NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT FACT SHEET

April 2, 2021

Facility Name:	Samoa Tuna Processors, Inc.
Permittee Name:	Starkist Samoa Co.
Mailing Address:	P.O. Box 368, Pago Pago, American Samoa 96799
Facility Location:	Route 001, North Shore of Pago Pago Inner Harbor Pago Pago, American Samoa 96799
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NPDES Permit No.:	AS0000027

I. STATUS OF PERMIT

Samoa Tuna Processors, Inc. ("STP") initially applied for renewal of its National Pollutant Discharge Elimination System ("NPDES") permit to authorize the discharge of treated effluent from the facility to Pago Pago Harbor located in American Samoa. STP, however, ceased tuna canning and processing operations in December 2016 and currently conducts very limited logistics-based operations at the facility. The STP facility has been operated by Starkist Samoa Co. ("Starkist", the "operator" and "permittee") since Starkist entered into a 10-year sub-lease agreement with STP on May 25, 2018 to use the STP facility to support Starkist cannery's operations in American Samoa that are located adjacent to the STP facility. Therefore, Starkist submitted the NPDES permit renewal application for its operations at the STP facility on February 22, 2019[1].

EPA Region 9 has developed this permit and fact sheet pursuant to Section 402 of the Clean Water Act, which requires point source dischargers to control the amount of pollutants that are discharged to waters of the United States through obtaining a NPDES permit. The permittee is currently discharging under NPDES permit No. AS0000027. The NPDES permit was originally issued to Chicken of the Sea ("COS") Samoa Packing Company, Inc. on February 28, 2008. The permit was transferred to STP in 2011 and expired on March 31, 2013. Pursuant to 40 CFR § 122.6, the terms of the existing permit have been administratively extended until the issuance of a new permit.

[1] Starkist operations at the STP facility are primarily limited to non-production activities, which are described in Section III below.

The previous permit classified this facility (formerly COS Samoa Packing Company, Inc.) as a major discharger. The STP facility has been changed to a minor discharger in this permit due to significantly reduced discharge flows (i.e., less than 1 million gallons per day ("MGD")) and ceased process waste streams.

II. SIGNIFICANT CHANGES TO PREVIOUS PERMIT

Permit Condition	Previous Permit (2008 – 2013)	Re-issued permit (2021 – 2026)	Reason for change
Maximum Daily Discharge Flow	No flow rate limit. The facility's wastewater treatment design flow was 1.4 MGD.	The permit includes discharge prohibition to limit the flow rate at the projected maximum daily discharge flow of 0.1 MGD.	Several effluent limits in the permit are flow-dependent and the relaxation of dilution factors for nutrients and zinc was granted based on lower discharge flow. Therefore, flows in excess of projected maximum flow rate could lead to discharge of harmful levels of pollutants and degradation of receiving water quality.
Ammonia	The previous permit included mass and concentration limits for ammonia with weekly monitoring.	Ammonia effluent limits have been removed and the monitoring frequency has been changed from weekly to monthly.	This permit does not require ammonia limits due to a lack of reasonable potential ("RP") to exceed standards. The permittee must continue to monitor and report ammonia mass and concentrations to ensure protection of aquatic life in Pago Pago Harbor.
Technology-Based Effluent Limits ("TBELs") for Total Suspended Solid ("TSS") and Oil and Grease ("O&G").	The previous permit established TBELs for TSS and O&G based on production levels from tuna canning and processing operations with weekly monitoring.	The effluent limits for TSS and O&G have been removed and the monitoring frequency has been reduced from weekly to monthly.	Production-based TSS and O&G limits have been removed due to the cessation of production at the STP facility since December 2016. The permittee must continue to monitor and report TSS and O&G to determine whether further action may be required.
Total Nitrogen ("TN") and Total Phosphorous ("TP")	The previous permit implemented mass-based nutrient limits based on mixing zones approved at the time.	This permit implements more stringent mass-based limits for TN and TP due to the significant reduction of projected flow.	Since RP exists for TN and TP despite the lack of production from the STP facility, limits are required. The mass-based limits of TN and TP have become more stringent (i.e., lower) based on changes to the facility operation and improved dilution modeling.

Permit Condition	Previous Permit (2008 – 2013)	Re-issued permit (2021 – 2026)	Reason for change
Copper and Mercury	The previous permit included copper and mercury limits with semi-annual monitoring.	This permit does not implement effluent limits for copper and mercury. Specific monitoring for Mercury has been retained due to prior total maximum daily load ("TMDL") concerns for this metal in Pago Pago Harbor.	There was no RP for copper and mercury to exceed applicable criteria.
Zinc	Zinc limits were included with semi-annual monitoring.	Effluent concentration-based limits have been increased due to relaxed zinc dilution while the mass-based limits have been more stringent due to lower discharge flow. Monitoring frequency has been increased to monthly due to RP.	EPA has granted an increase in zinc dilution to 52:1 based on reasonably protective mixing analysis and antidegradation requirements, which makes the concentration-based limits less stringent. The mass-based limits are significantly more stringent due to the change in flow at the facility.
Hydrogen Sulfides, Manganese, Nickel, Beta-BHC, Pentachlorophenol, Bis(2-ethylhexyl) Phthalate, and Heptachlor	None.	Semi-annual monitoring requirements for sulfides, manganese, and beta-BHC, and annual monitoring requirements for nickel, pentachlorophenol, bis(2-ethylhexyl) phthalate, and heptachlor have been included.	RP exists for these pollutants. Instead of effluent limits, semi-annual or annual monitoring is required to fully characterize the discharge and collect sufficient data for the next permit reissuance.
Statement of Dilution Basis	The previous permit did not explicitly summarize the basis for dilution factors granted to specific pollutants.	This permit references specific content in this fact sheet which documents the dilution factor granted for each pollutant and the analysis supporting them.	For the clarification, this permit fact sheet includes the basis of dilution allowed for each pollutant.
Chronic Whole Effluent Toxicity ("WET") Monitoring	As a special study, the previous permit required semi-annual chronic toxicity testing using combined composite effluent samples from the STP and Starkist facilities.	The permittee shall conduct semi-annual WET monitoring to assess chronic toxicity of the individual STP effluent.	Chronic toxicity monitoring is required to evaluate chronic toxicity levels of the individual STP effluent and its impact on the combined effluent's toxicity.

Permit Condition	Previous Permit (2008 – 2013)	Re-issued permit (2021 – 2026)	Reason for change
Revised Toxicity Testing method	The previous permit required WET testing with the traditional hypothesis testing approach outlined in EPA's TSD (1991).	The permit requires use of the Test of Significant Toxicity ("TST") statistical approach to evaluate chronic toxicity.	In 2010, EPA published the TST statistical approach in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). The permit implements this updated statistical approach.
Revised Receiving Water Monitoring Program	The previous permit specified a joint Pago Pago receiving water monitoring program with the adjacent Starkist cannery.	This permit sets a detailed receiving water monitoring plan with updated sampling requirements, which includes retention of several prior monitoring stations and the addition of new stations.	The appropriateness of monitoring station locations and nomenclature were needed to validate the behavior of the combined effluent plume, to ensure protection of newly listed endangered corals, and to be updated for new treatment system and discharge protocols at the adjacent Starkist cannery using the same outfall.
Electronic Reporting	The previous permit required monitoring data be submitted on the standard paper discharge monitoring report ("DMR") forms.	The permit requires electronic data submission through NetDMR.	Consistent with EPA's final rule, NPDES Electronic Reporting Rule (effective December 2015).

III. GENERAL DESCRIPTION OF FACILITY

The STP facility is a tuna cannery located in the village of Atu'u on the Island of Tutuila in the Territory of American Samoa. Until December 2016, operations at the STP facility have consisted of the processing and canning of tuna fish and other ingredients for human consumption, canning of pet food, and the processing of fish by-product into fish meal. The Standard Industrial Classification ("SIC") codes of 2091 and 2048 were previously applicable when tuna production was occurring. Since STP ceased tuna processing operations in December 2016, the STP facility's primary operations have been to receive and reload frozen containers of fish for export, which fall under the SIC code of 4222 for refrigerated warehousing and storage.

On June 1, 2018, Starkist began operations at the STP facility in accordance with the sub-lease agreement between the two parties dated May 25, 2018. Starkist operations at the STP facility are primarily limited to non-production activities in support of the adjacent Starkist cannery's operations. Current Starkist operations at the STP facility include the following:

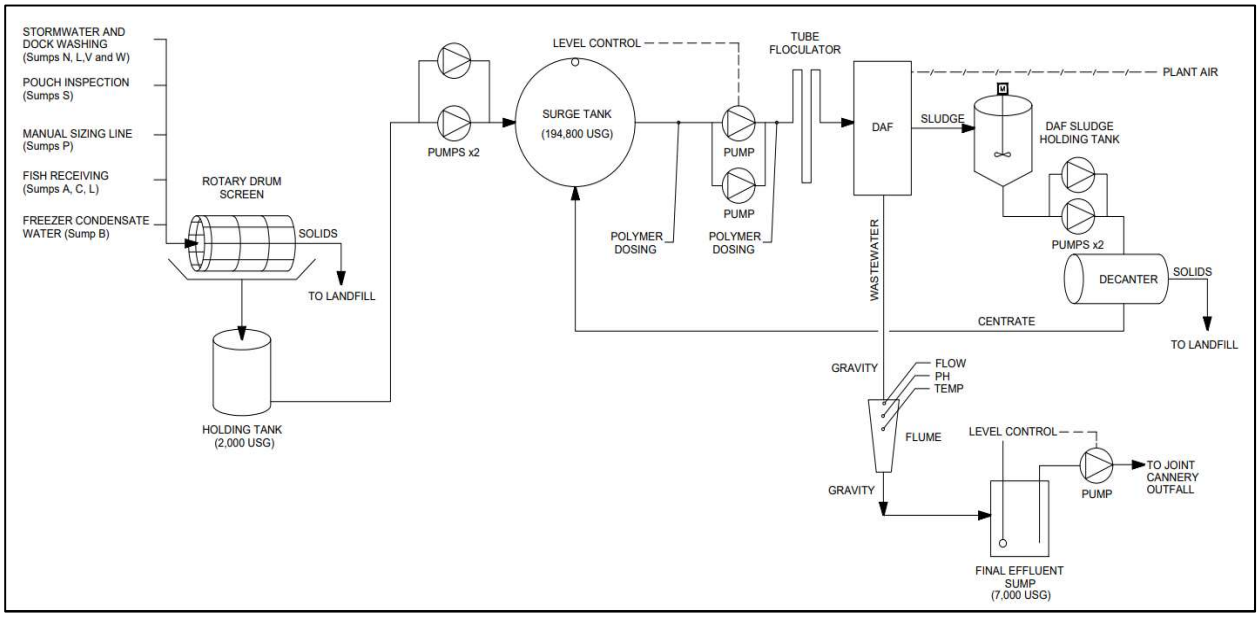
- Operation of tuna pouch packaging and inspection line;

- Storage of dry materials;
- Fishmeal storage;
- Freezer operation for the storage of frozen fish;
- Manual fish sizing;
- Ammonia refrigeration system operation and maintenance;
- Shipping and receiving on the loading dock;
- Fish offloading from vessels;
- Operation of the labelling and packaging line;
- Forklift and crane maintenance; and
- Chemical storage.

The STP facility is composed of a main industrial facility and a wastewater treatment facility. The main industrial facility consists of a dock, storage freezers, several fish processing areas, cannery, and shipping area, of which Starkist specifically utilizes STP's storage freezers and dock space.

