Exhibit 5

February 12, 2019 Revised NPDES Renewal Application for Starkist Samoa Co. (AS0000019)

February 12, 2019

Tomas Torres, Director
Water Division – Region 9
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

RE: Revised NPDES Renewal Application for StarKist Samoa Co. (AS0000019)

Dear Mr. Torres:

Enclosed please find completed Form 1 and Form 2C for the renewal of the current NPDES permit (Permit No. AS0000019) StarKist Samoa Co. (StarKist), which expired on March 31, 2013 (the effective permit). The application for permit renewal was submitted on time (September 17, 2012) and the effective permit was administratively extended. At the request of U.S. Environmental Protection Agency (U.S. EPA), an updated complete permit renewal application was submitted on April 29, 2016. An updated request for a water quality certification and mixing zone analysis (MZA) was also submitted to the American Samoa Environmental Protection Agency (ASEPA) in February 2017.

Following submittal of the permit renewal application in April 2016, no draft NPDES permit was developed. In 2016 and 2017, the Facility implemented numerous upgrades and changes to treatment processes. The characterization of water quality from the WWTP effluent, as described in Form 2C of the April 2016 permit renewal application, reflected the most recent water quality data available at the time of the application development (in early 2016) and did not reflect improvements to the final effluent wastewater quality at the Facility achieved via the various upgrades and changes. Because of these modifications to treatment processes and resulting changes in effluent water quality at the Facility, StarKist submitted an amended NPDES permit renewal application on January 31, 2018 to reflect these improvements and changes. Additional effluent characterization information was then submitted in August 2018 to better characterize the improved effluent water quality due to the facility upgrades (most notably, water quality improvements due to implementation of the evaporators in late 2017).

StarKist has also performed additional receiving water sampling in 2018, beyond the permit required semi-annual sampling. These sampling events have shown that American Samoa Water Quality Standards (ASWQS) have been met in the receiving water in 2018 and represent a significant improvement from past sampling results prior to 2018, particularly with respect to nutrients. This improvement in receiving water quality is timed with, and believed to be the result of, recent wastewater treatment improvements at StarKist.

A pre-public draft permit for StarKist was issued on September 18, 2018, and StarKist provided comments on the pre-public draft permit on October 5, 2018. During discussions with U.S EPA and ASEPA, resuming ocean disposal of tuna processing waste was identified by the agencies as a potential option that StarKist was encouraged to pursue. StarKist was previously authorized by U.S EPA Region 9 to dispose of fish waste at an offshore location (the site was designated as a disposal site in February 1990).

StarKist has decided to pursue resuming ocean disposal of a portion of the tuna processing waste generated at the Facility and is currently coordinating with the Ocean Dumping Management Program at U.S EPA Region 9. StarKist plans to resume ocean disposal of certain of the wastewater streams that were historically sent to ocean disposal.

Resuming ocean dumping for a portion of the tuna processing wastewater will affect the wastewater that is treated and discharged through the Joint Cannery Outfall (JCO) into Pago Pago Harbor. The characterization of water quality from the wastewater treatment plant (WWTP) effluent to be discharged through the JCO will be significantly different with the inclusion of ocean disposal, ultimately reducing the flowrates, concentrations, and loads discharged through the JCO. As a result, the amended NPDES permit renewal application submitted on January 31, 2018 is no longer representative of anticipated discharge conditions during the next permit term. StarKist has further amended the NPDES permit renewal application to reflect the implementation of ocean disposal for a portion of the tuna processing waste.

As previously mentioned, StarKist is concurrently seeking approval to resume ocean disposal of certain wastewater streams that were historically ocean disposed. StarKist was not been able to coordinate with U.S EPA Region 9 regarding whether the historical wastewater streams continue to be acceptable for ocean disposal, due to the thirty-five day partial shutdown of the U.S. government that started on December 22, 2018. The NPDES permit renewal application has been amended with the assumption that ocean disposal will be resumed for wastewater streams that were previously sent to ocean disposal. If changes are required to the tuna processing waste sent to ocean disposal, this will further affect the quality and quantity of treated wastewater discharged through the JCO and amended information will be provided to U.S. EPA. Similarly, if ocean disposal is not approved, or contributions to ocean disposal are restricted, the loading to the JCO discharge will change.

The items that have been amended since submittal of the permit renewal application in January 2018 include the following:

- Descriptions of operations and treatment processes (Part II of Form 2C, included in Attachment A), including wastewater streams planned for ocean disposal
- Process flow diagrams (Part II of Form 2C, included in Figures P101 and P102)
- Effluent Characteristics[1] (Part V of Form 2C)

The current NPDES permit limitations for total nitrogen (TN) and total phosphorus (TP) were determined based on a historical agreement between StarKist and Samoa Tuna Processors (STP) that apportioned the total allowable load from the JCO between the two canneries based on each facility's need. The allowed JCO load for ammonia was also apportioned between facilities. StarKist and STP negotiated a revised apportionment of the total allowable ammonia, TN and TP load for each cannery to reflect the needs of each facility over the upcoming permit term. This agreement was made on May 16, 2018 and was provided to U.S. EPA.

After discussions with U.S. EPA related to the MZA submitted in 2017 and the pre-public draft permit, and given new plans for ocean disposal of certain allowed waste streams, StarKist is now requesting permit limits for nutrients (total nitrogen and total phosphorus) – when summed to a total combined allowable load to the JCO (from both SKS and STP) —that are consistent with the current permits for the two facilities, reapportioned appropriately between StarKist and STP.

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[1] Effluent data was updated for total aluminum, ammonia as nitrogen, biological oxygen demand (5 day), total cadmium, chemical oxygen demand, total chromium, total copper, total mercury, total nickel, nitrate+nitrite (as N), total nitrogen, oil and grease, total phosphorus, total suspended solids, and flow. Because ocean disposal has not yet been resumed, historical water quality data reflecting this condition are not available. Therefore, the effluent characterization for the aforementioned parameters represents calculated estimates of anticipated effluent quality (described in further detail in Attachment A).

Therefore, no change to the existing permits' combined total allowed loads to the JCO is requested.[2]

All subsequent information presented herein was provided in the transmittal letter with the January 2018 permit renewal application materials and has only been updated with more current information as appropriate.

Results of monitoring performed during the effective permit have been submitted to the U.S. Environmental Protection Agency (U.S. EPA) Region 9. A summary of monitoring, including pending reports currently under development, include:

- **Discharge Monitoring Reports (DMRs):** StarKist has been submitting routine DMRs as required by the effective NPDES permit. The most recent DMR, which includes data from the fourth quarter of 2018, was submitted on January 15, 2019.
- **Priority Pollutant Scan (PPS):** sampling for the PPS was performed in February 2016, and the results are included in the amended permit renewal application as appropriate (section V of Form 2C). A PPS report was submitted to U.S. EPA May 23, 2016.
- **Semi-annual toxicity effluent monitoring:** effluent monitoring has been performed semi-annually, as required by the effective permit. The most recent JCO effluent toxicity testing was performed in August 2018, and results are included in the amended permit renewal application as appropriate (section V of Form 2C).
- **Semi-annual receiving water monitoring:** receiving water monitoring has been performed and reported as required by the effective permit. Additionally, supplemental sampling has been performed at selected stations in 2018 to confirm whether recent receiving water quality improvements were being maintained and to expand the 2018 dataset. The most recent receiving water sampling was completed in December 2018. Results from the December 2018 sampling event were pending at the time the permit application was prepared; however, results from October 2018 have been submitted to U.S. EPA. Results from the multiple receiving water quality sampling events since March 2018 have shown the receiving water to be in compliance with applicable water quality standards.

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[2] In the event that U.S. EPA disagrees with procedure of reallocating the nutrient loads between the StarKist and STP facilities, StarKist nevertheless seeks authorization for and issuance of an NPDES permit with similar discharge limits to those sought via the reapportionment described above, under the basis that such final effluent limits are independently justifiable on the basis of the accompanying NPDES permit application and on mixing zone modeling.

The following additional supplemental information was requested by Mr. Pascal Mues during a phone discussion on March 28, 2016 and was previously included with the renewal application dated April 29, 2016 (Attachment A). This information has been updated as appropriate in the amended permit renewal application now being submitted:

- An evaluation of the metals Pollutant Minimization Plan (PMP) that was submitted by Glatzel Da Costa (gdc) (December 14, 2010 and supplemented on July 28, 2011) to fulfill special conditions submittal requirements of the effective NPDES permit is being updated in Attachment A. This evaluation includes a description of actions implemented at the facility based on the PMP, evaluation of the effectiveness of these measures, determination if further actions are needed based on current water quality conditions at the Facility (i.e., post-high strength wastewater and treatment upgrades), and an informal assessment of whether permit requirements were met.
- Nutrient PMP (or "Action Plan"), which is not required per the effective permit but was requested through communication with Mr. Mues, is also being updated in Attachment A. The requested information included a summary of the Environmental Summary Report submitted to the U.S. EPA in December 2015 and improvements completed since the report was issued. This information includes actions that StarKist plans to implement to reduce nutrients in the effluent and the timeline for implementation of these actions.

The effective permit also required submittal of certain studies as part of the special conditions, which included the following items that were previously submitted:

- Nutrient Assessment that addresses dilution calculations, waste load allocation estimates, model input/output, and an evaluation of the existing size of the mixing zone for nutrients based on modeling. Sampling was conducted in February 2010, September 2010, October 2010, and March 2011, and reports for these sampling events were submitted on June 9, 2010, December 6, 2010, and August 1, 2011, respectively. The effective permit also required a Nutrient Assessment workplan that describes a process to assess nutrients in the combined discharge, and the dilution required to meet water quality standards. The draft workplan was submitted with the June 9, 2010 report.
- A chronic toxicity special study to evaluate chronic toxicity levels of the combined cannery effluent after initial mixing in the receiving water, under critical conditions, and subsequent dilution. Semi-annual chronic toxicity testing was required to determine levels of chronic toxicity in the discharge, the appropriate dilution ratio using range finding test procedures, and effluent triggers or limits. The Chronic Toxicity Study Report was submitted to U.S. EPA and ASEPA on August 1, 2011.

We look forward to working with U.S. EPA and ASEPA in the development of the renewed NPDES permit. If you have any questions or require additional information, please feel free to contact us at your convenience. Thank you for your consideration.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,

Kwon Sangdong
General Manager

Attachments:
Form 1
Form 2C
Figure P101
Figure P102
Attachment A – NPDES Application Form 2C Supplemental Materials

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM
1
GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

S		T/A	C
F	ASD 983 366 030		D

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	 NO	 FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	 NO	 FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		X	D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

C 1 SKIP StarKist Samoa Co.

