

STATE OF HAWAII

DEPARTMENT OF HEALTH
NOTICE OF VIOLATION AND ORDER

TO: Big Island Dairy, LLC 695 N 700 E Rupert, Idaho 83350 Respondent Attn: Steve Whitesides Manager	NOVO No. 2017-CW-EO-08 <i>Please write this NOVO number on all correspondence</i> Re: Unauthorized Discharge of Pollutants from Big Island Dairy, Concentrated Animal Feeding Operation to State waters Property/Facility: Big Island Dairy, Near Mile Marker 30, O'okala, HI
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The Department of Health (DOH) issues this Notice of Violation and Order (NOVO) under Hawaii Revised Statutes (HRS), Chapters 91 and 342D, and Hawaii Administrative Rules (HAR), Chapter 11-55, based on findings from the December 15, 2016 and March 28-29, 2017, inspections of the Big Island Dairy conducted under the direction of the DOH, Clean Water Branch (CWB).

Attached as exhibits are:

- Exhibit A: Hawaii Department of Commerce and Consumer Affairs, business registration
- Exhibit B: Inspection Report No. HA0289, (Inspection Report from the December 15, 2016, Inspection); and
- Exhibit C: Inspection Report No. HA0290 (Inspection Report from the March 28-29, 2017 Inspection)

This case deals only with violations alleged below. The DOH may bring additional orders for other violations. This case does not limit cases by any other public agency or private party.

Statutes/Rules

Nature of the Violation

HRS, §342D-9,
HRS, §342D-31,
HRS, §342D-50(a)

Big Island Dairy, LLC

Background

Respondent Big Island Dairy, LLC, operates a dairy in O'okala, Hawaii. Due to its size and configuration, the dairy is a categorical National Pollutant Discharge Elimination System (NPDES), concentrated animal feeding operation point source subject to regulation under Hawaii Administrative Rules (HAR), Chapter 11-55. To date, Big Island Dairy, LLC does not have a permit to discharge pollutants to State waters as required.

On March 29, 2017, the DOH-CWB conducted an inspection of Kaohaoha Gulch, a Class 2, Inland State water, to determine whether Big Island Dairy discharged wastewater to State waters without authorization. Based on observations made during the inspection, the DOH finds that Big Island Dairy, LLC illegally discharged wastewater from its crop irrigating activities to State waters.

The HRS, §342D-50(a), states that "no person, including any public body, shall discharge any water pollutant into state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this chapter, or a permit or variance issued by the director."

1. Unpermitted Discharge of Wastewater to State Waters

On March 29, 2017, Big Island Dairy violated HRS §342D-50(a) by discharging wastewater from its crop irrigation system to Kaohaoha Gulch, a Class 2, Inland State water. The quantity of wastewater discharged is unknown but is estimated at greater than 10,000 gallons.

Based on the details above, the DOH finds that Big Island Dairy, LLC, violated HRS §342D-50(a) on one (1) count by discharging wastewater from its operation to State waters.

The facts of this case and the law justify the following order.

ORDER

You are ordered to:

1. Immediately cease discharging pollutants, including wastewater, to State waters. This includes terminating unauthorized discharges from crop irrigation practices, wastewater impoundment, wastewater treatment or other operations which handle and/or distributes the dairy's wastewater.
2. Within 60 calendar days of service, submit a complete application for an NPDES permit.
3. Within 30 calendar days of service, submit a report that identifies the cause of the discharges from the dairy's crop irrigation practices, wastewater lagoons and animal confinement areas to State waters. The report must include the definitive cause of the unauthorized discharges to Kaohaoha Gulch, detailed measures to prevent future discharges and reliable methods for monitoring to ensure no future discharges similar in nature to those identified in Exhibit C of this NOVO.
4. Within 45 days of service, conduct a comprehensive site evaluation. At a minimum, the site evaluation must include:
 - Surveys/inspections of the State waters located within the Big Island Dairy. The surveys/inspections must identify where storm water, irrigation water, and/or wastewater generated on dairy property discharge into State waters. Surveys/inspections shall note whether evidence of dirt, wastewater, biosolids, or other waste products from dairy operations are present within the segments of State waters surveyed/inspected.
 - Identification, location, orientation and design of ditches, irrigation systems, swales or other features which transport storm water, wastewater, irrigation water, or other potential pollutant sources to State waters.
 - Identification, location and design of any wastewater and/or storm water infrastructure used to direct wastewater and storm water into, through or around the dairy. This includes pipes, lagoons, sludge beds, solids handling appurtenances, sumps, pumps, odor control units, berms, water cannons, and other physical features or machinery present at the dairy. Design details such as lagoon capacities, lagoon liner details, pipe diameter and pump capacities are required.
 - Identification of the cause(s) or source(s) of odors which are the subject of complaints by local area residents.
5. Within 90 days of service, submit a report of all findings from the comprehensive site evaluation required by Order Item 4, above. The report must include any supporting documents used to make the findings reported, corrective action plans for any locations in State waters where dirt, wastewater, biosolids, or other wastewater products are identified through the surveys/inspections above, and

corrective action plans to address the cause and source of odors associated with complaints by local area residents. Corrective action plans included in the report must include details regarding specific actions that can be taken to remove the waste and restore the condition of State waters and abate odor issues. The plans must also include the level of difficulty and an estimate as to the amount of time necessary to complete the corrections.

6. Upon review of the report submitted per Order Item 5 (above), the DOH may require the corrective actions identified in the report to be implemented by Big Island Dairy. If notified that corrective actions are required, Big Island Dairy has 20 calendar days to implement the corrective actions identified by the DOH. Failure to do so shall constitute a violation of this Order.
7. Within 60 days of service, submit a revised Comprehensive Nutrient Management Plan (CNMP) for review and approval. The revised CNMP must include specific measures taken to prevent the discharge of wastewater. At a minimum, the CNMP must follow the technical guidance provided in the National Resource Conservation Service, National Planning Procedures Handbook, Part 600.5.
8. Within 30 days of receiving DOH approval of the CNMP, implement the CNMP.
9. Pay an administrative penalty of \$25,000 within 20 calendar days of the service of this NOVO. Send a certified check for \$25,000 to: Clean Water Branch, Department of Health, 919 Ala Moana Boulevard, Room 301, Honolulu, Hawaii, 96814. The check should be made payable to "State of Hawaii" and include the NOVO reference number, 2017-CW-EO-08.
10. All reports, payments, or other submittals made pursuant to this Order shall be submitted to the DOH, Clean Water Branch, at:

Department of Health, Clean Water Branch
919 Ala Moana Boulevard, Room 301
Honolulu, Hawaii 96814

Attn: Enforcement Section Supervisor

If a change to the mailing address is required, the DOH, Clean Water Branch will notify Big Island Dairy, LLC, in writing.

