271479
SQRT(Column Sum/(N-1))					384.8718472	0.36430041

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	916	6.750618757	854.5873809
Std Dev	384.8718472	0.364300411	1.439506593
Permit Limit	1672.650229	7.466469064	1748.422207

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Nitrogen (mg/L)	Column C Transformed Total Nitrogen (mg/L)	Column D Untransformed Mean Minus Untransformed Total Nitrogen Value	Column E Transformed Mean Minus Transformed Total Nitrogen Valu	Column F Column D Squared	Column G Column E Squared
1	7,000	8.853665428	-1369.032258	-0.277032399	1874249.324	0.07674695
2	5,110	8.538954683	520.9677419	0.037678345	271407.3881	0.00141966
3	6,380	8.760923376	-749.0322581	-0.184290348	561049.3236	0.03396293
4	7,850	8.968268811	-2219.032258	-0.391635782	4924104.162	0.15337859
5	7,290	8.894258825	-1659.032258	-0.317625796	2752388.033	0.10088615
6	7,480	8.919988071	-1849.032258	-0.343355042	3418920.291	0.11789269
7	1,750	7.467371067	3880.967742	1.109261962	15061910.61	1.2304621
8	2,530	7.835974582	3100.967742	0.740658447	9616000.937	0.54857494
9	5,630	8.635864721	0.967741935	-0.059231692	0.936524454	0.00350839
10	5,120	8.540909718	510.9677419	0.035723311	261088.0333	0.00127615
11	6,900	8.839276691	-1269.032258	-0.262643662	1610442.872	0.06898169
12	4,940	8.50512061	690.9677419	0.071512418	477436.4204	0.00511403
13	4,600	8.433811582	1030.967742	0.142821446	1062894.485	0.02039797
14	7,090	8.86644062	-1459.032258	-0.289807591	2128775.13	0.08398844
15	5,390	8.592300664	240.9677419	-0.015667635	58065.45265	0.00024547
16	5,330	8.581106517	300.9677419	-0.004473488	90581.58169	2.0012E-05
17	3,180	8.064636476	2450.967742	0.511996553	6007242.872	0.26214047
18	5,190	8.554488976	440.9677419	0.022144053	194452.5494	0.00049036
19	5,120	8.540909718	510.9677419	0.035723311	261088.0333	0.00127615
20	5,540	8.61974978	90.96774194	-0.043116751	8275.130073	0.00185905
21	5,040	8.525161361	590.9677419	0.051471668	349242.872	0.00264933
22	8,290	9.022805248	-2659.032258	-0.446172219	7070452.549	0.19906965
23	6,150	8.724207361	-519	-0.147574332	269394.4849	0.02177818
24	5,060	8.529121762	570.9677419	0.047511266	326004.1623	0.00225732
25	2,370	7.770645234	3260.967742	0.805987795	10633910.61	0.64961632
26	4,100	8.318742253	1530.967742	0.257890776	2343862.227	0.06650765
27	6660	8.803874764	-1029.032258	-0.227241735	1058907.388	0.05163881
28	6660	8.803874764	-1029.032258	-0.227241735	1058907.388	0.05163881
29	3940	8.278936002	1690.967742	0.297697026	2859371.904	0.08862352
30	4500	8.411832676	1130.967742	0.164800353	1279088.033	0.02715916
31	4370	8.382518288	1260.967742	0.194114741	1590039.646	0.03768053
32	2820	7.944492164	2810.967742	0.632140865	7901539.646	0.39960207
33	1790	7.489970899	3840.967742	1.08666213	14753033.19	1.18083458
34	6390	8.762489547	-759.0322581	-0.185856519	576129.9688	0.03454265
35	4820	8.480529207	810.9677419	0.096103822	657668.6785	0.00923594
36	2870	7.962067309	2760.967742	0.61456572	7622942.872	0.37769102
37	5570	8.625150333	60.96774194	-0.048517304	3717.065557	0.00235393
38	9640	9.173676388	-4009.032258	-0.597043359	16072339.65	0.35646077
39	5920	8.686091728	-289.0322581	-0.109458699	83539.6462	0.01198121
40	6350	8.756210092	-719.0322581	-0.179577063	517007.3881	0.03224792
41	3490	8.157657015	2140.967742	0.418976013	4583742.872	0.1755409
42	3,250	8.086410275	2380.967742	0.490222753	5669007.388	0.24031835
43	4,980	8.51318517	650.9677419	0.063447859	423759.001	0.00402563
44	6,490	8.77801781	-859.0322581	-0.201384781	737936.4204	0.04055583
45	5,820	8.669055541	-189.0322581	-0.092422512	35733.19459	0.00854192
46	4,220	8.347590407	1410.967742	0.229042622	1990829.969	0.05246052
47	5,430	8.599694413	200.9677419	-0.023061384	40388.0333	0.00053183
48	8,120	9.002085433	-2489.032258	-0.425452404	6195281.582	0.18100975
49	5,010	8.519191194	620.9677419	0.057441835	385600.9365	0.00329956
50	4,330	8.373322821	1300.967742	0.203310208	1692517.066	0.04133504
51	5,020	8.521185213	610.9677419	0.055447816	373281.5817	0.00307446
52	6,720	8.812843434	-1089.032258	-0.236210405	1185991.259	0.05579536
53	8,250	9.017968479	-2619.032258	-0.441335451	6859329.969	0.19477698
54	8,930	9.097171674	-3299.032258	-0.520538645	10883613.84	0.27096048
55	7,020	8.856518497	-1389.032258	-0.279885468	1929410.614	0.07833588
56	9,160	9.122601458	-3529.032258	-0.545968429	12454068.68	0.29808153
57	6,170	8.727454117	-539.0322581	-0.150821088	290555.7752	0.022747
58	8,290	9.022805248	-2659.032258	-0.446172219	7070452.549	0.19906965
59	6,850	8.832003931	-1219.032258	-0.255370903	1486039.646	0.0652143
60	6,890	8.837826364	-1259.032258	-0.261193335	1585162.227	0.06822196
61	6,100	8.71604405	-469.0322581	-0.139411021	219991.2591	0.01943543
62	5,850	8.67419694	-219.0322581	-0.097563912	47975.13007	0.00951872
Column Sum	349,120	531.7512478			193808141.9	8.34904264
Column Sum/N	5,631	8.576633029				
Column Sum/(N-1)					3177182.655	0.13686955
SQRT(Column Sum/(N-1))					1782.465331	0.36995885

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	5,631	8.576633029	5306.209559
Std Dev	1782.465331	0.369958851	1.447675043
Permit Limit	9133.512117	9.303602171	10977.49087

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Ammonia (mg/L)	Column C Transformed Ammonia (mg/L)	Column D Untransformed Mean Minus Untransformed Ammonia Value	Column E Transformed Mean Minus Transformed Ammonia Value	Column F Column D Squared	Column G Column E Squared
1	4,190	8.340456013	-538.3492063	-0.267534819	289819.868	0.07157488
2	3,040	8.019612794	611.6507937	0.0533084	374116.6934	0.00284179
3	4,930	8.503094267	-1278.349206	-0.430173073	1634176.693	0.18504887
4	4,230	8.349957272	-578.3492063	-0.277036078	334487.8045	0.07674899
5	3,690	8.213381737	-38.34920635	-0.140460543	1470.661628	0.01972916
6	4,140	8.328451067	-488.3492063	-0.255529873	238484.9473	0.06529552
7	283	5.645446898	3368.650794	2.427474297	11347808.17	5.89263146
8	5,400	8.594154233	-1748.349206	-0.521233038	3056724.947	0.27168388
9	3,960	8.283999304	-308.3492063	-0.21107811	95079.23306	0.04455397
10	3,510	8.163371316	141.6507937	-0.090450122	20064.94734	0.00818122
11	4,410	8.391629968	-758.3492063	-0.318708774	575093.5188	0.10157528
12	3,420	8.13739583	231.6507937	-0.064474636	53662.0902	0.00415698
13	2,290	7.736307097	1361.650794	0.336614098	1854092.884	0.11330905
14	5,200	8.556413905	-1548.349206	-0.48349271	2397385.265	0.2337652
15	4,470	8.405143688	-818.3492063	-0.332222493	669695.4235	0.11037179
16	1,910	7.554858521	1741.650794	0.518062673	3033347.487	0.26838893
17	282	5.641907071	3369.650794	2.431014123	11354546.47	5.90982967
18	4,580	8.429454277	-928.3492063	-0.356533083	861832.2489	0.12711584
19	3,990	8.29154651	-338.3492063	-0.218625316	114480.1854	0.04779703
20	3,060	8.026170195	591.6507937	0.046750999	350050.6616	0.00218566
21	3,900	8.268731832	-248.3492063	-0.195810638	61677.32829	0.03834181
22	4,300	8.366370302	-648.3492063	-0.293449107	420356.6934	0.08611238
23	4,220	8.347590407	-568.3492063	-0.274669213	323020.8204	0.07544318
24	3,390	8.1285852	261.6507937	-0.055664006	68461.13782	0.00309848
25	295	5.686975356	3356.650794	2.385945838	11267104.55	5.69273754
26	4,800	8.476371197	-1148.349206	-0.403450003	1318705.9	0.1627719
27	5160	8.548691858	-1508.349206	-0.475770664	2275117.328	0.22635772
28	5170	8.550627968	-1518.349206	-0.477706773	2305384.312	0.22820376
29	3330	8.110727583	321.6507937	-0.037806389	103459.2331	0.00142932
30	3650	8.202482447	1.650793651	-0.129561252	2.725119678	0.01678612
31	3720	8.221478947	-68.34920635	-0.148557753	4671.614009	0.02206941
32	2290	7.736307097	1361.650794	0.336614098	1854092.884	0.11330905
33	1560	7.3524411	2091.650794	0.720480094	4375003.043	0.51909157
34	434	6.073044534	3217.650794	1.99987666	10353276.63	3.99950666
35	4050	8.30647216	-398.3492063	-0.233550966	158682.0902	0.05454605
36	2310	7.745002804	1341.650794	0.327918391	1800026.852	0.10753047
37	3870	8.261009786	-218.3492063	-0.188088592	47676.37591	0.03537732
38	5230	8.562166557	-1578.349206	-0.489245363	2491186.217	0.23936103
39	4470	8.405143688	-818.3492063	-0.332222493	669695.4235	0.11037179
40	3990	8.29154651	-338.3492063	-0.218625316	114480.1854	0.04779703
41	2990	8.003028666	661.6507937	0.069892528	437781.7727	0.00488497
42	2,910	7.97590836	741.6507937	0.097012834	550045.8997	0.00941149
43	3,060	8.026170195	591.6507937	0.046750999	350050.6616	0.00218566
44	3,850	8.255828427	-198.3492063	-0.182907233	39342.40766	0.03345506
45	4,210	8.345217927	-558.3492063	-0.272296732	311753.8362	0.07414551
46	3,410	8.13446757	241.6507937	-0.061546376	58395.10607	0.00378796
47	3,880	8.263590433	-228.3492063	-0.190669238	52143.36004	0.03635476
48	4,610	8.435983136	-958.3492063	-0.363061942	918433.2013	0.13181397
49	3,870	8.261009786	-218.3492063	-0.188088592	47676.37591	0.03537732
50	3,740	8.22684089	-88.34920635	-0.153919696	7805.582263	0.02369127
51	3,260	8.089482474	391.6507937	-0.01656128	153390.3442	0.00027428
52	3,840	8.253227646	-188.3492063	-0.180306451	35475.42353	0.03251042
53	5,810	8.66733585	-2158.349206	-0.594414656	4658471.297	0.35332878
54	4,950	8.507142856	-1298.349206	-0.434221661	1685710.662	0.18854845
55	5,070	8.531096097	-1418.349206	-0.458174902	2011714.471	0.20992424
56	1,770	7.478734826	1881.650794	0.594186369	3540609.709	0.35305744
57	4,390	8.387084506	-738.3492063	-0.314163312	545159.5505	0.09869859
58	3,140	8.051978079	511.6507937	0.020943115	261786.5346	0.00043861
59	4,550	8.422882512	-898.3492063	-0.349961318	807031.2965	0.12247292
60	4,970	8.511175119	-1318.349206	-0.438253925	1738044.63	0.1920665
61	3,980	8.289037098	-328.3492063	-0.216115904	107813.2013	0.04670608
62	3,180	8.064636476	471.6507937	0.008284718	222454.4712	6.8637E-05
63	3,490	8.157657015	161.6507937	-0.084735821	26130.97909	0.00718016
Column Sum	230,054	508.5940352			97235722.32	27.2974108
Column Sum/N	3,652	8.072921194				
Column Sum/(N-1)					1568318.102	0.44028082
SQRT(Column Sum/(N-1))					1252.325078	0.6635366

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	3,652	8.072921194	3206.454839
Std Dev	1252.325078	0.6635366	1.941647035
Permit Limit	6112.469573	9.376770613	11810.81142

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed pH (pH Units)	Column C Transformed pH (pH Units)	Column D Untransformed Mean Minus Untransformed pH Value	Column E Transformed Mean Minus Transformed pH Value	Column F Column D Squared	Column G Column E Squared
1	6.86	1.925707442	-0.252903226	-0.038152461	0.063960042	0.00145561
2	6.5	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
3	6.93	1.935859813	-0.322903226	-0.048304832	0.104266493	0.00233336
4	6.88	1.928618652	-0.272903226	-0.041063671	0.074476171	0.00168623
5	6.5	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
6	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
7	6.98	1.943048917	-0.372903226	-0.055493936	0.139056816	0.00307958
8	7.13	1.964311234	-0.522903226	-0.076756254	0.273427784	0.00589152
9	6.85	1.924248652	-0.242903226	-0.036693671	0.059001977	0.00134643
10	6.74	1.908059925	-0.132903226	-0.020504944	0.017663267	0.00042045
11	6.84	1.922787732	-0.232903226	-0.035232751	0.054243913	0.00124135
12	6.18	1.821318271	0.427096774	0.066236709	0.182411655	0.0043873
13	6.46	1.865629318	0.147096774	0.021925663	0.021637461	0.00048073
14	6.23	1.829376333	0.377096774	0.058178648	0.142201977	0.00338476
15	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
16	6.68	1.899117988	-0.072903226	-0.011563007	0.00531488	0.0001337
17	6.52	1.874874376	0.087096774	0.012680605	0.007585848	0.0001608
18	6.96	1.940179474	-0.352903226	-0.052624493	0.124540687	0.00276934
19	6.62	1.89009537	-0.012903226	-0.002540389	0.000166493	6.4536E-06
20	6.35	1.848454813	0.257096774	0.039100168	0.066098751	0.00152882
21	6.52	1.874874376	0.087096774	0.012680605	0.007585848	0.0001608
22	6.71	1.903598951	-0.102903226	-0.01604397	0.010589074	0.00025741
23	6.63	1.891604804	-0.022903226	-0.004049823	0.000524558	1.6401E-05
24	6.1	1.808288771	0.507096774	0.07926621	0.257147138	0.00628313
25	6.4	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
26	6.9	1.931521412	-0.292903226	-0.043966431	0.0857923	0.00193305
27	6.8	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
28	6.44	1.86252854	0.167096774	0.025026441	0.027921332	0.00062632
29	6.3	1.840549633	0.307096774	0.047005347	0.094308429	0.0022095
30	6.2	1.824549292	0.407096774	0.063005689	0.165727784	0.00396972
31	6.4	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
32	6.6	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
33	6.3	1.840549633	0.307096774	0.047005347	0.094308429	0.0022095
34	6.6	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
35	6.49	1.870262531	0.117096774	0.01729245	0.013711655	0.00029903
36	6.75	1.909542505	-0.142903226	-0.021987524	0.020421332	0.00048345
37	6.76	1.91102289	-0.152903226	-0.023467909	0.023379396	0.00055074
38	6.73	1.906575144	-0.122903226	-0.019020163	0.015105203	0.00036177
39	6.71	1.903598951	-0.102903226	-0.01604397	0.010589074	0.00025741
40	6.56	1.880990603	0.047096774	0.006564378	0.002218106	4.3091E-05
41	6.00	1.791759469	0.607096774	0.095795512	0.368566493	0.00917678
42	6.40	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
43	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
44	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
45	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
46	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
47	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
48	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
49	6.46	1.865629318	0.147096774	0.021925663	0.021637461	0.00048073
50	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
51	6.50	1.871802177	0.107096774	0.015752804	0.011469719	0.00024815
52	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
53	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
54	6.40	1.85629799	0.207096774	0.031256991	0.042889074	0.000977
55	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
56	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
57	7.00	1.945910149	-0.392903226	-0.058355168	0.154372945	0.00340533
58	6.80	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
59	6.60	1.887069649	0.007096774	0.000485332	5.03642E-05	2.3555E-07
60	6.80	1.916922612	-0.192903226	-0.029367631	0.037211655	0.00086246
61	6.70	1.902107526	-0.092903226	-0.014552546	0.008631009	0.00021178
62	6.51	1.873339456	0.097096774	0.014215525	0.009427784	0.00020208
Column Sum	409.64	117.0284088			3.162277419	0.07342409
Column Sum/N	6.61	1.887554981				
Column Sum/(N-1)					0.051840613	0.00120367
SQRT(Column Sum/(N-1))					0.227685339	0.034694

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	6.61	1.887554981	6.603203968
Std Dev	0.227685339	0.034693999	1.035302857
Upper Permit Limit	7.054498465	1.955728689	7.069068303
Lower Permit Limit	6.159695084	1.819381272	6.168040931

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Density (g/mL)	Column C Transformed Density (g/mL)	Column D Untransformed Mean Minus Untransformed Density Value	Column E Transformed Mean Minus Transformed Density Value	Column F Column D Squared	Column G Column E Squared
1	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
2	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
3	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
4	0.98	-0.020202707	0.022258065	0.022349608	0.000495421	0.0004995
5	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
6	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
7	0.96	-0.040821995	0.042258065	0.042968895	0.001785744	0.00184633
8	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
9	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
10	1	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
11	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
12	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
13	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
14	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
15	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
16	0.97	-0.030459207	0.032258065	0.032606108	0.001040583	0.00106316
17	0.98	-0.020202707	0.022258065	0.022349608	0.000495421	0.0004995
18	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
19	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
20	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
21	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
22	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
23	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
24	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
25	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
26	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
27	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
28	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
29	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
30	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
31	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
32	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
33	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
34	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
35	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
36	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
37	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
38	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
39	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
40	0.99	-0.010050336	0.012258065	0.012197236	0.00015026	0.00014877
41	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
42	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
43	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
44	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
45	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
46	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
47	1.04	0.039220713	-0.037741935	-0.037073813	0.001424454	0.00137447
48	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
49	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
50	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
51	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
52	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
53	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
54	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
55	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
56	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
57	1	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
58	1.00	0	0.002258065	0.002146901	5.09886E-06	4.6092E-06
59	1.02	0.019802627	-0.017741935	-0.017655727	0.000314776	0.00031172
60	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
61	1.01	0.009950331	-0.007741935	-0.00780343	5.99376E-05	6.0894E-05
62	1.03	0.029558802	-0.027741935	-0.027411902	0.000769615	0.00075141
Column Sum	62.14	0.133107832			0.013483871	0.01349263
Column Sum/N	1.00	0.002146901				
Column Sum/(N-1)					0.000221047	0.00022119
SQRT(Column Sum/(N-1))					0.014867652	0.01487248

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1.00	0.002146901	1.002149207
Std Dev	0.014867652	0.014872478	1.014983624
Upper Permit Limit	1.031473	0.03137132	1.031868586
Lower Permit Limit	0.973043129	-0.027077519	0.97328579

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Untransformed	Transformed	Untransformed Mean	Transformed Mean		
Sample Number	Total Solids	Total Solids	Minus Untransformed	Minus Transformed	Column D	Column E
	(mg/L)	(mg/L)	Total Solids Value	Total Solids Value	Squared	Squared
1	17,300	9.75846178	2091.147541	0.010281173	4372898.038	0.000105703
2	6,790	8.823206221	12601.14754	0.945536733	158788919.3	0.894039713
3	8,480	9.045465729	10911.14754	0.723277224	119053140.7	0.523129943
4	19,200	9.862665558	191.147541	-0.093922605	36537.38242	0.008821456
5	27,500	10.22194128	-8108.852459	-0.45319833	65753488.2	0.205388727
6	17,600	9.775654181	1791.147541	-0.006911228	3208209.514	4.77651E-05
7	12,100	9.400960732	7291.147541	0.367782222	53160832.46	0.135263763
8	33,200	10.41030515	-13808.85246	-0.641562202	190684406.2	0.411602059
9	15,600	9.655026193	3791.147541	0.11371676	14372799.68	0.012931502
10	7,730	8.952864142	11661.14754	0.815878812	135982362	0.665658235
11	16,300	9.698920387	3091.147541	0.069822566	9555193.12	0.004875191
12	14,500	9.581903928	4891.147541	0.186839025	23923324.27	0.034908821
13	11,900	9.384293679	7491.147541	0.384449274	56117291.48	0.147801244
14	9,900	9.200290036	9491.147541	0.568452917	90081881.64	0.323138719
15	12,000	9.392661929	7391.147541	0.376081025	54629061.97	0.141436937
16	12,700	9.449357272	6691.147541	0.319385681	44771455.42	0.102007213
17	5,390	8.592300664	14001.14754	1.176442289	196032132.5	1.38401646
18	9,350	9.143131622	10041.14754	0.625611331	100824643.9	0.391389537
19	33,500	10.41930072	-14108.85246	-0.650557765	199059717.7	0.423225405
20	45,900	10.7342204	-26508.85246	-0.965477443	702719258.7	0.932146692
21	22,000	9.998797732	-2608.852459	-0.230054779	6806111.153	0.052925201
22	18,700	9.836278803	691.147541	-0.06753585	477684.9234	0.004561091
23	45,300	10.72106231	-25908.85246	-0.952319358	671268635.7	0.90691216
24	16,200	9.692766521	3191.147541	0.075976432	10183422.63	0.005772418
25	26,000	10.16585182	-6608.852459	-0.397108864	43676930.83	0.15769545
26	22,600	10.02570519	-3208.852459	-0.256962232	10296734.1	0.066029589
27	24,600	10.11050172	-5208.852459	-0.341758769	27132143.94	0.116799056
28	20,700	9.937888979	-1308.852459	-0.169146026	1713094.759	0.028610378
29	18,400	9.820105944	991.147541	-0.05136299	982373.448	0.002638157
30	22,600	10.02570519	-3208.852459	-0.256962232	10296734.1	0.066029589
31	10,000	9.210340372	9391.147541	0.558402581	88193652.14	0.311813443
32	12,300	9.417354541	7091.147541	0.351388412	50284373.45	0.123473816
33	13,700	9.525151112	5691.147541	0.243591841	32389160.33	0.059336985
34	12,600	9.441452093	6791.147541	0.32729086	46119684.92	0.107119307
35	16,900	9.735068901	2491.147541	0.033674052	6205816.071	0.001133942
36	16,700	9.723163998	2691.147541	0.045578955	7242275.087	0.002077441
37	19,300	9.867860375	91.14754098	-0.099117422	8307.874227	0.009824263
38	24,000	10.08580911	-4608.852459	-0.317066156	21241520.99	0.100530947
39	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
40	16,100	9.686574551	3291.147541	0.082168402	10831652.14	0.006751646
41	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
42	15,700	9.661415991	3691.147541	0.107326962	13624570.17	0.011519077
43	15,600	9.655026193	3791.147541	0.11371676	14372799.68	0.012931502
44	17,000	9.740968623	2391.147541	0.02777433	5717586.563	0.000771413
45	14,700	9.595602773	4691.147541	0.173140181	22006865.25	0.029977522
46	10,600	9.26860928	8791.147541	0.500133673	77284275.09	0.250133691
47	37,000	10.51867319	-17608.85246	-0.749930238	310071684.9	0.562395362
48	35,400	10.4744671	-16008.85246	-0.705724146	256283357.1	0.49804657
49	14,700	9.595602773	4691.147541	0.173140181	22006865.25	0.029977522
50	18,700	9.836278803	691.147541	-0.06753585	477684.9234	0.004561091
51	16,600	9.717157974	2791.147541	0.051584979	7790504.596	0.00266101
52	18,200	9.809176873	1191.147541	-0.04043392	1418832.464	0.001634902
53	22,500	10.02127059	-3108.852459	-0.252527635	9664963.612	0.063770206
54	13,200	9.487972109	6191.147541	0.280770845	38330307.87	0.078832267
55	9,740	9.183996397	9651.147541	0.584746557	93144648.86	0.341928536
56	21,600	9.980448594	-2208.852459	-0.21170564	4879029.186	0.044819278
57	35,100	10.46595641	-15708.85246	-0.697213456	246768045.6	0.486106603
58	16,280	9.69769264	3111.147541	0.071050314	9679239.022	0.005048147
59	34,400	10.44581184	-15008.85246	-0.67706889	225265652.1	0.458422282
60	37,400	10.52942598	-18008.85246	-0.76068303	324318766.9	0.578638672
61	31,400	10.35456317	-12008.85246	-0.585820219	144212537.4	0.343185329
	1,182,860	595.8933201				
Column Sum	19391.14754	9.768742953			5123045220	12.7003691
Column Sum/N						
Column Sum/(N-1)					85384086.99	0.211672818
SQRT(Column Sum/(N-1))					9240.351021	0.460079144