Figure 1 shows a wastewater flow schematic for the STP's wastewater treatment facility. Both wastewater and stormwater runoff (except stormwater from roof areas directly discharged to the ocean) collected from the 11 sumps are sent through rotary drum screens that remove solids, with liquids directed to the rotary tank, and then are pumped to the surge tank. From the surge tank, the raw wastewater is pumped to a Dissolved Air Flotation ("DAF") unit on a batch basis when the surge tank reaches a stored volume of approximately 100,000 gallons (this normally results in intervals of several days to several weeks between discharges). Consistent with chemicals used for DAF treatment at the adjacent Starkist facility, the permittee is considering changes of coagulant and polymer flocculant for the DAF system from poly aluminum chloride ("PAC") to aluminum sulphate. Treated DAF effluent flows to the final effluent sump though a Parshall flume, where the final effluent flow rate, temperature, and pH are continuously monitored for compliance.

Figure 1. Process flow diagram for STP wastewater treatment system.



The effluent stored in the holding tank is pumped into the discharge pipeline and combined with final effluents from the adjacent Starkist facility prior to discharge through the JCO. Samples are drawn from one of three discharge pipelines from the outfall sump, which serves as the representative effluent sampling point for the STP facility. Accumulated sludge from the DAF unit is processed through a wastewater decanter and disposed at the Futiga Landfill located in the Village of Futiga and operated by the American Samoa Power Authority with authority from the American Samoa Environmental Protection Agency ("AS-EPA"). The design flow capacity of the STP facility wastewater treatment system is 1.40 MGD, but the STP facility has been operating at a reduced capacity since tuna processing ceased. The anticipated maximum daily discharge flow is 0.1 MGD, which is used to calculate the effluent mass-based limitations.

IV. DESCRIPTION OF RECEIVING WATER

The STP facility discharges industrial wastewater and stormwater to Pago Pago Harbor, the largest natural harbor in American Samoa and a major location for industrial activity (canning, ship repair, port facilities, fuel terminal), wildlife (sea birds, sea turtles, coral reef flats), and human water contact (recreation including swimming, boating, scuba diving, fishing, and tourism).

Pago Pago Harbor is a near-shore territorial water of American Samoa and is classified as an embayment that consists of an inner, middle, and outer harbor with fringing reefs throughout the middle and outer harbor areas. The harbor is approximately three miles long with the entrance facing to the south and depths ranging from 60 to over 200 feet. Pago Pago Harbor is connected to the south pacific ocean and fed by numerous small streams.

The majority of point-source pollutant discharge to the harbor is likely to be direct discharge from shoreline facilities, which include all the NPDES-permitted domestic and industrial wastewater facilities. In addition to the point source dischargers, stormwater runoff from urban area, agriculture and livestock facilities, runoff or spills from animal feeding operations, and legacy sediment contamination are major non-point source pollutant discharges to the harbor (Tetra Tech, 2007 and 2014).

Due to these various pollutant sources, TMDL requirements have been established for bacteria, mercury, and PCBs in Pago Pago Inner Harbor. In 1992, the two historic tuna canneries (i.e., the STP facility and Starkist tuna cannery) began discharging wastewater through the Joint Cannery Outfall to the outer harbor, benefiting water quality in the inner harbor (Tetra Tech, 2014, section 5.1.2).

V. DESCRIPTION OF DISCHARGE

Wastewater sources

The STP facility previously generated two types of wastewaters: low strength wastewater ("LSW") and high strength wastewater ("HSW"). Since the shut-down of tuna processing operations in December 2016, there has been no HSW produced from the inactive butchering and pre-cooling processes and the STP facility has been discharging minor intermittent LSW flows from Starkist's operations at the facility. LSW includes wastewater from freezer operations, equipment and dock washdowns, and contact stormwater runoff from dock areas,

alleys, and the shipping rooftop area, which is collected in the various stormwater sumps and treated at the STP wastewater treatment system prior to discharge via the Joint Cannery Outfall ("JCO"). There is no sanitary wastewater discharged to the JCO. All sanitary waste from the STP facility is conveyed to the Utulei wastewater treatment plant.

Discharge outfall

During facility operations, the permittee discharges to Pago Pago Harbor at the following discharge point:

Discharge Point	Discharge Point Description	Effluent Description	Discharge Point Latitude	Discharge Point Longitude
001	Joint Cannery Outfall (JCO)	Industrial Wastewater and Stormwater	14º 16' 49" S	170º 40' 8" W

Discharge Point No. 001 is located approximately 1.5 miles seaward from the STP facility and began operation in February 1992. As shown in Figure 2, this outfall, also known as the Joint Cannery Outfall, is shared by both the STP and adjacent Starkist facilities. It discharges through a multiport high-rate diffuser at a depth of approximately 176 feet into the outer harbor of Pago Pago Harbor. Discharges from both facilities to the harbor are subject to permitting by EPA, thus providing EPA an opportunity to coordinate between both permits to ensure any such discharges from the JCO will not conflict with the American Samoa Water Quality Standards ("ASWQS") or the requirements of each permit.

Figure 2. Map of Joint Cannery Outfall location in Pago Pago Harbor

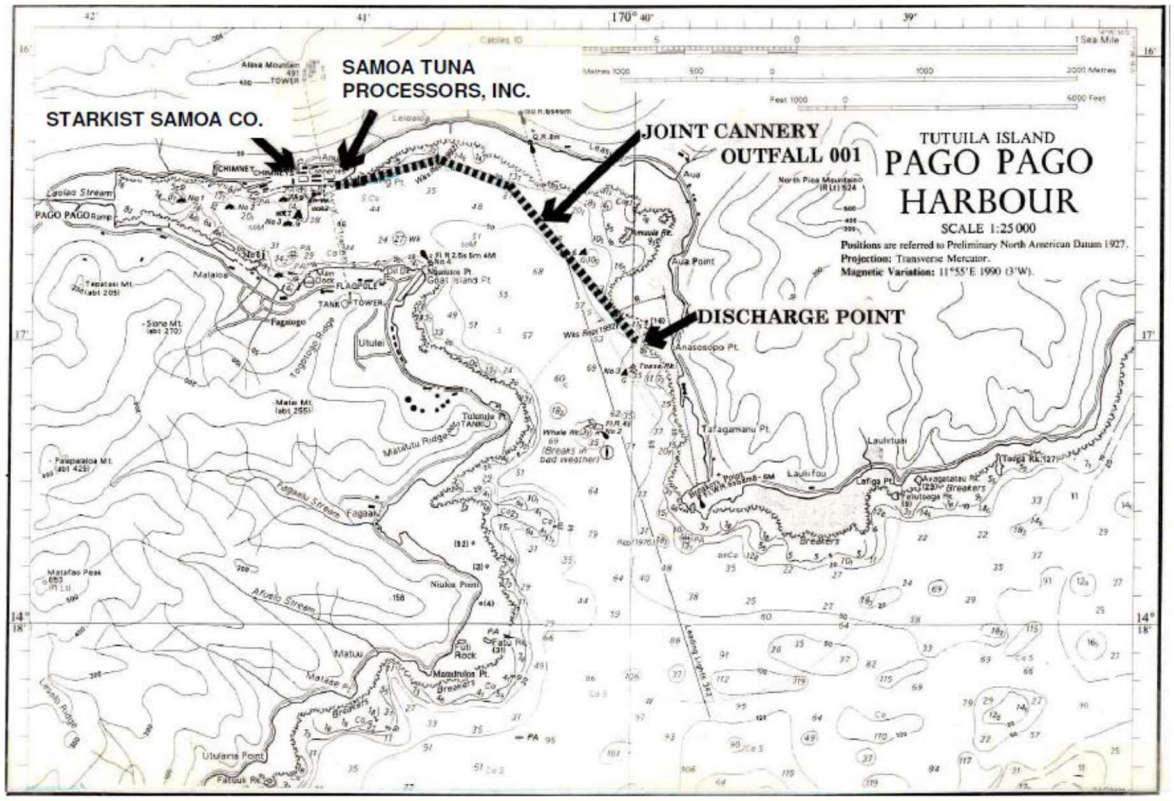


Table 1 shows data related to discharge from Outfall 001 based on the permittee's NPDES renewal application and supplemental information dated February 4, 2020 as well as data reported on discharge monitoring reports ("DMRs"). The effluent wastewater quality from the STP facility has changed significantly after STP ceased tuna processing operations in December 2016. Since June 1, 2018, when Starkist began operations at the STP facility, the discharge flow and quality have slightly changed. Therefore, based on best professional judgment ("BPJ"), the DMR data from June 2018 to December 2019 are considered most representative of current operations. More information is available on Enforcement and Compliance History Online ("ECHO") at https://echo.epa.gov/detailed-facility-report?fid=110070230660.

Pollutants believed to be absent or never detected in the effluent are not included in Table 1. The effluent data shows a significantly reduced flow rate and elevated concentrations of zinc. All exceedances are discussed further in Part VI.B.4.

Table 1. Effluent Data for Outfall 001 from June 2018 to December 2019.

Parameter	Units[1]	Previous Permit Effluent Limitations		Effluent Data		
		Average Monthly	Maximum Daily	Highest Average Monthly	Highest Maximum Daily	Number of Samples
Flow Rate	MGD	Monitoring Only	Monitoring Only	0.099	0.099	19
pH	Standard Units	Not < 6.5 SU Not > 8.6 SU		Min: 6.54 Max: 8.35		19
Temperature	°F	90	95	90.4	91.0	19
Biochemical Oxygen Demand; 5-day (BOD_5)	mg/L	Monitoring Only	Monitoring Only	743.7	743.7	19
Total Suspended Solids (TSS)	lbs/day	2,970	7,470	49.2	83.9	19
Oil and Grease	lbs/day	756	1,890	9.5	13.0	19
Ammonia (as N)	mg/L	83.36	167.26	12.5	13.2	19
	lbs/day	973.31	1,952.93	7.7	8.2	19
Total Nitrogen	lbs/day	800	1,935	23.6	23.6	19
Total Phosphorus	lbs/day	208	271	2.6	3.2	19
Mercury (Total Recoverable)	µg/l	1.80	4.72	0.0386	0.0386	5
	lbs/day	0.02	0.06	0.000004	0.000004	5
Copper (Total Recoverable)	µg/l	58.42	117.22	3.27	3.27	5
	lbs/day	0.68	1.37	0.00117	0.00117	5

Parameter	Units[1]	Previous Permit Effluent Limitations		Effluent Data		
		Average Monthly	Maximum Daily	Highest Average Monthly	Highest Maximum Daily	Number of Samples
Zinc (Total Recoverable)	µg/l	1,138	2,284	2,290	2,290	6
	lbs/day	13.29	26.67	1.15	1.15	6
Chronic Toxicity[2]	TU_c[3]	Monitoring Only	Monitoring Only	128	128	2

[1] Mass based limits were previously calculated using the design flow of 1.4 MGD. Mass loadings (lbs/day) on the DMR were calculated using the flow rate measured on the same discharge day.
[2] Based on Section V.D.1.b of the previous permit, chronic toxicity tests were conducted using combined composite effluent samples from both STP and Starkist facilities. (Note that the August 2019 result was excluded because there was no effluent discharge from the STP facility at the time of the WET sampling.)
[3] TU_c is "Toxic Units, Chronic", the standardized unit for measurement of effects on a chronic toxicity test, which was calculated from the no observed effect concentration ("NOEC") (i.e., TUc = 100 ÷ NOEC).