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
C 2 John Dearness	(684) 258-3234

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX

C 3 P.O. Box 368

B. CITY OR TOWN	C. STATE	D. ZIP CODE
C 4 Pago Pago	AS	96799

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

C 5 368 Atu'u Road

B. COUNTY NAME

Maoputasi

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
C 6 Pago Pago	AS	96799	

EPA Form 3510-1 (8-90)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	**B. SECOND**
C 7 2091 *(specify)* Processing and canning of tuna fish	C 7 2048 *(specify)* Processing of fish by-product into fish meal
C. THIRD	**D. FOURTH**
C 7 2047 *(specify)* Canning of pet food (not currently done at the facility)	C 7 *(specify)* \

VIII. OPERATOR INFORMATION

A. NAME: C 8 StarKist Samoa Co.

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☑ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

P *(specify)*

D. PHONE *(area code & no.)*: C A (684) 622-2025

E. STREET OR P.O. BOX: P.O. Box 368

F. CITY OR TOWN: C B Pago Pago

G. STATE: AS

H. ZIP CODE: 96799

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	**D. PSD** *(Air Emissions from Proposed Sources)*
C T I 9 N AS0000019	C T I 9 P Fish Meal Process
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
C T I 9 U	C T I 9 2015 MSGP *(specify)* Multi-sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP)
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
C T I 9 R	C T I 9 Boilers 800,600A,B,C,D *(specify)* Minor sourc Air Quality Permits issued by American Samoa EPA.

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

StarKist Samoa conducts the processing and canning of tuna fish and other ingredients (water, oil, and salt) for human consumption, pet food, and the processing of fish by-product into fish meal. StarKist Samoa's treated wastewater is discharged through an outfall and diffuser it shares with the adjoining cannery (Samoa Tuna Processors). The joint cannery outfall discharges through a high-rate diffuser into marine receiving water, the Pago Pago Harbor outer reach, in 176 feet of water.

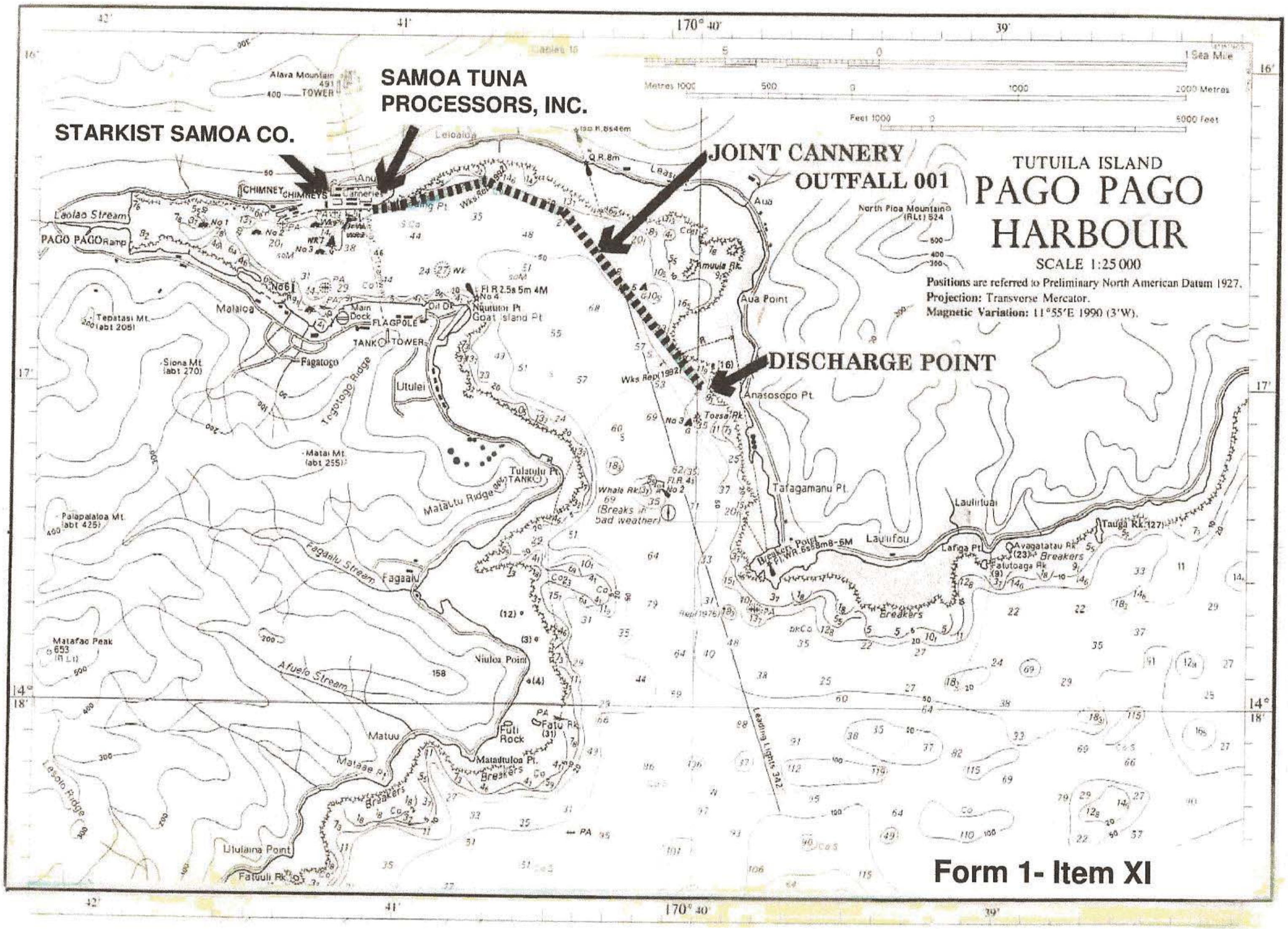
XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
Sangdong Kwon, General Manager		02/11/2019

COMMENTS FOR OFFICIAL USE ONLY

C C



Form 1- Item XI

Please print or type in the unshaded areas only.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ASD 983 366 030

Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM 2C NPDES

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (*list*)	B. LATITUDE 1. DEG.	B. LATITUDE 2. MIN.	B. LATITUDE 3. SEC.	C. LONGITUDE 1. DEG.	C. LONGITUDE 2. MIN.	C. LONGITUDE 3. SEC.	D. RECEIVING WATER (*name*)
001	14.00	16.00	49.00	170.00	40.00	8.00	Pago Pago Harbor
							Note: Latitude is South and
							Longitude is West
							Note: Coordinates are for outfall
							diffuser

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUT-FALL NO. (*list*)	2. OPERATION(S) CONTRIBUTING FLOW a. OPERATION (*list*)	2. b. AVERAGE FLOW (*include units*)	3. TREATMENT a. DESCRIPTION	3. b. LIST CODES FROM TABLE 2C-1	
001	See Attachment	See Attachment	See Attachment		

OFFICIAL USE ONLY (*effluent guidelines sub-categories*)

CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES (*complete the following table*) ☑ NO (*go to Section III*)

1. OUTFALL NUMBER (*list*)	2. OPERATION(*s*) CONTRIBUTING FLOW (*list*)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (*specify average*)	b. MONTHS PER YEAR (*specify average*)	a. FLOW RATE (*in mgd*)		B. TOTAL VOLUME (*specify with units*)		C. DURATION (*in days*)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☑ YES (*complete Item III-B*) ☐ NO (*go to Section IV*)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (*or other measure of operation*)?

☑ YES (*complete Item III-C*) ☐ NO (*go to Section IV*)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (*list outfall numbers*)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (*specify*)	
Daily average production (based on April-December 2018) is 446 MT/day. The anticipated maximum average daily production for the permit term is 552 MT/day.	metric tons/day	Tuna	001

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operations of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☑ YES (*complete the following table*) ☐ NO (*go to Item IV-B*)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED
United States District Court Western District of Pennsylvania Pittsburgh Division. United States of America v. StarKist Co. and StarKist Samoa Co. Consent Decree	001	Wastewater treatment operations for the processing and canning of tuna	Consent Decree includes requirements for civil penalty, evaluation of interim wastewater compliance measures, wastewater treatment upgrades, compliance with final effluent limitations, on-site laboratory, spill prevention and countermeasure regulations, stormwater permitting and investigation of illicit connections, and dock trench and sump inspections and assessments, and training.	December 31, 2020	December 31, 2020

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (*or other environmental projects which may affect your discharges*) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction.

☒ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUE ON PAGE 3

CONTINUED FROM PAGE 2

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ASD 983 366 030

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided.
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
Formaldehyde (contained in Termin-8, which is used in fish meal processing) Xylene (contained in Demand CS, which is used facility pest control) Pyrethrins (contained in Sunbugger 100 and Pro-Control, which are used for facility pest control)	All analytical data have been submitted to EPA under existing NPDES Permit requirements. No analytical data for these pollutants are available. However, Attachment A (Table 1) contains estimated quantities for annual usage of these substances and additional information regarding their potential discharge. StarKist does maintain material safety data sheets for these chemicals.	Certain substances (listed in Table 2C-4 of instructions for this form) are used at the facility and may be discharged. In order to apply for exclusion of the discharges from requirements of section 311 of the CWA, these substances are identified in the Attachment.	See Attachment.

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☐ YES (*list all such pollutants below*) ☑ NO (*go to Item VI-B*)

CONTINUED FROM THE FRONT

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☑ YES (*identify the test(s) and describe their purposes below*) ☐ NO (*go to Section VIII*)

The current NPDES Permit (No. AS0000019) requires semi-annual testing for chronic toxicity of a flow-weighted 24-hour combined-composite for effluent from both canneries discharging through the Joint Cannery Outfall (JCO).

From the effective date of the permit (April 2008) through 2009, the testing was done for the combined StarKist Samoa (SKS) and Samoa Packing (COS) effluent.

Samoa Packing (COS) terminated operations in September 2009. Samoa Tuna Processors (STP) purchased the Samoa Packing (COS) facility and started operations in April 2015. STP ceased operation in December 2016.