11. If you require additional time to complete tasks associated with the Orders detailed above, you must submit a request for a finite extension in writing to the DOH, Clean Water Branch and receive written permission for an extension. The DOH reserves its right to deny the request based on the information provided and compel Big Island Dairy to comply with the original timeframe provided above.
12. All submittals made for this Order shall be certified and signed by either Mr. Steve Whitesides, Mr. Derek Whitesides or other person legally authorized to sign on behalf of Big Island Dairy, LLC. All documents submitted pursuant to this Order must include the following Certification Statement:

"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."

The provisions of this Notice of Violation and Order shall become final unless, within 20 calendar days after receipt, you submit a **written** request for a hearing, along with a copy of the NOVO, without exhibit(s), to:

Hearing Officer
c/o Director of Health
1250 Punchbowl St., Third Floor
Honolulu, Hawaii 96813

You may file the hearing request in person at the Director's office listed above, during regular business hours, or may mail the same to the above address within the allotted time. **Failure to timely file the hearing request and related documents may result in a denial of your hearing request.**

If a hearing is properly requested, a pre-hearing conference will be set by the Hearings Officer and you will be notified of the date, time and place of the pre-hearing conference.

The hearing will be conducted in accordance with Chapter 91 of the Hawaii Revised Statutes and Title 11, Chapter 1 of the Hawaii Administrative Rules.

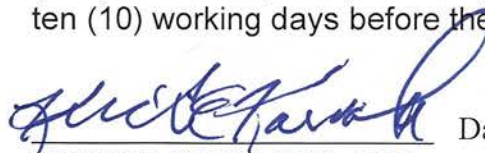
At the hearing, the parties may present relevant evidence and argument on the issues raised by this case. The parties may also examine and cross-examine witnesses and present exhibits. The parties may seek to avoid any penalty, and DOH may seek the maximum penalty of Twenty-five Thousand Dollars (\$25,000) per day, per violation, although the actual penalty amount may be lower, or none.

Parties may be represented by legal counsel at their own expense. An individual may appear on his/her own behalf, or a member of a partnership may represent the partnership, or an officer or authorized employee of a corporation, or trust, or association may represent the corporation, trust or association.

After such hearing, the Order shall be affirmed, modified or rescinded by the Director or Hearings Officer.

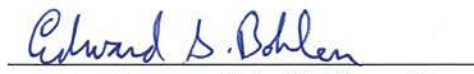
All inquiries regarding this matter, besides the request for hearing, shall be directed to: Mr. Matthew Kurano, Supervisor of the Enforcement Section, CWB, at (808) 586-4309.

If you have special needs due to a disability that will aid you in participating in the hearing or pre-hearing conference, please contact the Hearings Officer at (808) 586-4409 (voice) or through the Telecommunications Relay Service (711), at least ten (10) working days before the hearing or pre-hearing conference date.



KEITH E. KAWAOKA, D.Env.
Deputy Director for
Environmental Health

Date: 4/27/17



Approved As To Form By:
Mr. Edward G. Bohlen
Deputy Attorney General

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Downloaded on April 19, 2017.

The information provided below is not a certification of good standing and does not constitute any other certification by the State.

Website URL: <http://hbe.hawaii.gov/documents>

Business Information

MASTER NAME	BIG ISLAND DAIRY LLC
BUSINESS TYPE	Domestic Limited Liability Company (LLC)
FILE NUMBER	89912 C5
STATUS	Active
PURPOSE	DAIRY FARM
PLACE INCORPORATED	Hawaii UNITED STATES
REGISTRATION DATE	Oct 5, 2011
MAILING ADDRESS	695 N 700 E RUPERT, Idaho 83350 UNITED STATES
PARTNER TERMS	AT-WILL
MANAGED BY	MANAGER(S)
AGENT NAME	GLEN T HALE
AGENT ADDRESS	2970 KELE ST STE 210 LIHUE, Hawaii 96766 UNITED STATES

Annual Filings

FILING YEAR	DATE RECEIVED	STATUS
2016	Oct 4, 2016	Processed
2015	Nov 12, 2015	Processed
2014	Oct 22, 2014	Processed
2013	Dec 27, 2013	Processed
2012	Dec 20, 2012	Processed

Officers

NAME	OFFICE	DATE
WHITESIDES,DEREK	MGR	Oct 1, 2014
WHITESIDES,STEVE	MGR	Oct 1, 2014

Trade Names

NAME	TYPE	CATEGORY	REGISTRATION DATE	STATUS
HAWAII FRESH MILK	Trade Mark	MEATS AND PROCESSED FOODS (29)	Oct 17, 2008	Expired
HAWAII'S FRESH MILK	Trade Name	NO CATEGORY SELECTED	Dec 4, 2015	Active
HAWAII'S FRESH	Trade Mark	MEATS AND PROCESSED FOODS	Oct 28, 2008	Expired

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Hawaii Department of Health
Clean Water Branch
919 Ala Moana Blvd., Room 301
Honolulu, HI 96814

**Concentrated Animal Feeding Operation
NPDES Inspection Report**

Facility Name: Big Island Dairy

NPDES Permit No.: Not Permitted

Date and Time: December 14, 2016 **Entry:** 10:00 a.m. **Exit:** 4:45 p.m.