VI. DETERMINATION OF NUMERICAL EFFLUENT LIMITATIONS

EPA has developed effluent limitations and monitoring requirements in the permit based on an evaluation of the technology used to treat the pollutant (i.e., "technology-based effluent limits") and the water quality standards applicable to the receiving water (i.e., "water quality-based effluent limits"). EPA has established the most stringent of applicable technology-based or water quality-based standards in the permit, as described below.

A. Applicable Technology-Based Effluent Limitations ("TBELs")

40 CFR § 408 Subpart N establishes technology-based effluent limitations for total suspended solids ("TSS") and oil and grease ("O&G)" based on nationally promulgated effluent limitation guidelines for tuna processing facilities (40 FR 55781, Dec. 1, 1975). However, technology-based treatment requirements have not been imposed in the permit because there has been no production from tuna processing operations at the facility since STP ceased tuna canning and processing operations on December 16, 2016[2]. Monitoring and reporting for TSS and O&G are required to determine whether further action may be required.

The CWA prohibits the renewal or reissuance of a NPDES permit that contains technology-based effluent limits that are less stringent than those established in the previous permit, which is referred to as "anti-backsliding." However, 40 CFR § 122.44(l)(1) allows for backsliding of TBELs in the permit if the circumstances on which the previous permit was based have materially and substantially changed (e.g., shutdown of the tuna processing operations) since the

[2] The STP facility is reclassified as a refrigerated warehousing and storage facility (SIC code 4222) due to cessation of tuna canning and processing operations. Therefore, 40 CFR § 408 Subpart N is no longer applied to this facility.

time the existing permit was issued and would have constituted cause for a permit modification under 40 CFR § 122.62(a).

B. Water Quality-Based Effluent Limitations ("WQBELs")

Water quality-based effluent limitations are required in NPDES permits when the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an excursion above any water quality standard (40 CFR § 122.44(d)(1)).

When determining whether an effluent discharge causes, has the reasonable potential to cause, or contributes to an excursion above narrative or numeric criteria, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity) and where appropriate, the dilution of the effluent in the receiving water (40 CFR § 122.44(d)(1)(ii)).

EPA evaluated the reasonable potential to discharge toxic pollutants according to guidance provided in the *Technical Support Document for Water Quality-Based Toxics Control* ("TSD") (USEPA, 1991) and the *U.S. EPA NPDES Permit Writers' Manual* (USEPA, September 2010). These factors include:

1. Applicable standards, designated uses and impairments of receiving water
2. Dilution in the receiving water
3. Type of industry
4. History of compliance problems and toxic impacts
5. Existing data on toxic pollutants – RP analysis

1. Applicable Standards, Designated Uses and Impairments of Receiving Water

In order to protect the designated uses of waters of the United States, American Samoa has adopted water quality standards for marine waters depending on the level of protection required. The ASWQS at § 24.0205 (e)(1) state that "Pago Pago Harbor has been designated by the American Samoa Government to be developed into a transshipment center for the South Pacific. Recognizing its unique position as an embayment where water quality has been degraded from the natural condition, the Environmental Quality Commission ("EQC") has established a separate set of standards for Pago Pago Harbor." These standards identify the designated uses for Pago Pago Harbor and include the following:

- recreational and subsistence fishing except for exclusions as specified under federal regulations such as no take zones;
- boat-launching ramps and designated mooring areas;
- subsistence food gathering, e.g. shellfish harvesting except for exclusions as specified under federal regulations such as no-take zones;
- aesthetic enjoyment;
- whole and limited body-contact recreation, e.g., swimming, snorkeling, and scuba diving;
- support and propagation of marine life;
- industrial water supply;

- mari-culture development except for exclusions as specified under federal regulations such as no-take zones;
- normal harbor activities, e.g., ship movements, docking, loading and unloading, marine railways and floating drydocks; and
- scientific investigations.

To protect these uses, ASWQS also establish prohibited uses that include but are not limited to the following:

- dumping or discharge of solids waste;
- animal pens over or within 50 feet of any shoreline;
- dredging and filling activities; except as approved by the EQC;
- toxic, hazardous and radioactive waste discharges; and
- discharge of oil sludge, oil refuse, fuel oil, or bilge water, or any other wastewater from any vessel or unpermitted shoreside facility.

Pago Pago Harbor is listed as impaired for several pollutants (i.e., bacteria, mercury, and PCBs) according to the CWA Section 303(d) List of Water Quality Limited Segments. Existing impairments each have a TMDL analysis associated with them. Note that although the STP facility is located in the inner harbor, the discharge authorized in this permit is exclusively to the outer harbor through a long outfall:

- Ocean Shorelines in the Pago Pago watershed are listed as impaired for bacteria (*American Samoa Bacteria TMDL for Beaches and Streams*, approved August 28, 2015). The enterococci limits specified in the bacteria TMDL are identical to those specified in the ASWQS. Therefore, compliance with ASWQS for enterococci ensures compliance with the requirements of that TMDL. The TMDL does not specify waste load allocations for the STP facility and no bacteria limits are set in the permit.
- The inner harbor is also listed for mercury and PCBs (*Pago Pago Inner Harbor mercury and PCBs TMDL*, approved Feb. 23, 2007). The mercury and PCBs TMDL does not provide a WLA for the permittee as its analysis is limited to the inner harbor. As the permittee's discharge is to the outer harbor with minor intermittent flow, no provisions from this TMDL apply to the discharge.

2. Dilution in the Receiving Water

Pursuant to 40 CFR § 131.13, States (and Territories) are authorized to adopt general policies, such as mixing zones, to implement State water quality standards. Section 24.0207 of the ASWQS allows for zones of mixing, and associated credit for dilution, in specific circumstances contingent on approval of the discharger's request for mixing by the EQC and its authorized agents. Pursuant to Section 24.0201 of the ASWQS, a "*zone of mixing*" ("ZOM") means a defined portion of a water body receiving water around a point source within which specific modifications of applicable water quality standards are permitted by the EQC, and a *"zone of initial dilution"* ("ZID") is that area of a plume where dilution is achieved due to the combined effects of momentum and buoyancy of the effluent discharged from an orifice. In accordance with ASWQS § 24.0207(b)(6), the size of any zone of mixing granted for any toxic

pollutant shall not exceed the dimensions and volume of the ZID and in no event shall the concentration of a toxic pollutant exceed chronic toxic levels at the boundary of the ZID.

As specified in ASWQS § 24.0207(a), zones of mixing shall be granted upon a finding that no other practicable means of waste treatment and disposal are available and limited to the smallest area possible. To implement the "smallest possible area" condition, the previous permit defined its mixing zone for nutrients as "a circle with a radius of 1,300 feet from the center of the diffuser, or the 30-foot depth contour, whichever is closer to the diffuser" (Part VIII.D of the previous permit fact sheet). The 30-foot provision implements the ASWQS prohibition against including "the surface of the water body, any part of the shoreline, or any part of any barrier or fringing reef" in a mixing zone (ASWQS § 24.0207(b)(9)). The nearest fringing reef is approximately 500 feet northeast of the diffuser location. Therefore, the discharger's requested mixing zone for the new permit is a rough half-circle to avoid impinging on these protected areas. The discharger is also responsible for ensuring ASWQS are met before the edge of the reef flat and that the effluent plume does not reach the surface.

In support of the NPDES permit renewals, consultant GDC on behalf of Starkist and STP submitted a Mixing Zone Analysis ("MZA") document (i.e., *the Revised Request for Water Quality Certification and Definition of Mixing Zones for the Joint Cannery Outfall*, March 2017) requesting changes to mixing allocations to EPA and AS-EPA. This MZA presented 22 differing dilution scenarios based on varying assumptions about effluent flows, receiving water density profiles, and other variables, resulting in several differing dilution factors for different pollutants, as in the previous permit. In all cases, the requested dilution was significantly greater than what was approved under the previous permit (see Table 2). EPA finds the discharger's requested dilution allowance in the 2017 MZA to be insufficiently protective of the receiving water due to the following issues:

(1) Limited current data: Due to the low precision of the instruments used to collect data in the mid-1980s, plus the limitations of the dye studies used in 1993, among other factors, the current data used in the MZA may not reliably represent the full range of, and "worst case" scenarios of, current speed for this discharge.

(2) Limitations of the chosen modeling software and approach: The modeling software used to prepare the MZA (i.e., UDKHDEN and subsequent diffusion model) is not appropriate for this particular mixing scenario, especially in the context of boundary interactions and the potential for complex current patterns that lead to re-entrainment of the effluent plume in Pago Pago Harbor.

(3) Failure of model to reproduce observed plume behavior: Although the permittee's model results in the 2017 MZA show the plume reaching an equilibrium depth well below the surface of the harbor, AS-EPA has received numerous reports from both boaters and residents on the shoreline of fish wastes floating on the harbor surface, including photographic documentation.

(4) Incorporation of mixing zone into receiving water monitoring program: The permittee's MZA sought a mixing zone 981 feet in radius with a claimed dilution of 1008:1 within that area while EPA's preceding permit allocated only a 279:1 mixing ratio within a mixing zone of approximately double that area (1,300 feet in radius).

EPA conducted a mixing zone analysis using a more modern modeling software package (i.e., CORMIX v11.0.1.0 released on July 23, 2019) to account for complexities of mixing behavior in Pago Pago Harbor, such as boundary interactions and re-entrainment effects. Under a set of reasonable critical conditions and specific scenarios, the CORMIX results indicated that the plume rapidly rises to within less than 10 meters of the surface within minutes of being discharged or may reach the surface directly, rather than reaching an equilibrium ("trapping level") dozens of meters below the water surface, as was claimed based on the discharger's UDKHDEN model. Because the ASWQS prohibit inclusion of the water surface in any mixing zone (see ASWQS § 24.0207(b)(9)), standards must be met with the amount of dilution achieved before the effluent reaches the surface (or any part of the shoreline or any barrier or fringing reef), which the CORMIX model suggests occurs at roughly a 330:1 dilution. Different scenarios using the discharger's preferred assumptions for the density profile led to a modeled dilution factor of 343:1, validating the range of EPA's model results with a variance of less than 4%, while invalidating the discharger's claimed basis for a much greater 1008:1 dilution. Based on the ASWQS § 24.0207(a) provision limiting mixing zones to the "smallest possible area", EPA has based the permit limits on the 330:1 dilution associated with the smallest mixing zone necessary to enable the discharge to meet ASWQS.

The CORMIX model results also demonstrate that a dilution for zinc is 200:1 at 36 meters where buoyancy reversal occurs. Pursuant to the ASWQS § 24.0207(a) provision, EPA is limiting the dilution to 52:1, which is associated with the smallest mixing zone necessary to enable the discharger to comply with the permit limits. A dilution factor greater than 52:1 is not adequately protective of receiving water quality and aquatic life based on the antidegradation requirements.

Accordingly, this permit implements dilution factors of 330:1 for both total nitrogen and total phosphorous and 52:1 for zinc based on EPA's own modeling and federal and ASWQS antidegradation requirements. For ammonia, copper, mercury, and toxicity, EPA has chosen to carry over the dilution factors from the previous permit based on no basis for increased dilution allowance. Existing and EPA-accepted dilution factors are summarized as follows:

Table 2. Comparison of Dilution Factors in Previous and reissued Permit

Parameter	Dilution factors in the 2008 permit	Dilution factors requested in the 2017 MZA	Dilution factors in the 2021 permit
Total Nitrogen	279:1*	1008:1	330:1
Total Phosphorous	279:1*	1008:1	330:1
Total Ammonia (as N)	313:1	536:1	313:1
Copper	25:1	200:1	25:1
Zinc	25:1	200:1	52:1
Mercury	40:1	200:1	40:1
Chronic Toxicity	313:1**	--	313:1

* The previous permit authorized a dilution factor of 279:1 even though this was not explicitly stated in the previous permit documents. This dilution factor was determined based on the ratio of the aggregate TN and TP permit limits in the combined loading authorized at the

JCO[3] to the ASWQS applicable at the time the previous permit was issued (i.e., 0.2 mg/l for TN and 0.03 mg/l for TP).