Starting in September 2009, only the StarKist Samoa effluent (SKS) was tested, and results have been provided to EPA on a routine basis. Beginning in August 2015, STP was also tested separately for chronic toxicity. Flow weighted effluent samples from SKS and STP were used to create composite samples that were analyzed for copper, zinc, mercury, ammonia, total nitrogen, and total phosphorus. A combined flow-weighted sample, created from the initial flow-weighted samples from each facility, was tested for chronic whole effluent toxicity (WET). Results have been provided to EPA.

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☑ YES (*list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below*) ☐ NO (*go to Section IX*)

A. NAME	B. ADDRESS	C. TELEPHONE (*area code & no.*)	D. POLLUTANTS ANALYZED (*list*)
TestAmerica, Inc.	17461 Derian Ave #100 Irvine, CA 92614	(949) 261-1022	Ammonia, COD (dissolved and total), O&G, nitrite + nitrate, TN, phosphorus (dissolved and total), TKN (dissolved and total), total solids, TSS, volatile suspended soids, total volatile solids, BOD
ALS Environmental	1317 South 13th Avenue Kelso, WA 98626	(360) 577-7222	JCO effluent toxicity (ammonia, nitrate + nitrite, TKN, total phosphorus, mercury, copper, zinc, and WET) and priority pollutant scan (PPS) data

IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (*type or print*)
Sangdong Kwon, General Manager

B. PHONE NO. (*area code & no.*)
(684) 622-2025

C. SIGNATURE

D. DATE SIGNED
02/11/2019

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (*use the same format*) instead of completing these pages.
SEE INSTRUCTIONS.

EPA I.D. NUMBER (*copy from Item 1 of Form 1*)
ASD 983 366 030

V. INTAKE AND EFFLUENT CHARACTERISTICS (*continued from page 3 of Form 2-C*)

OUTFALL NO.
001

PART A –You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT							3. UNITS (*specify if blank*)		4. INTAKE (*optional*)		
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (*BOD*)	1,075	16,229	782	13,413	517	8,076	51	mg/L	lb/day			
b. Chemical Oxygen Demand (*COD*)	4,942	89,451	2,303	39,499	1,909	29,851	136	mg/L	lb/day			
c. Total Organic Carbon (*TOC*)	904	10,782					1	mg/L	lb/day			
d. Total Suspended Solids (*TSS*)	186	3,173	62	1,056	48	757	196	mg/L	lb/day			
e. Ammonia (*as N*)	156	2,735	42	729	35	553	196	mg/L	lb/day			
f. Flow	VALUE 2.9		VALUE 2.06		VALUE 1.87		225		mgd	VALUE		
g. Temperature (*winter*)	VALUE 91.0/32.8		VALUE 90.1/32.3		VALUE 89.9/32.2		96	°F/ °C		VALUE		
h. Temperature (*summer*)	VALUE 92.0/33.3		VALUE 90.2/32.3		VALUE 88.9/31.6		113	°F/ °C		VALUE		
i. pH	MINIMUM 6.4	MAXIMUM 7.3	MINIMUM 6.5	MAXIMUM 7.1			209	STANDARD UNITS				

PART B – Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (*if available*)	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	X		26.4	315					1	mg/L	lb/da			
b. Chlorine, Total Residual		X												
c. Color	X		200						1	color un				
d. Fecal Coliform		X												
e. Fluoride (16984-48-8)		X	ND						1	mg/L				
f. Nitrate-Nitrite (*as N*)		X	ND	ND			ND	ND	1	mg/L	lb/da			

CONTINUE ON REVERSE

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. *(if available)*	2. MARK "X"		3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic *(as N)*	X		206	2,984	105	1,800	100	1,570	196	mg/L	lb/da			
h. Oil and Grease	X		29	369	8.8	151	11	171	102	mg/L	lb/da			
i. Phosphorus (as P), Total (7723-14-0)	X		24	453	8.8	150	6.8	107	196	mg/L	lb/da			
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate *(as SO_4)* (14808-79-8)	X		790	9,428					1	mg/L	lb/da			
l. Sulfide *(as S)*	X		9.9	118					1	mg/L	lb/da			
m. Sulfite *(as SO_3)* (14265-45-3)	X		85.5	1,020					1	mg/L	lb/da			
n. Surfactants		X	ND						1	mg/L				
o. Aluminum, Total (7429-90-5)	X		8.6	209			2.8	44	10	mg/L	lb/da			
p. Barium, Total (7440-39-3)	X		0.0078*	0.092					1	mg/L	lb/da			
q. Boron, Total (7440-42-8)	X		1.63	19.4					1	mg/L	lb/da			
r. Cobalt, Total (7440-48-4)		X	ND						1	mg/L				
s. Iron, Total (7439-89-6)	X		1.545	18.4					1	mg/L	lb/da			
t. Magnesium, Total (7439-95-4)	X		505	6,021					1	mg/L	lb/da			
u. Molybdenum, Total (7439-98-7)	X		0.0055*	0.066					1	mg/L	lb/da			
v. Manganese, Total (7439-96-5)	X		0.0241	0.288					1	mg/L	lb/da			
w. Tin, Total (7440-31-5)		X	ND						1	mg/L				
x. Titanium, Total (7440-32-6)	X		0.0032*	0.038					1	mg/L	lb/da			

CONTINUE ON PAGE V-3

CONTINUED FROM PAGE 3 OF FORM 2-C

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ASD 983 366 030

OUTFALL NUMBER: 001

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1M. Antimony, Total (7440-36-0)			X	ND						1	mg/L				
2M. Arsenic, Total (7440-38-2)		X		0.0932	1.11					1	mg/L	lb/da			
3M. Beryllium, Total (7440-41-7)			X	ND						1	mg/L				
4M. Cadmium, Total (7440-43-9)		X		0.018	0.44			0.012	0.18	5	mg/L	lb/da			
5M. Chromium, Total (7440-47-3)		X		0.0075	0.18			0.0070	0.11	2	mg/L	lb/da			
6M. Copper, Total (7440-50-8)		X		0.016	0.39			0.0087	0.14	21	mg/L	lb/da			
7M. Lead, Total (7439-92-1)			X	ND						2	mg/L				
8M. Mercury, Total (7439-97-6)		X		0.00028	0.0068			0.00015	0.002	21	mg/L	lb/da			
9M. Nickel, Total (7440-02-0)		X		0.0063*	0.15			0.0047*	0.073	2	mg/L	lb/da			
10M. Selenium, Total (7782-49-2)		X		0.0588	0.70					1	mg/L	lb/da			
11M. Silver, Total (7440-22-4)			X	ND						1	mg/L				
12M. Thallium, Total (7440-28-0)			X	ND						1	mg/L				
13M. Zinc, Total (7440-66-6)		X		0.0629	1.04					1	mg/L	lb/day			
14M. Cyanide, Total (57-12-5)		X		0.002*	0.024					1	mg/L	lb/da			
15M. Phenols, Total		X		0.301	3.6					1	mg/L	lb/da			
DIOXIN															
2,3,7,8-Tetra-chlorodibenzo-P-Dioxin (1764-01-6)			X	DESCRIBE RESULTS Analyzed during February 2016 Priority Pollutant Scan. Result was non-detect (reported to EPA).											

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V. Accrolein (107-02-8)			X	ND						1	mg/L				
2V. Acrylonitrile (107-13-1)			X	ND						1	mg/L				
3V. Benzene (71-43-2)		X		0.00034*	0.0041					1	mg/L	lb/da			
4V. Bis (*Chloromethyl*) Ether (542-88-1)			X	ND						1	mg/L				
5V. Bromoform (75-25-2)			X	ND						1	mg/L				
6V. Carbon Tetrachloride (56-23-5)			X	ND						1	mg/L				
7V. Chlorobenzene (108-90-7)			X	ND						1	mg/L				
8V. Chlorodibromomethane (124-48-1)			X	ND						1	mg/L				
9V. Chloroethane (75-00-3)			X	ND						1	mg/L				
10V. 2-Chloroethylvinyl Ether (110-75-8)			X	ND						1	mg/L				
11V. Chloroform (67-66-3)		X		0.00005*	0.0006					1	mg/L	lb/da			
12V. Dichlorobromomethane (75-27-4)			X	ND						1	mg/L				
13V. Dichlorodifluoromethane (75-71-8)			X	ND						1	mg/L				
14V. 1,1-Dichloroethane (75-34-3)			X	ND						1	mg/L				
15V. 1,2-Dichloroethane (107-06-2)			X	ND						1	mg/L				
16V. 1,1-Dichloroethylene (75-35-4)			X	ND						1	mg/L				
17V. 1,2-Dichloropropane (78-87-5)		X		0.0001*	0.0012					1	mg/L	lb/da			
18V. 1,3-Dichloropropylene (542-75-6)			X	ND						1	mg/L				
19V. Ethylbenzene (100-41-4)		X		0.00017*	0.002					1	mg/L	lb/da			
20V. Methyl Bromide (74-83-9)			X	ND						1	mg/L				
21V. Methyl Chloride (74-87-3)			X	ND						1	mg/L				

CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER *(if available)*	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE *(optional)*		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE *(if available)*		c. LONG TERM AVRG. VALUE *(if available)*		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS *(continued)*															
22V. Methylene Chloride (75-09-2)		X		0.00025*	0.003					1	mg/L	lb/da			
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X	ND						1	mg/L				
24V. Tetrachloro-ethylene (127-18-4)			X	ND						1	mg/L				
25V. Toluene (108-88-3)		X		0.00041*	0.0049					1	mg/L	lb/da			
26V. 1,2-Trans-Dichloroethylene (156-60-5)			X	ND						1	mg/L				
27V. 1,1,1-Trichloro-ethane (71-55-6)			X	ND						1	mg/L				
28V. 1,1,2-Trichloro-ethane (79-00-5)			X	ND						1	mg/L				
29V Trichloro-ethylene (79-01-6)			X	ND						1	mg/L				
30V. Trichloro-fluoromethane (75-69-4)			X	ND						1	mg/L				
31V. Vinyl Chloride (75-01-4)			X	ND						1	mg/L				
GC/MS FRACTION – ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)			X	ND						1	mg/L				
2A. 2,4-Dichloro-phenol (120-83-2)			X	ND						1	mg/L				
3A. 2,4-Dimethyl-phenol (105-67-9)			X	ND						1	mg/L				
4A. 4,6-Dinitro-O-Cresol (534-52-1)			X	ND						1	mg/L				
5A. 2,4-Dinitro-phenol (51-28-5)			X	ND						1	mg/L				
6A. 2-Nitrophenol (88-75-5)			X	ND						1	mg/L				
7A. 4-Nitrophenol (100-02-7)			X	ND						1	mg/L				
8A. P-Chloro-M-Cresol (59-50-7)			X	ND						1	mg/L				
9A. Pentachloro-phenol (87-86-5)			X	ND						1	mg/L				
10A. Phenol (108-95-2)		X		0.21**	2.51					1	mg/L	lb/da			
11A. 2,4,6-Trichloro-phenol (88-05-2)			X	ND						1	mg/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)			X	ND						1	mg/L				
2B. Acenaphtylene (208-96-8)			X	ND						1	mg/L				
3B. Anthracene (120-12-7)			X	ND						1	mg/L				
4B. Benzidine (92-87-5)			X	ND						1	mg/L				
5B. Benzo (*a*) Anthracene (56-55-3)			X	ND						1	mg/L				
6B. Benzo (*a*) Pyrene (50-32-8)			X	ND						1	mg/L				
7B. 3,4-Benzo-fluoranthene (205-99-2)			X	ND						1	mg/L				
8B. Benzo (*ghi*) Perylene (191-24-2)			X	ND						1	mg/L				
9B. Benzo (*k*) Fluoranthene (207-08-9)			X	ND						1	mg/L				
10B. Bis (*2-Chloro-ethoxy*) Methane (111-91-1)			X	ND						1	mg/L				
11B. Bis (*2-Chloro-ethyl*) Ether (111-44-4)			X	ND						1	mg/L				
12B. Bis (*2-Chloroisopropyl*) Ether (102-80-1)			X	ND						1	mg/L				
13B. Bis (*2-Ethyl-hexyl*) Phthalate (117-81-7)		X		0.11**	1.31					1	mg/L	lb/da			
14B. 4-Bromophenyl Phenyl Ether (101-55-3)			X	ND						1	mg/L				
15B. Butyl Benzyl Phthalate (85-68-7)			X	ND						1	mg/L				
16B. 2-Chloro-naphthalene (91-58-7)			X	ND						1	mg/L				
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)			X	ND						1	mg/L				
18B. Chrysene (218-01-9)			X	ND						1	mg/L				
19B. Dibenzo (*a,h*) Anthracene (53-70-3)			X	ND						1	mg/L				
20B. 1,2-Dichloro-benzene (95-50-1)			X	ND						1	mg/L				
21B. 1,3-Di-chloro-benzene (541-73-1)			X	ND						1	mg/L				

CONTINUE ON PAGE V-7

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
22B. 1,4-Dichloro-benzene (106-46-7)			X	ND						1	mg/L				
23B. 3,3-Dichloro-benzidine (91-94-1)			X	ND						1	mg/L				
24B. Diethyl Phthalate (84-66-2)			X	ND						1	mg/L				
25B. Dimethyl Phthalate (131 -11-3)			X	ND						1	mg/L				
26B. Di-N-Butyl Phthalate (84-74-2)			X	ND						1	mg/L				
27B. 2,4-Dinitro-toluene (121-14-2)			X	ND						1	mg/L				
28B. 2,6-Dinitro-toluene (606-20-2)			X	ND						1	mg/L				
29B. Di-N-Octyl Phthalate (117-84-0)			X	ND						1	mg/L				
30B. 1,2-Diphenyl-hydrazine (*as Azo-benzene*) (122-66-7)			X	ND						1	mg/L				
31B. Fluoranthene (206-44-0)			X	ND						1	mg/L				
32B. Fluorene (86-73-7)			X	ND						1	mg/L				
33B. Hexachloro-benzene (118-74-1)			X	ND						1	mg/L				
34B. Hexachloro-butadiene (87-68-3)			X	ND						1	mg/L				
35B. Hexachloro-cyclopentadiene (77-47-4)			X	ND						1	mg/L				
36B Hexachloro-ethane (67-72-1)			X	ND						1	mg/L				
37B. Indeno (*1,2,3-cd*) Pyrene (193-39-5)			X	ND						1	mg/L				
38B. Isophorone (78-59-1)			X	ND						1	mg/L				
39B. Naphthalene (91-20-3)			X	ND						1	mg/L				
40B. Nitrobenzene (98-95-3)			X	ND						1	mg/L				
41B. N-Nitro-sodimethylamine (62-75-9)			X	ND						1	mg/L				
42B. N-Nitrosodi-N-Propylamine (621-64-7)			X	ND						1	mg/L				

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (*continued*)															
43B. N-Nitro-sodiphenylamine (86-30-6)			X	ND						1	mg/L				
44B. Phenanthrene (85-01-8)			X	ND						1	mg/L				
45B. Pyrene (129-00-0)			X	ND						1	mg/L				
46B. 1,2,4-Tri-chlorobenzene (120-82-1)			X	ND						1	mg/L				
GC/MS FRACTION – PESTICIDES															
1P. Aldrin (309-00-2)			X	ND						1	mg/L				
2P. α-BHC (319-84-6)			X	ND						1	mg/L				
3P. β-BHC (319-85-7)			X	ND						1	mg/L				
4P. γ-BHC (58-89-9)			X	ND						1	mg/L				
5P. δ-BHC (319-86-8)			X	ND						1	mg/L				
6P. Chlordane (57-74-9)			X	ND						1	mg/L				
7P. 4,4'-DDT (50-29-3)			X	ND						1	mg/L				
8P. 4,4'-DDE (72-55-9)			X	ND						1	mg/L				
9P. 4,4'-DDD (72-54-8)			X	ND						1	mg/L				
10P. Dieldrin (60-57-1)			X	ND						1	mg/L				
11P. α-Enosulfan (115-29-7)			X	ND						1	mg/L				
12P. β-Endosulfan (115-29-7)			X	ND						1	mg/L				
13P. Endosulfan Sulfate (1031-07-8)			X	ND						1	mg/L				
14P. Endrin (72-20-8)			X	ND						1	mg/L				
15P. Endrin Aldehyde (7421-93-4)			X	ND						1	mg/L				
16P. Heptachlor (76-44-8)			X	ND						1	mg/L				

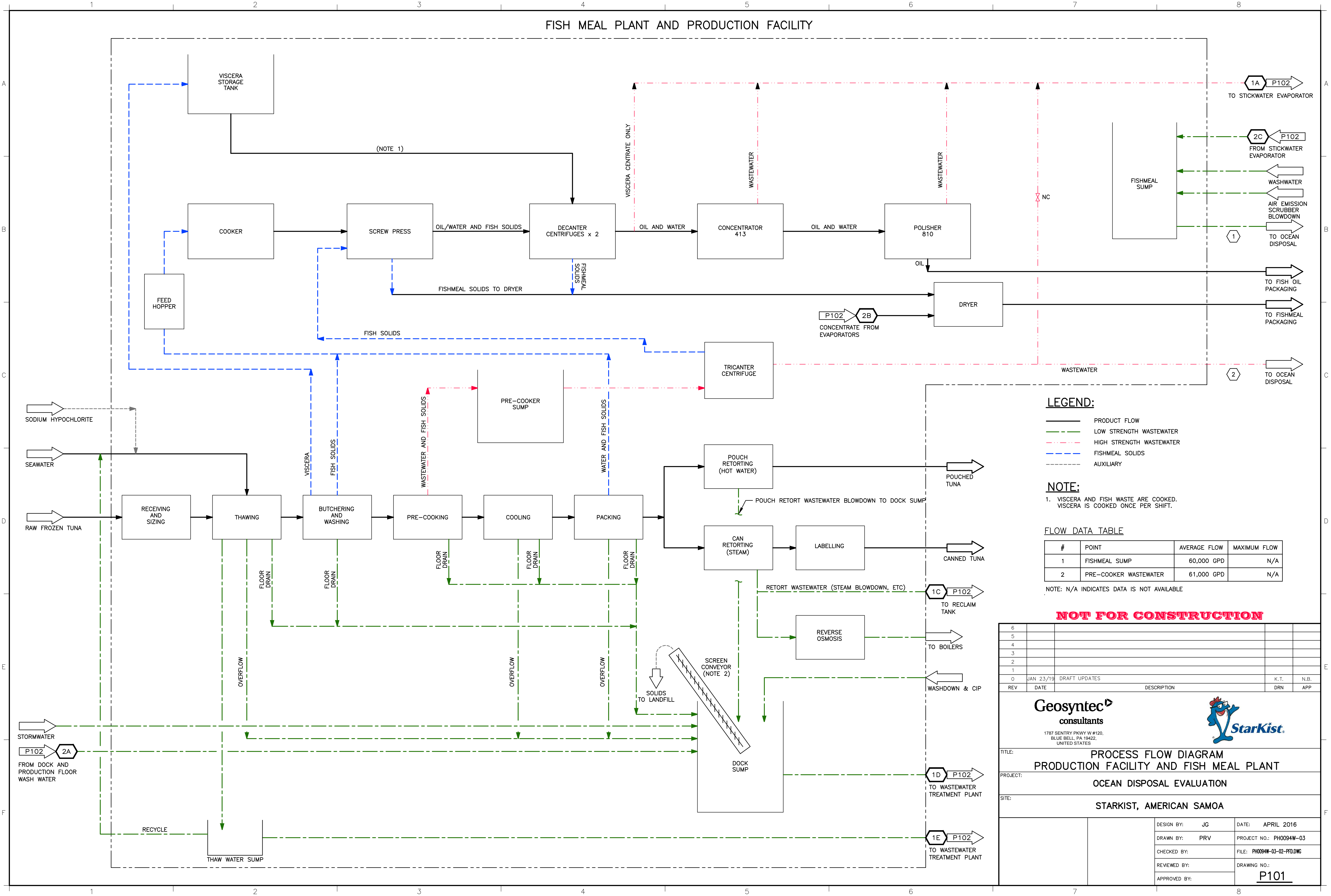
CONTINUE ON PAGE V-9

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (*copy from Item 1 of Form 1*): ASD 983 366 030

OUTFALL NUMBER: 001

1. POLLUTANT AND CAS NUMBER (*if available*)	2. MARK "X"			3. EFFLUENT							4. UNITS		5. INTAKE (*optional*)		
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (*if available*)		c. LONG TERM AVRG. VALUE (*if available*)		d. NO. OF ANALYSES	a. CONCEN-TRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – PESTICIDES (*continued*)															
17P. Heptachlor Epoxide (1024-57-3)			X	ND						1	mg/L				
18P. PCB-1242 (53469-21-9)			X	ND						1	mg/L				
19P. PCB-1254 (11097-69-1)			X	ND						1	mg/L				
20P. PCB-1221 (11104-28-2)			X	ND						1	mg/L				
21P. PCB-1232 (11141-16-5)			X	ND						1	mg/L				
22P. PCB-1248 (12672-29-6)			X	ND						1	mg/L				
23P. PCB-1260 (11096-82-5)			X	ND						1	mg/L				
24P. PCB-1016 (12674-11-2)			X	ND						1	mg/L				
25P. Toxaphene (8001-35-2)			X	ND						1	mg/L				



LEGEND:

▬▬▬	PRODUCT FLOW
▬ ▬ ▬	LOW STRENGTH WASTEWATER
─ · · ─	HIGH STRENGTH WASTEWATER
─ ─ ─ ─	FISHMEAL SOLIDS
- - - - -	AUXILIARY

NOTE:

1. VISCERA AND FISH WASTE ARE COOKED.
   VISCERA IS COOKED ONCE PER SHIFT.

FLOW DATA TABLE

#	POINT	AVERAGE FLOW	MAXIMUM FLOW
1	FISHMEAL SUMP	60,000 GPD	N/A
2	PRE-COOKER WASTEWATER	61,000 GPD	N/A

NOTE: N/A INDICATES DATA IS NOT AVAILABLE

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
6				
5				
4				
3				
2				
1				
0	JAN 23/19	DRAFT UPDATES	K.T.	N.B.