Weather: Sunny with evidence of recent precipitation

NPDES Permit No.: Not Permitted

Facility Name: Big Island Dairy

Facility Address: 39-3308 Hawaii Belt Road; Hilo, Island of Hawaii, Hawaii 96720

Tax Map Key (TMK): TMK (3) 3-9-002:008

Receiving Water(s): Kaohaoha Gulch (Class 2, Inland Water)
Alaialoa Gulch (Class 2, Inland Water)
Kaula Gulch (Class 2, Inland Water)

Facility Representatives: Brad Duff (General Manager, Big Island Dairy) (808) 895-3584
Riley Smith (Co-Owner/Dairy Manager, Big Island Dairy) (808) 464-5016

Inspectors: Anthony D'Angelo (U.S. EPA Contractor, PG Environmental) (303) 279-1778
Matthew Kurano (Enforcement Section, Hawaii Department of Health, Clean Water Branch) (808) 586-4309

Executive Summary:

Big Island Dairy (BID) is a commercial dairy operation on the Island of Hawaii, near the community of Ookala, northwest of Hilo. The purpose of the inspection was to understand and evaluate the dairy operations conducted at BID which may be subject to National Pollutant Discharge Elimination System (NPDES) regulations for concentrated animal feeding operations (CAFOs). Based on the mature dairy cow head count, full-time covered confinement practices and the potential for pollutants to discharge into nearby waters of U.S., BID may be classified as a large CAFO, a point source subject to NPDES regulations as stated in 40 CFR Part 122.

Inspection Date: December 14, 2016



Hawaii Department of Health
Clean Water Branch
919 Ala Moana Blvd., Room 301
Honolulu, HI 96814

Concentrated Animal Feeding Operation NPDES Inspection Report

Facility Name: Big Island Dairy
NPDES Permit No.: Not Permitted

SECTION I – INTRODUCTION

Purpose of the Inspection

On December 14, 2016, I, Anthony D'Angelo, a U.S. Environmental Protection Agency (EPA) contractor with PG Environmental, along with Hawaii Department of Health – Clean Water Branch (HDOH) representative Matthew Kurano, conducted an inspection of the Big Island Dairy facility (hereinafter, BID or Facility) located near the community of Ookala, on the Island of Hawaii.

The purpose of the inspection was to understand and evaluate the dairy operations conducted at BID. National Pollutant Discharge Elimination System (NPDES) regulations for concentrated animal feeding operations (CAFOs) exist and are in effect and as such, the inspection focused on gathering information to assess the Facility's need to obtain a NPDES permit to achieve compliance with State and Federal law. Section 301(a) of the Clean Water Act (CWA) establishes statutory requirements for the discharge of pollutants from point sources to waters of the U.S. Under CWA Section 502(14) and its implementing regulations at 40 CFR Part 122, CAFOs are point source discharges. As specified in 40 CFR Part 122.23(c)(3), no operation may be designated as a CAFO until an inspector has conducted an on-site inspection of the facility, regardless of the size of the operation or the type of animals confined. This report identifies the observations made during the inspection pertaining to BID's potential designation as a CAFO and applicability to associated NPDES regulations. An annotated photograph log and associated figures are included as part of this report as appendices and are referenced as applicable.

Inspection Summary

Upon arriving at the BID main office at 10:00 a.m., Mr. Kurano and I met with two BID representatives, Riley Smith, Co-Owner/Dairy Manager and Brad Duff, General Manager (jointly referred to as BID Representatives). Mr. Kurano presented his credentials and explained the purpose of the inspection (refer to Photograph 1). Mr. Kurano provided background information to the BID Representatives regarding general NPDES regulations and the responsibilities of the HDOH to implement these regulations. The BID Representatives confirmed that the Facility was registered as a 2,000-head CAFO with the US Department of Agriculture (USDA). After approximately 45 minutes of general discussion regarding the Facility property, operations, recent/ongoing upgrades, and waste disposal practices, Mr. Duff accompanied Mr. Kurano and I on a general tour of the Facility. At the end of the Facility tour, at approximately 3:50 p.m., Mr. Kurano and I conducted a closing conference with Mr. Duff where we presented our preliminary observations about the Facility's possible need for NPDES coverage.

Information obtained and discussed during the opening conference, Facility tour, and closing conference are presented in the following inspection report sections.

Facility Description

BID is a commercial dairy farm that encompasses approximately 2,500 acres near the community of Ookala, northwest of Hilo, Hawaii. The Facility is bordered to the northeast (downgradient) by



**Concentrated Animal Feeding Operation
NPDES Inspection Report**

Facility Name: Big Island Dairy
NPDES Permit No.: Not Permitted

Mamalahoa Highway (Highway 19) and extends south/southwest, climbing in elevation, for approximately 2.5 miles. The Facility ranges in elevation between approximately 500 feet above mean sea level (AMSL) along Mamalahoa Highway, to 2,000 feet AMSL near the property's south/southwest border with the Hilo Forest Reserve. The upgradient portions of the property are comprised primarily of pasturelands, with some low yield croplands. The mid-gradient portions of the property are comprised of dairy facilities, croplands, and pastureland, while the low gradient portions of the property are used solely as high yield croplands (refer to Figure 1 and Photograph 2). BID also owns and farms an offsite 160-acre cropland between Ookala and Hilo which is used to bolster its cow feed supplies. The offsite parcel was not visited as a component of this inspection.

The Facility was purchased in 2012 and has since expanded its operations. Dairy cows are bred, raised, and milked onsite. Currently, milk is hauled offsite to either Hilo or Honolulu for processing. The BID Representatives stated that since 2012, the Facility owners have been renovating the existing dairy facilities and constructing new dairy facilities including a main office building, two 1,000-head freestall barns, a milking barn, a manure composting building, supporting appurtenances, new feed storage stalls, a maintenance shop with aboveground fuel tanks, and a 2.5 million-gallon wastewater lagoon.

Existing dairy facilities are located northeast of the new facilities, and include a 380-head barn, old milking barn (now a livestock hospital), feed storage stalls, covered manure separation cells, and a 1 million-gallon wastewater lagoon (refer to Figures 1 and 2).

At the time of the inspection, BID was actively constructing a new building and preparing to install three new large aboveground dairy product storage silos (refer to Photograph 3). Of note, BID also has NPDES permit coverage for storm water discharges associated with construction activity, NPDES Permit No. HIS000224. Compliance with NPDES Permit No. HIS000224 was not evaluated as a component of this inspection. However, information previously provided to HDOH as part of NPDES Permit No. HIS000224 was reviewed prior to the inspection. The information reviewed included facility information detailing storm water drainage from the Facility.