** A maximum allowable dilution of 313:1 was approved for chronic toxicity in the previous permit because the permittee submitted information to EPA on October 31, 2007 that concluded total ammonia was likely to be the primary source of toxicity.

3. Type of Industry

STP previously conducted the processing and canning of tuna fish and other ingredients for human consumption, canning of pet food, and the processing of fish by-product into fish meal. Tuna canneries are complex industrial operations with numerous possible processes contributing to the composition of their wastewater. Typical pollutants in a cannery discharge include solids (both settleable and suspended); oil and grease in high amounts; nutrients (TN and TP) in high amounts, which result in significant levels of ammonia and changes in pH and temperature; metals from both fish tissue sources and canning processes; and various cleaning and treatment chemicals which may be in use at the facility.

Since STP ceased tuna processing operations in December 2016, the facility has primarily been used by Starkist for non-production activities in support of the Starkist operations and discharging limited flows during cleaning activities (e.g., washwater from cleaning of sumps, wastewater equipment and dock area), freezer operations (e.g., freezer condensate), and rainfall events (e.g., contact stormwater runoff).

4. History of Compliance Problems and Toxic Impacts

Since Starkist began its non-production activities at the STP facility on June 1, 2018, there have been exceedances of zinc limits in June 2018 and August 2019 and an effluent temperature exceedance in April 2019. However, no significant effluent limit violations or toxic impacts were reported from June 2018 to the present.

5. Existing Data on Toxic Pollutants

For pollutants with effluent data available, EPA has conducted a RP analysis based on statistical procedures outlined in EPA's TSD. These statistical procedures result in the calculation of the projected maximum effluent concentration based on monitoring data to account for effluent variability and a limited data set. The projected maximum effluent concentrations were estimated assuming a coefficient of variation ("CV") of 0.6 and the 99 percent confidence interval of the 99th percentile based on an assumed lognormal distribution of daily effluent values (sections 3.3.2 and 5.5.2 of EPA's TSD). EPA calculated the projected maximum effluent concentration for each pollutant using the following equation:

Projected maximum concentration = $C_e \times$ RP multiplier factor

where, "C_e" is the reported maximum effluent value and the RP multiplier factor is obtained from Table 3-1 of the TSD.

[3] Historic mass-loading modeling in the early 1990s determined that a mixing zone boundary set at 1,300 feet from the diffuser, or the 30-foot depth contour, whichever is closer, would be able to assimilate 60,000 lbs/month (2,000 lbs/day) of total nitrogen and 12,000 lbs/month (400 lbs/day) of total phosphorus from the two canneries discharges.

Note that Table 3 is based only on data collected after Starkist started its operations at the STP facility on June 1, 2018 in order to be representative of current performance. Except for whole effluent toxicity, no flow-weighted composite effluent data representing the combined discharge from the STP and Starkist facilities were used since each facility is independently regulated by its own NPDES permit.

Table 3. Summary of Reasonable Potential Statistical Analysis (June 2018 – December 2019)

Parameter[1]		Unit	Maximum Observed Concentration	*n*	CV	RP Multi-plyer	Projected Maximum Effluent Concentration	Dilution Factor	Projected Maximum Mixed Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
General Inorganics											
Total Nitrogen		mg/l	38.2	19	0.77	2.9	110.8	330	0.34	0.2[2]	**Y**
Total Phosphorous		mg/l	6.3	19	0.85	3.2	20.2	330	0.06	0.03[2]	**Y**
Total Ammonia (as N)	Acute	mg/l	13.2	19	0.61	2.4	31.7	313	0.10	4.44[2]	N
	Chronic	mg/l	13.2	19	0.61	2.4	31.7	313	0.10	0.67[2]	N
Bromide		µg/l	780	1	0.6	13.2	10,296	1	10,296	–	N
Fluoride		µg/l	90[3]	1	0.6	13.2	1,188	1	1,188	–	N
Nitrate-Nitrite		µg/l	56	1	0.6	13.2	739.2	1	739.2	–	N
Sulfate (SO_4)		µg/l	41,400	1	0.6	13.2	546,480	1	546,480	–	N
Total Sulfide (S)		µg/l	103	1	0.6	13.2	1,359.6	1	1,359.6	–	N
Unionized Sulfide (H_2S)		µg/l	70[4]	1	0.6	13.2	924	1	924	2.0[5]	**Y**
Metals											
Mercury	Acute	µg/l	0.0386	5	0.6	4.2	0.16	40	0.004	0.05[2]	N
	Chronic	µg/l	0.0386	5	0.6	4.2	0.16	40	0.004	0.05[2]	N
Copper	Acute	µg/l	3.27	5	0.6	4.2	13.7	25	0.55	4.8[5]	N
	Chronic	µg/l	3.27	5	0.6	4.2	13.7	25	0.55	3.1[5]	N
Zinc	Acute	µg/l	2,290	6	0.6	3.8	8,702	52	167	90[5]	**Y**
	Chronic	µg/l	2,290	6	0.6	3.8	8,702	52	167	81[5]	**Y**
Nickel	Acute	µg/l	3.0[3]	1	0.6	13.2	39.6	1	39.6	74[5]	N
	Chronic	µg/l	3.0[3]	1	0.6	13.2	39.6	1	39.6	8.2[5]	**Y**
Aluminum		µg/l	223	1	0.6	13.2	2,943.6	1	2,943.6	–	N
Barium		µg/l	6.1	1	0.6	13.2	80.5	1	80.5	–	N
Boron		µg/l	80	1	0.6	13.2	1,056	1	1,056	–	N
Cobalt		µg/l	0.8[3]	1	0.6	13.2	10.6	1	10.6	–	N
Iron		µg/l	704	1	0.6	13.2	9,292.8	1	9,292.8	–	N
Magnesium		µg/l	24,400	1	0.6	13.2	322,080	1	322,080	–	N

Parameter[1]	Unit	Maximum Observed Concentration	*n*	CV	RP Multi-plyer	Projected Maximum Effluent Concentration	Dilution Factor	Projected Maximum Mixed Concentration	Most Stringent Water Quality Criterion	Statistical Reasonable Potential?
Molybdenum	µg/l	2.5[3]	1	0.6	13.2	33.0	1	33.0	–	N
Manganese	µg/l	9.8	1	0.6	13.2	129.4	1	129.4	100[6]	**Y**
Titanium	µg/l	12.4	1	0.6	13.2	163.7	1	163.7	–	N
(Semi)Volatile Organics										
Bromoform	µg/l	0.58[3]	1	0.6	13.2	7.7	1	7.7	120[6]	N
Chloroform	µg/l	0.06[3]	1	0.6	13.2	0.79	1	0.79	2,000[6]	N
Toluene	µg/l	0.88[3]	1	0.6	13.2	11.6	1	11.6	520[6]	N
Pentachlorophenol	µg/l	0.89[3]	1	0.6	13.2	11.7	1	11.7	0.04[6]	**Y**
Phenol	µg/l	12	1	0.6	13.2	158.4	1	158.4	300,000[6]	N
Acenapthylene	µg/l	0.039[3]	1	0.6	13.2	0.51	1	0.51	90[6]	N
Bis(2-ethylhexyl) Phthalate	µg/l	0.70[3]	1	0.6	13.2	9.2	1	9.2	0.37[6]	**Y**
Diethyl Phthalate	µg/l	0.07[3]	1	0.6	13.2	0.92	1	0.92	600[6]	N
Di-N-Butyl Phthalate	µg/l	0.18[3]	1	0.6	13.2	2.4	1	2.4	30[6]	N
Fluorene	µg/l	0.034[3]	1	0.6	13.2	0.45	1	0.45	70[6]	N
Isophorone	µg/l	0.54	1	0.6	13.2	7.1	1	7.1	1,800[6]	N
Naphthalene	µg/l	0.028[3]	1	0.6	13.2	0.37	1	0.37	–	N
N-Nitro-sodiphenlyamine	µg/l	0.12[3]	1	0.6	13.2	1.6	1	1.6	6.0[6]	N
Phenanthrene	µg/l	0.038[3]	1	0.6	13.2	0.50	1	0.50	–	N
Beta-BHC	µg/l	0.012	1	0.6	13.2	0.16	1	0.16	0.014[6]	**Y**
Heptachlor	µg/l	0.0079[3]	1	0.6	13.2	0.10	1	0.10	0.0000059[6]	**Y**
Whole Effluent Toxicity (Chronic)	TU_c[7]	128[8]	2	0.6	7.4	947.2	313	3.0	1.0[9]	**Y**

[1] For purposes of RP analysis, parameters measured as Non-Detect are considered to be zeroes. Only pollutants detected are included in this analysis.
[2] ASWQS, 2018 Revision, at American Samoa Administrative Rule No. 001-2019
[3] The values are identified as detected but not quantifiable (DNQ). RP calculated using the detected values.
[4] The hydrogen sulfide concentration (un-ionized) was calculated from the observed total sulfide value of 103 µg/l with pH of 6.5, effluent temperature (~ 30ºC), and ionic strength (~ 0.7 ppt salinity).
[5] USEPA National Recommended Water Quality Criteria for Aquatic Life – Saltwater, 2013
[6] USEPA National Recommended Water Quality Criteria for Human Health for ingestion of organism only, 2015
[7] Chronic toxic units (TU_c) are calculated from NOEC values (i.e., $TU_c = 100 \div NOEC$).
[8] Based on Section V.D.1.b of the previous permit, chronic toxicity tests were conducted using combined composite effluent samples from both STP and Starkist facilities. (Note that the August 2019 result was excluded because there was no effluent discharge from the STP facility at the time of the WET sampling.)
[9] Technical Support Document for Water Quality-based Toxics Control, EPA, 1991

C. Rationale for Numeric Effluent Limits and Monitoring

EPA evaluated the typical pollutants expected to be present in the effluent and selected the most stringent of the applicable technology-based or water quality-based effluent limitations. Where effluent concentrations of toxic parameters are unknown or are not reasonably expected to be discharged in concentrations that have the reasonable potential to cause or contribute to water quality violations, EPA may establish monitoring requirements in the permit. Where monitoring is required, data will be re-evaluated and the permit may be re-opened to incorporate effluent limitations as necessary.

(1) Flow

In order to ensure that the relaxation of dilution factors for nutrients and zinc does not result in lowering receiving water quality, the permit prohibits the discharge flow from the facility greater than the projected maximum daily flow of 0.1 MGD. Continuous flow monitoring is required during the duration of each discharge. The permittee shall integrate the flow rate data to arrive at a daily discharge volume (millions of gallons) for the day when discharge occurs.

(2) pH

pH is a significant parameter due both to its direct effects on aquatic organisms and the effect that pH has on the chemical form, and resultant toxicity potential, of ammonia and hydrogen sulfide. ASWQS specify a pH standard for Pago Pago Harbor based on both a fixed range (minimum of 6.5 and maximum of 8.6) and a peak allowable deviation from natural conditions of 0.2 pH units, where natural is defined as "free of substances or conditions, which are attributable to the activities of man" (ASWQS § 24.0206(m) and § 24.0201). As in the previous permit, this permit directly implements the ASWQS for Pago Pago Harbor as water-quality-based effluent limits for pH.