Geosyntec consultants
1787 SENTRY PKWY W #120,
BLUE BELL, PA 19422,
UNITED STATES

StarKist

TITLE:
PROCESS FLOW DIAGRAM
PRODUCTION FACILITY AND FISH MEAL PLANT

PROJECT:
OCEAN DISPOSAL EVALUATION

SITE:
STARKIST, AMERICAN SAMOA

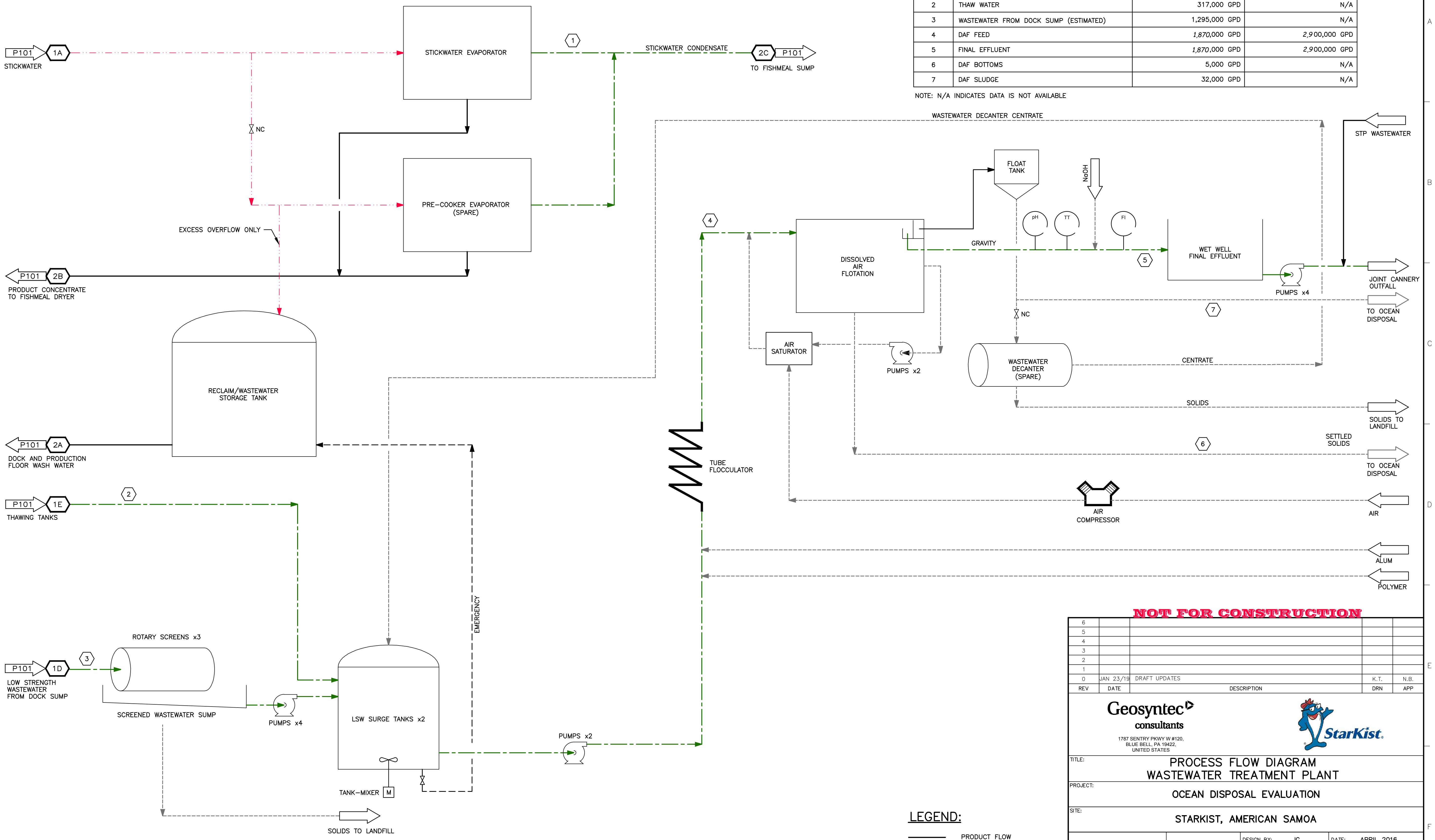
DESIGN BY: JG	DATE: APRIL 2016
DRAWN BY: PRV	PROJECT NO.: PH0094W-03
CHECKED BY:	FILE: PH0094W-03-02-PFD.DWG
REVIEWED BY:	DRAWING NO.:
APPROVED BY:	P101

Feb 06, 2019 – 2:51pm Admin – T:\Pete\Geosyntec\2015\153285-U Starkist WWT – PH0094 Phase 3 Task 2\PH0094W-03-02-PFD.dwg

FLOW DATA TABLE

#	POINT	AVERAGE FLOW	MAXIMUM FLOW
1	STICKWATER EVAPORATOR CONDENSATE	27,000 GPD	N/A
2	THAW WATER	317,000 GPD	N/A
3	WASTEWATER FROM DOCK SUMP (ESTIMATED)	1,295,000 GPD	N/A
4	DAF FEED	1,870,000 GPD	2,900,000 GPD
5	FINAL EFFLUENT	1,870,000 GPD	2,900,000 GPD
6	DAF BOTTOMS	5,000 GPD	N/A
7	DAF SLUDGE	32,000 GPD	N/A

NOTE: N/A INDICATES DATA IS NOT AVAILABLE



NOT FOR CONSTRUCTION

LEGEND:

▬	PRODUCT FLOW
🟩	LOW STRENGTH WASTEWATER
🟥	HIGH STRENGTH WASTEWATER
🟦	FISHMEAL SOLIDS
▨	AUXILIARY

REV	DATE	DESCRIPTION	DRN	APP
6				
5				
4				
3				
2				
1				
0	JAN 23/19	DRAFT UPDATES	K.T.	N.B.

Geosyntec consultants
1787 SENTRY PKWY W #120,
BLUE BELL, PA 19422,
UNITED STATES

StarKist

TITLE:
PROCESS FLOW DIAGRAM
WASTEWATER TREATMENT PLANT

PROJECT:
OCEAN DISPOSAL EVALUATION

SITE:
STARKIST, AMERICAN SAMOA

DESIGN BY: JG	DATE: APRIL 2016
DRAWN BY: PRV	PROJECT NO.: PH0094W–03
CHECKED BY:	FILE: PH0094W–03–02–PFD.DWG
REVIEWED BY:	DRAWING NO.:
APPROVED BY:	P102

ATTACHMENT A - NPDES Application Form 2C Supplemental Materials

Section II.B.2 (Form 2C) - Operations Description

1. Product Flow

Frozen raw whole tuna is received and unloaded at the Facility and stored in freezers. The tuna is sorted for size and species by hand and by automated sorting equipment. Frozen tuna is defrosted in bins under a cascading sodium hypochlorite treated seawater stream prior to processing. Thawed tuna is transferred to a butchering area where the tuna is washed, the viscera are removed and the tuna is evaluated for quality. Butchered tuna is loaded onto racks, injected with broth, and carted into one of 11 steam pre-cookers. The pre-cooked tuna is cooled and manually transferred to the packaging area. The pre-cooked tuna is then cleaned, trimmed, deboned, and packaged into cans or foil and polyethylene plastic pouches. Cans of tuna are sealed, loaded into baskets, and processed in steam retort units that are pressurized with high temperature steam to sterilize the cans. Pouches of tuna are processed in pouch retort units that utilize heated water. Finished cans of tuna are labeled and marked with production information. The cans are then packaged into boxes and the boxes are labeled with various production information. Pouches arrive at the Facility pre-labeled, but the sealed pouches are marked with product information and then packaged into boxes. The finished products are then palletized and stored awaiting shipment.

2. Fishmeal Processing

Fish scraps from the packing room are transferred to the Fishmeal Plant via a screw auger. The fish solids from the packing room are then cooked and pressed to separate liquid from the fish solids. The solids continue through a drying process and then to packaging, while the fishmeal processing screw press water ("press water" or "stickwater") is directed to a series of oil separaters to maximize the capture of fishoil and fishmeal. Stickwater is then transferred to a dedicated evaporator where waste heat from the dryer is applied to heat the stickwater and evaporate water, concentrating the remaining fish solids. The concentrated stickwater stream is then combined with the fish solids, and the precooker evaporator concentrate, and dried through the dryer. Recovered oil is packaged as fish oil.

Fish scraps from the butchering and washing process are referred to as viscera and are pumped to the viscera tank in Fishmeal Plant via a viscera solids pump or are transported in scows.The viscera are stored in a dedicated tank and cooked with steam once per shift, pumped to a grinder, and subsequently pumped to one of two fishmeal decanters. The accumulated liquid in the viscera tank is pumped to the stickwater evaporator as described above. Please refer to Drawing P101 and Drawing P102.