Specifically, the permit information details that the Facility includes multiple drainage ways from the Huluhuuma section of the Hilo Forest Reserve which flow from the southwest to northeast through the Facility property, ultimately ending at the Pacific Ocean near the neighboring community of Ookala. NPDES Permit No. HIS000224 identifies three receiving waters (that at least have the potential to receive flow from the Facility's areas of disturbance associated with construction activities):

- Kaohaoha Gulch (Class 2, Inland Water)
- Alaialoa Gulch (Class 2, Inland Water)
- Kaula Gulch (Class 2, Inland Water)

Refer to Figure 3 of this inspection report for a *GoogleEarth* aerial image that depicts these three gulches using EPA's My Waters Mapper geospatial data layer (accessed on December 20, 2016; <https://watersgeo.epa.gov/mwm/>). Based on general site observations, it appears that the information



included in NPDES Permit No. HIS000224 is accurate and that the three inland waters listed above receive storm water flow from the BID property.

Mr. Duff explained that the property was historically a sugar cane plantation, and as such, many of the natural drainage ways that originally flowed through the property were previously channelized, diverted, or filled in by the plantation.

Receiving Waters

Kaohaoha Gulch flows through the center area of the property and due to its location, appeared to be the gulch most potentially impacted by CAFO operations. The gulch flows along the east side of the dairy operations area (i.e., cow barns, milking barn, hospital, lagoons) and low elevation irrigated croplands. A discharge from the Facility's wastewater lagoons would likely enter this gulch upon overflow (refer to Figures 2 and 3).

Alaialoa Gulch originates on property pastureland, near the manure composting building, and flows through irrigated croplands along Ookala Road. An inspection of the Facility by HDOH conducted during June/July 2014 was prompted from a public complaint regarding brown, manure-smelling water flowing in Alaialoa Gulch through Ookala. That inspection confirmed a discharge of manure-laden water into Alaialoa Gulch from the Facility's "airstrip" heifer sheds. At the time of this inspection (December 14, 2016), the Facility was no longer housing cows in the airstrip heifer sheds. However, storm water runoff from the Facility's manure composting building and upgradient areas of construction (e.g., new building) likely flow into Alaialoa Gulch (refer to Figure 3).

Kaula Gulch flows along the western perimeter of the property and, due to its location, appeared to be the gulch least likely to be impacted by CAFO operations (refer to Figure 3).

Livestock Management

At the time of the inspection, the Facility contained approximately 1,800 total cows, of which, 1,226 were identified as mature milking cows (not including dry cows). Mature milking cows are housed full-time in two newly constructed 1,000-cow freestall barns (upper and lower; refer to Photographs 4 and 5). While visiting the freestall barns, Mr. Duff identified the mechanically operated manure scraping systems that continuously scrape manure from the cow pen alleys into a central manure collection trough (refer to Photographs 6 through 8). The manure scraping systems were operational and, as such, manure accumulation in the cow pen alleys was minimal at the time of the inspection. The bedding present in the freestall barn cow pens consisted of composted manure solids recovered from the manure scraping system that was composted onsite at the manure composting building.

The 1,226 milking cows are milked in the newly constructed 60-cow milking barn attached to the BID main office (refer to Photograph 9). Mr. Duff explained that milking equipment is cleaned daily using a clean-in-place (CIP) system. Caustic detergent solution (chlorinated alkaline detergent) is first run through the system, followed by a low-foaming CIP acid solution for disinfection. During the Facility



tour, I observed multiple 55-gallon drums of caustic detergent and acid (incompatible chemicals) stored together on a pallet, outdoors without secondary containment (refer to Photographs 4 and 10). Milking cows are directed through a copper sulfate hoof bath when entering and exiting the milking barn to prevent spread of disease and bacteria in an area of high cow traffic (refer to Photograph 11). Milk product is stored in two 20,000-gallon milk silos. Well water used for general dairy operations is stored in a 17,000-gallon aboveground tank located adjacent to the milk silos.

Dry cows, heifers, and bulls are housed in the upgradient pasturelands of the property. Calves and injured cows are housed in the preexisting 380-head barn (refer to Photographs 12 and 13). The old milking barn located adjacent to the 380-head barn has been converted into the Facility's livestock hospital building.

The BID Representatives stated that mortalities are buried onsite. The mortality burial pit that was in use at the time of the inspection was located in an existing gulch located between the covered manure separation cells access roadway and the newly constructed 2.5 million-gallon lower wastewater lagoon (refer to Photograph 14). Mr. Duff stated that any storm water runoff that comes into contact with the open mortality burial pit would sheet flow into the lower lagoon.

Manure and Wastewater Storage and Disposal Practices

During the opening conference, the BID Representatives explained to Mr. Kurano and I that manure generated onsite is recovered and used to fertilize croplands or composted to make cow pen bedding. They confirmed that manure is not removed from the property, sold, or given away to the general public. Manure from each freestall barn gravity flows into a waste stream collection pit located at the manure composting building (refer to Photograph 15).

Process wastewaters from the milking barn include CIP wastewater, general spray down water, and copper sulfate hoof bath drag out; all of which flow to the manure composting building collection pit. Mr. Duff explained that wastewaters (including CIP wastewater) that will be generated from the Facility's new building operations will not be allowed to flow into the lagoon due to its' classification as an industrial process wastewater.

Calf pen alley flush water from the Facility's existing 380-head barn also gravity flows into this collection pit. Mr. Duff stated that the existing barn is now used solely to house calves and injured cows, and that it is flushed one to two times per day. Flush water is collected in a trough at the northeast end of the barn, and is piped into the manure composting building collection pit (refer to Photographs 12 and 13).

Two influent pipes convey wastes from the new and existing dairy facilities into the manure composting building collection pit, which is mechanically agitated to suspend manure solids (refer to Photograph 16). The contents of the collection pit are pumped into two manure solids gravity separation units which operate in series. Manure solids that are separated from the waste stream are conveyed via auger screw into two composting digester vessels (refer to Photograph 17). Composted manure on the backend of



the vessels is then mechanically conveyed into a covered composted manure stockpile stall (refer to Photograph 18). During the visit to the manure composting building, I observed a tractor actively loading a trailer with cow bedding (refer to Photograph 19).