(3) Temperature

Temperature can have both direct effects on aquatic organisms and influence the chemical form, and resultant toxicity potential, of ammonia and hydrogen sulfide (see discussion below). Based on the DMR data, the highest average monthly temperature was reported as 90.4ºF in April 2019, which slightly exceeded the average monthly limit of 90ºF. EPA proposes to retain the pre-existing temperature limits from the previous permit (upper limit on monthly average temperature of 90ºF, upper limit on maximum daily temperature of 95ºF).

(4) Total Suspended Solids ("TSS") and Oil & Grease ("O&G")

The ELGs at 40 CFR § 408.142 specify TSS and O&G limitations for tuna canneries, since TSS and O&G are common constituents of cannery effluents and can cause harmful effects on aquatic ecosystems through blocking of light and disruption of aquatic biology, respectively. As discussed above in Part VI.A, these technology-based limits for TSS and O&G under 40 CFR § 408.142 are no longer applied in this permit because there has been no production from tuna processing operations at the facility due to cessation of tuna canning and processing operations and the STP facility is reclassified as a refrigerated warehousing and storage facility (SIC code 4222). However, monthly monitoring and reporting for TSS and O&G are required to determine whether further action may be required.

(5) Total Nitrogen ("TN") and Total Phosphorous ("TP")

Nitrogen and Phosphorous are known to be common constituents of tuna cannery effluents, capable of causing several harmful effects on the receiving water including the fertilization of harmful algal blooms and disruption of aquatic ecosystems. Despite reduction in nutrient levels in the effluent, based on the RP analysis using the maximum effluent concentrations of total nitrogen and total phosphorous (38.2 mg/l TN in November 2019 and 6.3 mg/l TP in December 2019), EPA has determined that the discharge has a RP to cause or contribute to an exceedance of the most stringent ASWQS for TN and TP after dilution (i.e., 330:1 dilution used for TN and TP).

The ASWQS contain specific water quality standards for TN and TP that are expressed in terms of %-of-time-not-to-exceed values. These statistical standards are defined as concentrations which are not to be exceeded more frequently than 2%, 10%, and 50% (median) of the time. Consistent with the NPDES permit for the adjacent Starkist facility (Permit No. AS0000019) which shares the JOC with the STP facility, EPA has determined that it is appropriate to implement the "median" target as a monthly average permit limitation and the "not to exceed more than 10% of the time" limitation as a daily maximum limitation. More conservative daily maximum limits for TN and TP were derived from the "not to exceed more than 10% of the time" standards due to a notable degree of variation in the TN and TP effluent data (a coefficient of variation ("CV") of 0.77 for TN and 0.85 for TP) and the demonstrated RP to exceed ASWQS. EPA believes that translating more conservative water quality standards into the TN and TP effluent limits ensures protection of all statistical ASWQS values and no further degradation of receiving water quality for designated uses.

EPA determined the specific TN and TP limits by first applying the 330:1 dilution factor to the applicable ASWQS values described above, then multiplying by the projected effluent flow of 0.1 MGD to arrive at a mass-based (pounds per day) limit. For example, monthly average effluent limit for total nitrogen can be calculated as below:

0.1 MGD × 0.2 mg/l (ASWQS) × 330 (dilution factor) × 8.34 (lb/MG)/(mg/l) = 55.0 lb/d

The same calculation using applicable ASWQS for TN and TP leads to the following limits for these parameters:

Parameters		ASWQS numeric standard for Pago Pago Harbor	Calculated effluent limits at 330:1 Dilution
Total Nitrogen	Monthly Average	0.2 mg/l	55.0 lb/d
	Daily Maximum	0.35 mg/l	96.3 lb/d
Total Phosphorous	Monthly Average	0.03 mg/l	8.3 lb/d
	Daily Maximum	0.06 mg/l	16.5 lb/d

(6) Total Ammonia (as N)

The previous permit incorporated ammonia limits due to the RP for ammonia to be present at toxic levels. Ammonia levels in the effluent have been significantly reduced since the cessation of the tuna processing operations. EPA assessed RP using the maximum concentration observed in the effluent (13.2 mg/l reported in August 2019). Since the RP analysis does not indicate a

current potential for exceedance of ASWQS after dilution (i.e., 313:1 dilution used for ammonia), the permit no longer contains limits on ammonia. However, monthly monitoring for total ammonia, as the primary source of toxicity, is still required to ensure protection of aquatic life in Pago Pago Harbor and prevent degradation of harbor water quality.

(7) Copper and Mercury

The previous permit incorporated limits on copper and mercury due to their common occurrence in discharges from canning facilities and to ensure protection of water quality. Based on the RP analysis, EPA has determined that there is no RP to cause or contribute to an exceedance of the applicable criteria for copper and mercury; therefore, the permit no longer contains effluent limits for copper and mercury. The permit retains specific monitoring requirements for mercury to ensure protection of, and adequate data collection for, the Pago Pago Harbor mercury TMDL.

(8) Zinc

Based on effluent monitoring data from June 2018 to December 2019, zinc has consistently been detected in the effluent and detection of zinc levels was up to approximately 30 times higher than the most stringent water quality criteria.[4] Without the relaxation of dilution credits, the discharge might not be able to meet the permit limits. Receiving water collected from August 2018 to August 2019 at the boundary of the ZID showed zinc concentrations of 0.75 to 7.85 µg/l, which were well below the most stringent water quality criteria of 81 µg/l. Therefore, EPA finds that there is assimilative capacity in the receiving water for zinc. In addition, while the effluent zinc concentrations (mg/l) have been slightly increased, the overall zinc loading (lbs/day) to the harbor has significantly decreased due to lower discharge flow from the STP facility, resulting in no degradation of receiving water quality. Based on the CORMIX model results, the ASWQS § 24.0207(a) provision (i.e., the smallest mixing zone policy), and antidegradation requirements, EPA decided to grant a zinc dilution increase up to 52:1.

To determine RP, EPA calculated the projected maximum effluent concentration ("MEC") using the maximum concentration of zinc observed in the effluent (2,290 µg/l reported in August 2019). With consideration of 52:1 dilution for zinc, EPA estimated the projected maximum mixed concentration ("MMC") of 167 µg/l. Since the projected MMC is greater than the most stringent zinc criteria for protection of aquatic life[4], EPA determined that a RP exists for zinc. Therefore, in accordance with permit limit derivation procedures outlined in Section 5.4 of EPA's TSD, this permit contains a water quality-based effluent limit ("WQBEL") for zinc. A summary of the WQBEL calculations and the final maximum daily limit ("MDL") and the average monthly limit ("AML") for zinc are provided in Table 4. Monitoring frequency is increased to monthly due to the elevated zinc concentrations in the effluent. For zinc, consistent with 40 CFR § 122.45(c), EPA is expressing effluent limits as "total recoverable metals."

[4] Based on ASWQS § 24.0206(g)(3), the more stringent zinc criteria found in the National Recommended Water Quality Criteria for Aquatic Life (USEPA, 2013) were used to conduct RPA and determine the zinc permit limits.

Table 4. WQBEL Calculations for Zinc

	Acute	Chronic
Aquatic Life Criteria, µg/l	90	81
Dilution Factor	52:1	52:1
Background Concentration, µg/l[1]	2.34	2.34
WLA, µg/l	4,648.32	4,171.32
WLA Multiplier (99th%)	0.321	0.527
LTA, µg/l	**1,492.11**	2,198.29
LTA_{MDL} Multiplier (99th%)	3.11	--
MDL, µg/l	**4,640**	--
MDL, lbs/day[2]	**3.87**	--
LTA_{AML} Multiplier (95th %)[3]	1.55	--
AML, µg/l	**2,313**	--
AML, lbs/day[2]	**1.93**	--

[1] Background concentration is based on the average zinc concentration at the reference station reported from August 2018 to August 2019.
[2] Mass-based limitations are based on facility's projected maximum daily flow of 0.1 MGD.
[3] LTA multiplier is based on sampling frequency of four times per month (see Table 5-2 of EPA's TSD).

Table 5. Zinc effluent limit comparison

	Previous 2008 Permit	Final 2021 Permit
Dilution factor	25:1	52:1
Maximum Daily Flow	1.4 MGD	0.1 MGD
Maximum Daily Limits	2,284 µg/l	4,640 µg/l
	26.67 lbs/day	3.87 lbs/day
Average Monthly Limits	1,138 µg/l	2,313 µg/l
	13.29 lbs/day	1.93 lbs/day

(9) Total Sulfide and Hydrogen Sulfide (H_2S, un-ionized)

The EPA National Recommended Water Quality Criteria ("NRWQC") for the protection of aquatic life sets a saltwater criterion continuous concentration ("CCC") for un-ionized sulfide (as Hydrogen Sulfide, (H_2S) of 2 µg/l. Effluent data from the priority pollutants scan ("PPS") conducted for the STP facility in January 2019 is available for total sulfide (103 µg/l), but not for hydrogen sulfide because the fraction of sulfide that exists in the toxic un-ionized form depends on pH, salinity, and temperature. Using the minimum permit limit for pH (6.5 SU) and typical values for effluent temperature (~30 °C) and effluent salinity (~0.7 ppt), the permittee

determined that the un-ionized hydrogen sulfide concentration in the effluent is approximately 70 µg/l, which exceeds the NRWQC. Even though RP exists for un-ionized sulfide to exceed the criteria, this permit does not impose effluent limits for sulfides since the observed concentration is an estimated value. Instead, the permit requires semi-annual monitoring for both total sulfide and un-ionized hydrogen sulfide to fully characterize the effluent and collect sufficient data for the RP analysis in the next permit term.

Due to the dynamic and temperature-, salinity-, and pH-dependent conversion of the total sulfide concentrations into the un-ionized hydrogen sulfide values, pH, salinity, temperature, and sulfide sampling must be concurrent. See Attachment E and F of the permit for a sample log to help calculate and record the hydrogen sulfide values.

(10) Manganese, Nickel, Pentachlorophenol, Bis(2-ethylhexyl) Phthalate, Beta-BHC, and Heptachlor

Even though the STP facility may not engage in activities that would be expected to generate manganese, nickel, pentachlorophenol, bis(2-ethylhexyl) phthalate, beta-BHC, and heptachlor at toxic levels, the priority pollutants scan indicated that these pollutants were detected in the STP facility effluent. EPA also determined that there is RP to cause or contribute to an exceedance of the applicable criteria for manganese, nickel, pentachlorophenol, bis(2-ethylhexyl) Phthalate, beta-BHC, and heptachlor (see Table 3 of the fact sheet). Monitoring for these parameters is required to fully characterize the discharge and provide sufficient data for the next permit term. Consistent with 40 CFR § 122.45(c), EPA is expressing monitoring requirements for manganese and nickel as "total recoverable metals".

(11) Chronic Whole Effluent Toxicity ("WET")

ASWQS § 24.0206(d) provides a narrative water quality standard for toxicity that all territorial waters be "…substantially free from substances and conditions or combinations thereof attributable to sewage, industrial wastes, or other activities of man which may be toxic to humans, other animals, plants, and aquatic life or produce undesirable aquatic life." ASWQS § 24.0206(h) specifies that all effluents containing materials attributable to the activities of man shall be considered harmful unless acceptable toxicity tests conducted on the effluent using an EPA WET method show otherwise.