		Untransformed	Transformed	Transformed converted to Untransformed
Mean		19391.14754	9.768742953	17478.78176
Std Dev		9240.351021	0.460079144	1.584199359
Permit Limit		37548.4373	10.67279847	43165.5702

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Untransformed	Transformed	Untransformed Mean	Transformed Mean		
Sample Number	Total Vol. Solids	Total Vol. Solids	Minus Untransformed	Minus Transformed	Column D	Column E
	(mg/L)	(mg/L)	Total Vol. Solids Valu	Total Vol. Solids V	Squared	Squared
1	9,920	9.2023082	1305.032787	-0.130220301	1703110.575	0.016957327
2	897	6.799055862	10328.03279	2.273032038	106668261.2	5.166674644
3	3,390	8.1285852	7835.032787	0.943502699	61387738.77	0.890197344
4	9,270	9.134538659	1955.032787	-0.062450759	3822153.198	0.003900097
5	13,900	9.539644119	-2674.967213	-0.467556219	7155449.591	0.218608818
6	8,890	9.092682329	2335.032787	-0.020594429	5452378.116	0.00042413
7	6,270	8.743531634	4955.032787	0.328556266	24552349.92	0.10794922
8	25,000	10.1266311	-13774.96721	-1.054543204	189749721.7	1.112061369
9	7,170	8.877660934	4055.032787	0.194426966	16443290.9	0.037801845
10	2,440	7.799753318	8785.032787	1.272334581	77176801.07	1.618835287
11	8,430	9.039552051	2795.032787	0.032535849	7812208.28	0.001058581
12	7,050	8.860782896	4175.032787	0.211305004	17430898.77	0.044649805
13	5,090	8.53503311	6135.032787	0.53705479	37638627.3	0.288427848
14	2,870	7.962067309	8355.032787	1.110020591	69806572.87	1.232145712
15	5,820	8.669055541	5405.032787	0.403032359	29214379.43	0.162435082
16	5,980	8.696175847	5245.032787	0.375912053	27510368.94	0.141309871
17	1,430	7.265429723	9795.032787	1.806658176	95942667.3	3.264013767
18	5,940	8.689464412	5285.032787	0.382623487	27931571.56	0.146400733
19	27,000	10.20359214	-15774.96721	-1.131504245	248849590.6	1.280301857
20	38,400	10.55581274	-27174.96721	-1.483724839	738478843	2.201439397
21	16,400	9.705036614	-5174.967213	-0.632948714	26780285.66	0.400624075
22	10,700	9.27799902	525	-0.205911121	275659.4273	0.04239939
23	35,300	10.47163824	-24,075	-1.399550343	579604046.3	1.958741163
24	8,300	9.024010794	2,925	0.048077106	8555816.804	0.002311408
25	20,000	9.903487553	-8,775	-0.831399653	77000049.59	0.691225383
26	10,300	9.239899174	925	-0.167811274	855685.6568	0.028160624
27	15,400	9.642122788	-4,175	-0.570034889	17430351.23	0.324939774
28	11,000	9.305650552	225	-0.233562652	50639.75517	0.054551512
29	8,850	9.088172738	2,375	-0.016084838	5640780.739	0.000258722
30	13,000	9.472704636	-1,775	-0.400616737	3150508.608	0.16049377
31	3,190	8.067776196	8,035	1.004311704	64561751.89	1.008641999
32	3,420	8.13739583	7,805	0.93469207	60918536.8	0.873649265
33	5,730	8.65347081	5,495	0.41861709	30195385.33	0.175240268
34	2,170	7.682482447	9,055	1.389605453	81993618.77	1.931003316
35	7,200	8.881836305	4,025	0.190251595	16200888.94	0.036195669
36	7,490	8.921324077	3,735	0.150763823	13950469.92	0.02272973
37	12,200	9.409191231	-975	-0.337103331	950561.0666	0.113638656
38	16,100	9.686574551	-4,875	-0.614486651	23765305.33	0.377593845
39	9,500	9.159047078	1,725	-0.086959178	2975738.116	0.007561899
40	8,690	9.069928218	2,535	0.002159681	6426391.231	4.66422E-06
41	7,460	8.917310693	3,765	0.154777207	14175471.89	0.023955984
42	7,280	8.892886141	3,945	0.179201759	15563283.69	0.03211327
43	7,260	8.890135108	3,965	0.181952792	15721485	0.033106818
44	7,510	8.923990745	3,715	0.148097155	13801468.61	0.021932767
45	6,640	8.800867242	4,585	0.271220657	21022525.66	0.073560645
46	3,860	8.258422462	7,365	0.813665437	54243707.95	0.662051444
47	27,900	10.23638197	-16,675	-1.164294068	278054531.6	1.355580677
48	25,200	10.13459927	-13,975	-1.062511374	195299708.6	1.128930419
49	7,540	8.927977461	3,685	0.144110439	13579466.64	0.020767819
50	9,760	9.186047679	1,465	-0.11395978	2146321.067	0.012986831
51	7,860	8.969541885	3,365	0.102546014	11323445.66	0.010515685
52	11,900	9.384293679	-675	-0.312205779	455580.7388	0.097472449
53	13,400	9.503009986	-2,175	-0.430922086	4730482.378	0.185693844
54	6,130	8.720950029	5,095	0.351137871	25959359.1	0.123297804
55	4,530	8.418477218	6,695	0.653610681	44823464.02	0.427206923
56	10,400	9.249561085	825	-0.177473185	680679.0994	0.031496732
57	23,900	10.08163374	-12,675	-1.009545838	160654793.9	1.019182799
58	10,400	9.249561085	825	-0.177473185	680679.0994	0.031496732
59	22,700	10.0301202	-11,475	-0.958032304	131674872.5	0.917825895
60	26,300	10.17732422	-15,075	-1.105236318	227254636.5	1.22154732
61	16,700	9.723163998	-5,475	-0.651076099	29975265.98	0.423900086
Column Sum	684,727	553.3973619			4077830684	34.00018081
Column Sum/N	11,225	9.0720879				
Column Sum/(N-1)					67963844.73	0.56666968
SQRT(Column Sum/(N-1))					8244.018725	0.752774654
					Transformed converted	
			Untransformed	Transformed	to Untransformed	
		Mean	11,225	9.0720879	8708.787913	
		Std Dev	8244.018725	0.752774654	2.122882116	
		Permit Limit	27424.52958	10.5512901	38226.72264	
		Table 3-2 Constant = 1.965				

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed 5-Day BOD (mg/L)	Column C Transformed 5-Day BOD (mg/L)	Column D Untransformed Mean Minus Untransformed 5-Day BOD Value	Column E Transformed Mean Minus Transformed 5-Day BOD Value	Column F Column D Squared	Column G Column E Squared
1	33,500	10.41930072	-7254.098361	-0.341824912	52621943.03	0.116844271
2	30,700	10.33201793	-4454.098361	-0.254542128	19838992.21	0.064791695
3	32,000	10.37349118	-5754.098361	-0.296015376	33109647.94	0.087625103
4	27,100	10.20728901	-854.0983607	-0.129813201	729484.0097	0.016851467
5	13,800	9.532423871	12445.90164	0.545051934	154900467.6	0.297081611
6	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
7	24,400	10.10233841	1845.901639	-0.024862606	3407352.862	0.000618149
8	13,200	9.487972109	13045.90164	0.589503697	170195549.6	0.347514609
9	24,100	10.08996712	2145.901639	-0.012491314	4604893.846	0.000156033
10	18,000	9.798127037	8245.901639	0.279348769	67994893.85	0.078035735
11	19,900	9.898475011	6345.901639	0.179000795	40270467.62	0.032041285
12	20,100	9.908475094	6145.901639	0.169000712	37772106.96	0.02856124
13	18,900	9.846917201	7345.901639	0.230558605	53962270.89	0.05315727
14	19,300	9.867860375	6945.901639	0.209615431	48245549.58	0.043938629
15	11,300	9.332558005	14945.90164	0.744917801	223379975.8	0.55490253
16	14,400	9.574983486	11845.90164	0.50249232	140325385.6	0.252498532
17	22,500	10.02127059	3745.901639	0.056205217	14031779.09	0.003159026
18	54,500	10.90595598	-28254.09836	-0.828480175	798294074.2	0.686379401
19	73,200	11.2009507	-46954.09836	-1.123474894	2204687353	1.262195838
20	26,400	10.18111929	-154.0983607	-0.103643484	23746.30476	0.010741972
21	57,800	10.96474405	-31554.09836	-0.887268249	995661123.4	0.787244946
22	99,800	11.51092346	-73554.09836	-1.433447657	5410205386	2.054772185
23	21,600	9.980448594	4645.901639	0.097027212	21584402.04	0.00941428
24	23,300	10.05620864	2945.901639	0.021267166	8678336.469	0.000452292
25	24,200	10.09410791	2045.901639	-0.016632107	4185713.518	0.000276627
26	20,700	9.937888979	5545.901639	0.139586826	30757024.99	0.019484482
27	16,000	9.680344001	10245.90164	0.397131804	104978500.4	0.15771367
28	15,600	9.655026193	10645.90164	0.422449612	113335221.7	0.178463675
29	32,400	10.3859137	-6154.098361	-0.308437896	37872926.63	0.095133936
30	16,500	9.71111566	9745.901639	0.366360146	94982598.76	0.134219756
31	20,300	9.918376165	5945.901639	0.159099641	35353746.3	0.025312696
32	18,600	9.83091686	7645.901639	0.246558946	58459811.88	0.060791314
33	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
34	39,100	10.57387775	-12854.09836	-0.49640194	165227844.7	0.246414886
35	21,500	9.975808214	4745.901639	0.101667591	22523582.37	0.010336299
36	26,600	10.18866649	-354.0983607	-0.111190689	125385.649	0.012363369
37	36,200	10.4968144	-9954.098361	-0.419338592	99084074.17	0.175844855
38	22,900	10.03889219	3345.901639	0.038583616	11195057.78	0.001488695
39	29,100	10.27849345	-2854.098361	-0.201017648	8145877.452	0.040408095
40	27,400	10.21829829	-1154.098361	-0.140822487	1331943.026	0.019830973
41	19,400	9.873028345	6845.901639	0.204447461	46866369.26	0.041798764
42	18,000	9.798127037	8245.901639	0.279348769	67994893.85	0.078035735
43	20,500	9.928180165	5745.901639	0.14929564	33015385.65	0.022289188
44	18,700	9.836278803	7545.901639	0.241197003	56940631.55	0.058175994
45	18,900	9.846917201	7345.901639	0.230558605	53962270.89	0.05315727
46	43,500	10.68051622	-17254.09836	-0.603040412	297703910.2	0.363657738
47	32,000	10.37349118	-5754.098361	-0.296015376	33109647.94	0.087625103
48	29,200	10.28192399	-2954.098361	-0.204448183	8726697.124	0.041799059
49	24,600	10.11050172	1645.901639	-0.033025916	2708992.206	0.001090711
50	23,900	10.08163374	2345.901639	-0.004157932	5503254.501	1.72884E-05
51	41,300	10.62861778	-15054.09836	-0.551141973	226625877.5	0.303757475
52	23,100	10.0475879	3145.901639	0.029887909	9896697.124	0.000893287
53	27,000	10.20359214	-754.0983607	-0.126116339	568664.3375	0.015905331
54	14,200	9.560997244	12045.90164	0.516478562	145103746.3	0.266750105
55	12,500	9.433483923	13745.90164	0.643991882	188949811.9	0.414725544
56	21,700	9.98506754	4545.901639	0.092408266	20665221.71	0.008539288
57	29,500	10.29214554	-3254.098361	-0.214669737	10589156.14	0.046083096
58	18,400	9.820105944	7845.901639	0.257369862	61558172.53	0.066239246
59	19,400	9.873028345	6845.901639	0.204447461	46866369.26	0.041798764
60	21,000	9.952277717	5245.901639	0.125198089	27519484.01	0.015674561
61	15,300	9.635608107	10945.90164	0.441867698	119812762.7	0.195247063
Column Sum	1,601,000	614.7260241			12811811475	10.12167116
Column Sum/N	26,246	10.07747581				
Column Sum/(N-1)					213530191.3	0.168694519
SQRT(Column Sum/(N-1))					14612.67228	0.410724384

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	26,246	10.07747581	23800.83173
Std Dev	14612.67228	0.410724384	1.507909695
Permit Limit	54959.80268	10.88454922	53345.73018

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
Sample Number	Untransformed Oil & Grease (mg/L)	Transformed Oil & Grease (mg/L)	Untransformed Mean Minus Untransformed Oil & Grease Value	Transformed Mean Minus Transformed Oil & Grease Value	Column D Squared	Column E Squared
1	20,588	9.932463661	1362.233333	-0.54074514	1855679.654	0.292405306
2	33,370	10.41541257	-11419.76667	-1.023694051	130411070.7	1.04794951
3	5,680	8.644706512	16270.23333	0.747012009	264720492.7	0.558026942
4	16,700	9.723163998	5250.233333	-0.331445477	27564950.05	0.109856104
5	8,520	9.05017162	13430.23333	0.341546901	180371167.4	0.116654286
6	14,580	9.587406006	7370.233333	-0.195687485	54320339.39	0.038293592
7	4,006	8.295548516	17944.23333	1.096170005	321995509.9	1.201588679
8	5,240	8.564076777	16710.23333	0.827641744	279231898.1	0.684990856
9	2,460	7.807916629	19490.23333	1.583801892	379869195.4	2.508428433
10	10,240	9.234056899	11710.23333	0.157661622	137129564.7	0.024857187
11	7,240	8.887376485	14710.23333	0.504342036	216390964.7	0.254360889
12	3,700	8.216088099	18250.23333	1.175630422	333071016.7	1.38210689
13	1,958	7.579678823	19992.23333	1.812039698	399689393.7	3.283487867
14	17,440	9.766521697	4510.233333	-0.374803176	20342204.72	0.140477421
15	19,040	9.854297308	2910.233333	-0.462578787	8469458.054	0.213979134
16	16,200	9.692766521	5750.233333	-0.301048	33065183.39	0.090629898
17	9,780	9.188094763	12170.23333	0.203623758	148114579.4	0.041462635
18	8,880	9.091556836	13070.23333	0.300161685	170830999.4	0.090097037
19	28,120	10.24423635	-6169.766667	-0.852517825	38066020.72	0.726786642
20	37,900	10.54270639	-15949.76667	-1.15098787	254395056.7	1.324773077
21	7,212	8.883501584	14738.23333	0.508216937	217215521.8	0.258284455
22	28,840	10.26951859	-6889.766667	-0.87780007	47468884.72	0.770532964
23	5,788	8.663542088	16162.23333	0.728176433	261217786.3	0.530240918
24	57,260	10.95535758	-35309.76667	-1.563639058	1246779622	2.444967103
25	37,660	10.5363538	-15709.76667	-1.144635281	246796768.7	1.310189927
26	19,460	9.876116356	2490.233333	-0.484397835	6201262.054	0.234641262
27	15,940	9.676586952	6010.233333	-0.284868431	36122904.72	0.081150023
28	919	6.823286122	21031.23333	2.568432399	442312775.5	6.596844986
29	1,789	7.489412084	20161.23333	1.902306438	406475329.5	3.618769782
30	13,360	9.500020447	8590.233333	-0.108301926	73792108.72	0.011729307
31	1,161	7.057036982	20789.23333	2.334681539	432192222.6	5.45073789
32	62,820	11.04802877	-40869.76667	-1.656310252	1670337827	2.743363651
33	62,000	11.03488966	-40049.76667	-1.643171143	1603983810	2.700011405
34	68,020	11.12755706	-46069.76667	-1.735838538	2122423401	3.013135428
35	49,140	10.80242865	-27189.76667	-1.410710125	739283411.4	1.990103057
36	10,460	9.255313738	11490.23333	0.136404783	132025462.1	0.018606265
37	7,600	8.935903526	14350.23333	0.455814995	205929196.7	0.207767309
38	9,360	9.144200569	12590.23333	0.247517952	158513975.4	0.061265136
39	7,600	8.935903526	14350.23333	0.455814995	205929196.7	0.207767309
40	11,440	9.344871265	10510.23333	0.046847256	110465004.7	0.002194665
41	2,240	7.714231145	19710.23333	1.677487376	388493298.1	2.813963897
42	14,780	9.601030195	7170.233333	-0.209311673	51412246.05	0.043811377
43	15,580	9.653743319	6370.233333	-0.262024798	40579872.72	0.068656995
44	78,640	11.27263575	-56689.76667	-1.880917234	3213729645	3.53784964
45	10,120	9.222268943	11830.23333	0.169449578	139954420.7	0.02871316
46	23,800	10.07744086	-1849.766667	-0.685722339	3421636.721	0.470215126
47	20,500	9.928180165	1450.233333	-0.536461644	2103176.721	0.287791096
48	24,600	10.11050172	-2649.766667	-0.718783201	7021263.388	0.51664929
49	59,920	11.00076562	-37969.76667	-1.609047097	1441703181	2.589032561
50	115,060	11.65320901	-93109.76667	-2.261490489	8669428649	5.114339234
51	12,468	9.430920641	9482.233333	-0.03920212	89912748.99	0.001536806
52	97,560	11.48822285	-75609.76667	-2.096504331	5716836815	4.395330411
53	5,590	8.628734566	16360.23333	0.762983955	267657234.7	0.582144515
54	62,200	11.03811028	-40249.76667	-1.646391758	1620043717	2.71060582
55	3,760	8.232174236	18190.23333	1.159544285	330884588.7	1.344542948
56	5,200	8.556413905	16750.23333	0.835304616	280570316.7	0.697733802
57	3,860	8.258422462	18090.23333	1.133296059	327256542.1	1.284359956
58	6,380	8.760923376	15570.23333	0.630795145	242432166.1	0.397902515
59	4,375	8.383661799	17575.23333	1.008056722	308888826.7	1.016178355
60	910	6.8134446	21040.23333	2.578273921	442691418.7	6.647496414
Column Sum	1,317,014	563.5031113			37350392981	80.93236915
Column Sum/N	21,950	9.391718521				
Column Sum/(N-1)					633057508.1	1.37173507
SQRT(Column Sum/(N-1))					25160.6341	1.171210942

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	21,950	9.391718521	11988.68445
Std Dev	25160.6341	1.171210942	3.225896648
Permit Limit	71390.87933	11.69314802	119748.3842

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Total Phos (mg/L)	Column C Transformed Total Phos (mg/L)	Column D Untransformed Mean Minus Untransformed Total Phos Value	Column E Transformed Mean Minus Transformed Total Phos Value	Column F Column D Squared	Column G Column E Squared
1	750	6.620073207	410.359375	0.310354791	168394.8167	0.096320097
2	1,400	7.244227516	-239.640625	-0.313799518	57427.62915	0.098470137
3	2,400	7.783224016	-1239.640625	-0.852796018	1536708.879	0.727261049
4	2,100	7.649692624	-939.640625	-0.719264626	882924.5042	0.517341602
5	2,200	7.696212639	-1039.640625	-0.765784641	1080852.629	0.586426117
6	600	6.396929655	560.359375	0.533498343	314002.6292	0.284620482
7	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
8	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
9	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
10	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
11	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
12	600	6.396929655	560.359375	0.533498343	314002.6292	0.284620482
13	800	6.684611728	360.359375	0.24581627	129858.8792	0.060425639
14	1,900	7.549609165	-739.640625	-0.619181167	547068.2542	0.383385318
15	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
16	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
17	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
18	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
19	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
20	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
21	700	6.551080335	460.359375	0.379347663	211930.7542	0.143904649
22	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
23	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
24	2,400	7.783224016	-1239.640625	-0.852796018	1536708.879	0.727261049
25	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
26	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
27	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
28	1,700	7.43838353	-539.640625	-0.507955532	291212.0042	0.258018823
29	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
30	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
31	1,500	7.313220387	-339.640625	-0.382792389	115355.7542	0.146530013
32	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
33	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
34	1,300	7.170119543	-139.640625	-0.239691546	19499.50415	0.057452037
35	1,700	7.43838353	-539.640625	-0.507955532	291212.0042	0.258018823
36	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
37	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
38	2,000	7.60090246	-839.640625	-0.670474462	704996.3792	0.449536004
39	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
40	1,800	7.495541944	-639.640625	-0.565113946	409140.1292	0.319353772
41	1,300	7.170119543	-139.640625	-0.239691546	19499.50415	0.057452037
42	1,000	6.907755279	160.359375	0.022672719	25715.12915	0.000514052
43	700	6.551080335	460.359375	0.379347663	211930.7542	0.143904649
44	1,200	7.090076836	-39.640625	-0.159648838	1571.37915	0.025487751
45	287	5.659482216	873.359375	1.270945782	762756.5979	1.615303181
46	310	5.736572297	850.359375	1.1938557	723111.0667	1.425291433
47	333	5.80814249	827.359375	1.122285508	684523.5354	1.259524761
48	507	6.228511004	653.359375	0.701916994	426878.4729	0.492687467
49	780	6.65929392	380.359375	0.271134078	144673.2542	0.073513688
50	793	6.675823222	367.359375	0.254604776	134952.9104	0.064823592
51	368	5.908082938	792.359375	1.02234506	627833.3792	1.045189421
53	1,059	6.965080346	101.359375	-0.034652348	10273.7229	0.001200785
54	655	6.484635236	505.359375	0.445792762	255388.0979	0.198731187
55	616	6.423246964	544.359375	0.507181034	296327.1292	0.257232602
56	1,287	7.160069208	-126.640625	-0.22964121	16037.8479	0.052735085
57	984	6.891625897	176.359375	0.038802101	31102.62915	0.001505603
58	818	6.706862337	342.359375	0.223565661	117209.9417	0.049981605
59	371	5.916202063	789.359375	1.014225935	623088.2229	1.028654248
60	736	6.601230119	424.359375	0.329197879	180080.8792	0.108371244
61	404	6.001414878	756.359375	0.92901312	572079.5042	0.863065377
62	2,156	7.676009932	-995.640625	-0.745581934	991300.2542	0.555892421
63	2,163	7.679251426	-1002.640625	-0.748823428	1005288.223	0.560736526
64	427	6.056784013	733.359375	0.873643985	537815.9729	0.763253812
65	759	6.632001777	401.359375	0.29842622	161089.3479	0.089058209
Column Sum	74,263	443.5473919			19511390.73	17.79163027
Column Sum/N	1,160	6.930427998				
Column Sum/(N-1)					304865.4802	0.277994223
SQRT(Column Sum/(N-1))					552.1462489	0.527251575

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1,160	6.930427998	1022.931699
Std Dev	552.1462489	0.527251575	1.694269331
Permit Limit	2245.326754	7.966477342	2882.684745