While at the manure composting building, Mr. Duff identified a 3,500-gallon mobile tanker trailer he referred to as a "honeywagon" (refer to Photographs 15 and 20). He explained that BID was working on plans to direct flow from the manure composting building that would normally flow into the covered manure separation cells (and lagoons) into the honeywagon. This would allow for upgradient cropland irrigation and fertilization with manure-laden wastewater. Mr. Duff stated this plan will significantly reduce the amount of flow into the lagoons. Mr. Duff also stated that BID was constructing a concrete pad located north of the manure composting building, near the upper reach of Alaialoa Gulch to allow for the transfer of flow into the honeywagon (refer to Photograph 21). BID should be made aware that if the Facility is designated as a large CAFO needing NPDES permit coverage, by land applying manure and manure-laden water on these upgradient croplands, these croplands would then fall under areas of the property subject to CAFO NPDES regulations.

Filtrate removed from each manure solids gravity separator is returned to the manure composting building collection pit and is recycled through the system for additional solids removal. Liquid removed from the composting vessels flows into the Facility's existing covered manure separation cells, adjacent to the Facility's two lagoons. Overflow from the manure composting building collection pit also gravity flows into these separation cells (refer to Photographs 20 and 22). The waste stream entering the separation cells first flows into one of two primary cells (refer to Photograph 23). Manure is removed from the primary cells and, over time, moved up elevated cells to allow for manure solids/liquid separation and to promote drying. Separated liquid collects in the primary cells and flows out via two drain pipes (one at the back of each primary cell), into an earthen conveyance channel that flows into the southwest corner of the existing upper 1 million-gallon lagoon (refer to Photograph 24 and 25). This upper lagoon was referred to by Mr. Duff as the "green pond" due to the presence of a large floating vegetative mat on the surface of the lagoon.

At the time of the inspection, Mr. Kurano and I observed the large vegetative mat on the surface of the upper lagoon (refer to Photograph 25). Mr. Duff stated that the vegetative mat has been present since the property was purchased in 2012, and that it has prevented Facility personnel from accessing the lagoon or identifying the depth of accumulated solids. As such, Mr. Duff stated that the upper lagoon had not been cleaned since at least 2012, and that he was unaware of the depth of solids in the lagoon or the exact date of the last cleaning event. Mr. Kurano and I observed that the upper lagoon was not equipped with a depth marker at the time of the inspection.

At the time of the inspection, an access road that runs along the south side of the upper lagoon was inundated with what appeared to be lagoon water; therefore, the perimeter of the upper lagoon, including the berm between the upper and lower lagoons, as well as the east side of the lagoon that abuts Kaohaoha Gulch, were inaccessible. Mr. Duff stated that the only other access to the east side of



the upper lagoon was to hack through dense fields of guinea grass. Two connection pipes (west and east) convey flow from the upper lagoon directly into the west and east sides of the lower 2.5 million-gallon lagoon (refer to Photographs 26 and 27). Mr. Duff stated that the majority of flow enters the lower lagoon via the east connection pipe. Mr. Kurano and I observed that the lower lagoon did not contain a vegetative mat, was not equipped with a depth marker, and was close to capacity at the time of the inspection (refer to Photograph 28). Mr. Duff explained that the manure solids and wastewater contents of the lower lagoon are agitated using a floating agitator, then pumped out using a draw pump system, and then used in the Facility's cropland irrigation system (refer to Photographs 28 through 30). This irrigation system is used to irrigate the Facility's low elevation, high yielding croplands.

During the opening conference, I asked the BID Representatives if the newly constructed lower lagoon was lined and if it was equipped with an overflow spillway. The BID Representatives did not believe the lower lagoon contained a liner and were initially unaware if the lower lagoon contained a spillway. It should be noted that historical aerial imagery from August 2014 potentially shows a liner on the bottom of the lower lagoon; however, the presence of this liner was not confirmed during the inspection. Before visiting the lagoons, Mr. Duff informed Mr. Kurano and I that a dairy employee went down to the lower lagoon and confirmed that the southeast side of the lower lagoon contained an overflow spillway. We visited the overflow spillway of the lower lagoon and observed algae growth and standing water in the spillway (refer to Photographs 28, and 31 through 33). While standing on the overflow spillway, which was saturated and coated in unstable muck, I estimated the freeboard underneath the lagoon's overflow spillway at approximately twelve inches (refer to Photograph 34). Facing southeast from the overflow spillway, I observed a clear flow pathway down a heavily vegetated conveyance channel that flowed to the southeast (refer to Photographs 35 and 36). Based on aerial imagery, this conveyance channels flows directly into Kaohaoha Gulch, approximately 100 feet southeast of the lower lagoon overflow spillway (refer to Figures 1 through 3). I was unable to hike down the conveyance channel due to unstable mucky conditions and thick vegetation (refer to Photograph 36).

Mr. Duff stated that he did not believe the standing water present in the lower lagoon overflow spillway was from the lagoon, but from runoff from upgradient land from recent heavy rainfall. Mr. Kurano and I observed that the upper lagoon is located directly upgradient from the lower lagoon and overflow spillway. No determination could be made as to whether the lower lagoon had discharged over the spillway or not.

Cropland and Pastureland Management

As previously stated, the contents of the lower lagoon are used to irrigate and fertilize the Facility's low elevation, high yielding croplands. Additionally, Mr. Duff stated that the manure solids separated from the manure separation cell system are directly land applied on croplands as additional fertilizer. During the Facility tour, we visited the lower croplands to view the airstrip heifer sheds, low elevation irrigated croplands, and one of the retractable irrigation sprinkle systems (refer to Photograph 30).



During the opening conference, the BID Representatives explained an incident that occurred at the Facility in September 2016 in which a large rainstorm caused mud to slide down from recently plowed low elevation croplands and over Mamalahoa Highway (Highway 19). They stated that to prevent future slides from recently plowed croplands near the highway, BID was planning to plant a vegetated buffer of guinea grass along the downgradient (northeast) perimeter of the property. At the time of the inspection, the location of the proposed buffer was in corn crop production. The BID Representatives stated that if the plan to plant the buffer is finalized, it would be planted sometime during the first quarter of 2017, after the corn is harvested.

SECTION II – INSPECTION FINDINGS

The following section describes the overall findings that I identified during the inspection regarding the BID's potential status as a CAFO subject to NPDES regulations. The presentation of the following findings does not constitute a formal determination for NPDES permit coverage.