The previous permit required that the permittee conduct a special study to evaluate chronic toxicity of the combined cannery effluent as well as to develop appropriate monitoring requirements and permit limits. As part of the special study, STP, in coordination with Starkist cannery, has performed semi-annual chronic toxicity tests using combined composite effluent samples from the STP and Starkist facilities. Based on the chronic toxicity test results, EPA has determined that the combined discharges have a RP to cause or contribute to exceedances of the applicable water quality standard for chronic toxicity of 1 TU_c after dilution (see Table 3 of the fact sheet). In this permit, to evaluate chronic toxicity levels of the STP facility effluent alone and its impact on the combined effluent's toxicity and harbor water quality, semi-annual monitoring for chronic toxicity is required for the individual STP facility discharge. The detailed chronic WET testing method and procedures are addressed in Part VIII.D of the fact sheet. No acute toxicity monitoring or limitation is required as the chronic toxicity is based on a more sensitive biological endpoint (fertilization) than lethality and is considered very likely to protect against acute toxicity.

D. Anti-Backsliding

Sections 402(o) and 303(d)(4) of the CWA and 40 CFR § 122.44(l)(1) prohibit the renewal or reissuance of an NPDES permit that contains effluent limits and permit conditions less stringent than those established in the previous permit, except as provided in the statute and regulation.

EPA removed the technology-based effluent limits under 40 CFR § 408 Subpart N because there has been no production from the tuna processing operations at the facility since canning and processing operations ceased on December 16, 2016. As described in Section III. General Description of Facility, the current operations are related to receiving and reloading frozen containers of fish for export, which fall under the SIC code of 4222 for refrigerated warehousing and storage as opposed to SIC codes 2091 and 2048. 40 CFR § 122.44(l)(1) allows for backsliding of technology-based effluent limitations in the permit since circumstances on which the existing permit were based have materially and substantially changed since the time the existing permit was issued and would have constituted cause for a permit modification under 40 CFR § 122.62(a).

EPA also found no RP for levels of ammonia, copper, and mercury in the discharge to exceed ASWQS based on monitoring data collected after June 2018. On these grounds, EPA found that there was no RP basis to retain limits for these pollutants; however, ammonia continues to be monitored to ensure protection of aquatic life in Pago Pago Harbor since total ammonia was likely to be the primary source of toxicity in past chronic toxicity results and specific monitoring of mercury was also retained due to the existence of a Mercury TMDL for Pago Pago Harbor. Removal of these limits due to a finding of no RP also meets the new information exception to antibacksliding under CWA § 402(o)(2).

The effluent limitations in this permit are at least as stringent as the effluent limitations in the previous permit, with the exception of effluent concentration-based limits for zinc. The less stringent zinc concentration-based limits were derived from an increased dilution factor of 52:1 (previously 25:1) which was authorized under the ASWQS mixing zone provision at § 24.0207. See Section VI.B.2 of this fact sheet. The relaxed zinc dilution and concentration-based limits under this permit satisfies exceptions to the general prohibition against anti-backsliding. Under Section 404(o)(1), this relaxation is consistent with federal and ASWQS antidegradation policies because, while the effluent concentration has slightly increased, the flow has significantly decreased resulting in an overall decrease to the zinc loading to the receiving water so there is no degradation of receiving water quality. Additionally, Section 402(o)(3) of the CWA provides a floor below which any permit relaxation is prohibited: “In no event may a permit to discharge into waters be renewed, reissued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of the applicable water quality standard,” which under this permit are the ASWQS, including its antidegradation and mixing zone provisions. While Starkist has requested a dilution factor of up to 119:1 for zinc, EPA has authorized a dilution factor of 52:1, which results in the smallest mixing zone area as possible, consistent with the applicable mixing zone standard at ASWQS §24.0207(a), that also enables Starkist to meet its effluent limits without degrading the receiving waters, consistent with the applicable policy on water quality degredation at ASWQS §24.0202, further discussed below in Section VI.E.

E. Antidegradation Policy

EPA's antidegradation policy under CWA § 303(d)(4) and 40 CFR § 131.12 and the American Samoa's antidegradation policy at ASWQS § 24.0202 require that existing water uses and the level of water quality necessary to protect the existing uses be maintained. As described in this fact sheet, the permit establishes effluent limits and monitoring requirements to ensure that all applicable water quality standards are met. The permit includes a mixing zone, which has been set to ensure no degradation of water quality. A priority pollutant scan of the effluent demonstrated that most pollutants not already regulated by the permit will be discharged below detection levels.

As noted above in Section VI.D of the fact sheet, CWA Section 402(o)(1) allows relaxation of water quality based effluent limits, such as the zinc effluent limit, where water quality exceeds levels necessary to protect designated use(s) identified for such waters, pursuant to CWA Section 303(d)(4)(B), if consistent with antidegradation policy. Receiving water collected from August 2018 to August 2019 showed zinc concentrations of 0.75 to 7.85 ug/l at the boundary of the ZID, which were well below the most stringent zinc water quality criteria of 81 µg/l. EPA has determined there is no degradation to water quality and actually there is a decrease of zinc loading to the receiving water under the final permit due to the significantly decreased flow rate, notwithstanding the increased concentration-based zinc limits, as outlined in Table 5 of the fact sheet. Because there is no degradation to the receiving water based on the relaxed zinc effluent limits, no further analysis under the antidegradation policies is required.

Due to the minor and intermittent discharge flow (i.e., average flow of 0.06 MGD and maximum permitted daily flow of 0.1 MGD) and the low levels of nutrients and toxic pollutants present in the effluent after the December 2016 tuna canning operation shutdown as well as application of water quality-based effluent limitations protective of ASWQS and an updated mixing zone modeling to derive the nutrient and zinc limits, EPA finds that the discharge is not expected to adversely affect receiving water bodies or result in an increase in pollutants or any additional degradation of harbor water quality.

VII. NARRATIVE WATER QUALITY-BASED EFFLUENT LIMITS

The ASWQS contain narrative water quality standards applicable to the receiving water at Section 24.0206. Therefore, the permit incorporates applicable narrative water quality standards. Based on the ASWQS, 2018 Revision, the previous DO concentration limit of 5 mg/L has been replaced with a new minimum DO percent (%) saturation level of 80 % as influenced by salinity or naturally occurring temperature variations.

VIII. MONITORING AND REPORTING REQUIREMENTS

The permit requires the permittee to conduct monitoring for all pollutants or parameters where effluent limits have been established, at the minimum frequency specified. Additionally, where effluent concentrations of toxic parameters are unknown or where data are insufficient to determine reasonable potential, monitoring may be required for pollutants or parameters where effluent limits have not been established.

A. Effluent Monitoring and Reporting

The permittee shall conduct effluent monitoring to evaluate compliance with the permit conditions. The permittee shall perform all monitoring, sampling and analyses in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit. All monitoring data shall be reported on monthly DMRs and submitted quarterly as specified in the permit. All DMRs are to be submitted electronically to EPA using NetDMR.

B. Receiving Water Monitoring Program

The previous permit established a joint Pago Pago Receiving Water Monitoring Program to assess compliance with receiving water limitations and to investigate the impact of the discharges on the receiving water. Semi-annual receiving water monitoring has been conducted at 5 monitoring stations including reference site, end of the pipe, ZID, and ZOM at three depths (i.e., surface, mid-depth, and bottom depth). The permit sets a detailed new receiving water monitoring program with updated sampling requirements, which includes retention of several prior monitoring stations and the addition of new stations, to validate the behavior of the combined effluent plume, to ensure protection of newly listed endangered corals, and to be updated for the new treatment system and discharge protocols at the adjacent Starkist facility using the same JCO outfall. Receiving water monitoring data shall be submitted as electronic attachments to Net DMR submissions.

C. Priority Toxic Pollutants Scan

A Priority Toxic Pollutants scan shall be conducted during the fourth year of the five-year permit term to ensure that the discharge does not contain toxic pollutants in concentrations that may cause a violation of water quality standards. The permittee shall perform all effluent sampling and analyses for the priority pollutants scan in accordance with the methods described in the most recent edition of 40 CFR § 136, unless otherwise specified in the permit or by EPA. 40 CFR § 131.36 provides a complete list of Priority Toxic Pollutants (see Attachment G of the permit).

D. Whole Effluent Toxicity Testing

Aquatic life is a public resource protected in surface waters covered by the CWA. As evidence that CWA requirements protecting aquatic life from toxicity are met in surface waters receiving the NPDES discharge, samples are collected from the effluent and tested for toxicity in a laboratory using EPA's WET methods. These results are used to determine if the effluent causes toxicity to aquatic organisms. Toxicity testing is important because for scores of individual chemicals and compounds, chemical-specific environmentally protective levels for toxicity to aquatic life have not been developed or set as water quality standards. These chemicals and compounds can eventually make their way into NPDES effluents and their receiving surface waters. When this happens, toxicity tests of effluents can demonstrate toxicity due to present, but unknown, toxicants (including possible synergistic and additive effects), signaling a water quality problem for aquatic life.

EPA's WET methods are systematically-designed instructions for laboratory experiments that expose sensitive life stages of a test species (e.g., fish, invertebrate, algae) to both an NPDES effluent sample and a negative control sample. During the toxicity test, each exposed organism can show a difference in biological response. Undesirable biological responses include eggs not fertilized, early life stages that grow too slowly or abnormally, death, etc. At the end of a toxicity test, the different biological responses of the organisms in the effluent group and the organisms in the control group are summarized using common descriptive statistics (e.g., means, standard deviations, coefficients of variation). The effluent and control groups are then compared using an applicable inferential statistical approach (i.e., hypothesis testing or point estimate model) specified in the NPDES permit. The chosen statistical approach shall be compatible with both the experimental design of the EPA's WET method and the applicable toxicity water quality standard. Based on this statistical comparison, a toxicity test will demonstrate that the effluent is either toxic or not toxic.

As described in Part VI.C.(11) of the fact sheet, this permit establishes semi-annual monitoring for chronic toxicity for the individual STP facility effluent, and hence effluent toxicity can be assessed in relation to CWA requirements for the permitted STP facility discharge. Following 40 CFR § 122.44(d)(1), in setting the permit's level for chronic WET and conditions for discharge, EPA is using an available short-term chronic WET method/test species pursuant to 40 CFR § 136 and an Instream Waste Concentration ("IWC") for the discharge representing the effluent dilution necessary to protect the receiving water's narrative water quality standard for toxicity. Among several statistical WET methods, EPA has chosen the Test of Significant Toxicity ("TST") statistical approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). The TST null hypothesis for chronic toxicity (Ho) is: IWC mean response (% effluent) ≤ 0.75 Control mean response. The TST alternative hypothesis is (Ha): IWC mean response (% effluent) > 0.75 Control mean response. Results obtained from a single chronic toxicity test are analyzed using only the TST approach and an acceptable level of chronic toxicity is demonstrated by statistically rejecting the null hypothesis.

Considering the critical condition (i.e., only STP-facility effluent being discharged from the JCO), the required chronic toxicity IWC for the STP-facility discharge is 0.32 % effluent (1/S × 100), where S is dilution factor of 313, which is carried over from the previous permit and is consistent with the dilution applied to ammonia that is the suspected primary source of toxicity. For each chronic toxicity test, the permittee is required to report Pass "0" or Fail "1" on the DMR form. Pass "0" constitutes rejection (i.e., TST null hypothesis is rejected and the IWC is declared not toxic) and Fail "1" constitutes non-rejection (i.e., TST null hypothesis is not rejected and the IWC is declared toxic) of the TST null hypothesis (Ho), at the required IWC (i.e., IWC mean response (in 0.32 % effluent) ≤ 0.75 × Control mean response). Rejection of the TST null hypothesis is determined by following the step-by-step instructions in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A (EPA 833-R-10-003, 2010). Depending on the WET test results, the permit requires certain follow-up actions, such as a toxicity reduction evaluation ("TRE") to identify and correct the cause of any observed toxicity, as indicated by a Fail "1" result.