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Untransformed	Transformed	Untransformed Mean	Transformed Mean		
Sample Number	Total Nitrogen	Total Nitrogen	Minus Untransformed	Minus Transformed	Column D	Column E
	(mg/L)	(mg/L)	Total Nitrogen Value	Total Nitrogen Value	Squared	Squared
1	2,940	7.98616486	3073.206349	0.659880311	9444597.265	0.435442025
2	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
3	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
4	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
5	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
6	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
7	8,120	9.002085433	-2106.793651	-0.356040262	4438579.487	0.126764668
8	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
9	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
10	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
11	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
12	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
13	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
14	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
15	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
16	1,960	7.580699752	4053.206349	1.065345419	16428481.71	1.134960862
17	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
18	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
19	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
20	2,800	7.937374696	3213.206349	0.708670475	10324695.04	0.502213842
21	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
22	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
23	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
24	3,920	8.273846933	2,093	0.372198238	4381512.82	0.138531529
25	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
26	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
27	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
28	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
29	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
30	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
31	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
32	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
33	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
34	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
35	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
36	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
37	4,480	8.407378325	1533.206349	0.238666846	2350721.709	0.056961863
38	5,264	8.568646473	749.2063492	0.077398698	561310.1537	0.005990558
39	6,348	8.755895082	-334.7936508	-0.10984991	112086.7886	0.012067003
40	5,040	8.525161361	973.2063492	0.12088381	947130.5981	0.014612896
41	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
42	7,840	8.966994113	-1826.793651	-0.320948942	3337175.043	0.103008223
43	4,760	8.468002947	1253.206349	0.178042224	1570526.154	0.031699034
44	6,160	8.725832057	-146.7936508	-0.079786885	21548.37591	0.006365947
45	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
46	7,560	8.930626469	-1546.793651	-0.284581298	2392570.598	0.080986515
47	8,400	9.035986985	-2386.793651	-0.389941814	5696783.931	0.152054618
48	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
49	8,120	9.002085433	-2106.793651	-0.356040262	4438579.487	0.126764668
50	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
51	8,400	9.035986985	-2386.793651	-0.389941814	5696783.931	0.152054618
52	7,280	8.892886141	-1266.793651	-0.24684097	1604766.154	0.060930464
53	6,720	8.812843434	-706.7936508	-0.166798262	499557.2648	0.02782166
54	8,960	9.100525506	-2946.793651	-0.454480335	8683592.82	0.206552375
55	5,880	8.679312041	133.2063492	-0.03326687	17743.93147	0.001106685
56	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
57	5,320	8.579228582	693.2063492	0.066816589	480535.0426	0.004464457
58	5,600	8.630521877	413.2063492	0.015523294	170739.487	0.000240973
59	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
60	11,760	9.372459221	-5746.793651	-0.72641405	33025637.26	0.527677372
61	3,640	8.199738961	2373.206349	0.446306211	5632108.376	0.199189234
62	3,360	8.119696253	2653.206349	0.526348918	7039503.931	0.277043184
63	3,080	8.032684876	2933.206349	0.613360295	8603699.487	0.376210852
Column Sum	378,832	544.7008458			225057012.3	7.632815473
Column Sum/N	6,013	8.646045171				
Column Sum/(N-1)					3629951.812	0.123109927
SQRT(Column Sum/(N-1))					1905.243242	0.350870242
					Transformed converted	
			Untransformed	Transformed	to Untransformed	
		Mean	6,013	8.646045171	5687.608677	
		Std Dev	1905.243242	0.350870242	1.420303019	
		Permit Limit	9757.00932	9.335505197	11333.3524	
		Table 3-2 Constant = 1.965				

CALCULATIONS FOR NEW PERMIT LIMITS

Column A Sample Number	Column B Untransformed Ammonia (mg/L)	Column C Transformed Ammonia (mg/L)	Column D Untransformed Mean Minus Untransformed Ammonia Value	Column E Transformed Mean Minus Transformed Ammonia Value	Column F Column D Squared	Column G Column E Squared
1	560	6.327936784	1876.349206	1.420116254	3520686.344	2.016730174
2	840	6.733401892	1596.349206	1.014651146	2548330.789	1.029516947
3	3,450	8.14612951	-1013.650794	-0.398076473	1027487.931	0.158464878
4	3,480	8.154787573	-1043.650794	-0.406734535	1089206.979	0.165432982
5	1,880	7.539027056	556.3492063	0.209025982	309524.4394	0.043691861
6	1,180	7.073269717	1256.349206	0.67478332	1578413.328	0.455332529
7	2,650	7.882314919	-213.6507937	-0.134261882	45646.66163	0.018026253
8	1,850	7.522940918	586.3492063	0.225112119	343805.3918	0.050675466
9	2,390	7.779048645	46.34920635	-0.030995608	2148.248929	0.000960728
10	2,000	7.60090246	436.3492063	0.147150578	190400.6299	0.021653293
11	2,290	7.736307097	146.3492063	0.011745941	21418.0902	0.000137967
12	2,500	7.824046011	-63.65079365	-0.075992973	4051.423532	0.005774932
13	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
14	2,300	7.740664402	136.3492063	0.007388635	18591.10607	5.45919E-05
15	1,960	7.580699752	476.3492063	0.167353285	226908.5664	0.028007122
16	1,590	7.371489295	846.3492063	0.376563742	716306.9791	0.141800252
17	2,030	7.615791072	406.3492063	0.132261965	165119.6775	0.017493227
18	2,250	7.718685495	186.3492063	0.029367542	34726.02671	0.000862453
19	1,220	7.106606138	1216.349206	0.6414469	1479505.392	0.411454125
20	1,440	7.272398393	996.3492063	0.475654645	992711.741	0.226247341
21	2,800	7.937374696	-363.6507937	-0.189321659	132241.8997	0.03584269
22	2,240	7.714231145	196.3492063	0.033821893	38553.01083	0.00114392
23	3,370	8.122668023	-933.6507937	-0.374614986	871703.8045	0.140336388
24	3,530	8.16905315	-1093.650794	-0.421000113	1196072.058	0.177241095
25	2,960	7.992944547	-523.6507937	-0.24489151	274210.1537	0.059971852
26	2,170	7.682482447	266.3492063	0.065570591	70941.89972	0.004299502
27	3,340	8.113726086	-903.6507937	-0.365673049	816584.7569	0.133716778
28	3,240	8.083328609	-803.6507937	-0.335275571	645854.5981	0.112409709
29	3,530	8.16905315	-1093.650794	-0.421000113	1196072.058	0.177241095
30	3,930	8.276394705	-1493.650794	-0.528341667	2230992.693	0.279144918
31	3,310	8.104703468	-873.6507937	-0.356650431	763265.7092	0.12719953
32	2,800	7.937374696	-363.6507937	-0.189321659	132241.8997	0.03584269
33	3,320	8.107720062	-883.6507937	-0.359667025	780838.7251	0.129360369
34	2,870	7.962067309	-433.6507937	-0.214014271	188053.0108	0.045802108
35	3,720	8.221478947	-1283.650794	-0.47342591	1647759.36	0.224132092
36	2,710	7.904703914	-273.6507937	-0.156650876	74884.75687	0.024539497
37	2,550	7.843848638	-113.6507937	-0.095795601	12916.5029	0.009176797
38	2,690	7.897296473	-253.6507937	-0.149243435	64338.72512	0.022273603
39	2,730	7.912056888	-293.6507937	-0.164003851	86230.78861	0.026897263
40	2,420	7.791522819	16.34920635	-0.043469782	267.2965482	0.001889622
41	2,340	7.757906208	96.34920635	-0.009853171	9283.169564	9.7085E-05
42	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
43	2,170	7.682482447	266.3492063	0.065570591	70941.89972	0.004299502
44	2,210	7.700747795	226.3492063	0.047305243	51233.96321	0.002237786
45	2,400	7.783224016	36.34920635	-0.035170979	1321.264802	0.001236998
46	2,290	7.736307097	146.3492063	0.011745941	21418.0902	0.000137967
47	2,300	7.740664402	136.3492063	0.007388635	18591.10607	5.45919E-05
48	2,760	7.922985959	-323.6507937	-0.174932921	104749.8362	0.030601527
49	2,900	7.972466016	-463.6507937	-0.224412979	214972.0585	0.050361185
50	2,870	7.962067309	-433.6507937	-0.214014271	188053.0108	0.045802108
51	2,670	7.889833751	-233.6507937	-0.141780714	54592.69337	0.020101771
52	2,790	7.933796875	-353.6507937	-0.185743837	125068.8838	0.034500773
53	1,260	7.138867	1176.349206	0.609186037	1383797.455	0.371107628
54	2,150	7.673223121	286.3492063	0.074829916	81995.86798	0.005599516
55	3,080	8.032684876	-643.6507937	-0.284631839	414286.3442	0.081015284
56	1,930	7.565275282	506.3492063	0.182777755	256389.5188	0.033407708
57	1,730	7.455876687	706.3492063	0.29217635	498929.2013	0.085367019
58	2,440	7.799753318	-3.650793651	-0.051700281	13.32829428	0.002672919
59	2,440	7.799753318	-3.650793651	-0.051700281	13.32829428	0.002672919
60	1,840	7.517520851	596.3492063	0.230532187	355632.3759	0.053145089
61	2,420	7.791522819	16.34920635	-0.043469782	267.2965482	0.001889622
62	2,260	7.723120092	176.3492063	0.024932945	31099.04258	0.000621652
63	2,050	7.625595072	386.3492063	0.122457965	149265.7092	0.014995953
Column Sum	153,490	488.1273414			29869460.32	7.432697151
Column Sum/N	2,436	7.748053037				
Column Sum/(N-1)					481765.489	0.119882212
SQRT(Column Sum/(N-1))					694.0932855	0.346240108

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	2,436	7.748053037	2317.056797
Std Dev	694.0932855	0.346240108	1.413742025
Permit Limit	3800.242512	8.428414849	4575.241892

Table 3-2 Constant = 1.965

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
	Untransformed	Transformed	Untransformed Mean	Transformed Mean		
Sample Number	pH	pH	Minus Untransformed	Minus Transformed	Column D	Column E
	(pH Units)	(pH Units)	pH Value	pH Value	Squared	Squared
1	6.65	1.894616855	-0.056333333	-0.010424592	0.003173444	0.000108672
2	7.06	1.954445052	-0.466333333	-0.070252789	0.217466778	0.004935454
3	6.61	1.888583654	-0.016333333	-0.004391391	0.000266778	1.92843E-05
4	7.39	2.000127735	-0.796333333	-0.115935472	0.634146778	0.013441034
5	6.73	1.906575144	-0.136333333	-0.022382881	0.018586778	0.000500993
6	6.87	1.927164106	-0.276333333	-0.042971843	0.076360111	0.001846579
7	6.43	1.860974538	0.163666667	0.023217725	0.026786778	0.000539063
8	6.28	1.83736998	0.313666667	0.046822282	0.098386778	0.002192326
9	6.86	1.925707442	-0.266333333	-0.041515179	0.070933444	0.00172351
10	6.74	1.908059925	-0.146333333	-0.023867662	0.021413444	0.000569665
11	6.93	1.935859813	-0.336333333	-0.05166755	0.113120111	0.002669536
12	6.96	1.940179474	-0.366333333	-0.055987211	0.134200111	0.003134568
13	6.94	1.937301775	-0.346333333	-0.053109512	0.119946778	0.00282062
14	6.68	1.899117988	-0.086333333	-0.014925725	0.007453444	0.000222777
15	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
16	6.72	1.905088155	-0.126333333	-0.020895892	0.015960111	0.000436638
17	7.36	1.996059933	-0.766333333	-0.11186767	0.587266778	0.012514376
18	6.32	1.843719208	0.273666667	0.040473055	0.074893444	0.001638068
19	6.02	1.795087259	0.573666667	0.089105004	0.329093444	0.007939702
20	6.16	1.818076778	0.433666667	0.066115485	0.188066778	0.004371257
21	6.25	1.832581464	0.343666667	0.051610799	0.118106778	0.002663675
22	6.20	1.824549292	0.393666667	0.059642971	0.154973444	0.003557284
23	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
24	6.02	1.795087259	0.573666667	0.089105004	0.329093444	0.007939702
25	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
26	6.03	1.796747011	0.563666667	0.087445252	0.317720111	0.007646672
27	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
28	5.90	1.774952351	0.693666667	0.109239912	0.481173444	0.011933358
29	5.60	1.722766598	0.993666667	0.161425665	0.987373444	0.026058245
30	5.40	1.686398954	1.193666667	0.197793309	1.424840111	0.039122193
31	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
32	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
33	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
34	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
35	6.00	1.791759469	0.593666667	0.092432794	0.352440111	0.008543821
36	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
37	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
38	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
39	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
40	6.90	1.931521412	-0.306333333	-0.047329149	0.093840111	0.002240048
41	7.10	1.960094784	-0.506333333	-0.075902521	0.256373444	0.005761193
42	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
43	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
44	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
45	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
46	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
47	6.20	1.824549292	0.393666667	0.059642971	0.154973444	0.003557284
48	6.60	1.887069649	-0.006333333	-0.002877386	4.01111E-05	8.27935E-06
49	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
50	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
51	6.50	1.871802177	0.093666667	0.012390086	0.008773444	0.000153514
52	6.70	1.902107526	-0.106333333	-0.017915263	0.011306778	0.000320957
53	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
54	6.90	1.931521412	-0.306333333	-0.047329149	0.093840111	0.002240048
55	6.80	1.916922612	-0.206333333	-0.032730349	0.042573444	0.001071276
56	7.30	1.987874348	-0.706333333	-0.103682085	0.498906778	0.010749975
57	7.00	1.945910149	-0.406333333	-0.061717886	0.165106778	0.003809097
58	6.54	1.877937165	0.053666667	0.006255097	0.002880111	3.91262E-05
59	6.61	1.888583654	-0.016333333	-0.004391391	0.000266778	1.92843E-05
60	6.46	1.865629318	0.133666667	0.018562945	0.017866778	0.000344583
Column Sum	395.62	113.0515358			9.692193333	0.233981264
Column Sum/N	6.59	1.884192263				
Column Sum/(N-1)					0.164274463	0.003965784
SQRT(Column Sum/(N-1))					0.405307862	0.062974472
					Transformed converted	
			Untransformed	Transformed	to Untransformed	
		Mean	6.59	1.884192263	6.581036547	
		Std Dev	0.405307862	0.062974472	1.064999652	
		Upper Permit Limit	7.390096616	2.007937101	7.447937144	
		Lower Permit Limit	5.797236717	1.760447425	5.815038607	
		Table 3-2 Constant = 1.965				

CALCULATIONS FOR NEW PERMIT LIMITS						
Column A	Column B	Column C	Column D	Column E	Column F	Column G
Sample Number	Untransformed Density (g/mL)	Transformed Density (g/mL)	Untransformed Mean Minus Untransformed Density Value	Transformed Mean Minus Transformed Density Value	Column D Squared	Column E Squared
1	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
2	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
3	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
4	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
5	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
6	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
7	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
8	1.02	0.019802627	-0.02015873	-0.02000502	0.000406374	0.000400201
9	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
10	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
11	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
12	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
13	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
14	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
15	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
16	0.98	-0.020202707	0.01984127	0.020000315	0.000393676	0.000400013
17	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
18	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
19	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
20	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
21	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
22	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
23	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
24	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
25	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
26	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
27	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
28	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
29	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
30	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
31	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
32	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
33	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
34	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
35	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
36	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
37	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
38	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
39	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
40	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
41	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
42	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
43	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
44	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
45	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
46	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
47	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
48	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
49	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
50	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
51	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
52	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
53	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
54	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
55	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
56	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
57	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
58	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
59	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
60	0.99	-0.010050336	0.00984127	0.009847944	9.68506E-05	9.6982E-05
61	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
62	1.01	0.009950331	-0.01015873	-0.010152723	0.0001032	0.000103078
63	1.00	0	-0.00015873	-0.000202392	2.51953E-08	4.09626E-08
Column Sum	62.99	-0.012750711			0.005498413	0.005499804
Column Sum/N	1.00	-0.000202392				
Column Sum/(N-1)					8.86841E-05	8.87065E-05
SQRT(Column Sum/(N-1))					0.009417222	0.009418414

	Untransformed	Transformed	Transformed converted to Untransformed
Mean	1.00	-0.000202392	0.999797628
Std Dev	0.009417222	0.009418414	1.009462907
Upper Permit Limit	1.018346112	0.018304791	1.01847335
Lower Permit Limit	0.981336428	-0.018709575	0.981464363

Table 3-2 Constant = 1.965

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD98-02 Special

EFFECTIVE DATE: March 1, 1998

EXPIRATION DATE: February 28, 2001

PERMITTEE: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATOR: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATED AT: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER: FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to VCS Samoa Packing Company, Inc. The Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from VCS Samoa Packing Company's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. VCS Samoa Packing Company, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply to this permit.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not accurately disclose all relevant facts in the permit application or monitoring reports; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator or his delegate in writing of any change in the designated fish processing waste transporter at least 30 days before the transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. If material which is regulated by this permit is disposed of, due to an emergency, such as to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on March 1, 1998 and it shall expire three years from the effective data at midnight on February 28, 2001.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14⌒ 24.00' South latitude by 170⌒ 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a combined waste stream total maximum of 200,000 gallons per day of fish processing wastes. The fish processing wastes-- Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor/water-- are combined and stored in the permittee's onshore storage tanks prior to transport to the ocean disposal site.

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor/water, which are combined and stored in an onshore storage tank prior to transport to the ocean disposal site (see Table 3 - following page).

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Solids (mg/L)	43,170
Total Volatile Solids (mg/L)	38,230
5-Day BOD (mg/L)	53,350
Oil and Grease (mg/L)	119,750
Total Phosphorus (mg/L)	2,880
Total Nitrogen (mg/L)	11,330
Ammonia (mg/L)	4,580
pH (pH units)	5.8 to 7.4
Density (g/mL)	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste were calculated based on an analysis of data over a 4-year period from the permittee's previous Special Ocean Dumping Permit, number OD 93-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R. §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. **The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.**

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.1.2. The parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples.

Table 4. Physical and Chemical Parameters and Associated Method Detection Limits for Analyses of Onshore Storage Tank Waste

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.2.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.2.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, WA.; and

3.1.2.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided to EPA Region IX.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volume of fish processing waste (total combined waste streams of DAF Sludge, Cooker Juice and Press Liquor) generated at the permittee's facility and pumped into the permittee's onshore storage tanks to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volume of fish processing waste disposed at the ocean disposal site to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a LOTUS spreadsheet format (i.e., wk1), including name of cannery, permit number, and months for which the data is submitted.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 60 days after the permit expires. Delay or non-compliance with this requirement will (respectively) delay or preclude renewal of the permit. All fish processing waste data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Twenty-four months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of confirmatory suspended phase acute toxicity bioassay tests and dilution model calculations (i.e., Limiting Permissible Concentration) of the predicted concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

If changes in processing and /or disposal operations should occur, an additional re-evaluation of the disposal model may also be required. These evaluations (bioassays and/or modeling) would be used to confirm the toxicity of the fish processing wastes and to evaluate the disposal operations based on the use of a different disposal vessel or different mode of disposal.

The confirmatory bioassay report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, and the design of the new bioassay tests. If modeling analysis is necessary, then previous modeling at the ocean disposal site should also be included.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) If modeling analysis is required as stipulated in Special Condition 3.3.5., description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modeling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (i.e., on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending position and time of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a target area defined by an oval shape track along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. Deviations from normal disposal operations (as described in Section 4.4.1) must be reported within 30 days of the date of occurrence. If such deviation should occur, the master of the disposal vessel shall describe the adverse conditions in the log and submit a record of the disposal trip, including the computer-generated navigational plot. Minor deviations in the vessel's track due to adverse ocean conditions (e.g. large waves, strong winds, etc.) are allowed as long as disposal operations occur in the prescribed target area thereby allowing the fish waste to disperse within the disposal site boundaries. If adverse sea state conditions prevent ocean disposal operations in this manner, then all operations shall cease until sea state conditions are compatible with the required disposal operations.

4.4.1.3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal operation must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system before the date of the first disposal operations under this permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and unique consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site;

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of any visible (previous) disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in Special Condition 4.4.2 and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, and quality assurance/quality control data. An annual report shall include: an annual compilation of data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by EPA Region IX, ASEPA, USCG or American Samoa Department of Public Safety personnel; or a USCG ship rider and/or a ASEPA or EPA Region IX ship rider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a ship rider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-2170

6.2.2. One copy of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this 18th day of December, 1997

For the Regional Administrator:

John Cing for

Alexis Strauss, Acting Director
Water Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 98-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. The required site monitoring may be accomplished jointly through an agreement between permittee and other permittees authorized to use the disposal site. Any such agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4.

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

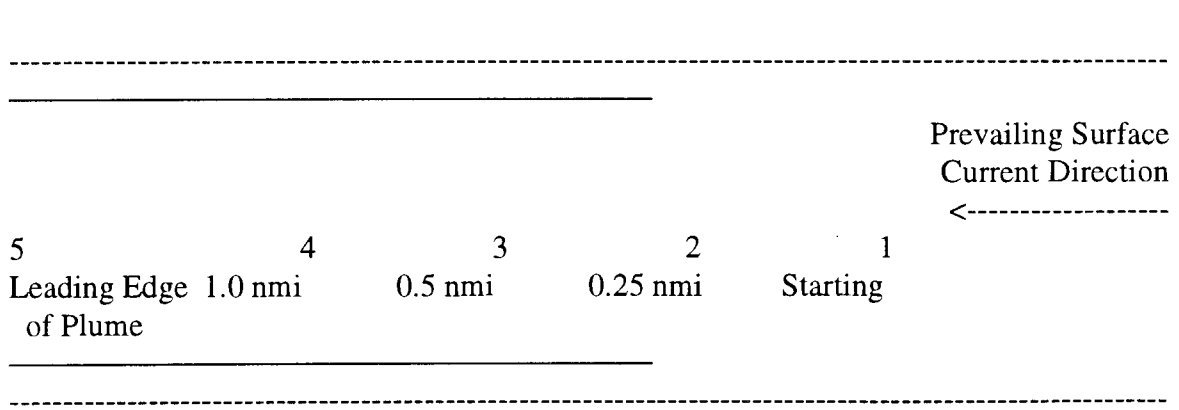

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated at 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. **Frequency of Sampling**

7.3.1. Water samples shall be collected in association with active dumping operations. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control

sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded beyond the disposal site boundary within four hours after dumping or at any point in the marine environment after four hours. The LPC, as defined at 40 C.F.R. §227.27, shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

APPENDIX B - REPORT FORM 1

Monthly Volumes of VCS Samoa Packing Company Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site
Volume Limit = 200,000 Gallons
Month _____ 19__

<< Conversion Note: For a Lotus spreadsheet (i.e., wk1), use 3-column format. >>

Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)	Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					
SUBTOTAL			SUBTOTAL		
			GRAND TOTAL		

NOTE: An asterisk (*) to the right of the date of fish processing waste volume signifies that a violation of the permit limit has occurred. Total number of violations this month = _____.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month
Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2

Data Form for 3-Month Report on Waste Stream Analyses for VCS Samoa Packing Company MPRSA § 102 Permit #OD 98-02

Reporting Period: From _____ 19__ To _____ 19__

VCS Samoa Packing Company - On-Shore Storage Tank Waste

<< Conversion Note: For a Lotus spreadsheet, use wk1 format with layout below. >>

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 98-02 Permit Limits	43,170		38,230		53,350		119,750		2,880		11,330		4,580		5.8 to 7.4		0.98 to 1.02	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

Cumulative Yearly Data on Fish Processing Wastes
Generated at VCS Samoa Packing Company's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 98-02

Reporting Period:

From _____ **19**__
To _____ **19**__

<< Conversion Note: For a Lotus, use wk1 format with layout below. >>

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD98-01 Special

EFFECTIVE DATE: March 1, 1998

EXPIRATION DATE: February 28, 2001

PERMITTEE: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATOR: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATED AT: StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER: FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to StarKist Samoa, Inc. The Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from StarKist Samoa's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. StarKist Samoa, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply to this permit.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not accurately disclose all relevant facts in the permit application or monitoring reports; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator or his delegate in writing of any change in the designated fish processing waste transporter at least 30 days before the transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. If material which is regulated by this permit is disposed of, due to an emergency, such as to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on March 1, 1998 and it shall expire three years from the effective data at midnight on February 28, 2001.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14⌒ 24.00' South latitude by 170⌒ 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a combined waste stream total maximum of 200,000 gallons per day of fish processing wastes. The fish processing wastes-- Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor/water-- are combined and stored in the permittee's onshore storage tanks prior to transport to the ocean disposal site.