1. Based on the mature dairy cow animal unit threshold for CAFOs specified in 40 CFR 122.23(c)(2) (i.e., 700-mature milking cows), the Facility meets the definition of a large CAFO. At the time of the inspection, BID Representatives stated that 1,226 mature milking cows (not including dry cows), and approximately 1,800 total cows, were housed at the Facility. In addition, the 1,226 mature milking cows are housed full-time in the Facility's two 1,000-head freestall barns, and are not housed in a portion of the Facility that sustains croplands or pasturelands (refer to Photograph 4 through 6). During the inspection, the BID Representatives confirmed that BID was registered as a 2,000-head CAFO with the USDA. As a result of the observations made during the inspection, the Facility appears to meet the criteria for designation as a large CAFO.
2. During the inspection, I observed the potential for the Facility to discharge pollutants to Kaohaoha Gulch, an identified State water and water of the U.S. As part of the Facility tour, I inspected the new, lower 2.5 million-gallon wastewater lagoon, including its southeast overflow spillway (refer to Photographs 26 through 28, and 31 through 33). While standing on the overflow spillway, which was saturated and coated in unstable muck and standing water, I estimated the freeboard underneath the lagoon's overflow spillway at approximately twelve inches (refer to Photograph 34). The lower lagoon was not equipped with a depth marker. Facing southeast from the overflow spillway, I observed a clear flow pathway down a heavily vegetated conveyance channel that flowed from the lagoon to the southeast (refer to Photographs 35 and 36). Based on aerial imagery, this conveyance channel flows directly into Kaohaoha Gulch, approximately 100 feet southeast of the lower lagoon overflow spillway (refer to Figures 1 through 3).

The lower lagoon (and associated overflow spillway) was constructed after the Facility was purchased by the BID owners in 2012. Aerial imagery prior to 2012 does not show the lower lagoon; however, imagery dated between November 2013 and August 2014 shows the construction of this



lagoon. The Facility's Comprehensive Nutrient Management Plan (CNMP) developed by the Natural Resource Conservation Service (NRCS) maintained on file with HDOH identifies this lower lagoon. However, the CNMP drawings for the lagoon (specified as 7 million-gallon capacity which differs than the 2.5 million-gallon volume capacity stated by the BID representatives) does not include details regarding an overflow spillway, nor does the CNMP identify a potential disposal method of lagoon wastewater as surface water discharge into Kaohaoha Gulch via an overflow spillway. Additionally, information on file with HDOH associated with NPDES Permit No. HIS000224 (for the construction of the lower lagoon) does not identify an overflow spillway for the lower lagoon. The exact as-built drawings of the lower lagoon and overflow spillway were not reviewed as a component of the inspection.

During the inspection, I observed algae growth and standing water in the lower lagoon's overflow spillway (refer to Photographs 32, 33, and 35). Mr. Duff stated that he did not believe that the standing water present in the lower lagoon overflow spillway was from the lagoon, but from storm water runoff from upgradient land caused by recent heavy rainfall. This was inconsistent with a statement made by the BID Representatives during the opening conference, when they stated that the lagoons do not receive storm water runoff. The upper lagoon is located directly upgradient from the lower lagoon and overflow spillway (refer to Photograph 27). As previously stated, Mr. Duff informed Mr. Kurano and I that a large floating vegetative mat on the surface of the upper lagoon prevented Facility employees from accessing the lagoon for cleaning, and as such, the upper lagoon had not been cleaned since the current owners purchased the Facility in 2012. At the time of the inspection, the upper lagoon was not equipped with a depth marker. Additionally, Mr. Duff stated that the majority of flow from the upper lagoon is transferred to the lower lagoon via the east connection pipe. At the time of the inspection, an access road that runs along the south side of the upper lagoon was inundated with water; therefore, the perimeter of the upper lagoon, including the east side of the lagoon that abuts Kaohaoha Gulch was inaccessible (refer to Photograph 25).

Additionally, the lower lagoon contained a floating agitator unit which was used to agitate and suspend manure solids in the lower lagoon prior to engaging the draw pumping system for irrigation (refer to Photograph 28). Due to the minimal freeboard in the lower lagoon, there exists a possibility of spillover from lagoon into the overflow spillway due to agitation activities that may occur near the overflow spillway.

Due to the following information that was obtained during the inspection, I observed the potential for pollutants from the Facility's CAFO operations to discharge offsite into Kaohaoha Gulch, a State water and water of the U.S.:

- Proximity of the upper and lower lagoons to Kaohaoha Gulch (refer to Figures 2 and 3),
- Presence of the lower lagoon overflow spillway and conveyance channel into Kaohaoha Gulch (refer to Photographs 31 through 36),
- Minimal freeboard available in the lower lagoon (refer to Photographs 31 through 34),



- Potential overloading of solids in the upper lagoon,
 - Possibility of storm water runoff from upgradient areas entering the lagoons,
 - Inaccessibility of the upper lagoon's east abutting side to Kaohaoha Gulch (refer to Photograph 25),
 - Steep topography of the BID property, and
 - High annual rainfall amount.
3. During the inspection, I observed a potential for pollutants from the Facility's manure composting operations to contaminate storm water runoff. The manure composting building is located near the origin of Alaialoa Gulch (refer to Figure 3). Storm water runoff from the manure composting building, and uncovered concrete cow bedding loading area appears to most likely flow into the upgradient reach of Alaialoa Gulch. As previously stated, during the visit to the manure composting building, I observed a tractor actively loading a trailer with cow bedding (refer to Photographs 15 through 19, and 21).
4. During the inspection, I observed chemical storage practices that may present hazardous conditions for Facility employees and livestock. Specifically, I observed multiple 55-gallon drums of caustic detergent and acid stored together on pallets, outdoors without secondary containment (refer to Photographs 4 and 10). After the inspection, I reviewed the Safety Data Sheets (SDSs) for the two CIP chemicals and verified that the chemicals were incompatible based on their pH: Solution® chlorinated alkaline detergent 11.5 standard pH units; CIP Acid Cleaner 2.4 standard pH units. Mr. Duff stated that due to a lack of storage space, surplus CIP chemicals are stored on wooden pallets outside each of the freestall barns. Due to the incompatibility of acids and bases, uncontained drums of the two CIP chemicals stored adjacent to each other can create environmental and health hazards in the event of a spill or leak. This concern is elevated due to the truck/tractor traffic at the freestall barns associated with feed and bedding operations.
5. During the inspection, I observed 4 bulk gasoline and diesel aboveground fuel storage tanks: 2 at the lower freestall barn and 2 at the maintenance building (refer to Photograph 4). Based on the approximate size of the aboveground storage tanks, it appeared that the Facility had the potential to store greater than 1,320 gallons of fuel onsite, and as such, may be subject to spill prevention control and countermeasure rule specified in 40 CFR Part 112.12. The Facility should ensure that the bulk fuel aboveground storage tanks are either a double-walled tank, or stored within secondary containment to minimize the possibility of a leak or spill.