3. Wastewater Flow

Wastewater from the Facility is primarily generated during normal production and sanitation operations from the pre-cooker, the fishmeal processing area, thawing, butchering, cooling, packing, retort, and dock area wash down activities. All sanitary waste from the Facility is conveyed to the Utulei wastewater treatment plant operated by the American Samoa Power Authority (ASPA). Stormwater from the dock, alleys, retort area roof and wastewater treatment areas is treated, as described in this Attachment (Section II.B.3). The Facility operates five or six days per week, with carry-over to the sixth day for sanitation and cleaning activities. The wastewater is separated into two categories: high strength wastewater (HSW) and low strength wastewater (LSW). An overview of the production processes that result in the generation of wastewater at the Facility is provided on Drawing P101.

HSW from the pre-cookers is generated from the contact of steam with the cooking fish and from the release of liquids as the fish is cooked. This wastewater is directed to the pre-cooker sump, which is adjacent to the pre-cookers. The wastewater is then transferred to a three-phase centrifuge (tricanter centrifuge) for preliminary removal of solids and fishoil (process code 5-D). Tricanter centrifuge effluent (centrate) is then pumped to the pre-cooker evaporator to capture additional fishmeal solids. Fishmeal plant HSW is described in Section II.B.3.

The stickwater and pre-cooker evaporators collectively generate two different LSW streams, both of which are directed to the wastewater treatment system: condensate wastewater and clean-in-place (CIP) wastewater. The characteristics of the condensate wastewater have low concentrations of total suspended solids (TSS), oil and grease (O&G), total phosphorus (TP) and organic nitrogen. It has been observed that the condensate wastewater contains a moderate concentration of ammonia. The evaporator CIP process uses 5% sodium hydroxide solution to periodically remove accumulated O&G and fish solids from the internal cavities of the evaporators. From information provided by the equipment vendor, StarKist anticipates that the CIP process will be required approximately once per week and will generate 350 gallons of the 5% solution, which will be discharged to the facility's wastewater treatment system. The chemicals in the CIP wastewater will be "spent" and final chemical rinses will be held in the system and used as the first rinses on the next CIP cycle. The condensate and CIP wastewater will be discharged to the wastewater treatment system.

Wastewater is also generated by two new air emissions scrubbers, which have been installed to address odors from the fishmeal processing equipment, and by washdown. The air emissions scrubbers may use 35% sulfuric acid, 50% sodium hydroxide and 12.5% sodium hypochlorite in two separate stages to first remove ammonia odors, and then remove odors associated with volatile organic compounds and hydrogen sulfide. The actual chemical quantities required in each scrubber are minimal and approximately 12,000 gallons per day of scrubber wastewater is generated at a pH ranging from 8 to 9[1]. The scrubber wastewater is discharged to the fishmeal sump and then the

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[1] Currently, StarKist has not been adding chemicals to the scrubbers as odors have not been detected through regular monitoring of the scrubber exhaust.

facility's wastewater treatment system via the dock sump. A fishmeal sump is used to collect washdown, steam condensate, and a portion of evaporator condensate from all areas of the Fishmeal Plant, and to transfer the wastewater to the LSW treatment system via the dock sump.

LSW from the butchering and cooling area is primarily generated from rinsing processing equipment, plus sanitation operations. Wastewater from this area flows by gravity from local drains to the dock sump. Wastewater is generated from the packing area during both production and sanitation activities and is transferred by gravity through floor drains and in-line strainer baskets to the dock sump. Floor washing and general housekeeping wastewater is also directed to the wastewater treatment system via the dock sump.

LSW generated from the can retort equipment is generally comprised of once through cooling water. The cooling water is supplied by ASPA and treated with sodium hypochlorite to a residual chlorine concentration of 1 mg/L before entering the retorts. The can retorts are filled with cooling water at the end of each cycle to reduce the temperature of the cans prior to removal and handling. The cooling water is pumped to a cooling water reclaim tank to reduce its temperature, and then a portion is treated via reverse osmosis and reused as boiler feed water. Reclaimed water that is not reused flows to a pumping system located near the wastewater treatment system, which feeds dock washing, floor washing, and other non-contact uses in the main production facility. Unused reclaim water flows to the screen effluent sump where it joins the screened wastewater from the dock sump. Cooling water from the pouch retort area is internally recycled through cooling towers and the cooling tower blowdown is discharged to the dock sump.

Seawater used to thaw frozen fish is collected in a collection sump and recirculated for the entire thawing cycle. The thawing water is treated by sodium hypochlorite as it is recirculated to maintain a residual chlorine concentration ranging from 2 to 5 ppm to prevent microbe growth (process code 2-F). Once a thawing cycle is complete, wastewater generated by the thawing process is pumped directly to the LSW surge tanks. A portion of the thaw water also flows to the east dock trench which then discharges to the dock sump. Please refer to Drawing P101 and Drawing P102. Estimations of average flow from Facility operations are included in Drawing P102 and Section II.B.3 (below).

Section II.B.3 (Form 2C) - Wastewater Treatment Description

1. High Strength Wastewater (HSW) Treatment System

HSW is generated by two primary operations: fish pre-cooking and fishmeal solids processing. HSW represents approximately 4.5% of the total wastewater volume generated by the Facility on a daily basis, of which the stickwater contributes 1.5% and the pre-cooker contributes the remaining 3.1%. The estimated average total daily wastewater flow generated by the Facility is 2,000,000 gallons per day (gpd), of which approximately 90,500 gpd is considered HSW.

As described in Section II.B.2, HSW is processed through two process evaporators to reduce the volume, and the evaporator concentrate is processed with fishmeal solids through the dryer.

Wastewater discharged to the treatment system from the fishmeal and pre-cooker areas now includes evaporator condensate and scrubber blowdown. Both wastewater streams from the evaporator systems are discharged to the wastewater treatment system via the dock sump. The historical HSW treatment system has been decommissioned.

2. Low Strength Wastewater (LSW) Wastewater Treatment System

Wastewater generated from all other sources at the Facility, including production operations, washing and rinsing of equipment, sanitation processes, and impacted stormwater from alleys, rooftops, and dock areas, is considered LSW, and combines with the evaporator condensate and scrubber blowdown in the Dock Sump as described in Section II.B.2.

Wastewater leaving the dock sump represents approximately 60% of the total wastewater volume generated by the Facility on a daily basis. The estimated average total daily wastewater flow generated by the Facility is 2,000,000 gpd[2], of which an estimated 1,295,000 gpd is collected and pumped from the dock sump, including rainfall.

The average rainfall is estimated to result in approximately 24,000 gpd of stormwater runoff collected in the dock sump, based on climate data for the American Samoa region from a dataset spanning 22 years (1990 to 2012) and a total exposed facility area draining to the wastewater treatment plant (including the wastewater treatment area) of approximately 142,000 square feet (ft^2), calculated from dimensions taken from Drawing M001 (also shown in the EPA Multi Sector General Permit Stormwater Pollution Prevention Plan [SWPPP] for StarKist [Map #2]). Peak rainfall is estimated to contribute approximately 947,000 gallons in one day, based on climate data from the last 15 years.

Rainfall that collects on the dock, impacted rooftops, alleys, and wastewater treatment areas is directed to the dock sump for treatment through a dissolved air flotation (DAF) system further described below. The following areas of the facility potentially contribute stormwater that is treated by the facility: roof drains from the boiler stacks and fishmeal area, docks (where fish handling and unloading occurs), and alleys (where sanitation chemicals are stored, under cover, in addition to food ingredients such as olive oil and vegetable oil).

The majority of the wastewater generated at the site accumulates in the dock sump from various areas and generation points as noted on drawings P101 and P102. Wastewater from the dock sump is screened via an automated screening system (process code 1-T) and is then pumped to three rotary screens operating in parallel for additional coarse solids removal (process code 1-T). The wastewater then gravity drains into the screen effluent sump, where it is pumped to the wastewater surge tanks. The overflow from the reclaim water tank also discharges to the screen effluent sump, where it is combined with the wastewater and transferred to the LSW surge tanks. The surge tanks also receive spent thaw water. The surge tanks are hydraulically connected to the reclaim water

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[2] The anticipated maximum daily wastewater flow generated by the facility is 3,000,000 gpd, based on the estimated maximum daily flow corresponding to the maximum daily production anticipated for the next permit term.

tank to provide a total working volume of approximately 137,000 gallons. The surge tanks are used to dampen the hydraulic surges from the processing facility and maintain a more consistent flow through the wastewater treatment system. The surge tanks will be equipped with mixers in 2019 to keep solids suspended. Solids removed from the surge tanks and rotary screens are sent to the local landfill for disposal.

Wastewater is pumped from the surge tanks to the DAF unit prior to final discharge (process code 1-H). The DAF unit is the primary wastewater treatment process in the wastewater treatment train and removes TP, total nitrogen (TN), TSS, and O&G from the wastewater stream in advance of discharge via the outfall. The DAF unit has the following dimensions:

- Depth: 20 feet (ft)
- Diameter: 45 ft
- Operating volume: 237,000 gallons
- Capacity: approximately 2,600,000 gpd[3]
- Average surface loading rate: approximately 0.87 gpm per square foot (gpm/ft^2)
- Solids loading rate: approximately 1.75 pound per hour per square foot (lb/hr/ft^2)

From the surge and reserve tanks, the raw wastewater is pumped to the pipe flocculator. Alum (aluminum sulfate) coagulant is injected into the wastewater where it enters the pipe flocculator, and polymer flocculant is injected further downstream inside the flocculator.

Immediately downstream of the flocculator, the wastewater is blended with a side stream of recirculated, clarified water from the DAF tank. This recirculated stream is injected with compressed air following discharge from the DAF tank and then blended into the flocculated wastewater stream via two DAF recirculation pumps installed in parallel (duty and standby).

The alum acts to coagulate wastewater particulates by neutralizing ionic charges, which causes flocculation and precipitation of dissolved phosphorus (process codes 1-G, 2-C, and 2-D). The polymer added promotes the formation of larger floc by forming long polymer chains around smaller particulates to improve capture across the DAF system (process code 1-G). The dissolved air introduced through the recirculation of final effluent is released once the wastewater reaches the atmosphere, generating bubbles which attach to solids and float them to the surface. Floating solids are skimmed from the top of the DAF tank and stored in a DAF float tank (process code 1-H). From the DAF float tank, the solids slurry is processed through a wastewater decanter, with polymer addition, to further separate solids from liquid (process code 5-D). Separated and dewatered solids are sent to the local landfill, while the centrate is returned to the DAF center well for further treatment.