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor/water, which are combined and stored in an onshore storage tank prior to transport to the ocean disposal site (see Table 3 - following page).

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Solids (mg/L)	101,800
Total Volatile Solids (mg/L)	84,100
5-Day BOD (mg/L)	129,390
Oil and Grease (mg/L)	62,940
Total Phosphorus (mg/L)	1,750
Total Nitrogen (mg/L)	10,980
Ammonia (mg/L)	11,810
pH (pH units)	6.2 to 7.1
Density (g/mL)	0.97 to 1.03

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste were calculated based on an analysis of data over a 4-year period from the permittee's previous Special Ocean Dumping Permit, number OD 93-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R. §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. **The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.**

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.1.2. The parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples.

Table 4. Physical and Chemical Parameters and Associated Method Detection Limits for Analyses of Onshore Storage Tank Waste

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.2.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.2.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, WA.; and

3.1.2.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided to EPA Region IX.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volume of fish processing waste (total combined waste streams of DAF Sludge, Cooker Juice and Press Liquor) generated at the permittee's facility and pumped into the permittee's onshore storage tanks to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volume of fish processing waste disposed at the ocean disposal site to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a LOTUS spreadsheet format (i.e., wk1), including name of cannery, permit number, and months for which the data is submitted.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 60 days after the permit expires. Delay or non-compliance with this requirement will (respectively) delay or preclude renewal of the permit. All fish processing waste data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Twenty-four months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of confirmatory suspended phase acute toxicity bioassay tests and dilution model calculations (i.e., Limiting Permissible Concentration) of the predicted concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

If changes in processing and /or disposal operations should occur, an additional re-evaluation of the disposal model may also be required. These evaluations (bioassays and/or modeling) would be used to confirm the toxicity of the fish processing wastes and to evaluate the disposal operations based on the use of a different disposal vessel or different mode of disposal.

The confirmatory bioassay report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, and the design of the new bioassay tests. If modeling analysis is necessary, then previous modeling at the ocean disposal site should also be included.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) If modeling analysis is required as stipulated in Special Condition 3.3.5., description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modeling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (i.e., on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending position and time of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a target area defined by an oval shape track along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. Deviations from normal disposal operations (as described in Section 4.4.1) must be reported within 30 days of the date of occurrence. If such deviation should occur, the master of the disposal vessel shall describe the adverse conditions in the log and submit a record of the disposal trip, including the computer-generated navigational plot. Minor deviations in the vessel's track due to adverse ocean conditions (e.g. large waves, strong winds, etc.) are allowed as long as disposal operations occur in the prescribed target area thereby allowing the fish waste to disperse within the disposal site boundaries. If adverse sea state conditions prevent ocean disposal operations in this manner, then all operations shall cease until sea state conditions are compatible with the required disposal operations.

4.4.1.3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal operation must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system before the date of the first disposal operations under this permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and unique consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site;

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of any visible (previous) disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in Special Condition 4.4.2 and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, and quality assurance/quality control data. An annual report shall include: an annual compilation of data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by EPA Region IX, ASEPA, USCG or American Samoa Department of Public Safety personnel; or a USCG ship rider and/or a ASEPA or EPA Region IX ship rider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a ship rider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-2170

6.2.2. One copy of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this 18th day of December, 1997

For the Regional Administrator:

John Ong for

Alexis Strauss, Acting Director
Water Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 98-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. The required site monitoring may be accomplished jointly through an agreement between permittee and other permittees authorized to use the disposal site. Any such agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4.

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

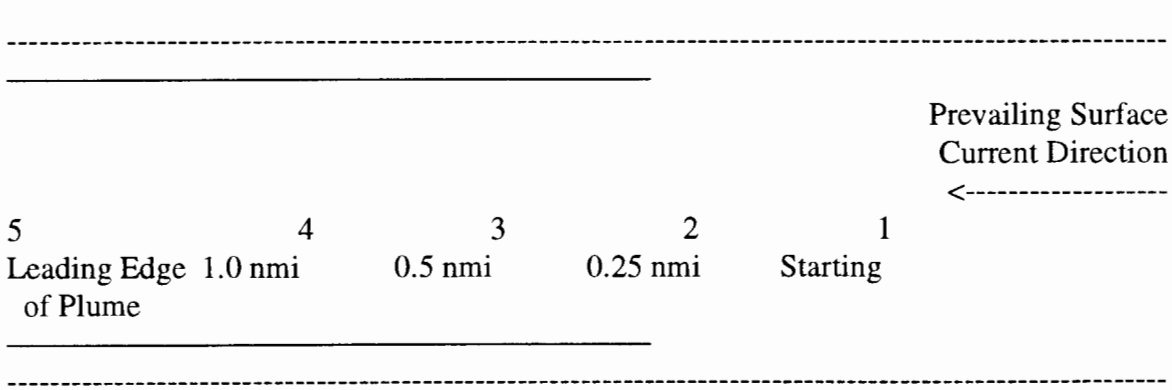

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated at 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. **Frequency of Sampling**

7.3.1. Water samples shall be collected in association with active dumping operations. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control

sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded beyond the disposal site boundary within four hours after dumping or at any point in the marine environment after four hours. The LPC, as defined at 40 C.F.R. §227.27, shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

APPENDIX B - REPORT FORM 1

Monthly Volumes of StarKist Samoa Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site
Volume Limit = 200,000 Gallons
Month _____ 19__

<< Conversion Note: For a Lotus spreadsheet (i.e., wk1), use 3-column format. >>

Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)	Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					
SUBTOTAL			SUBTOTAL		
			GRAND TOTAL		

NOTE: An asterisk (*) to the right of the date of fish processing waste volume signifies that a violation of the permit limit has occurred. Total number of violations this month = _____.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month
Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2

Data Form for 3-Month Report on Waste Stream Analyses for StarKist Samoa MPRSA § 102 Permit #OD 98-01

Reporting Period: From _____ 19__ To _____ 19__

StarKist Samoa - On-Shore Storage Tank Waste

<< Conversion Note: For a Lotus spreadsheet, use wk1 format with layout below. >>

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 98-01 Permit Limits	101,800		84,100		129,390		62,940		1,750		10,980		11,810		6.2 to 7.1		0.97 to 1.03	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

Cumulative Yearly Data on Fish Processing Wastes
Generated at StarKist Samoa's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 98-01

Reporting Period:

From _____ **19**__
To _____ **19**__

<< Conversion Note: For a Lotus, use wk1 format with layout below. >>

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.

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Herman Gebauer
General Manager
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Pago Pago, American Samoa 96799

FV TASMAN SEA
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Attn: Bud Hayes
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Pago Pago, American Samoa 96799

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Sanctuaries and Reserves Division
NOAA
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Silver Spring, MD 20910

Chief, Environmental Branch
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Western Pacific Regional
Fishery Management Council
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Honolulu, HI 96813

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U.S. EPA, Region X
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National Marine Fisheries Service
Southwest Regional Office
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Office of the Governor
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Pago Pago, American Samoa 96799

Liaison Officer
U.S. Coast Guard Liaison Office
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Pago Pago, American Samoa 96799

Director
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gdc
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Arcata, CA 95518-2681

Fishwaste Data Cover Sheet

10/97 Proposed Limits

Onshore Storage Tank - Single Stream Analysis					SK	VCS
Comparison of New (Proposed) Permit Limits						
(Using Transformed Data from Statistical Analysis)						
Starkist	Existing Permit Limits 10/6/95	Van Camp Seafood	Existing Permit Limits 10/6/95			
39-41		48-53		Number of Sample Dates Available for Analysis		
93,639	95,760	40,958	54,590	Total Solids	101,796	
81,035	77,170	36,886	58,760	Total Volatile Solids	84,103	
140,436	105,900	56,663	87,780	5-Day BOD	129,389	
65,177	52,110	? 122,187	48,630	Oil & Grease	42,943	
1,804	3,080	2,902	2,820	Total Phosphorus	1,748	
10,903	13,370	11,109	11,070	Total Nitrogen	10,977	
* 14,286	7,640	4,851	5,200	Ammonia	11,811	
6.13-7.12	6.2-7.3	5.73-7.46	5.8-7.5	pH	6.1-7.64	
0.97-1.03	.93-1.05	0.98-1.02	.97-1.03	Density	.97-1.03	

GENERAL OBSERVATIONS/QUESTIONS

1. I was dissappointed and then frustrated with the format of the data submitted, even with data supplied later on. It was way too time consuming to cut and paste from a word processing document. I am not exaggerating by much when I say that (on a relative basis) for the roughly 15-20 hours that I have spent actually looking at the data (i.e., statistics, etc.), I probably spent close to 100 hours inputting/formatting the data !

. should check when disks submitted if not ok send back

2. If we put the data format requirement (i.e., enforceable with penalties) in the new permit, maybe they will pay attention to our needs. I know we made several requests, am I right? No

* 3. Calculations were performed on the onshore storage tank data based on the assumption that we are moving toward a simplified (i.e., single stream) analysis relative to the multiple stream analysis under the old permit.

4. In general, VCS seems to be able to generate during production lower values of the measured parameters, relative to Starkist.

5. Are the different values due to different equipment, different processing/cleaning techniques, or different mix of fish processed? yes

6. Calculations of the individual waste streams can be done; is it necessary at this point? No

7. I have not noticed any significant problems in the site monitoring data I have looked at, however, I have not looked at all of the site monitoring data as yet. Have you seen anything that concerns you? No -

ASEPA to send me reports re: sludge on shore.

5-31-97

Pat – Here are the preliminary statistical analyses and calculations of permit limits (see item 3). Please look these over – remember that I have supplied the entire worksheets with the actual calculated values at the bottom of the sheet (ie. transformed converted to untransformed) – row identified ~~with~~ as "Permit Limits" for each parameter.

I'm at sea on an oceanographic survey from June 2-7; I expect to be back in the office on June 9. I'm scheduled to be in the office June 9, 10, and 13 – Monday afternoon or Tuesday morning are open at this point. Let me know your schedule via e-mail.

Allan

NOTICE OF APPLICATION AND PROPOSED ACTION
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION IX
75 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105-3901

Applications for Permits to Transport
and Dump Materials into Ocean Waters

Public Notice for Ocean Dumping Permit Numbers
OD 98-01 and OD 98-02

Pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended (33 U.S.C. § 1401 et seq.) and 40 C.F.R. § 222.3 of EPA's Ocean Dumping Regulations (42 Fed. Reg. 2462, Jan. 11, 1977), notice is hereby given by this office of complete applications for permits to transport and dispose fish processing wastes into ocean waters of Tutuila Island, American Samoa. The permit applicants are: STARKIST SAMOA, INC., P.O. Box 368, Pago Pago, American Samoa 96799 and VCS SAMOA PACKING COMPANY, INC., P.O. Box 957, Pago Pago, American Samoa 96799.

EPA has made a tentative decision to issue special ocean dumping permits to StarKist Samoa and VCS Samoa Packing Company for a three-year period. The Agency has determined that these permits are required for ocean disposal of fish processing wastes produced at canneries in Pago Pago, American Samoa. The fish processing wastes to be disposed from StarKist Samoa are: dissolved air flotation (DAF) sludge, cooker juice and press liquor. The fish processing wastes to be disposed from VCS Samoa Packing are: DAF sludge, precooker water and press water. Based on dilution levels expected at the designated ocean disposal site, the fish processing wastes are not expected to cause significant long-term impacts to oceanic water quality, marine ecosystems or human health.

The fish processing wastes will be disposed at an ocean disposal site 5.45 nautical miles southeast of Tutuila Island. The ocean disposal site has center coordinates of 14° 24.00' South latitude by 170° 38.20' West longitude and a radius of 1.5 nautical miles. The water depth at the disposal site is about 9,000 feet. This site was designated for use on February 6, 1990 (55 Fed. Reg. 3948) and was used by the two American Samoa canneries for disposal of fish processing wastes under MPRSA § 102 special permits OD 90-01 and 93-01 (StarKist Samoa), and OD 90-02 and 93-02 (VCS Samoa Packing Company) for a cumulative total of six years. No significant long-term environmental impacts were found at the site during site monitoring activities.

During the term of special permits OD 98-01 and OD 98-02, the permittees must continue monitoring programs for the combined fish processing waste streams, disposal vessel navigation and monthly ocean disposal site monitoring. Information compiled during the term of these permits and any previous information about ocean disposal of fish processing wastes off American Samoa will be used by EPA Region IX to determine compliance with EPA's Ocean Dumping Regulations defined at 40 C.F.R. Parts 220 through 228 and the Special MPRSA § 102 permits.

SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

DAF sludge is waste material that remains after treatment of fish processing wastes to remove grease and suspended particulate matter. DAF sludge also contains aluminum sulfate or alum (an odor reducing chemical) and coagulant polymers (to coagulate suspended matter) that are added during the waste treatment process. Cooker juice or precooker water is a combination of stick water and other process water that collects under the steam precookers at the fish plants. Press liquor or press water is waste water produced at the fish meal plants when fish scrap is cooked and pressed before being dried to produce livestock food meal. The three waste streams will be combined in an onshore storage tank prior to transport to the ocean disposal site.

There are no changes in the overall volumes of fish processing wastes proposed for disposal by either applicant. The proposed disposal volumes are:

Fish Processing Waste	**StarKist Samoa (gallons/day)**	**VCS Samoa Packing (gallons/day)**	**Total Volume (gallons/day)**
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

Based on EPA Region IX's review of data collected under the previous MPRSA § 102 special permits, the following changes are proposed for the new permits: 1) new permit limits for the combined fishwaste have been calculated which are higher than the previous permit limits for the separate waste streams, 2) a new set of confirmatory suspended phase acute toxicity bioassays are required to confirm that disposal operations are similar to the previous permitted actions, 3) a clarification of the requirements for disposal operations within the disposal site, and 4) reporting forms have been modified to simplify the reporting of permit monitoring information. All other general and special conditions are similar to existing conditions in MPRSA § 102 special permits OD 93-01 and OD 93-02.

INITIATION OF HEARINGS AND PUBLIC COMMENTS

Within 30 days of the date of this notice, any person may request a public hearing to consider the issuance of, or the conditions to be imposed upon, these permits. Any such request for a public hearing must: 1) be in writing, 2) identify the person requesting the hearing, 3) state any objections to the issuance of, or to the conditions to be imposed upon, these permits, and 4) state the issues which are proposed to be considered at the hearing. Under 40 C.F.R § 222.4, the Regional Administrator's determination on whether to hold a public hearing shall be based on whether the request presents genuine issues of policy or facts amenable to resolution by public hearing.

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NOTICE OF APPLICATION AND PROPOSED ACTION
U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REGION IX
75 HAWTHORNE STREET
SAN FRANCISCO, CALIFORNIA 94105-3901

Applications for Permits to Transport
and Dump Materials into Ocean Waters

Public Notice for Ocean Dumping Permit Numbers
OD 98-01 and OD 98-02

Pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972, as amended (33 U.S.C. § 1401 et seq.) and 40 C.F.R. § 222.3 of EPA's Ocean Dumping Regulations (42 Fed. Reg. 2462, Jan. 11, 1977), notice is hereby given by this office of complete applications for permits to transport and dispose fish processing wastes into ocean waters of Tutuila Island, American Samoa. The permit applicants are: STARKIST SAMOA, INC., P.O. Box 368, Pago Pago, American Samoa 96799 and VCS SAMOA PACKING COMPANY, INC., P.O. Box 957, Pago Pago, American Samoa 96799.

EPA has made a tentative decision to issue special ocean dumping permits to StarKist Samoa and VCS Samoa Packing Company for a three-year period. The Agency has determined that these permits are required for ocean disposal of fish processing wastes produced at canneries in Pago Pago, American Samoa. The fish processing wastes to be disposed from StarKist Samoa are: dissolved air flotation (DAF) sludge, cooker juice and press liquor. The fish processing wastes to be disposed from VCS Samoa Packing are: DAF sludge, precooker water and press water. Based on dilution levels expected at the designated ocean disposal site, the fish processing wastes are not expected to cause significant long-term impacts to oceanic water quality, marine ecosystems or human health.

The fish processing wastes will be disposed at an ocean disposal site 5.45 nautical miles southeast of Tutuila Island. The ocean disposal site has center coordinates of 14° 24.00' South latitude by 170° 38.20' West longitude and a radius of 1.5 nautical miles. The water depth at the disposal site is about 9,000 feet. This site was designated for use on February 6, 1990 (55 Fed. Reg. 3948) and was used by the two American Samoa canneries for disposal of fish processing wastes under MPRSA § 102 special permits OD 90-01 and 93-01 (StarKist Samoa), and OD 90-02 and 93-02 (VCS Samoa Packing Company) for a cumulative total of six years. No significant long-term environmental impacts were found at the site during site monitoring activities.

During the term of special permits OD 98-01 and OD 98-02, the permittees must continue monitoring programs for the combined fish processing waste streams, disposal vessel navigation and monthly ocean disposal site monitoring. Information compiled during the term of these permits and any previous information about ocean disposal of fish processing wastes off American Samoa will be used by EPA Region IX to determine compliance with EPA's Ocean Dumping Regulations defined at 40 C.F.R. Parts 220 through 228 and the Special MPRSA § 102 permits.

SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

DAF sludge is waste material that remains after treatment of fish processing wastes to remove grease and suspended particulate matter. DAF sludge also contains aluminum sulfate or alum (an odor reducing chemical) and coagulant polymers (to coagulate suspended matter) that are added during the waste treatment process. Cooker juice or precooker water is a combination of stick water and other process water that collects under the steam precookers at the fish plants. Press liquor or press water is waste water produced at the fish meal plants when fish scrap is cooked and pressed before being dried to produce livestock food meal. The three waste streams will be combined in an onshore storage tank prior to transport to the ocean disposal site.

There are no changes in the overall volumes of fish processing wastes proposed for disposal by either applicant. The proposed disposal volumes are:

Fish Processing Waste	**StarKist Samoa (gallons/day)**	**VCS Samoa Packing (gallons/day)**	**Total Volume (gallons/day)**
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

Based on EPA Region IX's review of data collected under the previous MPRSA § 102 special permits, the following changes are proposed for the new permits: 1) new permit limits for the combined fishwaste have been calculated which are higher than the previous permit limits for the separate waste streams, 2) a new set of confirmatory suspended phase acute toxicity bioassays are required to confirm that disposal operations are similar to the previous permitted actions, 3) a clarification of the requirements for disposal operations within the disposal site, and 4) reporting forms have been modified to simplify the reporting of permit monitoring information. All other general and special conditions are similar to existing conditions in MPRSA § 102 special permits OD 93-01 and OD 93-02.

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Applications for Permits to Transport
and Dump Materials into Ocean Waters

Public Notice for Ocean Dumping Permit Numbers
OD 98-01 and OD 98-02

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EPA has made a tentative decision to issue special ocean dumping permits to StarKist Samoa and VCS Samoa Packing Company for a three-year period. The Agency has determined that these permits are required for ocean disposal of fish processing wastes produced at canneries in Pago Pago, American Samoa. The fish processing wastes to be disposed from StarKist Samoa are: dissolved air flotation (DAF) sludge, cooker juice and press liquor. The fish processing wastes to be disposed from VCS Samoa Packing are: DAF sludge, precooker water and press water. Based on dilution levels expected at the designated ocean disposal site, the fish processing wastes are not expected to cause significant long-term impacts to oceanic water quality, marine ecosystems or human health.

The fish processing wastes will be disposed at an ocean disposal site 5.45 nautical miles southeast of Tutuila Island. The ocean disposal site has center coordinates of 14° 24.00' South latitude by 170° 38.20' West longitude and a radius of 1.5 nautical miles. The water depth at the disposal site is about 9,000 feet. This site was designated for use on February 6, 1990 (55 Fed. Reg. 3948) and was used by the two American Samoa canneries for disposal of fish processing wastes under MPRSA § 102 special permits OD 90-01 and 93-01 (StarKist Samoa), and OD 90-02 and 93-02 (VCS Samoa Packing Company) for a cumulative total of six years. No significant long-term environmental impacts were found at the site during site monitoring activities.

During the term of special permits OD 98-01 and OD 98-02, the permittees must continue monitoring programs for the combined fish processing waste streams, disposal vessel navigation and monthly ocean disposal site monitoring. Information compiled during the term of these permits and any previous information about ocean disposal of fish processing wastes off American Samoa will be used by EPA Region IX to determine compliance with EPA's Ocean Dumping Regulations defined at 40 C.F.R. Parts 220 through 228 and the Special MPRSA § 102 permits.

SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

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Fish Processing Waste	**StarKist Samoa (gallons/day)**	**VCS Samoa Packing (gallons/day)**	**Total Volume (gallons/day)**
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

Based on EPA Region IX's review of data collected under the previous MPRSA § 102 special permits, the following changes are proposed for the new permits: 1) new permit limits for the combined fishwaste have been calculated which are higher than the previous permit limits for the separate waste streams, 2) a new set of confirmatory suspended phase acute toxicity bioassays are required to confirm that disposal operations are similar to the previous permitted actions, 3) a clarification of the requirements for disposal operations within the disposal site, and 4) reporting forms have been modified to simplify the reporting of permit monitoring information. All other general and special conditions are similar to existing conditions in MPRSA § 102 special permits OD 93-01 and OD 93-02.

INITIATION OF HEARINGS AND PUBLIC COMMENTS

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SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

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SUMMARY OF INFORMATION AND TENTATIVE DETERMINATION

DAF sludge is waste material that remains after treatment of fish processing wastes to remove grease and suspended particulate matter. DAF sludge also contains aluminum sulfate or alum (an odor reducing chemical) and coagulant polymers (to coagulate suspended matter) that are added during the waste treatment process. Cooker juice or precooker water is a combination of stick water and other process water that collects under the steam precookers at the fish plants. Press liquor or press water is waste water produced at the fish meal plants when fish scrap is cooked and pressed before being dried to produce livestock food meal. The three waste streams will be combined in an onshore storage tank prior to transport to the ocean disposal site.

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Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

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FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

I. SUMMARY

The U.S. Environmental Protection Agency (EPA) Region IX has received complete applications from StarKist Samoa, Incorporated and VCS Samoa Packing Company, Incorporated for continued ocean disposal of fish processing wastes off Pago Pago, American Samoa. Disposal of fish processing wastes was permitted under two previous Marine Protection Research and Sanctuaries Act (MPRSA) 102 Special Permits, OD 93-01 (StarKist Samoa) and OD 93-02 (VCS Samoa Packing). These permits began on September 1, 1993 and were effective until August 31, 1996. Administrative extensions have allowed use of the site since that date. Disposal operations occurred at a designated site (55 FR 3948, February 6, 1990) located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in about 1,500 fathoms of water. The Regional Administrator has tentatively decided to issue special ocean dumping permits (OD 98-01 and OD 98-02, respectively) to the applicants for ocean disposal of fish processing wastes over a three-year period. This decision has been made according to EPA's authority established in Title I of the Marine Protection, Research and Sanctuaries Act of1972 (MPRSA) (33 U.S.C. section 1401 et seq.). Section 104B(k)(3)(B) of MPRSA contains an exclusion from the ban on disposal of industrial waste for tuna canneries in American Samoa. The conditions and monitoring activities defined in OD 98-01 and OD 98-02 are similar to those in previous special and research ocean dumping permits. However, several changes and/or clarifications have been made to: 1) permitted waste concentrations, 2) combined waste stream monitoring from the onshore storage tank, 3) reporting requirements, and 4) disposal vessel operations. The changes are based on evaluation of waste stream data, confirmation of past toxicity tests and plume modeling and new navigation requirements for the disposal vessel. EPA Region IX has tentatively decided to proceed with issuance of these special permits. Comments on our proposed action will be requested from the permit applicants, the American Samoa Government, Federal agencies, and the public as required under EPA's Ocean Dumping Regulations at 40 C.F.R Parts 220 through 228. Draft special permits and supporting documents are available for public review at the U.S. EPA's Regional Office in the Library on the 13th Floor at 75 Hawthorne Street, San Francisco, California; the U.S. EPA's Pacific Island Contact Office, 300 Ala Moana Boulevard, Honolulu, Hawaii; and the American Samoa Environmental Protection Agency, Executive Office Building, Office of the Governor, Pago Pago, American Samoa. These documents define the principal facts and significant legal, administrative and policy questions considered in the development of the special permits.