For NPDES samples for WET testing, the sample hold time generally begins when the 24-hour composite sampling period is completed (or the last grab sample in a series of grab samples is taken) and ends when WET testing with the sample begins (i.e., initiation of WET test). 40

CFR § 136.3(e) states that the WET method's 36-hour hold time cannot be exceeded unless a variance of up to 72-hours is authorized by EPA. On June 29, 2015, by memorandum, EPA Region 9 authorized a hold time variance of up to 72-hours for Pacific Island Territory permittees which ship the NPDES sample to the continental U.S. for WET testing, with conditions. See WET Requirements section in permit.

IX. SPECIAL CONDITIONS

A. Initial Investigation Toxics Reduction Evaluation (TRE) Workplan for WET

Within 90 days of the permit effective date, the permittee shall prepare and submit a copy of their Initial Investigation TRE Workplan (1-2 pages) for chronic toxicity to EPA for review and approval. If the chronic toxicity test result is reported as "Fail (1)" (i.e., TST null hypothesis is not rejected and the IWC is declared toxic), the permittee shall conduct additional toxicity testing and implement its Initial Investigation TRE Work Plan.

B. Outfall Inspection

The permittee, in coordination with the Starkist cannery, continues to conduct outfall monitoring at least once per permit term to evaluate the condition of the Joint Cannery Outfall. The outfall must be inspected along its entire length, from, and including, the discharge connection at the pump(s) for each of STP and Starkist facilities, to the junction of the STP and Starkist discharge lines, and from the junction of the lines to the diffuser cap at the termination of the outfall. All complete video recording, photographs, and the inspection report are to be kept on site and available for EPA review upon request.

X. OTHER CONSIDERATIONS UNDER FEDERAL LAW

A. Consideration of Environmental Justice

EPA's Environmental Justice policy establishes fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. As part of the environmental permitting process, EPA considers cumulative environmental impacts to disproportionately impacted communities.

In American Samoa, EPA is aware of several environmental burdens facing communities including ongoing boil water notices on the local drinking water system, wastewater treatment only to primary standards (not the more typical secondary treatment), runoff from small-scale piggeries, and an abundance of cesspools for individual residences.

This permit was written to regulate an industrial wastewater entering the harbor to ensure it does not adversely impact the water quality of Pago Pago Harbor. After careful consideration, EPA has set permit limits more stringent to those in the preceding permit, with the exception of metals parameters (i.e., copper and mercury) for which there is no RP to exceed the applicable WQS and the production-based limits for TSS and O&G due to no production from canning operations.

EPA believes the permitted discharges should not contribute to undue incremental environmental burden and has made reasonable effort to ensure the community has, at a minimum, the same degree of protection as less burdened communities. EPA will issue this permit in consideration of the American Samoa community and consistent with the Clean Water Act, which is protective of all beneficial uses of the receiving water, including human health.

B. Impact to Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973 (16 U.S.C. § 1536) requires federal agencies to ensure that any action authorized, funded, or carried out by the federal agency does not jeopardize the continued existence of a listed or candidate species, or result in the destruction or adverse modification of its habitat.

On July 20, 2018, EPA sent letters to the U.S. Fish and Wildlife ("USFWS") Pacific Islands Fish and Wildlife Office, and the National Marine Fisheries Service ("NMFS") NOAA Fisheries Pacific Islands Regional Office, requesting a list of threatened and endangered species in the vicinity of the American Samoa Pago Pago Harbor to assess the potential impacts in the action area by the wastewater discharges from the STP and Starkist facilities' JCO. In its August 15, 2018 response to EPA's request, the USFWS states: "There is no federally designated terrestrial critical habitat within the immediate vicinity of the proposed project. Our data indicate that there are no federally listed terrestrial species that may occur or transit through the vicinity of the proposed project area." On July 20, 2018, NMFS/NOAA responded to EPA with the list of potentially affected ESA-listed species for this action species of potential concern. On August 26, 2020, EPA sought technical assistance from NMFS/NOAA and determined that there have been newly listed species under NMFS's jurisdiction that may be present in the action area.

Table 6. Potentially affected ESA-listed species for American Samoa Pago Pago Harbor (identified in August 26, 2020 by NMFS/NOAA)

Species	Status	Common Name	Scientific Name
Sea Turtle	Endangered	Green turtle, Central south pacific DPS	*Chelonia mydas*
	Threatened	Green Sea Turtle, Southwest Pacific DPS	*Chelonia mydas*
	Threatened	Green Sea Turtle, East Pacific DPS	*Chelonia mydas*
	Endangered	Green Sea Turtle, Central West Pacific DPS	*Chelonia mydas*
	Threatened	Green Sea Turtle, East Indian-West Pacific DPS	*Chelonia mydas*
	Endangered	Hawksbill turtle	*Eretmochelys imbricata*

Species	Status	Common Name	Scientific Name
Fishes	Threatened	Scalloped hammerhead shark, Indo-West Pacific DPS	*Sphyrna lewini*
	Threatened	Oceanic Whitetip Shark	*Carcharhinus longimanus*
	Threatened	Giant Manta Ray	*Manta birostris*
Nautilus	Threatened	Chambered Nautilus	*Nautilus pompilius sp.*
Coral	Threatened	–	*Acropora globiceps*
	Threatened	–	*Acropora jacquelineae*
	Threatened	–	*Acropora retusa*
	Threatened	–	*Acropora speciosa*
	Threatened	–	*Isopora crateriformis*
	Threatened	Branching frogspawn coral	*Euphyllia paradivisa*
Giant Clam	Proposed (as threatened)	Bear paw clam	*Hippopus hippopus*
	Proposed (as threatened)	China clam	*H. porcellanus*
	Proposed (as threatened)	–	*Tridacna costata*
	Proposed (as threatened)	Southern giant clam	*T. derasa*
	Proposed (as threatened)	Giant clam	*T. gigas*
	Proposed (as threatened)	Fluted giant clam	*T. squamosa*
	Proposed (as threatened)	–	*T. tevoroa*

Note: "DPS" is an abbreviation for "Distinct Population Segment", an identifier of sub-populations

Potential for Effect, by species:

<u>Green Turtle and Hawksbill Turtle</u>: May affect, not likely to adversely affect

EPA has determined that the Green Sea Turtle and Hawksbill Sea Turtle have at most incidental contact with the discharge from the JCO, and are unlikely to suffer harmful effects, based on the following considerations:

- Both types of sea turtles have been sighted in the waters around American Samoa and are recorded as having established critical habitat in American Samoa. However, primary habitat for sea turtles includes beaches for nesting, open ocean convergence zones, and coastal areas for benthic feeding. The facility in this permit discharges to deeper water and is not expected to affect these types of habitat.
- No known sightings are recorded in the vicinity of the discharge at 176-foot depth in Pago Pago Outer Harbor.
- If a member of the species were to enter the near vicinity of the discharge and react negatively to any component of the wastewater, both species are sufficiently mobile to depart, or traverse, the maximum affected area within 1-3 minutes. This leaves little time for harmful effects to occur.
- Discharges from the STP facility are required to meet the ASWQS for the protection of "support and propagation of marine life" based on the applicable beneficial use designation for Pago Pago Harbor.
- Based on a review of recovery plans and available data, EPA is not aware of scientific information or studies documenting negative effects on sea turtles from these types of effluent discharges.

Accordingly, EPA has determined that minor intermittent wastewater discharge from the STP facility under the permit "may affect, but is not likely to adversely affect" the Green Sea Turtle or the Hawksbill Sea Turtle.

Scalloped Hammerhead Shark, Oceanic Whitetip Shark, and Giant Manta Ray: No effect

EPA has determined that the Scalloped Hammerhead Shark, the Oceanic Whitetip Shark, and the Giant Manta Ray have little or no nexus with the discharge from the STP facility, beyond the possibility of incidental contact, based on the following considerations:

- No known sightings are recorded in the vicinity of the discharge at 176 foot depth in Pago Pago Outer Harbor. These species are recorded as capable of diving to this depth, but tends to do so when feeding further offshore.
- If a member of these species was to enter the near vicinity of the discharge and react negatively to any component of the wastewater, the species is sufficiently mobile to depart, or traverse, the maximum affected area within 1-2 minutes. This leaves little time for harmful effects to occur.
- STP discharge flow has been significantly reduced and no high strength wastewater has been discharged since the STP facility ceased the tuna canning operations in December 2016.
- Discharges from the STP facility will meet the ASWQS for the protection of "support and propagation of marine life" based on the applicable beneficial use designation for Pago Pago Harbor.
- Based on a review of recovery plans/outlines and available data, EPA is not aware of scientific information or studies documenting negative effects on sharks from these types of effluent discharges.

Accordingly, EPA has determined that minor intermittent wastewater discharge from the STP facility under the permits will have "no effect" on the Scalloped Hammerhead Shark, the Oceanic Whitetip Shark, and the Giant Manta Ray.

Shallow corals - *Acropora globiceps, Acropora retusa, and Isopora crateriformis*: No effect

These three coral species are reported to occur exclusively at depths less than 12 meters. The outfall for the discharge is at 176 feet (about 53.6 meters) and is thus unlikely to directly affect any of the listed species, having a greater than 40-meter depth separation from the discharge point. In the summary sheets for the 2014 listings (NOAA, 2014), the risk factors of ocean warming and ocean acidification are described as particular concerns for the corals with shallow or narrow depth ranges, so the discharge's separation from these species further reduces concern that the discharge could be a contributing stressor to these shallow and particularly sensitive coral species.

Furthermore, NMFS indicated in the July 20,2018 initial response that "it is doubtful that all six species of corals would occur in the proposed action area" and that their local expert in American Samoa is seeking to better characterize which species might be present, or absent, in the action area. EPA has therefore determined the outfall will have "no effect" on the three threatened corals *Acropora globiceps, Acropora retusa, and Isopora crateriformis*, should any be present in Pago Pago Harbor in the vicinity of the outfall.

Deep corals - *Euphyllia paradivisa, Acropora jacquelineae, and Acropora speciosa*: May affect, not likely to adversely affect

The other three corals listed as threatened under the ESA are reported to occur exclusively at depth greater than 12 meters and may warrant closer consideration. *Euphyllia paradivisa* favors depths of 2 to 25 meters, while *Acropora jacquelineae* spans 10 to 35 meters depth and *Acropora speciosa* 12 to 40 meters (NOAA, 2014). While even the deepest-ranging *A. Speciosa* retains more than a 13-meter depth separation from the outfall itself, once discharged the warmer, less dense wastewater has the tendency to rise. This rising plume behavior is typical for wastewater while mixing with, and being diluted by, the receiving water. It is, therefore, necessary to consider the depths which might be reached by the wastewater plume.

On the matter of potential effects to the deeper species, the listed coral which ranges closest to the discharge depth and therefore has the highest potential for exposure, *A. speciosa*, is also noted by NOAA as having a broad distribution across the Indo-Pacific region, and the species' abundance was characterized as "common", including confirmation of communities distant from American Samoa in the Pacific Remote Island Areas ("PRIA"). Therefore, should there be any harmful effects in the vicinity of the discharge, these effects would be unlikely to meaningfully impair the species' survival both in American Samoa, and the broader Pacific. Furthermore, the species' broad depth range, incorporating much shallower waters, ensures that members could still thrive in the vicinity of the discharge at unaffected depths. NOAA-NMFS indicates that the second-deepest species, *A. jacquelineae*, is known to occur from the Philippines to the Solomon Islands, but at the time of listing the only confirmed population within U.S. jurisdiction was in American Samoa. *A. jacquelineae* spans numerous habitat types and depths, giving it resilience to localized acute effects, but appears to favor reef slope and back-reef habitats (NOAA 2014). The discharge from this facility is to the deep mouth of Pago Pago Outer Harbor, which appears unlikely to be a favored habitat for this species. The shallowest of the three "deep" species

considered here, *E. paradivisa*, has a depth range (2 m -25 m) which lies primarily outside those depths potentially affected by the discharge (18m +). The species is not yet well surveyed but "likely distributed mostly in the Coral Triangle area (the Philippines to Timor Leste and east to the Solomon Islands)" in addition to the population in American Samoa.