SECTION III –APPENDICES

- Figures
- Photograph Log
- Inspection Report Certification



Figure 1. GoogleEarth aerial image of the BID Facility, imagery date December 6, 2014. The red arrows and callouts identify the various areas of the Facility visited during the inspection.



Figure 2. *GoogleEarth* aerial image of the BID manure separation cells and wastewater lagoons, imagery date December 6, 2014. The red arrows and callouts are approximate location estimations of Facility features observed during the inspection, described in the report, and shown in the Photograph Log.



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Figures

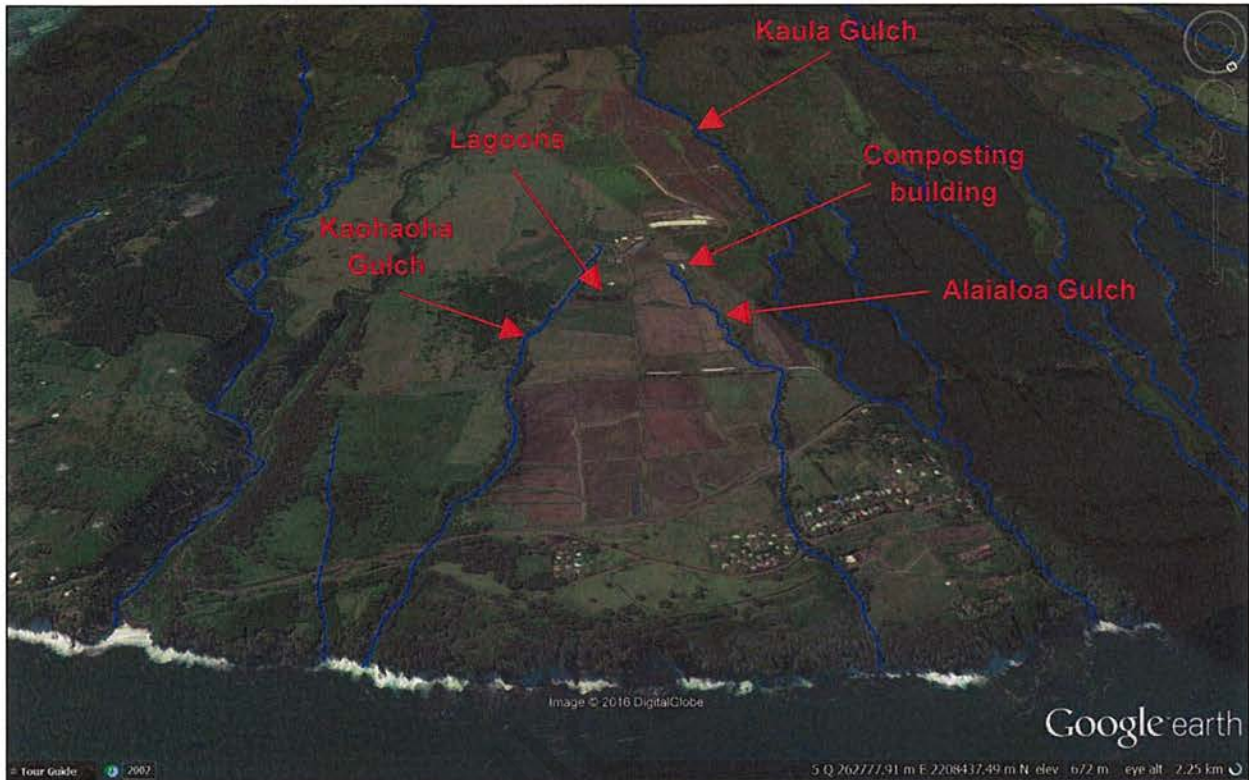


Figure 3. *GoogleEarth* aerial image, oriented southwest, of BID and Ookala, HI, imagery date December 6, 2014. The blue lines designate streams identified on the EPA My Waters Mapper application. The red arrows and callouts identify the Facility's main three receiving waters: Kaohaoha Gulch, Alaialoa Gulch, and Kaula Gulch, as well as the lagoons located adjacent to Kaohaoha Gulch and manure composting building near the origin of Alaialoa Gulch.



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Photograph 1. Big Island Dairy main office sign. Photo by A. D'Angelo; 12/14/16.



Photograph 2. BID map in main office identifying cropland and pasturelands, dairy facilities, manure composting building, and lagoons. Map oriented to the southeast. Photo by A. D'Angelo; 12/14/16.



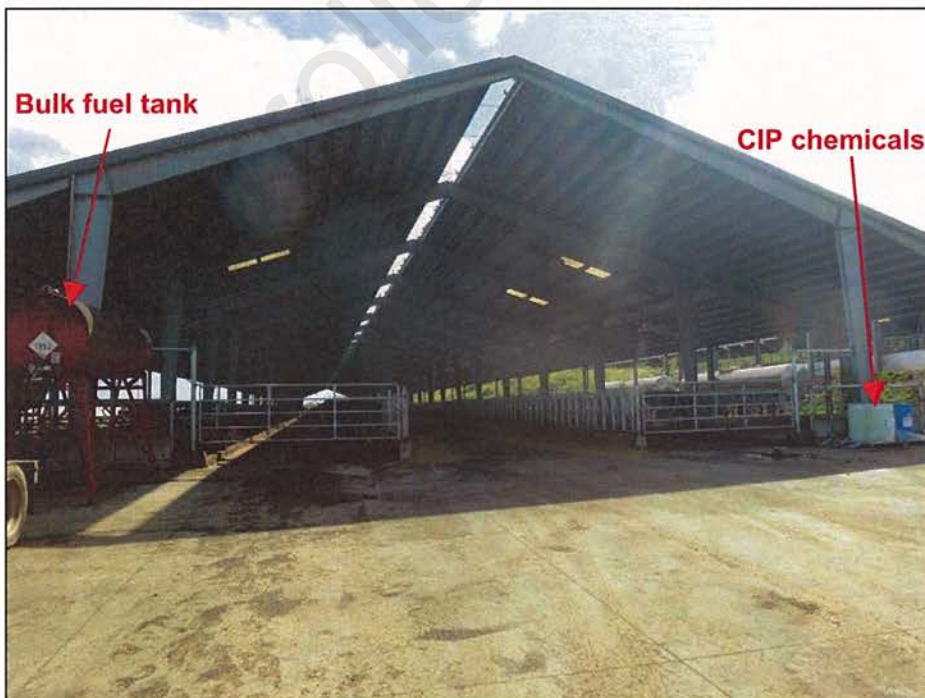
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Photograph 3. View of the Facility's new building that was under construction at the time of the inspection. Photo by A. D'Angelo; 12/14/16.