II. TENTATIVE DECISION

On February 23, 1996 and February 26, 1996, respectively, StarKist Samoa and VCS Samoa Packing Company applied for ocean dumping permits to dispose of their fish cannery wastes at a designated ocean disposal site near Pago Pago, American Samoa. The designated site, used for the past 3 years by both canneries, is located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in 1,502 fathoms of water [40 C.F.R. 228.12(b)(74)]. EPA Region IX is planning to grant their applications by issuing a special ocean dumping permit to each cannery which will last for three years. Current information indicates that disposal of fish processing wastes at the designated site complies with EPA's Ocean Dumping Regulations at 40 C.F.R. Parts 227 and 228. Information obtained during the term of the special permits will be used to evaluate whether the disposal of fish processing wastes continues to comply with criteria defined in EPA's Ocean Dumping Regulations. The permittees must conduct a site monitoring program, including field and laboratory analyses. Results of the monitoring program will be used to document the extent of effects at the ocean disposal site and whether the dumping continues to comply with EPA's Ocean Dumping Regulations. The proposed dumping during the term of the special permits is expected to have minimal impacts on human health and/or the marine environment, as demonstrated by the monitoring results of the previous special and research ocean dumping permits. The primary environmental impact of the proposed discharges would be short-term increases in turbidity, inorganic nutrients, oil and grease, and ammonia during the dumping events. Past monitoring studies on the disposal of fish processing wastes off American Samoa show that water quality parameters return to ambient conditions at the boundary of the disposal site following the four-hour period of initial mixing (40 C.F.R. 227.29). To be certain that American Samoa Water Quality Standards would not be violated by the disposal of fish processing wastes, the center of the disposal site was designated 5.45 nautical miles offshore, and restrictive navigation requirements, disposal rates and limitations on the waste material constituents are included in the special ocean dumping permits.

III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

Data from the previous special ocean dumping permit issued to each cannery were used to calculate all permit limits. The data for each cannery were evaluated separately. The following calculations were made for each set of data using the LOTUS spreadsheet program, version 4: maximum and minimum levels; mean, standard deviation and the number of data points. Any data values greater than or less than the mean plus or minus 2 standard deviations, were considered to be outliers. Outlier data points were not used in the permit limit calculations. All procedures for calculating permit limits are discussed in Sections 3.1.1 and 3.1.2 (pages 3-1 to 3-9) of EPA's Guidance Document for Ocean Dumping Permit (January 30, 1988).

V. FACTORS CONSIDERED IN REACHING THE PERMIT DECISIONS

Overview of Disposal Operations

The two fish canneries in American Samoa, StarKist Samoa and VCS Samoa Packing Company, propose to dispose of fish processing wastes at an ocean dump site centered approximately 5.45 nautical miles south of Tutuila Island in 1,502 fathoms of water. The center coordinates of the site are: 14° 24.00' South latitude by 170° 38.20' West longitude. The fish processing wastes will be transported to the upcurrent quadrant of the site and discharged at a rate less than or equal to 1,400 gallons per minute, depending on the season, at a maximum speed of 10 knots (see Special Condition 4.4.1). The disposal vessel will discharge the fish processing wastes within a target area defined by an oval-shaped track with the center axis of the oval perpendicular to the current direction. This target area for disposal is located within the boundary of the designated ocean disposal site. On each trip, the master of the disposal vessel will document current direction at the center of the disposal site. He will then proceed to a point 1.1 nautical miles upcurrent of the prevailing surface current to discharge the waste. The fish processing wastes may be discharged only after this procedure has been conducted. This will ensure that the waste plume has an adequate area for mixing within the disposal site boundary. Receiving waters at the disposal site are outside the American Samoa territorial sea. Though the ocean disposal site is outside these waters, the MPRSA 102 special permits are designed to comply with oceanic water quality standards defined in § 24.0207(g)(1-7) of the American Samoa Water Quality Standards (see Table 1 under General Condition 1.5). This will ensure that oceanic waters inside American Samoa's territorial sea are not affected by the ocean disposal operations. Within four hours after dumping has ceased, concentrations of the fish processing wastes must reach ambient levels at the disposal site boundary. After four hours, these concentrations must not exceed ambient levels at any point in the marine environment (40 C.F.R. section 227.29). Disposal site monitoring requirements are contained in the special permits. EPA Region IX will evaluate potential impacts to water quality based on the site monitoring reports.

Changes from the Previous MPRSA 102 Special Permits

The ocean disposal vessel FV TASMAN SEA will be authorized for the 1998 special permits (see page 1 of each permit). This disposal vessel is owned by Blue North Fisheries, Inc., at 1130 N.W. 45th Street, Seattle, WA 98107-4626. EPA Region IX reviewed waste stream monitoring data (covering a four-year period) submitted by each permittee. The characteristics of the waste streams at the two canneries are entirely different; therefore, separate permits were necessary. Appendix A of this fact sheet contains the tables used to calculate the new permit limits for each permittee's waste stream defined in Section III.B above. In general, the limits for the combined fish waste are increased relative to the previously analyzed individual waste streams, as would be expected.

Results of new confirmatory suspended phase acute toxicity bioassays will be used to calculate new Limiting Permissible Concentration (LPC) values. The new LPC values will be used to rerun the dilution model and confirm compliance with water quality standards at the ocean disposal site. A report will be prepared by each permittee discussing the test procedures and results of the bioassay tests and new model runs. EPA Region IX will review the report to determine whether any changes in the ocean dumping permits are necessary. A computerized navigation system is specified in Special Condition 4.3.4 and 4.5 to simplify plotting of the disposal vessel's track once inside the ocean disposal site and during disposal operations. This system will provide a continuous plot of the disposal vessel's track and a hard copy of each plot will be sent with the 6-month report.

VI. EPA'S AUTHORITY TO ISSUE OCEAN DUMPING PERMITS

EPA's authority to issue special ocean dumping permits is defined under Title I of MPRSA and at 40 C.F.R. 220.4. The authority to issue special permits was delegated to the Regional Administrator on January 11, 1977 (42 FR 2462). The Regional Administrator's authority to issue special permits was redelegated to the EPA Region IX Water Division Director on January 25, 1982 (EPA Region IX Order R1250.5A). Section 102 of MPRSA authorizes EPA to issue permits for ocean dumping. The Agency must determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In addition to these requirements, EPA must evaluate each permit application to determine whether the dumping will comply with the criteria at 40 C.F.R. Part 227 and whether the designated site complies with the criteria at 40 C.F.R. Part 228. The American Samoa Fish Processing Waste disposal site was designated, through the publication of a Final Rule, on February 6, 1990 (55 FR 3948) at 40 C.F.R. 228.12(b)(74). The designation process consisted of publication of an environmental impact statement (EIS) according to EPA's voluntary EIS policy. The draft EIS for this project was published on September 16, 1988 (53 FR 38118) and a final EIS was published on March 3, 1989 (54 FR 9083). The final rule designating the ocean disposal site was published on February 6, 1990 (55 FR 3948). EPA Region IX will periodically evaluate the special permits to determine whether the fish canneries disposal operations comply with the special permit conditions. If unacceptable impacts are detected at the site (40 C.F.R. §§ 228.10), or significant

permit violations are found, EPA will determine whether use of the site should be restricted (40 C.F.R. §§ 228.10 and 228.11), or whether enforcement actions should be initiated under MPRSA.

VII. ADMINISTRATIVE PROCEDURES AND THE PUBLIC HEARING PROCESS

The processing of an ocean dumping permit consists of the following actions. EPA receives a completed application (40 C.F.R. §§ 221). EPA issues a tentative decision whether to grant or deny the special permit (40 C.F.R. §§ 222.2). A draft permit is the means by which EPA documents the intent to grant an ocean dumping permit. A public notice is issued to announce EPA's intent to issue the permit (40 C.F.R. §§ 222.3). The notice contains the following elements: summary, tentative determination, factors considered in reaching the tentative determination, hearing process, and the location of all information on the draft permit. Public notices describing EPA's intent to issue a permit are published in a daily newspaper in closest proximity to the proposed dump site and in a daily newspaper in the city in which EPA's Regional Office is located. Before a final decision can be made on the special permit, formal consultation must be documented with the following agencies: American Samoa Government, U.S. Army Corps of Engineers, U.S. Coast Guard, National Marine Fisheries Service, U.S. Fish and Wildlife Service and the Shellfish Sanitation Branch of the Food and Drug Administration.

Initiation of a Public Hearing

Within 30 days of the date of the public notice, any person may request a public hearing to consider issuance or denial of the special permit or conditions to be imposed upon this permit. Any request for a hearing must be made in writing; must identify the person requesting the hearing; and must clearly state any objections to issuance or denial of the permit or to the conditions to be imposed upon the permit, and the issues to be considered at the hearing. According to 40 C.F.R. §§ 222.4, the Regional Administrator may schedule a hearing, at his discretion, based on genuine issues presented in the written request. Upon receipt of a written request presenting genuine issues amenable to resolution by a public hearing, the Regional Administrator may determine a time and place for the hearing and publish a notice of the hearing. All interested parties will be invited to express their views on the proposed issuance or denial of the permit at the hearing if one is held. If a request for a public hearing is made within 30 days of the date of this notice and does not meet the above criteria, the Regional Administrator must advise the requesting person of his decision to deny the hearing in writing and proceed to rule on the application. Following adjournment of the public hearing, the Presiding Officer, appointed by the Regional Administrator, prepares written recommendations about the issuance, denial or conditions to be imposed upon the permit after full consideration of the views and arguments expressed at the hearing (40 C.F.R. §§ 222.6 through 222.8). The Presiding Officer's recommendations and the record of the hearing are forwarded to the Regional Administrator within 30 days of the hearing. The Regional Administrator makes a determination whether to issue, deny or impose conditions on the permit within 30 days of receipt of the Presiding Officer's recommendations. He must give written notice of the decision to any person appearing

at the public hearing (40 C.F.R. §§ 222.9). A final permit becomes effective 10 days after issuance, if no requests for an adjudicatory hearing are received. Requests for an adjudicatory hearing may be made to the Regional Administrator within 10 days of receipt of the notice to issue or deny the permit (40 C.F.R. §§ 222.10 and §§ 222.11). An appeal of the Regional Administrator's adjudicatory hearing decision may be made in writing to the Administrator of EPA within 10 days following receipt of the Regional Administrator's determination on the need for an adjudicatory hearing (40 C.F.R. §§ 222.12).

VIII. ADDITIONAL INFORMATION

For further information on the special permits, requests for copies of the permits or questions pertaining to MPRSA regulations, please contact either of the following people at EPA Region IX: John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-1156, Carl Goldstein, Office of Pacific Island and Native American Programs (E-4), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-2170.

FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

I. SUMMARY

The U.S. Environmental Protection Agency (EPA) Region IX has received complete applications from StarKist Samoa, Incorporated and VCS Samoa Packing Company, Incorporated for continued ocean disposal of fish processing wastes off Pago Pago, American Samoa. Disposal of fish processing wastes was permitted under two previous Marine Protection Research and Sanctuaries Act (MPRSA) 102 Special Permits, OD 93-01 (StarKist Samoa) and OD 93-02 (VCS Samoa Packing). These permits began on September 1, 1993 and were effective until August 31, 1996. Administrative extensions have allowed use of the site since that date. Disposal operations occurred at a designated site (55 FR 3948, February 6, 1990) located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in about 1,500 fathoms of water. The Regional Administrator has tentatively decided to issue special ocean dumping permits (OD 98-01 and OD 98-02, respectively) to the applicants for ocean disposal of fish processing wastes over a three-year period. This decision has been made according to EPA's authority established in Title I of the Marine Protection, Research and Sanctuaries Act of1972 (MPRSA) (33 U.S.C. section 1401 et seq.). Section 104B(k)(3)(B) of MPRSA contains an exclusion from the ban on disposal of industrial waste for tuna canneries in American Samoa. The conditions and monitoring activities defined in OD 98-01 and OD 98-02 are similar to those in previous special and research ocean dumping permits. However, several changes and/or clarifications have been made to: 1) permitted waste concentrations, 2) combined waste stream monitoring from the onshore storage tank, 3) reporting requirements, and 4) disposal vessel operations. The changes are based on evaluation of waste stream data, confirmation of past toxicity tests and plume modeling and new navigation requirements for the disposal vessel. EPA Region IX has tentatively decided to proceed with issuance of these special permits. Comments on our proposed action will be requested from the permit applicants, the American Samoa Government, Federal agencies, and the public as required under EPA's Ocean Dumping Regulations at 40 C.F.R Parts 220 through 228. Draft special permits and supporting documents are available for public review at the U.S. EPA's Regional Office in the Library on the 13th Floor at 75 Hawthorne Street, San Francisco, California; the U.S. EPA's Pacific Island Contact Office, 300 Ala Moana Boulevard, Honolulu, Hawaii; and the American Samoa Environmental Protection Agency, Executive Office Building, Office of the Governor, Pago Pago, American Samoa. These documents define the principal facts and significant legal, administrative and policy questions considered in the development of the special permits.

II. TENTATIVE DECISION

On February 23, 1996 and February 26, 1996, respectively, StarKist Samoa and VCS Samoa Packing Company applied for ocean dumping permits to dispose of their fish cannery wastes at a designated ocean disposal site near Pago Pago, American Samoa. The designated site, used for the past 3 years by both canneries, is located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in 1,502 fathoms of water [40 C.F.R. 228.12(b)(74)]. EPA Region IX is planning to grant their applications by issuing a special ocean dumping permit to each cannery which will last for three years. Current information indicates that disposal of fish processing wastes at the designated site complies with EPA's Ocean Dumping Regulations at 40 C.F.R. Parts 227 and 228. Information obtained during the term of the special permits will be used to evaluate whether the disposal of fish processing wastes continues to comply with criteria defined in EPA's Ocean Dumping Regulations. The permittees must conduct a site monitoring program, including field and laboratory analyses. Results of the monitoring program will be used to document the extent of effects at the ocean disposal site and whether the dumping continues to comply with EPA's Ocean Dumping Regulations. The proposed dumping during the term of the special permits is expected to have minimal impacts on human health and/or the marine environment, as demonstrated by the monitoring results of the previous special and research ocean dumping permits. The primary environmental impact of the proposed discharges would be short-term increases in turbidity, inorganic nutrients, oil and grease, and ammonia during the dumping events. Past monitoring studies on the disposal of fish processing wastes off American Samoa show that water quality parameters return to ambient conditions at the boundary of the disposal site following the four-hour period of initial mixing (40 C.F.R. 227.29). To be certain that American Samoa Water Quality Standards would not be violated by the disposal of fish processing wastes, the center of the disposal site was designated 5.45 nautical miles offshore, and restrictive navigation requirements, disposal rates and limitations on the waste material constituents are included in the special ocean dumping permits.

III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

Data from the previous special ocean dumping permit issued to each cannery were used to calculate all permit limits. The data for each cannery were evaluated separately. The following calculations were made for each set of data using the LOTUS spreadsheet program, version 4: maximum and minimum levels; mean, standard deviation and the number of data points. Any data values greater than or less than the mean plus or minus 2 standard deviations, were considered to be outliers. Outlier data points were not used in the permit limit calculations. All procedures for calculating permit limits are discussed in Sections 3.1.1 and 3.1.2 (pages 3-1 to 3-9) of EPA's Guidance Document for Ocean Dumping Permit (January 30, 1988).

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Overview of Disposal Operations

The two fish canneries in American Samoa, StarKist Samoa and VCS Samoa Packing Company, propose to dispose of fish processing wastes at an ocean dump site centered approximately 5.45 nautical miles south of Tutuila Island in 1,502 fathoms of water. The center coordinates of the site are: 14° 24.00' South latitude by 170° 38.20' West longitude. The fish processing wastes will be transported to the upcurrent quadrant of the site and discharged at a rate less than or equal to 1,400 gallons per minute, depending on the season, at a maximum speed of 10 knots (see Special Condition 4.4.1). The disposal vessel will discharge the fish processing wastes within a target area defined by an oval-shaped track with the center axis of the oval perpendicular to the current direction. This target area for disposal is located within the boundary of the designated ocean disposal site. On each trip, the master of the disposal vessel will document current direction at the center of the disposal site. He will then proceed to a point 1.1 nautical miles upcurrent of the prevailing surface current to discharge the waste. The fish processing wastes may be discharged only after this procedure has been conducted. This will ensure that the waste plume has an adequate area for mixing within the disposal site boundary. Receiving waters at the disposal site are outside the American Samoa territorial sea. Though the ocean disposal site is outside these waters, the MPRSA 102 special permits are designed to comply with oceanic water quality standards defined in § 24.0207(g)(1-7) of the American Samoa Water Quality Standards (see Table 1 under General Condition 1.5). This will ensure that oceanic waters inside American Samoa's territorial sea are not affected by the ocean disposal operations. Within four hours after dumping has ceased, concentrations of the fish processing wastes must reach ambient levels at the disposal site boundary. After four hours, these concentrations must not exceed ambient levels at any point in the marine environment (40 C.F.R. section 227.29). Disposal site monitoring requirements are contained in the special permits. EPA Region IX will evaluate potential impacts to water quality based on the site monitoring reports.

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FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

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II. TENTATIVE DECISION

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III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

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V. FACTORS CONSIDERED IN REACHING THE PERMIT DECISIONS

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Results of new confirmatory suspended phase acute toxicity bioassays will be used to calculate new Limiting Permissible Concentration (LPC) values. The new LPC values will be used to rerun the dilution model and confirm compliance with water quality standards at the ocean disposal site. A report will be prepared by each permittee discussing the test procedures and results of the bioassay tests and new model runs. EPA Region IX will review the report to determine whether any changes in the ocean dumping permits are necessary. A computerized navigation system is specified in Special Condition 4.3.4 and 4.5 to simplify plotting of the disposal vessel's track once inside the ocean disposal site and during disposal operations. This system will provide a continuous plot of the disposal vessel's track and a hard copy of each plot will be sent with the 6-month report.

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EPA's authority to issue special ocean dumping permits is defined under Title I of MPRSA and at 40 C.F.R. 220.4. The authority to issue special permits was delegated to the Regional Administrator on January 11, 1977 (42 FR 2462). The Regional Administrator's authority to issue special permits was redelegated to the EPA Region IX Water Division Director on January 25, 1982 (EPA Region IX Order R1250.5A). Section 102 of MPRSA authorizes EPA to issue permits for ocean dumping. The Agency must determine that the proposed dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. In addition to these requirements, EPA must evaluate each permit application to determine whether the dumping will comply with the criteria at 40 C.F.R. Part 227 and whether the designated site complies with the criteria at 40 C.F.R. Part 228. The American Samoa Fish Processing Waste disposal site was designated, through the publication of a Final Rule, on February 6, 1990 (55 FR 3948) at 40 C.F.R. 228.12(b)(74). The designation process consisted of publication of an environmental impact statement (EIS) according to EPA's voluntary EIS policy. The draft EIS for this project was published on September 16, 1988 (53 FR 38118) and a final EIS was published on March 3, 1989 (54 FR 9083). The final rule designating the ocean disposal site was published on February 6, 1990 (55 FR 3948). EPA Region IX will periodically evaluate the special permits to determine whether the fish canneries disposal operations comply with the special permit conditions. If unacceptable impacts are detected at the site (40 C.F.R. §§ 228.10), or significant

permit violations are found, EPA will determine whether use of the site should be restricted (40 C.F.R. §§ 228.10 and 228.11), or whether enforcement actions should be initiated under MPRSA.

VII. ADMINISTRATIVE PROCEDURES AND THE PUBLIC HEARING PROCESS

The processing of an ocean dumping permit consists of the following actions. EPA receives a completed application (40 C.F.R. §§ 221). EPA issues a tentative decision whether to grant or deny the special permit (40 C.F.R. §§ 222.2). A draft permit is the means by which EPA documents the intent to grant an ocean dumping permit. A public notice is issued to announce EPA's intent to issue the permit (40 C.F.R. §§ 222.3). The notice contains the following elements: summary, tentative determination, factors considered in reaching the tentative determination, hearing process, and the location of all information on the draft permit. Public notices describing EPA's intent to issue a permit are published in a daily newspaper in closest proximity to the proposed dump site and in a daily newspaper in the city in which EPA's Regional Office is located. Before a final decision can be made on the special permit, formal consultation must be documented with the following agencies: American Samoa Government, U.S. Army Corps of Engineers, U.S. Coast Guard, National Marine Fisheries Service, U.S. Fish and Wildlife Service and the Shellfish Sanitation Branch of the Food and Drug Administration.

Initiation of a Public Hearing

Within 30 days of the date of the public notice, any person may request a public hearing to consider issuance or denial of the special permit or conditions to be imposed upon this permit. Any request for a hearing must be made in writing; must identify the person requesting the hearing; and must clearly state any objections to issuance or denial of the permit or to the conditions to be imposed upon the permit, and the issues to be considered at the hearing. According to 40 C.F.R. §§ 222.4, the Regional Administrator may schedule a hearing, at his discretion, based on genuine issues presented in the written request. Upon receipt of a written request presenting genuine issues amenable to resolution by a public hearing, the Regional Administrator may determine a time and place for the hearing and publish a notice of the hearing. All interested parties will be invited to express their views on the proposed issuance or denial of the permit at the hearing if one is held. If a request for a public hearing is made within 30 days of the date of this notice and does not meet the above criteria, the Regional Administrator must advise the requesting person of his decision to deny the hearing in writing and proceed to rule on the application. Following adjournment of the public hearing, the Presiding Officer, appointed by the Regional Administrator, prepares written recommendations about the issuance, denial or conditions to be imposed upon the permit after full consideration of the views and arguments expressed at the hearing (40 C.F.R. §§ 222.6 through 222.8). The Presiding Officer's recommendations and the record of the hearing are forwarded to the Regional Administrator within 30 days of the hearing. The Regional Administrator makes a determination whether to issue, deny or impose conditions on the permit within 30 days of receipt of the Presiding Officer's recommendations. He must give written notice of the decision to any person appearing

at the public hearing (40 C.F.R. §§ 222.9). A final permit becomes effective 10 days after issuance, if no requests for an adjudicatory hearing are received. Requests for an adjudicatory hearing may be made to the Regional Administrator within 10 days of receipt of the notice to issue or deny the permit (40 C.F.R. §§ 222.10 and §§ 222.11). An appeal of the Regional Administrator's adjudicatory hearing decision may be made in writing to the Administrator of EPA within 10 days following receipt of the Regional Administrator's determination on the need for an adjudicatory hearing (40 C.F.R. §§ 222.12).

VIII. ADDITIONAL INFORMATION

For further information on the special permits, requests for copies of the permits or questions pertaining to MPRSA regulations, please contact either of the following people at EPA Region IX: John Ong, Acting Chief, Monitoring and Assessment Office (WTR-2), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-1156, Carl Goldstein, Office of Pacific Island and Native American Programs (E-4), U.S. Environmental Protection Agency, 75 Hawthorne Street, San Francisco, California 94105-3901, (415) 744-2170.