Taking into account NOAA's assertion (dated July 20, 2018) that "it is doubtful that all six species of corals would occur in the proposed action area" and the fact that the few studies conducted on this species characterize its frequency as "rare," the probability of the discharge encountering this species appears low. The potential for impacts is also limited given that a plume which rises ~28 meters (92 feet) between the outfall and the species' maximum depth would likely be quite significantly diluted during its rise through the water column. It is relevant to reiterate that the ASWQS explicitly exclude reef-flat areas from inclusion in any mixing zone, and therefore the discharge is required to meet, before crossing onto reef-flat area, the ASWQS standards designed to be protective of the "support and propagation of marine life".

For these threatened deeper-water (below 12m) corals which may exist in sufficiently close proximity to the discharge to be affected, the permit remains protective through inclusion of applicable discharge limitations. Wastewater parameters of particular concern for coral habitat include sediment/light occlusion, and nutrient levels which may support algae growth. The permit includes more stringent limits for nutrients including nitrogen and phosphorous, which implement the ASWQS for Pago Pago Harbor designed to be protective of aquatic species in that environment through the designated use of "support and propagation of marine life." Also, due to no cannery process wastewater since December 2016, there has been only minor intermittent (once or twice per month) discharge flow and very low TSS and O&G levels in the effluent which are considered the main factors of sediment/light occlusion. Based on the combination of the above factors, EPA has determined that the discharge has "may affect, but is not likely to adversely affect" any of the three threatened corals *Euphyllia paradivisa*, *Acropora jacquelineae*, and *Acropora speciosa* which have the potential to be in proximity to the discharge and within the depths potentially reached by the effluent plume..

Chambered Nautilus: No effect

Chambered nautilus is mainly found in the western Pacific Ocean and coastal areas of the Indian Ocean. They can also be found in waters off of the American Samoa. Relatively little information on this species pertinent to American Samoa is available to EPA. This pelagic species' preferred depth range is recorded as roughly 1000 feet (Ward, 1988) and the primary suspected cause of threat is overharvesting for demand as jewelry and other decorative items. Given their slow growth, late maturity, low reproductive output, and low mobility, chambered nautiluses are particularly vulnerable to overfishing. Since the proposed discharge point is in much shallower water (176 ft) and the facility has no connection to the Nautilus fishery, EPA has determined the wastewater discharge from the STP facility will have "no effect" on any (sub)species of Chambered Nautilus.

Giant Clams proposed for listing: No effect

On August 25, 2017, NOAA fisheries announced a proposed rule finding that listing may be warranted for 7 species of giant clams (NOAA, 2017). Based on the 2017 findings, the greatest threats to these species which can be specifically attributed are:

1) Overutilization and overharvesting,

2) International trade in specific species,
3) Climate stressors (for species where specific information is available)
4) Ocean acidification (for species where specific information is available)

Based on the information available, EPA notes that of the species of giant clams proposed for listing, not all have geographic ranges which include American Samoa and of these, the deepest-living appears to be *T. derasa* at 20 meters maximum depth (NOAA, 2017). Given the discharge occurs at a depth of 53.6 meters, or more than 30 meters of separation, overlap of the clams' ranges and the discharge would be negligible. Furthermore, in its July 20, 2018 response to EPA's request for a species list, NOAA's expert indicated he "would be surprised if the giant clam is in Pago Pago Harbor in the vicinity of the proposed actions." EPA has therefore determined the outfall will have "no effect" on any giant clams in the vicinity of the outfall which are proposed for listing.

Conclusion

Based on the above lines of evidence, EPA has determined reissuance of the NPDES permit for the STP facility may affect, but is not likely to adversely affect the endangered Green Sea Turtle *Chelonia mydas*, the endangered Hawksbill Sea Turtle *Eretmochelys imbricata*, and the threatened coral species *Acropora jacquelineae, Acropora speciose*, and *Euphyllia paradivisa* (also known as Branching Frogspawn Coral). EPA has received concurrence from USFWS on EPA's conclusion for the JCO in a letter dated August 15, 2018 and provided a copy of the draft permit and fact sheet to USFWS for review during the public notice period. On October 21, 2020, EPA requested to initiate informal consultation with NMFS and provided a biological evaluation ("BE") and a copy of the draft permit and fact sheet to NMFS. EPA received a concurrence letter from NMFS on November 27, 2020.

On March 5, 2021, EPA reached out to NMFS to inform that there are changes in the zinc dilution and effluent limits in the final permit based on the comment received during the public notice period. EPA had a conference call with NMFS on March 15, 2021 to discuss the permit changes and NMFS' concerns. On March 22, 2021, EPA received an email that NMFS do not expect the action to affect any ESA-listed species in a manner not previously evaluated.

C. Impact to Coastal Zones

The Coastal Zone Management Act ("CZMA") requires that federal activities and licenses, including federally permitted activities, must be consistent with an approved state Coastal Management Plan (CZMA Sections 307(c)(1) through (3)). Section 307(c) of the CZMA and implementing regulations at 40 CFR § 930 prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State (or Territory) Coastal Zone Management program, and the State (or Territory) or its designated agency concurs with the certification.

The American Samoa Coastal Zone Management program, the Department of Commerce, provided a general concurrence for all NPDES permit renewals in American Samoa (June 2010). Therefore, the permittee has demonstrated consistency with the Coastal Zone Management program.

D. Impact to Essential Fish Habitat

The 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act ("MSA") set forth a number of new mandates for the National Marine Fisheries Service, regional fishery management councils and other federal agencies to identify and protect important marine and anadromous fish species and habitat. The MSA requires federal agencies to make a determination on federal actions that may adversely impact Essential Fish Habitat ("EFH") in marine environments.

This permit for the STP facility is a reissuance for an existing facility. No new construction, new pipes, land, habitat, or hydrology alterations are associated with the permit reissuance. There has been no process wastewater discharge and discharge flow has been significantly reduced since the facility ceased the tuna canning operations in December 2016. Also, the permit does not directly discharge to areas of essential fish habitat and requires compliance with numerical and narrative water quality-based effluent limits as necessary for the protection of applicable aquatic life uses. Furthermore, the permit contains a re-opener provision for numeric effluent limits to be established if any parameters demonstrate potential to exceed or contribute to an exceedance of applicable water quality standards for the protection of marine life. Therefore, EPA initially made a "no adverse effect" determination for EFH and shared a draft permit and fact sheet with NMFS on October 21, 2020.

On October 22, 2020, NMFS Habitat Conservation Division provided an email stating it disagrees with EPA's determination and expects there may be adverse effects to designated EFH (i.e., deep corals), water column EFH, and potentially habitat-forming EFH benthic substrates in Pago Pago Harbor from the STP facility discharge. EPA had a conference call with NMFS on October 29, 2020 to discuss its potential concerns about EFH resources. EPA and NMFS also discussed EFH requirements under the MSA. Based on the discussion, EPA revised its position to a "may have adverse effects, but no more than minimal effects" determination for EFH. On November 2, 2020, EPA requested EFH consultation and provided a revised BE and EFH assessment to NMFS Habitat Conservation Division. NMFS has concurred with EPA's determination that adverse effects to EFH would be no more than minimal in an email dated November 24, 2020. Additional conservation recommendations have not been provided.

On March 5, 2021, EPA reached out to NMFS Habitat Conservation Division to inform that there are changes in the zinc dilution and effluent limits in the final permit based on public comments received during the public notice period. EPA had a conference call with NMFS on March 15, 2021 to discuss the permit changes and NMFS' concerns. On March 19, 2021, EPA received an email that NMFS sees no changes in the basis of the consultation.

E. Impact to National Historic Properties

Section 106 of the National Historic Preservation Act ("NHPA") requires federal agencies to consider the effect of their undertakings on historic properties that are either listed on, or eligible for listing on, the National Register of Historic Places. Pursuant to the NHPA and 36 CFR § 800.3(a)(1), EPA is making a determination that issuing this NPDES permit does not have the potential to affect any historic properties or cultural properties. As a result, Section 106 does not require EPA to undertake additional consulting on this permit issuance.

XI. STANDARD CONDITIONS

A. Reopener Provision

In accordance with 40 CFR § 122 and 124, this permit may be modified by EPA to include effluent limits, monitoring, or other conditions to implement new regulations, including EPA-approved water quality standards; or to address new information indicating the presence of effluent toxicity or the reasonable potential for the discharge to cause or contribute to exceedances of water quality standards.

B. Standard Provisions

The permit requires the permittee to comply with EPA Region IX Standard Federal NPDES Permit Conditions.

XII. ADMINISTRATIVE INFORMATION

A. Public Notice (40 CFR § 124.10)

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft NPDES permit or other significant action with respect to an NPDES permit or application. EPA provided such public notice of the draft permit and the opportunity to comment on October 21, 2020.

B. Public Comment Period (40 CFR § 124.10)

Notice of the draft permit will be placed on the EPA website, with a minimum of 30 days provided for interested parties to respond in writing to EPA. The draft permit and fact sheet will be posted on the EPA website for the duration of the public comment period. After the closing of the public comment period, EPA is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is issued. The public comment period for the draft permit was open from October 21, 2020 through November 20, 2020.

C. Public Hearing (40 CFR § 124.12)

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if EPA determines there is a significant amount of interest expressed during the 30-day public comment period or when it is necessary to clarify the issues involved in the permit decision. EPA did not receive a request to hold a public hearing for the draft permit reissuance.

D. Water Quality Certification Requirements (40 CFR § 124.53 and § 124.54)

For States, Territories, or Tribes with EPA approved water quality standards, EPA requests certification from the affected State, Territory, or Tribe that the permit will meet all applicable

water quality standards. Certification under Section 401 of the CWA shall be in writing and shall include the conditions necessary to assure compliance with referenced applicable provisions of Sections 208(e), 301, 302, 303, 306, and 307 of the CWA and appropriate requirements of Territory law. EPA cannot issue the permit until the certifying State, Territory, or Tribe has granted certification under 40 CFR § 124.53 or waived its right to certify. If the State, Territory, or Tribe does not respond within 60 days of the requested deadline, it will be deemed to have waived certification. On October 21, 2020, EPA forwarded the draft permit and fact sheet to AS-EPA and requested water quality certification under Section 401 of the Clean Water Act from AS-EPA. AS-EPA provided Section 401 Water Quality Certification of this permit on December 17, 2020.

On March 12, 2021, EPA had a conference call with AS-EPA to inform that there are changes in the zinc dilution and effluent limits in the final permit based on comments received during the public notice period and discuss this permit change. On March 25, 2021, EPA received an email that AS-EPA has no comments as the proposed changes for zinc are still protective of water quality in Pago Pago Harbor.

XIII. CONTACT INFORMATION

Comments, submittals, and additional information relating to this proposal may be directed to:

Julie Song, (415) 972-3035
song.julie@epa.gov
EPA Region 9
75 Hawthorne Street (WTR 2-3)
San Francisco, California 94105

XIV. REFERENCES

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water, EPA. EPA/505/2-90-001.

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