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[3] The current capacity of the wastewater treatment system infrastructure is not adequate to treat the anticipated maximum daily flow requested in this permit application. However, the infrastructure will be upgraded as needed to provide the necessary capacity during the next permit term.

Wastewater enters the DAF system in a central well and spreads out radially to the outer edge of the unit, where it passes under a scum baffle and over an effluent weir into the effluent launder. From here, treated DAF effluent flows through a Parshall flume where an ultrasonic level sensor continuously measures the final effluent flow rate and a pH sensor continuously monitors the pH for compliance. Sodium hydroxide (NaOH) is metered in as needed to adjust the final effluent pH to achieve compliance with the effective NPDES permit limits (process code 2-K). Finally, effluent wastewater flows by gravity to the effluent wet well, from which it is pumped into the discharge pipeline and combined with final effluent from Samoa Tuna Processors, Inc. (STP) prior to discharge through the Joint Cannery Outfall (JCO).

3. Facility Wastewater Streams to Ocean Disposal

Historically, the ocean disposal program collected high strength wastewater streams from the Facility in a 300,000 gallon storage tank, and periodically disposed of the material at a permitted disposal location approximately 5 miles off-shore. StarKist is currently in the process of reinstating the ocean disposal program for several HSW sources at the Facility. The HSW considered for ocean disposal include:

- DAF Sludge;
- pre-cooker wastewater;
- evaporator condensate; and
- fishmeal sump.

Resuming ocean disposal of a portion of the HSW will reduce the loads discharged through the JCO to Pago Pago Harbor. A wastewater sampling event to quantify the pollutant loading from the wastewater streams that are being considered for ocean disposal was completed in November 2018. The data collected during the event for each of the ocean disposal streams were used to estimate the impact on the final effluent once ocean disposal is reinstated.

Section V.A-C (Form 2C) - Effluent Characteristics

Because ocean disposal of a portion of the HSW has not yet resumed, measured effluent water quality data representing these conditions are not available. The final effluent characteristics presented in Form 2C were instead estimated based on the impact of disposing DAF sludge, pre-cooker wastewater, evaporator condensate, and fishmeal sump wastewater on the final effluent. The wastewater effluent quality used to calculate the estimated wastewater effluent quality included all sampling results that are considered representative of StarKist's effluent water quality at the discharge monitoring point from April through December 2018. In mid-March 2018 a number of minor treatment system improvements were implemented including, relocation of the wastewater decanter centrate to the surge tank, increased viscera processing, fishmeal pumping configurations, and increased training and focus on spill prevention. These changes resulted in improved final effluent wastewater quality which was then maintained by the Facility for the rest of the year; therefore, wastewater data collected from April to December 2018 represents the current operating conditions. The data includes:

- final wastewater effluent data representing samples that are analyzed on-site and reported in the Discharge Monitoring Reports (DMRs);
- splits of these effluent samples that are analyzed by TestAmerica;
- effluent samples collected for the semi-annual JCO effluent testing reports; and
- samples collected for the Priority Pollutant Scan (PPS) analysis.

For days where more than one sample was collected and analyzed for a constituent (including split and duplicate samples), reported concentrations for all samples were averaged to compute an average daily concentration. The flow measured and presented in the DMR for the given day was then used to compute an average daily mass load.

The maximum daily loads were estimated by subtracting the estimated reduction in pollutant loading as a result of sending HSW to ocean disposal from the maximum loading of pollutants observed in the final effluent from April to December 2018. The maximum concentration of pollutants was estimated by calculating the maximum observed concentration of pollutants from April to December 2018, calculating the load of pollutants using the maximum observed flow from April to December 2018, subtracting the estimated reduction of pollutant loading as a result of sending HSW to ocean disposal, and calculating a new maximum pollutant concentration by dividing the calculated pollutant loading by the maximum observed flow.

The long-term average values were determined by first averaging available daily concentrations and loads from April to December 2018. For determining the maximum 30-day values, daily concentrations and mass loads were averaged for each full calendar month from April to December 2018. The pollutant load that is estimated to be removed from the final effluent stream after ocean disposal of HSW was then subtracted from the historical average daily pollutant load and maximum 30-day pollutant load to estimate the projected average daily load and 30-day pollutant load, respectively, once ocean disposal begins. The average load estimated in the final effluent was then divided by the average final effluent flow from the Facility after ocean disposal begins to calculate the average concentration of pollutants in the wastewater final effluent. The monthly average concentration was similarly calculated using the maximum 30-day loading and maximum 30-day wastewater final effluent flow after ocean disposal begins.

The effluent characteristics, accounting for StarKist resuming ocean disposal of the HSW, could only be estimated for constituents that are regularly sampled as part of the DMRs, plus other regularly sampled data. This includes the following: total aluminum, ammonia (as N), biological oxygen demand (5 day), total cadmium, chemical oxygen demand, total chromium, total copper, total mercury, total nickel, nitrate+nitrite (as N), TN, O&G, TP, TSS, and flow. The number of analyses reported on Form 2C for each of these aforementioned constituents (that were updated to account for ocean disposal) represents the number of historical analysis results from April through December 2018. For the remaining constituents that were not updated to reflect anticipated effluent quality after ocean disposal is resumed, the most recent available data were reported. However, this is a conservative approach, since resuming ocean diposal will remove all of the HSW that is discharged through the JCO.

Constituents with a maximum daily concentration of "ND" were analyzed for, but were not detected at or above the method reporting limit (MRL)/MDL. Maximum daily concentrations with values followed by an asterisk (*) reflects results that were estimated values, while a value followed by two asterisks (**) represents an estimated value where the reported value was from a dilution.

Analyses for radioactivity or fecal coliform were not performed. Based on input from gdc, U.S. EPA permitting staff have not required sampling for these constituents in the past. In addition, there is no laboratory in American Samoa that is able to analyze for fecal coliform and all sanitary waste from the cannery (which would be a sanitary source of fecal coliform) is conveyed to the Utulei wastewater treatment plant operated by the ASPA. In addition, the Facility has not measured total residual chlorine at the wastewater treatment effluent location. It should also be noted that the bromine system, where bromine was used in the treatment train for HSW, was decommissioned on the same day that samples were collected for the PPS analysis. Therefore, the presence of bromine in the effluent during this sampling event is likely due to the bromine system that has since been decommissioned.

Additionally, the anticipated maximum daily wastewater flow generated at the Facility is 3.0 mgd. **The maximum daily flow requested for the renewed NPDES permit is 2.9 mgd, which represents the flow corresponding to the anticipated maximum daily production in the upcoming permit term with the quantity of wastewater flow subtracted representing the wastewater streams that were historically ocean disposed.** This flow value is slightly higher than the maximum daily flow requested in the previous permit renewal application submitted in 2018 (2.6 mgd). The average daily wastewater flow generated at the Facility is 2.0 mgd. The average wastewater flow to the JCO in the renewed NPDES permit is 1.87 mgd, which represents the average daily wastewater flow generated at the Facility minus the anticipated quantity of wastewater to ocean disposal.

Section V.D (Form 2C) – Potential Discharge of Substances

Under 40 CFR 117.12(a)(2), certain discharges of hazardous substances (listed in Table 2c-4 of Form 2C) may be exempted from the requirements of section 311 of the Clean Water Act (CWA), if the origin, source, and amount of the discharged substance are identified in the NPDES permit application. The information in Table 1 is included below in order to apply for an exclusion of the discharge of the substances from the requirements of section 311.

The chemicals listed Table 1 are used at different locations within the Facility, depending on the intended purpose of the chemical. Table 1 includes the estimated annual usage[4] of the hazardous substance. However, these values do not represent the amount of the substance that is discharged from the Facility through the JCO. Through the normal use of Facility chemicals and washdown of equipment, the substances may be collected with other wastewater generated at the Facility through process piping and drains. The Facility wastewater flows to the wastewater treatment processes for treatment prior to final discharge from the Facility and removes hazardous substances

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[4] Based on the estimated annual usage of the specified chemical and the composition of the hazardous substance in the chemical used.

as a byproduct of treating other pollutants in the wastewater. Residual chemical is neutralized with organics within the wastewater as well as from final pH adjustment before the final treated wastewater discharge. Therefore, the treatment system treating the normal Facility discharge is treating the substances before they are discharged.

Table 1. Substance Usage at the Facility

Chemical Used	Hazardous Substance	Units	Estimated Annual Usage of Hazardous Substance[1]	Usage Area/Purpose	Potential Discharge
Sodium Hydroxide	Sodium Hydroxide[2]	lbs	54,263	Evaporators and air scrubbers CIP, facility sanitation	Chemical is used during CIP in the evaporators and air scrubbers once each week and during general Facility sanitation.
Sulfuric Acid	Sulfuric Acid[2]	lbs	32,387	Evaporators and air scrubbers CIP	Chemical is used during CIP in the evaporators and air scrubbers once each week and during general Facility sanitation.
Sodium Hypochlorite	Sodium Hypochlorite[2]	lbs	18,100	General sanitation, thaw water, retort system, evaporators and air scrubbers CIP	Chemical is used during CIP in the evaporators and air scrubbers once each week and during general Facility sanitation. In addition, chemical is used to disinfect the thaw water and retort water.
Sodium Hypochlorite	Sodium Hydroxide[2]	lbs	1,378	General sanitation, thaw water, retort system, evaporators and air scrubbers CIP	Chemical is used during CIP in the evaporators and air scrubbers once each week and during general Facility sanitation. In addition, chemical is used to disinfect the thaw water and retort water.
Quorum Copper	Sodium Hydroxide[2]	lbs	9,936	Facility sanitation	Chemical is used for Facility sanitation.
Quorum Green	Sodium Hypochlorite[2]	lbs	2,526	Facility sanitation	Chemical is used for Facility sanitation.
Quorum Green	Sodium Hydroxide[2]	lbs	289	Facility sanitation	Chemical is used for Facility sanitation.
AC-103	Sodium Hydroxide[2]	lbs	36,334	Facility sanitation	Chemical is used for Facility sanitation.
PCC Alkali	Sodium Hydroxide[2]	lbs	16,579	Facility sanitation	Chemical is used for Facility sanitation.
HD LC-30	Phosphoric Acid[2]	gallon	74	Facility sanitation	Chemical is used for Facility sanitation.
Filtrapure Liquid Acid Cleaner	Phosphoric Acid[2]	lbs	244	Retort water RO system	Used intermittently as a cleaner in the Retort RO system to restore membrane permeability. Trace amounts of chemical may be discharged to the wastewater treatment collection system.