FACT SHEET

SPECIAL OCEAN DUMPING PERMITS

STARKIST SAMOA (OD 98-01) AND
VCS SAMOA PACKING COMPANY (OD 98-02)
LOCATED IN PAGO PAGO, AMERICAN SAMOA

I. SUMMARY

The U.S. Environmental Protection Agency (EPA) Region IX has received complete applications from StarKist Samoa, Incorporated and VCS Samoa Packing Company, Incorporated for continued ocean disposal of fish processing wastes off Pago Pago, American Samoa. Disposal of fish processing wastes was permitted under two previous Marine Protection Research and Sanctuaries Act (MPRSA) 102 Special Permits, OD 93-01 (StarKist Samoa) and OD 93-02 (VCS Samoa Packing). These permits began on September 1, 1993 and were effective until August 31, 1996. Administrative extensions have allowed use of the site since that date. Disposal operations occurred at a designated site (55 FR 3948, February 6, 1990) located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in about 1,500 fathoms of water. The Regional Administrator has tentatively decided to issue special ocean dumping permits (OD 98-01 and OD 98-02, respectively) to the applicants for ocean disposal of fish processing wastes over a three-year period. This decision has been made according to EPA's authority established in Title I of the Marine Protection, Research and Sanctuaries Act of1972 (MPRSA) (33 U.S.C. section 1401 et seq.). Section 104B(k)(3)(B) of MPRSA contains an exclusion from the ban on disposal of industrial waste for tuna canneries in American Samoa. The conditions and monitoring activities defined in OD 98-01 and OD 98-02 are similar to those in previous special and research ocean dumping permits. However, several changes and/or clarifications have been made to: 1) permitted waste concentrations, 2) combined waste stream monitoring from the onshore storage tank, 3) reporting requirements, and 4) disposal vessel operations. The changes are based on evaluation of waste stream data, confirmation of past toxicity tests and plume modeling and new navigation requirements for the disposal vessel. EPA Region IX has tentatively decided to proceed with issuance of these special permits. Comments on our proposed action will be requested from the permit applicants, the American Samoa Government, Federal agencies, and the public as required under EPA's Ocean Dumping Regulations at 40 C.F.R Parts 220 through 228. Draft special permits and supporting documents are available for public review at the U.S. EPA's Regional Office in the Library on the 13th Floor at 75 Hawthorne Street, San Francisco, California; the U.S. EPA's Pacific Island Contact Office, 300 Ala Moana Boulevard, Honolulu, Hawaii; and the American Samoa Environmental Protection Agency, Executive Office Building, Office of the Governor, Pago Pago, American Samoa. These documents define the principal facts and significant legal, administrative and policy questions considered in the development of the special permits.

II. TENTATIVE DECISION

On February 23, 1996 and February 26, 1996, respectively, StarKist Samoa and VCS Samoa Packing Company applied for ocean dumping permits to dispose of their fish cannery wastes at a designated ocean disposal site near Pago Pago, American Samoa. The designated site, used for the past 3 years by both canneries, is located 5.45 nautical miles from land (14° 24.00' South latitude by 170° 38.20' West longitude) with a radius of 1.5 nautical miles in 1,502 fathoms of water [40 C.F.R. 228.12(b)(74)]. EPA Region IX is planning to grant their applications by issuing a special ocean dumping permit to each cannery which will last for three years. Current information indicates that disposal of fish processing wastes at the designated site complies with EPA's Ocean Dumping Regulations at 40 C.F.R. Parts 227 and 228. Information obtained during the term of the special permits will be used to evaluate whether the disposal of fish processing wastes continues to comply with criteria defined in EPA's Ocean Dumping Regulations. The permittees must conduct a site monitoring program, including field and laboratory analyses. Results of the monitoring program will be used to document the extent of effects at the ocean disposal site and whether the dumping continues to comply with EPA's Ocean Dumping Regulations. The proposed dumping during the term of the special permits is expected to have minimal impacts on human health and/or the marine environment, as demonstrated by the monitoring results of the previous special and research ocean dumping permits. The primary environmental impact of the proposed discharges would be short-term increases in turbidity, inorganic nutrients, oil and grease, and ammonia during the dumping events. Past monitoring studies on the disposal of fish processing wastes off American Samoa show that water quality parameters return to ambient conditions at the boundary of the disposal site following the four-hour period of initial mixing (40 C.F.R. 227.29). To be certain that American Samoa Water Quality Standards would not be violated by the disposal of fish processing wastes, the center of the disposal site was designated 5.45 nautical miles offshore, and restrictive navigation requirements, disposal rates and limitations on the waste material constituents are included in the special ocean dumping permits.

III. TERMS OF THE PERMIT

Special ocean dumping permits OD 98-01 and OD 98-02 are similar to OD 93-01 and OD 93-02, except those changes outlined above. The permittees have been disposing of fish cannery wastes, monitoring the waste streams and the disposal site according to the specifications of the past special and research permits.

A. Volumes of Waste Material Proposed for Ocean Disposal

Table 1. Volumes of Fish Processing Waste Authorize for Daily Disposal (see Special Condition 2.3 in both permits).

Fish Processing Waste	StarKist Samoa (gallons/day)	VCS Samoa Packing (gallons/day)	Total Volume (gallons/day)
Daily Maximum - Combined Waste Stream from Onshore Storage Tank	200,000	200,000	400,000

B. Waste Material Limitations in the Proposed Permits (see Special Condition 2.4 in both permits).

Table 2. Combined Fish Processing Waste Limits for the StarKist Samoa's Permit #OD 98-01 and VCS Samoa Packing Company's Permit #OD 98-02.

Storage Tank Physical or Chemical Parameter (units)[a]	Starkist Samoa	VCS Samoa Packing Company
Total Solids (mg/L)	101,800	43,170
Total Volatile Solids (mg/L)	84,100	38,230
5-Day BOD (mg/L)	129,390	53,350
Oil and Grease (mg/L)	62,940	119,750
Total Phosphorus (mg/L)	1,750	2,880
Total Nitrogen (mg/L)	10,980	11,330
Ammonia (mg/L)	11,810	4,580
pH (pH units)	6.2 to 7.1	5.8 to 7.4
Density (g/mL)	0.97 to 1.03	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except the density and pH ranges.

IV. CALCULATION OF PERMIT LIMITS

Data from the previous special ocean dumping permit issued to each cannery were used to calculate all permit limits. The data for each cannery were evaluated separately. The following calculations were made for each set of data using the LOTUS spreadsheet program, version 4: maximum and minimum levels; mean, standard deviation and the number of data points. Any data values greater than or less than the mean plus or minus 2 standard deviations, were considered to be outliers. Outlier data points were not used in the permit limit calculations. All procedures for calculating permit limits are discussed in Sections 3.1.1 and 3.1.2 (pages 3-1 to 3-9) of EPA's Guidance Document for Ocean Dumping Permit (January 30, 1988).

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MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE:	OD98-01 Special
EFFECTIVE DATE:	March 1, 1998
EXPIRATION DATE:	February 28, 2001
PERMITTEE:	StarKist Samoa, Inc. P.O. Box 368 Pago Pago, American Samoa 96799
WASTE GENERATOR:	StarKist Samoa, Inc. P.O. Box 368 Pago Pago, American Samoa 96799
WASTE GENERATED AT:	StarKist Samoa, Inc. P.O. Box 368 Pago Pago, American Samoa 96799
PORT OF DEPARTURE:	Pago Pago Harbor, American Samoa
WASTE TRANSPORTER:	FV TASMAN SEA Blue North Fisheries, Inc. 1130 N.W. 45th Street Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to StarKist Samoa, Inc. The Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from StarKist Samoa's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. StarKist Samoa, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply to this permit.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not accurately disclose all relevant facts in the permit application or monitoring reports; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator or his delegate in writing of any change in the designated fish processing waste transporter at least 30 days before the transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. If material which is regulated by this permit is disposed of, due to an emergency, such as to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on February 1, 1998 and it shall expire three years from the effective data at midnight on ~~January~~ 31, 2001.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14° 24.00' South latitude by 170° 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a combined waste stream total maximum of 200,000 gallons per day of fish processing wastes. The fish processing wastes-- Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor-- are combined and stored in the permittee's in-shore storage tanks prior to transport to the ocean disposal site.

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor, which are combined and stored in an onshore storage tank prior to transport to the ocean disposal site (see Table 3 - following page).

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Solids (mg/L)	101,800
Total Volatile Solids (mg/L)	84,100
5-Day BOD (mg/L)	129,390
Oil and Grease (mg/L)	62,940
Total Phosphorus (mg/L)	1,750
Total Nitrogen (mg/L)	10,980
Ammonia (mg/L)	11,810
pH (pH units)	6.2 to 7.1
Density (g/mL)	0.97 to 1.03

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste were calculated based on an analysis of data over a 4-year period from the permittee's previous Special Ocean Dumping Permit, number OD 93-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R. §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. **The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.**

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.1.2. The parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples.

Table 4. Physical and Chemical Parameters and Associated Method Detection Limits for Analyses of Onshore Storage Tank Waste

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

Table 4 shall be used in all fish processing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volume of fish processing waste (total combined waste streams of DAF Sludge, Cooker Juice and Press Liquor) generated at the permittee's facility and pumped into the permittee's onshore storage tanks to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volume of fish processing waste disposed at the ocean disposal site to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a LOTUS spreadsheet format (i.e., wk1).

should indicate name of cannery, permit no., months of data being submitted, or send electronically?

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 60 days after the permit expires. Delay or non-compliance with this requirement will

3.1.2. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.2.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.2.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, WA.; and

3.1.2.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. **Analytical Laboratory**

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided to EPA Region IX.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in

(respectively) delay or preclude renewal of the permit. All fish processing waste data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Twenty-four months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of confirmatory suspended phase acute toxicity bioassay tests and dilution model calculations (i.e., Limiting Permissible Concentration) of the predicted concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

If changes in processing and /or disposal operations should occur, an additional re-evaluation of the disposal model may also be required. These evaluations (bioassays and/or modeling) would be used to confirm the toxicity of the fish

processing wastes and to evaluate the disposal operations based on the use of a different disposal vessel or different mode of disposal.

The confirmatory bioassay report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, and the design of the new bioassay tests. If modeling analysis is necessary, then previous modeling at the ocean disposal site should also be included.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) If modeling analysis is required as stipulated in Special Condition 3.3.5., description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modeling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (i.e., on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized

navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending position and time of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a target area defined by an oval shape track along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. Deviations from normal disposal operations (as described in Section 4.4.1) must be reported within 30 days of the date of occurrence. If such deviation should occur, the master of the disposal vessel shall describe the adverse conditions in the log and submit a record of the disposal trip, including the computer-generated navigational plot. Minor deviations in the vessel's track due to adverse ocean conditions (e.g. large waves, strong winds, etc.) are allowed as long as disposal operations occur in the prescribed target area thereby allowing the fish waste to disperse within the disposal site boundaries. If adverse sea state conditions prevent ocean disposal operations in this manner, then all operations shall cease until sea state conditions are compatible with the required disposal operations.

4.4.1.3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal operation must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system before the date of the first disposal operations under this permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and unique consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site;

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of any visible (previous) disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in Special Condition 4.4.2 and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, quality assurance/quality control data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results. this in so never been sub

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by EPA Region IX, ASEPA, USCG or American Samoa Department of Public Safety personnel; or a USCG ship rider and/or a ASEPA or EPA Region IX ship rider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the

waste transporter will be advised whether or not a ship rider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-1599

6.2.2. One copy of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this _____ day of _____, 1998

For the Regional Administrator:

_____

Alexis Strauss, Acting Director
Water Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 98-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. The required site monitoring may be accomplished jointly through an agreement between permittee and other permittees authorized to use the disposal site. Any such agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4.

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

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) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )
                                                                                  Prevailing Surface
                                                                                   Current Direction
                                                                                   <------------------
5                    4              3              2              1
Leading Edge  1.0 nmi        0.5 nmi        0.25 nmi       Starting
 of Plume
) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )
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Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. **Water Column Characteristics to Be Measured**

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated at 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. **Frequency of Sampling**

7.3.1. Water samples shall be collected in association with active dumping operations. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control

sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded beyond the disposal site boundary within four hours after dumping or at any point in the marine environment after four hours. The LPC, as defined at 40 C.F.R. §227.27, shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

APPENDIX B - REPORT FORM 1

Monthly Volumes of StarKist Samoa Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site

Volume limit = 200,000 gal/day

Month _____ 19__

<< Conversion Note: For a Lotus spreadsheet (i.e., wk1), use 3-column format. >>

Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)	Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					
SUBTOTAL			SUBTOTAL		
			GRAND TOTAL		

NOTE: An asterisk (*) to the right of the fish processing waste volume signifies that a violation of the permit limit has occurred. ~~The number of violations are shown in the Monthly Totals row.~~ ?

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month
Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2

Data Form for 3-Month Report on Waste Stream Analyses for StarKist Samoa MPRSA § 102 Permit #OD 93-01

Reporting Period: From _____ 19__ To _____ 19__

StarKist Samoa - On-Shore Storage Tank Waste

<< Conversion Note: For a Lotus spreadsheet, use wk1 format with layout below. >>

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 98-01 Permit Limits	101,800		84,100		129,390		62,940		1,750		10,980		11,810		6.2 to 7.1		0.97 to 1.03	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

Cumulative Yearly Data on Fish Processing Wastes
Generated at StarKist Samoa's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 97-01

Reporting Period:

From _____ **19**__
To _____ **19**__

<< Conversion Note: For a Lotus, use wk1 format with layout below. >>

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.

8/15/97
WTR-5

Allan Ota, Mike Lee

Here's my first draft of the revised ocean disposal permit. I changed a number of items. We should discuss if this is the way you want to go:

1. Eliminated analyses of individual waste streams and only requiring monthly analyses of waste store in on-shore storage tank. I put in section if fish processing procedures change then we can require them to do individual analyses. Otherwise, do you think we need to have them do individual waste stream analyses at all? (Or maybe once or twice a year?) I don't really think necessary.

2. Eliminated volume limits for individual waste streams; only have 200,000 gallon limit for disposal per day.

3. Are bioassays required by regulation and calculations done to insure that LPC not being exceeded? Or is it sufficient that water quality standards not being exceeded?

4. Allan, you might want to redo the tables in Lotus format, I revised Pat's which were in Word Perfect and they don't really line up correctly. We might want to send the canneries a copy of forms (or email them) when the final permits are issued.

5. I added section if seas are rough can do alternate disposal pattern but must record conditions.

Allan, how are you doing on calculations? The present extension expires August 31. I will do re-extension. Think December 31 is enough time?

P.S. Did you know come October I'll be taking over the CNMI and Palau? We're hiring someone to replace me, while I take over Jim Branch's islands (he's retiring).

Should we have them submit data disk at end of year; qtrly?

Pat
(1594)

DRAFT 8/15/97

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD97 ~~93~~-01 Special

EFFECTIVE DATE: ~~September 1, 1993~~ December 31, 1997

EXPIRATION DATE: ~~August 31, 1996~~ January 1, 2001

PERMITTEE:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATOR:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

WASTE GENERATED AT:
StarKist Samoa, Inc.
P.O. Box 368
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER:
FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to StarKist Samoa, Inc. because the Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from StarKist Samoa's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. StarKist Samoa, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

might change

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

ASEPA in process of revising stds now. Check status before permit issued

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not disclose all relevant facts in the permit application accurately; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator of any change in the designated fish processing waste transporter at least 30 days before the transfer date. ~~Any change in the designated fish processing waste transporter may be made at the discretion of the Regional Administrator or his delegate. A written request for such a transfer shall be made by the permittee at least thirty (30) days before the requested transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.~~

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. Material which is regulated by this permit may be disposed of, due to an emergency, to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit. If this occurs, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for ~~DAF Sludge, Cooker Juice and Press Liquor~~ for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. **Location of the Waste Generator and Duration of the Permit**

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on ~~September 1, 1993~~ December 31, 1997 and it shall expire three years from the effective data at midnight on ~~August 31, 1996~~. January 1, 2001.

2.2. **Location of Disposal Site**

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14° 24.00' South latitude by 170° 38.30' West longitude.

2.3. **Description of Fish Processing Wastes**

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a maximum of 200,000 gallons per day of fish processing wastes. ~~pumped from a storage tank on the permittee's premises.~~ The fish processing wastes, Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor, are stored in ~~pumped from~~ the permittee's on-shore storage tanks. ~~are authorized for disposal at the designated ocean disposal site. Fish processing wastes pumped into the permittee's onshore storage tanks shall not exceed the following amounts:~~

~~**Table 2.** Volumes of Fish Processing Wastes Generated Each Day by StarKist Samoa and Pumped into a Storage Tank before Loading into the Ocean Disposal Vessel.~~

~~**Fish Processing Waste**~~	~~**Maximum Volume Generated (gallons/day)**~~
~~Dissolved Air Flotation (DAF) Sludge~~	~~30,000~~
~~Cooker Juice~~	~~70,000~~
~~Press Liquor~~	~~100,000~~
~~**Maximum Daily Volume Generated and Pumped into a Storage Tank before Loading into the Disposal Vessel**~~	~~**200,000**~~

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor, which are co-mingled and stored in an onshore storage tank prior to transport to the ocean disposal site.

~~**Table 3.** Limits for DAF Sludge, Cooker Juice and Press Liquor.~~

~~Physical or Chemical Parameter (units)[a]~~	~~DAF Sludge~~	~~Cooker Juice~~	~~Press Liquor~~
~~Total Solids (mg/L)~~	~~163,430~~	~~114,180~~	~~327,870~~
~~Total Volatile Solids (mg/L)~~	~~136,180~~	~~63,400~~	~~292,280~~
~~5-Day BOD (mg/L)~~	~~232,320~~	~~185,150~~	~~310,790~~
~~Oil and Grease (mg/L)~~	~~64,100~~	~~11,810~~	~~112,080~~
~~Total Phosphorus (mg/L)~~	~~1,640~~	~~940~~	~~3,160~~
~~Total Nitrogen (mg/L)~~	~~7,020~~	~~7,560~~	~~20,360~~
~~Ammonia (mg/L)~~	~~1,830~~	~~690~~	~~1,390~~
~~pH (pH units)~~	~~5.3 to 7.0~~	~~5.9 to 7.0~~	~~5.8 to 7.0~~
~~Density (g/mL)~~	~~0.97 to 1.06~~	~~0.98 to 1.06~~	~~0.99 to 1.08~~

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	**Storage Tank**
Total Solids (mg/L)	
Total Volatile Solids (mg/L)	
5-Day BOD (mg/L)	
Oil and Grease (mg/L)	
Total Phosphorus (mg/L)	

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Phosphorus (mg/L)	
Total Nitrogen (mg/L)	
Ammonia (mg/L)	
pH (pH units)	5.3 to 7.0
Density (g/mL)	0.97 to 1.06

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste ~~each type of fish processing waste stream~~ were calculated based on an analysis XX months of ~~historical~~ data from the permittee's previous Special Ocean Dumping Permit, number OD ~~90-0193-01~~. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. ~~**each of the fish processing waste streams**. Additional analyses of fish processing wastes and reporting requirements are defined in this section. Any fish processing waste stream~~ The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. ~~each fish processing waste stream. A sample of each fish processing waste stream shall be taken before the individual streams are mixed and pumped into an onshore storage tank. A sample shall consist of three replicate grab~~

~~samples, taken on the day that sampling is scheduled, pooled for use as a composite sample. (NOTE: This section in red was formely Section 3.1.2) In addition to the fish processing waste stream samples taken under Special Condition 3.1.1, the~~ Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

~~3.1.2.1~~ 3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

~~3.1.2.2. Samples described in Special Condition 3.1.2.1 shall be taken for 12 months. Samples shall be collected on the same day that samples are taken for analysis under Special Condition 3.1.1 and another sample shall be taken one week later.~~

~~3.1.2.3.~~ 3.1.1.2. The ~~same~~ parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples. ~~This sampling and analysis program will provide 2 samples per month for 12 months yielding 24 samples. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.~~

Table 4. Physical and Chemical Parameters to be Analyzed ~~from~~ of Onshore Storage Tank Waste ~~Individual Samples of DAF Sludge, Cooker Juice and Press Liquor.~~

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

~~3.1.2. In addition to the fish processing waste stream samples taken under Special Condition 3.1.1, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.~~

~~3.1.2.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.~~

~~3.1.2.2. Samples described in Special Condition 3.1.2.1 shall be taken for 12 months. Samples shall be collected on the same day that samples are taken for analysis under Special Condition 3.1.1 and another sample shall be taken one week later.~~

~~3.1.2.3. The same parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples. This sampling and analysis program will provide 2 samples per month for 12 months yielding 24 samples.~~

~~3.1.2.4. The permittee shall send a copy of the analytical data for the onshore storage tank samples to EPA Region IX every 3 months during the 12-month sampling period. EPA Region IX will use these results to calculate limits for the onshore storage tank fish processing wastes. When the onshore storage tank limits are calculated, EPA Region IX will evaluate whether to amend this permit using the new limits.~~

3.1~~.3~~.2 All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.3.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.3.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, Wa.; and

3.1.3.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on

Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. **Analytical Laboratory**

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided ~~for~~ to EPA Region IX ~~approval~~.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, ~~for~~ to EPA Region IX ~~approval~~.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. ~~A complete analysis of parameters, required in Special Condition 3.1, shall be made by the permittee and reported to EPA Region IX and the ASEPA whenever there is a significant change in the quality of a fish processing waste stream as determined by EPA Region IX or the ASEPA.~~ Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, ~~pre~~cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish procesing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. **Reporting**

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volumes of fish processing waste ~~DAF Sludge, Cooker Juice and Press Liquor~~ generated at the permittee's facility and pumped into the permittee's onshore storage tanks to ~~These volumes shall~~ be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volumes of fish processing wastes disposed at the ocean disposal site to. ~~These volumes shall~~ be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste ~~stream~~ analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste ~~streams~~ reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a format compatible with LOTUS version ~~2.2.~~XX??

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 45 days after the permit expires. All fish processing waste ~~stream~~ data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

DO WE STILL NEED BIOASSAYS DONE? No need for remodeling unless boat radically changes or site is different.

~~3.3.5. Eighteen months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of suspended phase bioassay tests and reevaluation of the model used to predict the concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three~~

~~groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.~~

~~Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.~~

~~A sampling and testing plan shall be submitted to EPA Region IX and ASEPA by October 1, 1993 for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. The permittee shall take samples on the following dates: November 30, 1993, February 28, 1994 and May 31, 1994. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.~~

~~The testing plan submitted by October 1, 1993 should also include a proposal to reevaluate the disposal site model using results obtained from the new series of suspended phase bioassays. These bioassays are being required to confirm the toxicity of the fish processing wastes and to reevaluate the disposal operations based on the use of a different disposal vessel.~~

~~The bioassay and computer model confirmation report shall contain the following information:~~

~~3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION~~

~~The project description should include the following information about fish processing waste toxicity, previous bioassay test results, previous modelling at the ocean disposal site, and the design of the new bioassay tests.~~

~~3.3.5.2. MATERIALS AND METHODS~~

~~Fish processing waste sampling and sample handling procedures should be described or referenced.~~

~~References for laboratory protocols for suspended phase bioassay tests.~~

~~1) EPA-approved methods and references.~~

~~2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.~~

~~3) Source of seawater used in reference, control and bioassay tests.~~

~~4) Data and statistical analysis procedures.~~

~~5) Limiting Permissible Concentration (LPC) calculations.~~

~~6) Description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.~~

~~3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES~~

~~QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.~~

~~3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION~~

~~1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.~~

~~2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).~~

~~3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.~~

~~3.3.5.5. REFERENCES~~

~~This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modelling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.~~

~~3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION~~

~~The following topics should be addressed in the QA Plan:~~

~~1) QA objectives.~~

~~2) Organization, responsibilities and personnel qualifications, internal quality control checks.~~

~~3) Sampling and analytical procedures.~~

~~4) Equipment calibration and maintenance.~~

~~5) Sample custody and tracking.~~

~~6) documentation, data reduction, and reporting.~~

~~7) Data validation.~~

~~8) Performance and systems audits.~~

~~9) Corrective action.~~

~~10) Reports.~~

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy ~~(on 8.5 inch by 11 inch paper)~~ of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a oval shape along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. On those ocassions when ocean conditions (e.g. large waves, strong winds, etc.) make it difficult for the vessel to discharge waste in the normal manner (as described in Section 4.4.1) without jeopardizing the vessel, the master of the vessel is allowed to deviate from the normal disposal pattern. If such deviation should occur, he shall describe the adverse conditions in the log and and submit a record of the disposal trip, including the computer-generated navigational plot. All efforts must be made to stay within the disposal site, maximizing the area of disposal within the site, and having the prevailing winds and currents carry the waste away from shore.

4.4.~~1.1.~~ 3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.~~1.2.~~ 4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal trip must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. ~~The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system at least 15 working days before the effective date of the permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.~~

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5

working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. **Reporting of the Ocean Dumping Vessel Operations**

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site.

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of the previous disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in ~~Special Condition~~ Section 4.3.8 4.4.2. and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and determine compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, quality assurance/quality control data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained ~~before the initial monitoring cruise.~~ Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by ASEPA, USCG or American Samoa Department of Public Safety personnel, or a USCG shiprider and/or a ASEPA shiprider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a shiprider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. **Reports and Correspondence**

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific ~~Island and Native American Programs (E-4)~~Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-1599

6.2.2. One copy ~~Two copies~~ of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy ~~Three copies~~ of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this _____ day of _____, 1993

For the Regional Administrator:

_____

~~Harry Seraydarian, Director~~Alexis Strauss, Acting Director
Water ~~Management~~ Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD ~~93-0197-01~~
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. Funding and cooperation for site monitoring may be accomplished through an agreement between permittee and other permittees authorized to use the disposal site. Any agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4. ~~Results of the first 3-month monitoring report will be evaluated by EPA Region IX to determine whether portions of Special Conditions 7 and/or 8 will be revised. The evaluation will be based on documented sampling results and recommendations by the permittee(s).~~

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

					Prevailing Surface Current Direction <----------
5	4	3	2	1	
Leading Edge of Plume	1.0 nmi	0.5 nmi	0.25 nmi	Starting	

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L

Parameter[a]	Method Detection Limit
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated a 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. **Frequency of Sampling**

7.3.1. Water samples shall be collected when dumping operations occur. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. **Water Quality Criteria and Standards**

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded at the disposal site boundary four hours after disposal operations cease. (QUESTION: IS IT AT THE DISPOSAL SITE BOUNDARY OR WITHIN THE BOUNDARIES FOUR HOURS AFTER DISPOSAL OPERATIONS? MY READING OF THE REGS IS "WITHIN") The LPC, as defined at 40 C.F.R. §227.27,shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping

Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

New / Revised previous form

APPENDIX B - REPORT FORM 1

Monthly Volumes of StarKist Samoa Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site

Daily Limit Not to Exceed 200,000 gallons/day

Month _____ 19__

Date	Total Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Date	Total Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
25		
26		
27		
28		
29		
30		
31		
TOTAL		

NOTE: An asterisk (*) to the right of the fish processing waste volume signifies that a violation of the permit limit has occurred. The number of violations are shown in the Monthly Totals row.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month

Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2
Data Form for 3-Month Report on Waste Stream Analyses for StarKist Samoa MPRSA § 102 Permit #OD 93-01

Reporting Period: From _____ 19__ To _____ 19__

StarKist Samoa - On-Shore Storage Tank Waste

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 97-01 Permit Limits	XXXXXXX		XXXXXXX		XXXXXXXX		XXXXXXXX		XXXXXXX		XXXXXXX		xxxxxxx		5.3 to 7.0		0.97 to 1.06	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

New Revised previous form

Cumulative Yearly Data on Fish Processing Wastes Generated at StarKist Samoa's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 97-01

Reporting Period:
From _____ 19__
To _____ 19__

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coaglant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.

****
*** ACTIVITY REPORT ***
****

TRANSMISSION OK

TX/RX NO.	2389
CONNECTION TEL	90116846334864
CONNECTION ID	SAMOA NEWS
START TIME	12/22 07:05
USAGE TIME	02'51
PAGES	4
RESULT	OK

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105
PACIFIC INSULAR AREA PROGRAMS (CMD-5)

DATE: 12/22/97 PAGES (incl. cover) :4

TO: American Samoa News; Public Notice Advertising Section

FROM: Carl L. Goldstein
FAX: 415/744-1604 Phone: 415/744-2170
E-MAIL Address: goldstein.carl@epamail.epa.gov

RE: Cost Estimate for Public Notice Publication

We would like to place a public notice in your paper, to be published one time only, sometime during the month of January 1998. We would like to have an estimate of the cost for publication. There are 3 pages of single spaced text, on 81/2" by 11' sheets of paper, printed in 12 pt. Font. A copy of the notice is attached.

We published a very similar notice about 4 years ago and you informed us that it would fit in your 3 columns by 16 inch ad (6 inches wide, 16 inches tall).

Please fax me a cost estimate. My fax number is 415-744-1604.

Thank you. Carl Goldstein Carl

MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT § 102
OCEAN DUMPING PERMIT

PERMIT NUMBER AND TYPE: OD98-02 Special

EFFECTIVE DATE: March 1, 1998

EXPIRATION DATE: February 28, 2001

PERMITTEE: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATOR: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

WASTE GENERATED AT: VCS Samoa Packing Company, Inc.
P.O. Box 957
Pago Pago, American Samoa 96799

PORT OF DEPARTURE: Pago Pago Harbor, American Samoa

WASTE TRANSPORTER: FV TASMAN SEA
Blue North Fisheries, Inc.
1130 N.W. 45th Street
Seattle, Washington 98107-4626

A special ocean dumping permit is being issued to VCS Samoa Packing Company, Inc. The Regional Administrator of EPA Region IX has determined that disposal of fish processing wastes off American Samoa meets EPA's ocean dumping criteria at 40 C.F.R. Parts 227 and 228. For this permit, the term "fish processing wastes" shall refer to Dissolved Air Flotation (DAF) Sludge, Cooker Juice and Press Liquor generated at the permittee's plant in Pago Pago, American Samoa; or any combination of the three waste streams pumped from VCS Samoa Packing Company's onshore holding tanks into the ocean disposal vessel for transportation to the ocean disposal site.

This special permit authorizes the transportation and dumping into ocean waters of fish processing wastes as described in the special conditions section pursuant to the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972 (33 U.S.C. § 1401 *et seq.*) as amended (hereinafter referred to as "the Act"); regulations issued thereunder; and the terms and conditions stated below.

This MPRSA Special Permit does not contain any information collection requirements subject to Office of Management and Budget review under the Paper Work Reduction Act of 1980 (44 U.S.C. § 3501 *et seq.*). This determination has been made because the permit does not require data collection by more than 10 persons.

1. GENERAL CONDITIONS

1.1. Operation under this special ocean dumping permit shall conform to all applicable federal statutes and regulations including, but not limited to, the Act, the Marine Plastic Pollution Research and Control Act of 1987 (P.L. 100-220), the Clean Water Act (33 U.S.C. § 1251 *et seq.*), and the Ports and Waterways Safety Act (33 U.S.C. § 1221 *et seq.*).

1.2. All transportation and dumping authorized herein shall be undertaken in a manner consistent with the terms and conditions of this permit. VCS Samoa Packing Company, Inc. (hereafter referred to as "the permittee") shall be liable for compliance with all such terms and conditions. The permittee shall be held liable under § 105 of the Act (33 U.S.C. § 1415) if any permit violations occur. During disposal operations when the permittee's fish processing wastes are loaded aboard the disposal vessel in holding tanks, either separately or combined with similar fish processing wastes from other permittees authorized to use the ocean disposal site defined in Special Condition 2.2, the permittees shall be held individually liable under § 105 of the Act (33 U.S.C. § 1415) if a permit violation occurs. If a permit violation occurs during the transportation and disposal of fish processing wastes, the waste transporter may also be liable for permit violations.

1.3. Under § 105 of the Act, any person who violates any provision of the Act, 40 C.F.R. Parts 220 through 228 promulgated thereunder, or any term or condition of this permit shall be liable for a civil penalty of not more than $50,000 per day for each violation. Additionally, any knowing violation of the Act, 40 C.F.R. Parts 220 through 228, or the permit may result in a criminal action being brought with penalties of not more than $50,000 or one year in prison, or both. Violations of the Act or the terms and conditions of this permit include but are not limited to:

1.3.1. Transportation to, and dumping at any location other than that defined in Special Condition 2.2 of this permit;

1.3.2. Transportation and dumping of any material not identified in this permit, more frequently than authorized in this permit, or more than the quantities identified in this permit, unless specifically authorized by a written modification hereto;

1.3.3. Failure to conduct permit monitoring as required in Special Conditions 3.1, 3.3.1, 4.7 and 5.1; or

1.3.4. Failure to file reports on fish processing wastes and disposal site monitoring reports as required in the Special Conditions.

1.4. Nothing contained herein shall be deemed to authorize, in any way, the transportation from the United States for the purpose of dumping into the ocean waters, the territorial sea, or the contiguous zone, the following materials:

1.4.1. High-level radioactive wastes;

1.4.2. Materials, in whatever form, produced for radiological, chemical, or biological warfare;

1.4.3. Persistent synthetic or natural materials which may float or remain in suspension in the ocean; or

1.4.4. Medical wastes as defined in § 3(k) of the Act.

1.4.5. Flotables, garbage, domestic trash, waste chemicals, solid waste, or any materials prohibited by the Act or the Marine Plastic Pollution Research and Control Act.

1.5. Nothing contained herein shall be deemed to authorize, in any way, violation of applicable American Samoa Water Quality Standards. The following water quality standards apply:

Table 1. 1989 American Samoa Water Quality Standards: Oceanic Waters [§24.0207(g)(1-7)].

Parameter	Median Not to Exceed the Given Value
Turbidity	0.20 NTU
Total Phosphorus	11.0 µg-P/L
Total Nitrogen	115.0 µg-N/L
Chlorophyll *a*	0.18 µg/L
Light Penetration Depth	150 feet, to exceed the given value 50% of the time.
Dissolved Oxygen	Not less than 80% of saturation or less than 5.5 mg/L. If the natural level of dissolved oxygen is less than 5.5 mg/L, then the natural dissolved oxygen level shall become the standard.
pH	The pH range shall be 6.5 to 8.6 pH units and within 0.2 pH units of the level which occurs naturally.

Should the American Samoa Water Quality Standards applicable to this permit be revised, such revised standards shall apply to this permit.

1.6. After notice and opportunity for a hearing, this permit may be revised, revoked or limited, in whole or in part, subject only to the provisions of 40 C.F.R. §§ 222.3(b) through 222.3(h) and 40 C.F.R. § 223.2, as a result of a determination by the Regional Administrator of EPA that:

1.6.1. The cumulative impact of the permittee's dumping activities or the aggregate impact of all dumping activities in the dump site designated in Special Condition 2.2 should be categorized as Impact Category I, as defined in 40 C.F.R. § 228.10(c)(1);

1.6.2. There has been a change in circumstances regarding the management of the disposal site designated in Special Condition 2.2;

1.6.3. The dumping authorized by the permit would violate applicable American Samoa Water Quality Standards;

1.6.4. The dumping authorized can no longer be carried out consistent with the criteria defined at 40 C.F.R. Parts 227 and 228;

1.6.5. The permittee violated any term or condition of the permit;

1.6.6. The permittee misrepresented, or did not accurately disclose all relevant facts in the permit application or monitoring reports; or

1.6.7. The permittee did not keep records, engage in monitoring and reporting activities, or to notify appropriate officials in a timely manner of the transportation and dumping activities as specified in any condition of this permit.

1.7. The permittee shall ensure always that facilities, including any vessels associated with the permit, are in good working order to achieve compliance with the terms and conditions of this permit. During all loading operations, there shall not be a loss of fish processing wastes to any waterway. During transport to the disposal site, there shall not be a loss of fish processing wastes to Pago Pago Harbor or the ocean.

1.8. The permittee shall notify the Regional Administrator or his delegate in writing of any change in the designated fish processing waste transporter at least 30 days before the transfer date. Written approval by the EPA Regional Administrator must be obtained before such a transfer occurs.

1.9. The permittee shall allow the EPA Regional Administrator, the Commander of the Fourteenth U.S. Coast Guard District (USCG), the Director of the American Samoa Environmental Protection Agency (ASEPA), and/or their authorized representatives to:

1.9.1. Enter into, upon, or through the permittee's premises, vessels, or other premises or vessels under the control of the permittee, where, or in which, a source of material to be dumped is located or in which any records are required to be kept under the terms and conditions of this permit or the Act;

1.9.2. Have access to and copy any records required to be kept under the terms and conditions of this permit or the Act;

1.9.3. Inspect any dumping equipment, navigational system equipment, monitoring equipment or monitoring methods required in this permit;

1.9.4. Sample or require that a sample be drawn, under EPA, USCG, or ASEPA supervision, of any materials discharged or to be discharged; or

1.9.5. Inspect laboratory facilities, data, and quality control records required for compliance with any condition of this permit.

1.10. If material which is regulated by this permit is disposed of, due to an emergency, such as to safeguard life at sea, in locations or in a manner that does not comply with the terms of this permit, the permittee shall make a full report, according to the provisions of 18 U.S.C. § 1001, within 15 days to the EPA Regional Administrator, the USCG and the ASEPA describing the conditions of this emergency and the actions taken, including the location, the nature and the amount of material disposed.

1.11. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of rights, nor any infringement of Federal, State or local laws or regulations, nor does it obviate the necessity of obtaining State or local assent required by applicable law for the activity authorized.

1.12. This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities, or, except as authorized by this permit, the conduct of any work in any navigable waters.

1.13. Unless otherwise provided for herein, all terms used in this permit shall have the meanings assigned to them by the Act or 40 C.F.R. Parts 220 through 228, issued thereunder.

2. SPECIAL CONDITIONS - DISPOSAL SITE AND FISH PROCESSING WASTE CHARACTERIZATION

Special conditions are necessary to define the length of the permit period, identify the disposal site location, describe fish processing waste streams and define maximum permitted limits for the combined three waste streams (DAF sludge, cooker juice and press liquor) stored in on-shore storage tanks.

2.1. Location of the Waste Generator and Duration of the Permit

2.1.1. The material to be dumped shall consist of fish processing wastes, defined in Special Conditions 2.3 and 2.4, generated at the permittee's fish cannery in Pago Pago, American Samoa.

2.1.2. This permit shall become effective on March 1, 1998 and it shall expire three years from the effective data at midnight on February 28, 2001.

2.2. Location of Disposal Site

Disposal of fish processing wastes generated at the location defined in Special Condition 2.1.1 shall be confined to a circular area with a 1.5 nautical mile radius, centered at 14⌒ 24.00' South latitude by 170⌒ 38.30' West longitude.

2.3. Description of Fish Processing Wastes

2.3.1. During the term of this permit, and according to all other terms and conditions of this permit, the permittee is authorized to transport and dispose a combined waste stream total maximum of 200,000 gallons per day of fish processing wastes. The fish processing wastes-- Dissolve Air Flotation (DAF) sludge, cooker juice and press liquor/water-- are combined and stored in the permittee's onshore storage tanks prior to transport to the ocean disposal site.

2.4. Fish Processing Waste Stream Limits

Fish processing waste stream limits apply to the combined fish wastes of DAF sludge, cooker juice and press liquor/water, which are combined and stored in an onshore storage tank prior to transport to the ocean disposal site (see Table 3 - following page).

Table 3. Limits for Onshore Storage Tank Fish Wastes

Physical or Chemical Parameter (units)[a]	Storage Tank
Total Solids (mg/L)	43,170
Total Volatile Solids (mg/L)	38,230
5-Day BOD (mg/L)	53,350
Oil and Grease (mg/L)	119,750
Total Phosphorus (mg/L)	2,880
Total Nitrogen (mg/L)	11,330
Ammonia (mg/L)	4,580
pH (pH units)	5.8 to 7.4
Density (g/mL)	0.98 to 1.02

a = All calculated values were rounded to the nearest 10, except density and pH ranges.

2.4.2. Permitted Maximum Concentrations for the onshore storage tank fish waste were calculated based on an analysis of data over a 4-year period from the permittee's previous Special Ocean Dumping Permit, number OD 93-01. The calculations followed EPA's recommended procedure for determining permit limits as defined in the EPA document titled: "Guidance Document for Ocean Dumping Permit Writers" (January 30, 1988). EPA Region IX will periodically review these limits during the permit to evaluate the accuracy of the limits. If revisions are necessary, EPA Region IX will make changes according to the authority defined in the Ocean Dumping Regulations at 40 C.F.R. §§ 223.2 through 223.5.

2.4.3. The Permitted Maximum Concentrations, density range and pH range listed above, shall not be exceeded at any time during the term of this permit.

3. SPECIAL CONDITIONS - ANALYSIS OF FISH PROCESSING WASTES

Compliance with the permitted maximum concentrations defined in Special Condition 2.4 shall be determined by monthly monitoring of the waste in the onshore storage tank. **The sampling dates shall be scheduled within the first two weeks of the month to allow enough time for laboratory analyses and report writing to comply with Special Condition 3.3.**

3.1. Analyses of Fish Processing Wastes

3.1.1. Concentrations or values of the parameters listed in Special Condition 2.4 and those listed in the table below shall be determined for the waste in the onshore storage tank. Once a month, the permittee shall analyze samples taken from its onshore fish processing waste storage tank during the transfer of these wastes to the disposal vessel's holding tanks.

3.1.1.1. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee.

3.1.1.2. The parameters and detection limits listed in Table 4 shall be analyzed and used for the onshore storage tank composite samples.

Table 4. Physical and Chemical Parameters and Associated Method Detection Limits for Analyses of Onshore Storage Tank Waste

Parameter	Method Detection Limit
Total Solids	10.0 mg/L
Total Volatile Solids	10.0 mg/L
5-Day BOD	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units
Density	0.01 g/mL

3.1.2. All sampling procedures, analytical protocols, and quality control/quality assurance procedures shall be performed according to guidelines specified by EPA Region IX. The following references shall be used by the permittee:

3.1.2.1. 40 C.F.R. Part 136, EPA Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act;

3.1.2.2. Tetra Tech, Incorporated. 1985. Summary of U.S. EPA-approved Methods, Standard Methods and Other Guidance for 301(h) Monitoring Variables. Final program document prepared for the Marine Operations Division, Office of Marine and Estuarine Protection, U.S. Environmental Protection Agency. EPA Contract No. 68-01-693. Tetra Tech, Incorporated, Bellevue, WA.; and

3.1.2.3. Environmental Protection Agency. 1987. Quality Assurance and Quality Control for 301(h) Monitoring Programs: Guidance on Field and Laboratory Methods. Office of Marine and Estuarine Protection, Washington, D.C. EPA 430/9-86-004.

3.2. Analytical Laboratory

3.2.1. Within 30 days of the effective date of this permit, the name and address of the contract laboratory or laboratories and a description of all analytical test procedures and quality assurance/quality control procedures, including detection limits being used, shall be provided to EPA Region IX.

3.2.2. Any potential variation or change in the designated laboratory or analytical procedures shall be reported, in writing, for EPA Region IX approval.

3.2.3. EPA Region IX may require analyses of quality control samples by any laboratories employed to comply with Special Condition 3.1 and Appendix A. Upon request, the permittee shall provide EPA Region IX with the analytical results from such samples.

3.2.4. Should there be a modification in the permittee's fish processing procedures such that there may be a significant change in the quality of a fish processing waste stream (DAF sludge, cooker juice or press liquor) EPA Region IX and ASEPA shall be notified 60 days prior to such modification. At their discretion, either agency may require that the permittee conduct a complete analysis of parameters for specified waste streams, and report the results to EPA Region IX and ASEPA within 30 days of sampling. (A sample shall consist of three replicate grab samples pooled for use as a composite sample. The detection limits specified in Table 4 shall be used in all fish processing waste stream analyses.) If necessary, bioassays may be required in addition to parameter analyses.

3.3. Reporting

3.3.1. The permittee shall provide EPA Region IX, ASEPA, the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS) and the Western Pacific Regional Fishery Management Council (WPRFMC) with a report, prepared every 3 months during the permit period, that contains the following information:

3.3.1.1. Daily volume of fish processing waste (total combined waste streams of DAF Sludge, Cooker Juice and Press Liquor) generated at the permittee's facility and pumped into the permittee's onshore storage tanks to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.2. Daily volume of fish processing waste disposed at the ocean disposal site to be reported in gallons per day using Form 1 (see Appendix B);

3.3.1.3. Monthly fish processing waste analyses from the onshore storage tank demonstrating that the fish processing wastes being dumped comply with the permitted limits of parameters listed in Special Condition 2.4 and a cumulative yearly summary of the volumes of fish processing wastes disposed at the ocean site using Form 2 (see Appendix B);

3.3.1.4. The monthly amount of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams reported in pounds per month (see Forms 1 and 2).

3.3.2. Such reports, including a comparison with the permit limits as required on Forms 1 and 2, shall be submitted to EPA Region IX, ASEPA, NMFS USFWS and WPRFMC within 45 days of the end of the preceding 3-month period for which they were prepared. The reports shall be submitted within this time unless extenuating circumstances are communicated to EPA Region IX and the ASEPA in writing. In addition to a hard copy of Forms 1 and 2, the data contained on Form 1 shall be submitted to EPA Region IX on a 3.5" computer diskette in a LOTUS spreadsheet format (i.e., wk1), including name of cannery, permit number, and months for which the data is submitted.

3.3.3. A summary report of all 3-month reports listed in Special Condition 3.3.1, including a comparisons with permit limits and a detailed discussion of the summary results, shall be submitted by the permittee to EPA and the ASEPA 60 days after the permit expires. Delay or non-compliance with this requirement will (respectively) delay or preclude renewal of the permit. All fish processing waste data shall be reported in the same format as required in Special Condition 3.3.2.

3.3.4. Upon detection of a violation of any permit condition, the permittee shall send a written notification of this violation to EPA Region IX and the ASEPA within five working days and a detailed written report of the violation shall be sent to the agencies within 15 working days. This notification shall pertain to any permit limits (defined in Special Condition 2.4) that are exceeded, violation of volume limits (defined in Table 2 under Special Condition 2.3.1), and any disposal operation that occurs outside the disposal site defined in Special Condition 2.2.

3.3.5. Twenty-four months from the effective date of this special permit, the permittee shall submit a report to EPA and ASEPA on the results of confirmatory suspended phase acute toxicity bioassay tests and dilution model calculations (i.e., Limiting Permissible Concentration) of the predicted concentrations of fish processing wastes disposed at the designated site. The suspended phase bioassays shall be conducted using at least one species from each of the following three groups: Group 1 = *Mytilus* sp. (mussel), *Crassostrea* sp. (oyster), *Acartia tonsa* (copepod), or *Trypneustes* sp. (sea urchin) larvae; Group 2 = *Holmesimysis costata* (mysid shrimp) or *Penaeus vannamei* (white shrimp); and Group 3 = *Citharicthys stigmaeus* (speckled sanddab) or *Coryphaena hippurus* (dolphinfish) juveniles.

Appropriate suspended phase bioassay protocols, either protocols approved by EPA or protocols published by the American Society for Testing and Materials (ASTM), shall be followed. Suspended particulate phase bioassays shall be run using the following fish processing waste concentrations: 100%, 75%, 50%, 25%, 10%, 5%, and a control (0%). A minimum of five replicates are required per dilution concentration. Concurrent reference toxicant tests shall be conducted when the suspended phase bioassays are run.

A sampling and testing plan shall be submitted to EPA Region IX and ASEPA for approval before the bioassay tests are conducted. Samples for the suspended particulate phase bioassays shall be composited from the permittee's onshore storage tanks. Three samples shall be taken from the onshore storage tank transfer line at 10 minute intervals. These samples shall be composited to produce one sample for analysis. The permittee's samples shall not be combined with fish processing waste from any other permittee. Samples shall be collected and shipped to the testing laboratory according to EPA-approved methods to ensure that the samples do not change before the bioassay tests begin. All suspended particulate phase bioassays shall be started within 10 days of sampling.

If changes in processing and /or disposal operations should occur, an additional re-evaluation of the disposal model may also be required. These evaluations (bioassays and/or modeling) would be used to confirm the toxicity of the fish processing wastes and to evaluate the disposal operations based on the use of a different disposal vessel or different mode of disposal.

The confirmatory bioassay report shall contain the following information:

3.3.5.1. INTRODUCTION AND PROJECT DESCRIPTION

The project description should include the following information about fish processing waste toxicity, previous bioassay test results, and the design of the new bioassay tests. If modeling analysis is necessary, then previous modeling at the ocean disposal site should also be included.