Chemical Used	**Hazardous Substance**	**Units**	**Estimated Annual Usage of Hazardous Substance[1]**	**Usage Area/Purpose**	**Potential Discharge**
Filtrapure Liquid TF Cleaner	Sodium Hydroxide[2]	lbs	64	Retort water RO system	Used intermittently as a cleaner in the Retort RO system to restore membrane permeability. Trace amounts of chemical may be discharged to the wastewater treatment collection system.
Filtrapure FG BS	Sodium Bisulfite	lbs	3,598	Retort water RO system	Used to depress the oxidation/reduction potential in the RO influent. Trace amounts of chemical may be discharged to the wastewater treatment collection system.
Aluminum sulfate	Aluminum Sulfate	lbs	374,886	Wastewater DAF system	Aluminum sulfate is used to settle out organic solids in the DAF wastewater treatment process. Aluminum is predominantly removed from the wastewater as sludge.
Sunbugger 100	Pyrethrins	lbs	3.7	Facility pest control	Chemical is diluted and fogged throughout the Facility and warehouse to deter rodents and pests. Small quantities of residual chemical may be washed from equipment surfaces and collected in the wastewater collection system. However, chemical is being treated by the DAF[2].
Demand CS	Xylene	lbs	0.011	Facility pest control	Chemical is diluted and fogged throughout the Facility and warehouse to deter rodents and pests. Small quantities of residual chemical may be washed from equipment surfaces and collected in the wastewater collection system.
Acid Wash FG	Phosphoric Acid[2]	lbs	11,885	Facility sanitation	Chemical is used for Facility sanitation.
Termin8	Propionic Acid	lbs	8,220	Fishmeal process	Chemical is self-contained in the fishmeal process. Trace amounts of residual chemical from overspray of chemical may be collected in the wastewater collection system.
Termin8	Formaldehyde	lbs	30,140	Fishmeal process	Chemical is self contained in the fishmeal process. Trace amounts of residual chemical from overspray of chemical may be collected in the wastewater collection system.

Chemical Used	Hazardous Substance	Units	Estimated Annual Usage of Hazardous Substance[1]	Usage Area/Purpose	Potential Discharge
Nalco 19 PULV	Sodium Bisulfite (equivalents, from Sodium Metabisulfite)	lbs	45.3	Boiler	Used as a oxygen scavenger for corrosion control in the boilers. Trace amounts of chemical may be discharged to the wastewater treatment collection system.
FoodPro ST8069	Sodium Hydroxide[2]	lbs	18	Can washer	Used as a corrosion inhibitor on cans prior to packaging for shipment.
FoodPro ST8069	Potassium Hydroxide[2]	lbs	78	Can Washer	Used as a corrosion inhibitor on cans prior to packaging for shipment..
CrystalFloc B660H Polymer	Adipic Acid	lbs	1,651	Wastewater DAF system	Chemical is used to settle out organic solids in the DAF wastewater treatment process. Polymer is predominantly removed from the wastewater as sludge.

[1] These values do not represent the amount of the substance that is discharged from the Facility through the JCO or would be discharged with ocean disposal. The Facility wastewater effluent flows to the wastewater treatment processes for treatment prior to final discharge from the Facility and removes hazardous substances as a byproduct of treating other water pollutants in the wastewater.

[2] Residual chemical is collected with wastewater generated at the Facility through process piping and drains, and either consumed or neutralized by organics within the wastewater, or from final pH adjustment before the final wastewater outfall.

[3] There is evidence to show that wastewater treatment can remove majority of pyrethrins by wastewater processes that remove oil and grease and suspended solids from wastewater. Pyrethrins are anticipated to accumulate in the sludge.

POLLUTION MINIMIZATION PLANS

Metals PMP Evaluation

Geosyntec conducted a review of the metals Pollution Minimization Plan (PMP) submitted by gdc to the U.S. EPA on December 14, 2010, along with the supplement dated July 28, 2011, to assess conformance with PMP requirements as prescribed in the NPDES permit. The goal of the PMP, as stated in the NPDES permit, was to achieve water quality standards in the discharge for copper, zinc, and mercury as soon as practicable with a minimally sized mixing zone. Based on JCO effluent monitoring results for copper, zinc, and mercury collected between May 2008 and September 2010, gdc's PMP states that mercury and zinc are typically above water quality standards, while copper is typically below water quality standards; however copper does have the potential to exceed the standards. The PMP concludes that the water quality standards for copper, zinc, and mercury are met within a few seconds after discharge from the diffuser in a mixing zone that extends only a few meters from the diffuser. Therefore, the goal does appear to have been met, since gdc's PMP states that the mixing zone is very small (only a few meters from the diffuser) and that water quality standards are met within a few seconds after discharge. More detail on Geosyntec's review is summarized in the following paragraphs.

The PMP prepared by gdc was based on sampling conducted within the Facility in September 2010 and March 2011 at nine sample locations associated with low strength wastewater (LSW):

- Fresh Water Supply;
- Seawater Supply;
- Thaw Water Outflow;
- Butchering Outflow;
- Spray Cooling Outflow;
- Can Washer Outflow;
- Boiler Blowdown;
- Washdown; and
- Outfall Effluent.

At the time the PMP for metals was developed the high strength wastewater (HSW) was collected in the HSW tank and discharged to the ocean several miles off-shore via a dedicated vessel. Therefore, samples associated with HSW streams were not included in the gdc PMP.

Since the PMP was prepared, the Facility in coordination with the U.S. EPA ceased ocean discharge of the HSW in 2012 and redirected it to an on-site treatment system. A review of the data post ocean discharge of HSW identified a significant increase in the copper, zinc, and mercury concentrations[5] in the Facility's final effluent, as shown in Table 2. Despite these increases, the final effluent concentrations of copper, zinc, and mercury continued to be below the effective NPDES permit limits identified in Table 2. Upgrades to the wastewater treatment system were recently implemented recently. Concentrations of copper, zinc, and mercury in the Facility's

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[5] As sampled during semi-annual JCO toxicity testing.

effluent significantly decreased (from the post-HSW time period) after treatment upgrades were implemented, as shown in Table 2. The samples were collected as flow-weighted composites over a 24-hour period.

Table 2: Average Metals Values in Facility Effluent, 2008 to Present

Era	**Dates**	**Copper µg/L**		**Zinc µg/L**		**Mercury µg/L**	
		Average	**Max**	**Average**	**Max**	**Average**	**Max**
Pre-PMP	May 2008 to December 2010	2.23	3.1	162	263	0.11	0.16
Pre-HSW (Post-PMP)	January 2011 to June 2012	2.24	2.4	102	118	0.09[1]	0.16
Post-HSW	July 2012 to February 2016	11.95	18.1	459	818	0.25	0.70
Post-HSW and Treatment upgrades	March to December 2018	1.5	2.3	53.4	111	0.15	0.21
ASWQS		*3.73*		*85.62*		*0.050*	
NPDES Daily Maximum Limit			*117.22*		*2,284*		*4.72*
NPDES Monthly Average Limit			*58.42*		*1,138*		*1.8*

[1] Daily average contains a mercury result that was non-detect; therefore, the calculation assumes half of the reporting limit for the non-detect result.

The original gdc metals PMP and supplement, which evaluated concentrations of mercury, copper, and zinc, presented the following conclusions:

- The source of mercury was attributed to the tuna;
- The primary source of copper was attributed to the tuna; and
- The primary source of zinc was attributed to the tuna and also galvanized fish boxes and other equipment. The report further states that galvanized equipment is necessary in a marine environment to avoid excessive corrosion.

The gdc PMP states that since the tuna was identified as the primary source of each metal evaluated, and further stated that there is no practicable way to reduce these in-plant sources other than maintaining good housekeeping practices. These practices should involve the clean-up of scrap that is removed during washdown activities, a recommendation that originated in gdc's PMP. The gdc PMP also noted that the unavoidable and uncontrollable concentrations of mercury, copper, and zinc in the final effluent from the Facility can be addressed by appropriate NPDES permit limitations and maintaining an approved mixing zone. The gdc PMP states that the mixing zones for these parameters are very small, extending only a few meters from the diffuser and at depths below 150 feet. Therefore, since effluent limits continue to be met based on an approved mixing zone, water quality standards presumably continue to be achieved in the receiving water within a few seconds after (and meters of) discharge. Semi-annual JCO receiving water quality monitoring reports confirm this ongoing condition of acceptable receiving water quality for these constituents.

Table 2 also demonstrates that the metals PMP recommended actions may have resulted in a decrease in effluent zinc concentrations, though no post-PMP decreases were observed for copper or mercury, and the post-PMP zinc improvements were negated after inclusion of HSW. These temporary zinc reductions may be attributed to change-out or replacement of some of the galvanized equipment used by the Facility, natural variation in the metals content of incoming fish tissue, or some combination thereof.

Implementation of recent measures has also had an impact on the metals concentrations in the final discharge since a significant portion of the fish solids was removed from the HSW stream. The impact of upgrades is exhibited in the sampling results from 2018 (Table 2), which showed a significant decrease in copper, zinc, and mercury concentrations from the post-HSW scenario to the post-HSW and treatment upgrades scenario.

With respect to non-metal constituents, introduction of the HSW treatment system effluent to the Facility's final effluent discharge point also impacted the final effluent concentration of nutrients (total phosphorus, total nitrogen, and ammonia), total suspended solids, and oil and grease significantly. The following subsection discusses a PMP associated with the reduction of these constituents.

Nutrients PMP

Since the introduction of HSW treatment system effluent to the Facility's final effluent stream in June 2012, StarKist has been challenged to reduce the concentrations of the following constituents in their final effluent:

- Ammonia;
- TN;
- TP;
- O&G; and
- TSS.

In support of reducing final effluent contamination from the Facility, Geosyntec completed on-site sampling and flow monitoring in July and September 2015 to collect data on the existing systems and processes within the Facility. Geosyntec completed an Environmental Summary Report, which was issued to StarKist, Eckert Seamans, and the U.S. EPA on December 21, 2015, describing the observations made during two Facility visits completed in July and September 2015, and the results of sampling conducted during the September 2015 visit. Many treatment system upgrades were implemented to improve effluent TN and TP loadings. A wastewater sampling event to quantify the improvements to the wastewater effluent associated with the upgrades was conducted, and a report summarizing the impacts of the upgrades on the final effluent wastewater characteristics was submitted on May 01, 2018. From that point, further evaluation will assess whether additional upgrades to the treatment system will be required.