3.3.5.2. MATERIALS AND METHODS

Fish processing waste sampling and sample handling procedures should be described or referenced.

References for laboratory protocols for suspended phase bioassay tests.

1) EPA-approved methods and references.

2) Test species used in each test, the supplier or collection site for each test species, and QA/QC procedures for maintaining the test species.

3) Source of seawater used in reference, control and bioassay tests.

4) Data and statistical analysis procedures.

5) Limiting Permissible Concentration (LPC) calculations.

6) If modeling analysis is required as stipulated in Special Condition 3.3.5., description of model selected to evaluate dispersal of fish processing wastes at the ocean disposal site. Use of this model shall be approved by EPA Region IX and ASEPA before it is used by the permittee to evaluate the fish processing waste disposal plume.

3.3.5.3. DESCRIPTION OF SAMPLING PROCEDURES

QA/QC procedures and actual sampling procedures used during fish processing waste stream sampling and handling of the samples.

3.3.5.4. FINAL RESULTS, ANALYSIS OF DATA AND DISCUSSION

1) Complete bioassay data tables and summary bioassay tables shall be furnished in the report. All data tables should be typed or produced as a computer printout.

2) The permittee shall analyze the bioassay data and calculate the LPC of the material as defined at 40 C.F.R. § 227.27(a-b).

3) The permittee shall use the LPC in the approved plume model to determine the concentration of fish processing wastes disposed at the designated ocean disposal site which complies with EPA's Ocean Dumping Criteria defined at 40 C.F.R. Parts 227 and 228.

3.3.5.5. REFERENCES

This list should include all references used in the field sampling program, laboratory protocols, LPC calculations, modeling analyses, and historical data used to evaluate the fish processing waste disposal operations at the designated ocean disposal site.

3.3.5.6. DETAILED QA/QC PLANS AND INFORMATION

The following topics should be addressed in the QA Plan:

1) QA objectives.

2) Organization, responsibilities and personnel qualifications, internal quality control checks.

3) Sampling and analytical procedures.

4) Equipment calibration and maintenance.

5) Sample custody and tracking.

6) documentation, data reduction, and reporting.

7) Data validation.

8) Performance and systems audits.

9) Corrective action.

10) Reports.

4. SPECIAL CONDITIONS - VESSEL OPERATIONS

Specifications for vessel operations are defined to limit dumping activities to the dump site identified in Special Condition 2.2 and to record all dumping activities. The permittee's fish processing wastes and fish processing wastes of other authorized permittees may be loaded into the disposal vessel together or separately.

4.1. Posting of the Permit

This permit, or a true copy thereof, shall be placed in a conspicuous place on any vessel which is used for the transportation and dumping authorized by this permit.

4.2. Vessel Identification

Every vessel engaged in the transportation of fish processing wastes for ocean disposal shall have its name and number painted in letters and numbers at least fourteen (14) inches high on both sides of the vessel. The name and number shall be kept distinctly legible always, and a vessel without such markings shall not be used to transport or dump fish processing wastes.

4.3. Determination of the Disposal Location Within the Dump Site

On each disposal trip, the master of the disposal vessel shall determine the location of the disposal operation as follows:

4.3.1. The disposal vessel, as defined under WASTE TRANSPORTER on page 1 of this permit, shall proceed directly to the center of the disposal site at the location specified in Special Condition 2.2.

4.3.2. The master of the vessel shall observe the conditions at the dump site center, noting the vessel's position (latitude and longitude), wind direction and observed surface current direction.

4.3.3. After the conditions defined in Special Condition 4.3.2 have been recorded, the master of the disposal vessel shall proceed 1.1 nautical miles up current from the center of the disposal site and record the position of the disposal vessel (latitude and longitude). This position shall be the starting point for disposal operations for each disposal trip.

4.3.4. The master of the disposal vessel shall prepare a hard copy (i.e., on 8.5 inch by 11 inch paper) of the computerized navigational plot documenting compliance with the procedures defined in Special Conditions 4.3.1 through 4.3.4. The hard copy of the computerized navigational plot for each disposal trip shall be supplied to the permittee. The permittee shall submit these hard copies of the computerized navigational plots with the 3-month reports required under Special Condition 3.3.1. The hard copies of the navigational plots shall include:

4.3.4.1. The disposal vessel's course during the entire dumping operation; and

4.3.4.2. The times and location of entry and exit from the disposal site, position and time of arrival at the center of the disposal site, position and time of arrival at the location 1.1 nautical miles up current from the disposal site, beginning and ending position and time of dumping operations, and disposal vessel position plotted every 15 minutes while dumping operations occur.

4.3.5. The master of the disposal vessel shall sign and date each hard copy of the computerized navigational plots certifying that the hard copies are an accurate record of the disposal vessel's track for each disposal trip.

4.3.6. The master of the disposal vessel shall certify that disposal operations occurred in the manner required by the permit.

4.3.7. The procedures listed in Special Conditions 4.3.1 through 4.3.6 shall be repeated for each disposal trip.

4.4. Disposal Rate and Vessel Speed

4.4.1. The disposal vessel/barge shall discharge the material authorized by this permit beginning at the disposal location as determined by Special Condition 4.3.3. The vessel track shall be in a direction that is perpendicular to the current detected at the center of the disposal site as defined in Special Condition 2.2. Disposal shall occur in a target area defined by an oval shape track along an axis at least 0.5 nautical miles on either side of the starting point determined in Special Condition 4.3.3. The entire disposal vessel track shall be within the disposal site boundaries.

4.4.2. Deviations from normal disposal operations (as described in Section 4.4.1) must be reported within 30 days of the date of occurrence. If such deviation should occur, the master of the disposal vessel shall describe the adverse conditions in the log and submit a record of the disposal trip, including the computer-generated navigational plot. Minor deviations in the vessel's track due to adverse ocean conditions (e.g. large waves, strong winds, etc.) are allowed as long as disposal operations occur in the prescribed target area thereby allowing the fish waste to disperse within the disposal site boundaries. If adverse sea state conditions prevent ocean disposal operations in this manner, then all operations shall cease until sea state conditions are compatible with the required disposal operations.

4.4.1.3. From June 1 through November 30, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 140 gallons per minute per knot, not to exceed 1,400 gallons per minute at a maximum speed of 10 knots.

4.4.1.4. From December 1 through May 31, fish processing wastes shall be pumped from the disposal vessel into the ocean at a rate of 120 gallons per minute per knot, not to exceed 1,200 gallons per minute at a maximum speed of 10 knots.

4.5. Computerized Navigational System

The permittee shall use an onboard computerized electronic positioning system to fix the position of the disposal vessel accurately during all dumping operations. The computerized navigational system and the method to produce a 8.5 inch by 11 inch hard copy of each disposal operation must be approved by EPA Region IX and the USCG Liaison Office (CGLO) Pago Pago. The permittee shall submit the description, specifications and example hard copy plots for the computerized navigational system before the date of the first disposal operations under this permit. Disposal operations shall not begin until EPA Region IX and CGLO Pago Pago provide the permittee with written approval for the computerized navigation system and the hard copy plots.

4.6. Permitted Times for Disposal Operations

Dumping operations shall be restricted to daylight hours, unless an emergency exists as defined at 40 C.F.R. § 220.1(c)(4). ASEPA and CGLO Pago Pago shall be notified immediately if an emergency exists and ocean disposal is required to protect human life at sea. No later than 5 working days after the emergency, the permittee and the waste transporter shall provide EPA Region IX, ASEPA and CGLO Pago Pago with a detailed written report on the emergency situation.

4.7. Reporting of the Ocean Dumping Vessel Operations

4.7.1. The waste transporter shall maintain and the permittee shall submit copies of a daily transportation and dumping log, including hard copy plots of all information required in Special Conditions 4.3 and 4.7.2. Copies of the daily logs shall be sent to EPA Region IX, CGLO Pago Pago, and the ASEPA as part of the 3-month report.

4.7.2. The logbook shall contain the following information for each disposal trip:

4.7.2.1. Permit number, date and unique consecutive trip number;

4.7.2.2. Record of contact with ASEPA and CGLO before each trip to the ocean disposal site;

4.7.2.3. The time when loading of the vessel commences and ceases in Pago Pago Harbor;

4.7.2.4. The volume of fish processing waste loaded into the disposal vessel from each fish cannery;

4.7.2.5. The time and navigational position that dumping commences and ceases;

4.7.2.6. A record of vessel speed and direction every 15 minutes during each dumping operation at the disposal site, and a hard copy of the vessel's course defined in Special Condition 4.3;

4.7.2.7. Discharge rate from the disposal vessel.

4.7.2.8. Observe, note and plot the time and position of any floatable material;

4.7.2.9. Observe, note and plot the wind speed and direction every 30 minutes while dumping fish processing wastes at the designated disposal site;

4.7.2.10. Observe and note current direction at the beginning and end of the disposal trip, and the direction of the disposal plume at the end of the disposal operation;

4.7.2.11. Observe, note and plot the presence of any visible (previous) disposal plume and any unusual occurrences during the disposal trip, or any other information relevant to the assessment of environmental impacts as a result of dumping activities; and

4.7.2.12. Any unusual occurrences noted under Special Condition 4.7.2.9 shall be highlighted in the report defined in Special Condition 3.3.1.

4.7.2.13. Any deviation from the normal disposal pattern such as circumstances described in Special Condition 4.4.2 and reasons for the deviation.

5. SPECIAL CONDITIONS - DUMP SITE MONITORING

The monitoring program for disposal of fish processing wastes in the ocean must document effects of disposed wastes on the receiving waters, biota, and beneficial uses of the receiving waters; compliance with EPA's Ocean Dumping Regulations; and compliance with permit terms and conditions. Revisions to the monitoring program may be made under the direction of EPA Region IX at any time during the permit term, in compliance with 40 C.F.R. §§ 223.2 and 223.3. This may include a change in the number of parameters to be monitored, the frequency of monitoring, the location of sample stations, or the number and size of samples to be collected.

Implementation of the disposal site monitoring program and all segments of the monitoring program specified in Special Condition 5 and Appendix A shall be the responsibility of the permittee.

5.1. Monitoring Program

The permittee shall conduct the monitoring program, defined in Appendix A, to determine the environmental impacts of ocean dumping of fish processing waste. If possible, monitoring cruises shall be scheduled within the first two weeks of each month to allow enough time for laboratory analysis and report writing in compliance with Special Condition 5.2. The permittee shall notify the ASEPA at least 48 hours before any scheduled monitoring activities.

5.2. Monitoring Reports

Monthly site monitoring reports shall be submitted to EPA Region IX, the ASEPA, NMFS, USFWS and WPRFMC with the 3-month reports as specified in Special Condition 3.3.2. The reports shall include: neatly compiled raw data for all sample analyses, and quality assurance/quality control data. An annual report shall include: an annual compilation of data, statistical analysis of sample variability between stations and within samples for each parameter, and a detailed discussion of the results.

5.3. Final Summary Report

5.3.1. A report shall be submitted to EPA Region IX, ASEPA, NMFS, USFWS and WPRFMC 60 days after the permit expires. This report shall summarize all of the data collected to characterize fish processing wastes and the results of the dump site monitoring program specified in this special permit.

5.3.2. At a minimum, the summary report shall contain the following sections:

5.3.2.1. Introduction (including a summary of previous ocean disposal activities),

5.3.2.2. Location of Sampling Sites,

5.3.2.3. Materials and Methods,

5.3.2.4. Results and Discussion (including comparisons and contrasts with previous MPRSA § 102 research and special permit data related to disposal of fish processing wastes off American Samoa),

5.3.2.5. Conclusions; and

5.3.2.6. References.

5.4. Quality Assurance/Quality Control

5.4.1. All appropriate phases of the monitoring, sampling, and laboratory analytical procedures shall comply with the EPA Region IX-specified protocols and references listed in Special Condition 3.1.2.

5.4.2. The qualifications of the on-site Principal Investigator in charge of the field monitoring operation at the dump site shall be submitted to EPA Region IX and the ASEPA for approval whenever a new Principal Investigator is retained. Notification of any change in this individual shall be submitted to EPA Region IX and ASEPA at least 7 days before the cruise is scheduled.

6. SPECIAL CONDITIONS - NOTICE TO REGULATORY AGENCIES

6.1. Notice of Sailing to the U.S. Coast Guard Liaison Office and the American Samoa Environmental Protection Agency

6.1.1. The waste transporter shall provide telephone notification of sailing to CGLO Pago Pago at 633-2299 and the ASEPA at 633-2304 during working hours (7:00 a.m. to 3:30 p.m.) no later than 24 hours before the estimated time of departure for the dump site defined in Special Condition 2.2. A record of contact with both agencies shall be reported with other information for each disposal trip.

6.1.2. The waste transporter shall immediately notify CGLO Pago Pago and the ASEPA upon any changes in the estimated time of departure greater than two hours.

6.1.3. Surveillance of activities at the dump site designated in Special Condition 2.2, may be accomplished by unannounced aerial overflights or observation from another vessel by EPA Region IX, ASEPA, USCG or American Samoa Department of Public Safety personnel; or a USCG ship rider and/or a ASEPA or EPA Region IX ship rider who will be on board the towing/conveyance vessel for the entire voyage. Within two hours after receipt of the initial notification the waste transporter will be advised whether or not a ship rider will be assigned to the waste transporter's disposal vessel.

6.1.4. The following information shall be provided to CGLO Pago Pago and the ASEPA in the notification of sailing defined above:

6.1.4.1. The time of departure,

6.1.4.2. Estimated time of arrival at the dump site,

6.1.4.3. Estimated time of departure from the dump site, and

6.1.4.4. Estimated time of return to port.

6.2. Reports and Correspondence

6.2.1. Two copies of all reports and related correspondence required by General Condition 1.10, Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, 6.1, and all other materials, including applications shall be submitted to EPA Region IX at the following address:

Office of Pacific Insular Area Programs (CMD-5)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, California 94105-3901
Telephone (415) 744-2170

6.2.2. One copy of all reports required by General Condition 1.10 and Special Conditions 4.5, 4.6, 4.7 and 6.1 sent to the U.S. Coast Guard shall be submitted to the following address:

Commanding Officer
U.S. Coast Guard Liaison Office
P.0. Box 249
Pago Pago, American Samoa 96799
Telephone (684) 633-2299

6.2.3. One copy of all reports required by General Condition 1.10 and Special Conditions 3.2, 3.3, 4.3, 4.5, 4.6, 4.7, 5.2, 5.3, and 6.1 sent to the American Samoa Environmental Protection Agency shall be submitted to the following address:

Director
American Samoa Environmental Protection Agency
Office of the Governor
Pago Pago, American Samoa 96799
Telephone (684) 633-2304

6.2.4. One copy of the all reports required by Special Conditions 3.3, 5.2 and 5.3 shall be sent to the USFWS, the NMFS and the WPRFMC at the following addresses:

Project Leader
Office of Environmental Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
P.0. Box 50167
Honolulu, Hawaii 96850

Western Pacific Program Officer
National Marine Fisheries Service
2570 Dole Street
Honolulu, Hawaii 96822-2396

Executive Director
Western Pacific Regional Fishery Management Council
1164 Bishop Street, Suite 1405
Honolulu, Hawaii 96813

Signed this 18th day of December, 1997

For the Regional Administrator:

Alexis Strauss, Acting Director
Water Division
U.S. EPA, Region IX

APPENDIX A

SPECIAL OCEAN DUMPING PERMIT OD 98-01
OCEAN DUMP SITE MONITORING PLAN

7. MONITORING OF RECEIVING WATER

Monitoring of the receiving waters at the disposal site defined in Special Condition 2.2 shall be the responsibility of the permittee. The required site monitoring may be accomplished jointly through an agreement between permittee and other permittees authorized to use the disposal site. Any such agreements negotiated between the permittee and other authorized permittees shall be the sole responsibility of the permittee named in this permit. EPA Region IX requires that a monitoring program be developed that complies with the special conditions defined below.

During each monitoring cruise, the disposal plume from the disposal vessel shall be sampled by taking discrete water samples for the measurement of parameters listed in Special Condition 7.2.4.

7.1. Location of Water Sampling Stations

7.1.1. On each sampling cruise, the latitude and longitude of all sampling stations shall be determined and plotted using an acceptable navigational system.

7.1.2. The Principal Investigator shall ensure that discrete water samples are taken at the locations marked in Figure 1.

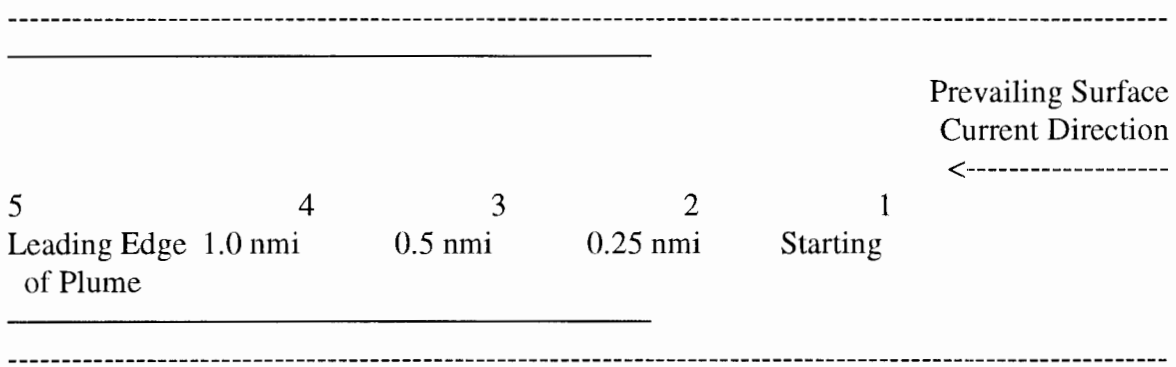

Figure 1. Orientation of Sample Stations (Top View) in the Middle of the Discharge Plume Visually Identified at the Time of Sampling.

7.1.3. The following stations, defined in Figure 1, shall be sampled on each sampling cruise:

7.1.4.1. Station 1 shall be the starting point of the dumping operation as determined in Special Condition 4.3.

7.1.4.2. Station 2 shall be 0.25 nautical miles (nmi) down-current from Station 1.

7.1.4.3. Station 3 shall be 0.5 nmi down-current from Station 1.

7.1.4.4. Station 4 shall be 1.0 nmi down-current from Station 1.

7.1.4.5. Station 5 shall be at the leading edge of the discharge plume, but within the plume.

7.1.4. The Principal Investigator shall ensure that each sampling station is positioned as close as possible to the middle of the discharge plume according to his/her best professional judgment.

7.2. Water Column Characteristics to Be Measured

7.2.1. Discrete water samples at Stations 1, 2, 3, 4, and 5 shall be taken at depths of 1, 3, and 10 meters from the surface at the middle of the plume visually identified by the Principal Investigator.

7.2.2. Surface water conditions shall be recorded at all stations including:

7.2.2.1. Wind speed and direction;

7.2.2.2. Current direction and wave height; and

7.2.2.3. Observations of plume color (e.g., Forel-Ule color scale), odor, floating materials, grease, oil, scum, and foam.

7.2.3. Water samples shall be obtained using a self-closing 3-liter water sample device at each depth listed in 7.2.1.

7.2.4. Water column parameters analyzed from discrete samples taken at the depths listed in 7.2.1 shall include:

Table 4. Physical and Chemical Parameters to be Analyzed from Water Samples Taken at the Ocean Disposal Site.

Parameter[a]	Method Detection Limit
Total Suspended Solids	10.0 mg/L
Total Volatile Suspended Solids	10.0 mg/L
Oil and Grease	10.0 mg/L
Total Phosphorus	1.0 mg/L
Total Nitrogen	1.0 mg/L
Ammonia	1.0 mg/L
pH	0.1 pH units

a = Samples should be acidified to pH <2 with sulfuric acid and refrigerated at 4°C until analysis.

7.2.5. Temperature measurements shall be taken at depths of 1, 3, and 10 meters at the starting point of the disposal operation, as defined in Special Condition 4.3.3.

7.3. **Frequency of Sampling**

7.3.1. Water samples shall be collected in association with active dumping operations. Each station listed under Special Condition 7.1 shall be sampled once each month. These samples shall be used to characterize the receiving waters at the disposal site.

7.3.2. Control samples shall be taken at Station 1 before dumping activities.

7.3.3. Station 1 shall be sampled at a point within the plume immediately after discharge operations cease.

7.3.4. Stations 2 through 5 shall be sampled consecutively at distances indicated in Special Condition 7.1.4 to allow efficient sampling of the discharge plume. The time between each sample and the sampling location, beginning with the control

sample and ending with the sample collected at the leading edge of the plume, shall be recorded.

7.4. Water Quality Criteria and Standards

7.4.1. The Limiting Permissible Concentration (LPC) of the liquid phase of the fish processing wastes shall not be exceeded beyond the disposal site boundary within four hours after dumping or at any point in the marine environment after four hours. The LPC, as defined at 40 C.F.R. §227.27, shall not exceed applicable American Samoa Oceanic Water Quality Standards (see Table 1). EPA Region IX and the ASEPA will evaluate the LPC based on EPA's Ocean Dumping Regulations and the concentration of parameters measured at the stations sampled during the tenure of this permit.

8. MONITORING OF BIOLOGICAL COMMUNITIES

8.1. Pelagic Resources

8.1.1. All sightings of fish, sea turtles, sea birds, or cetaceans near the disposal site shall be recorded including:

8.1.1.1. Time, location and bearing;

8.1.1.2. Species name(s); and

8.1.1.3. Approximate number of individuals.

APPENDIX B - REPORT FORM 1

Monthly Volumes of VCS Samoa Packing Company Fish Processing Wastes Generated Per Day and Volumes of Fish Processing Waste Disposed at the Ocean Site
Volume Limit = 200,000 Gallons
Month _____ 19__

<< Conversion Note: For a Lotus spreadsheet (i.e., wk1), use 3-column format. >>

Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)	Date	Total Volume Generated (gallons/day)	Volume Ocean Disposed (gallons/day)
1			17		
2			18		
3			19		
4			20		
5			21		
6			22		
7			23		
8			24		
9			25		
10			26		
11			27		
12			28		
13			29		
14			30		
15			31		
16					
SUBTOTAL			SUBTOTAL		
			GRAND TOTAL		

NOTE: An asterisk (*) to the right of the date of fish processing waste volume signifies that a violation of the permit limit has occurred. Total number of violations this month = _____.

Monthly quantities of alum (aluminum sulfate) and coagulant polymer added to the fish processing waste streams:

Aluminum sulfate: _____ pounds/month
Coagulant polymer: _____ pounds/month

APPENDIX B - REPORT FORM 2

Data Form for 3-Month Report on Waste Stream Analyses for VCS Samoa Packing Company MPRSA § 102 Permit #OD 98-02

Reporting Period: From _____ 19__ To _____ 19__

VCS Samoa Packing Company - On-Shore Storage Tank Waste

<< Conversion Note: For a Lotus spreadsheet, use wk1 format with layout below. >>

Month & Year	Total Solids (mg/L)		Total Volatile Solids (mg/L)		5-Day Biological Oxygen Demand (mg/L)		Oil and Grease (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L)		Ammonia (mg/L)		pH (pH units)		Density (g/mL)	
OD 98-02 Permit Limits	43,170		38,230		53,350		119,750		2,880		11,330		4,580		5.8 to 7.4		0.98 to 1.02	

*Note an asterisk (*) next to the waste concentration signifies that a violation of the permit limit has occurred.

Cumulative Yearly Data on Fish Processing Wastes
Generated at VCS Samoa Packing Company's Plant and Disposed at the Ocean Site.
MPRSA §102 Special Permit #OD 98-02

Reporting Period:

From _____ **19**__
To _____ **19**__

<< Conversion Note: For a Lotus, use wk1 format with layout below. >>

Month & Year	Total Generated (gallons/month)	Aluminum sulfate (pounds/month)	Coagulant polymer (pounds/month)	Volume Ocean Disposed (gallons/month)	Volume Ocean Disposed (gallons/month)
Cumulative Yearly Totals					

NOTE: A separate table shall be prepared for each calendar year.