Photograph 4. View of the Facility's newly constructed lower 1,000-cow freestall barn. Note the bulk fuel tank and CIP chemicals. Photo by A. D'Angelo; 12/14/16.



Photograph 5. View down the central feeding alley of the lower 1,000-cow freestall barn. Photo by A. D'Angelo; 12/14/16.



Photograph 6. The cow pen alleys of the freestall barns contain mechanically operated manure scraping systems that scraped manure toward and into a collection trough in the center of each barn. The cow pens were lined with composted manure bedding that is made onsite using recovered manure solids. Photo by A. D'Angelo; 12/14/16.



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Photograph 7. Close-up view of the freestall barn manure scraping system in action. Photo by A. D'Angelo; 12/14/16.

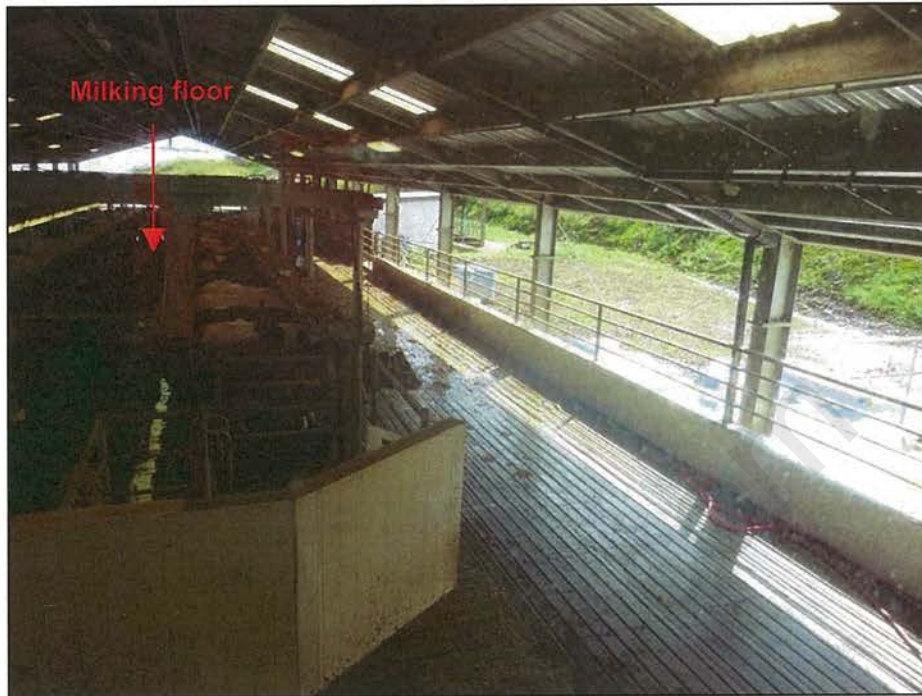


Photograph 8. View of the manure collection trough in the center of the lower freestall barn. The contents of the collection trough gravity flow into a collection pit located at the manure composting building, shown in Photographs 15 and 16. Photo by A. D'Angelo; 12/14/16.



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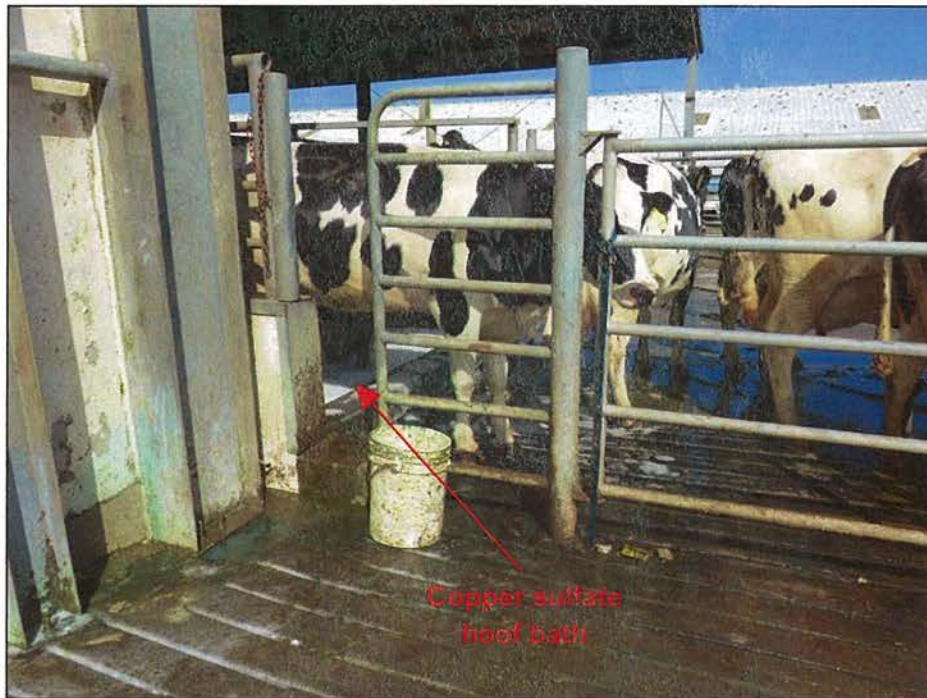
**Concentrated Animal Feeding Operation
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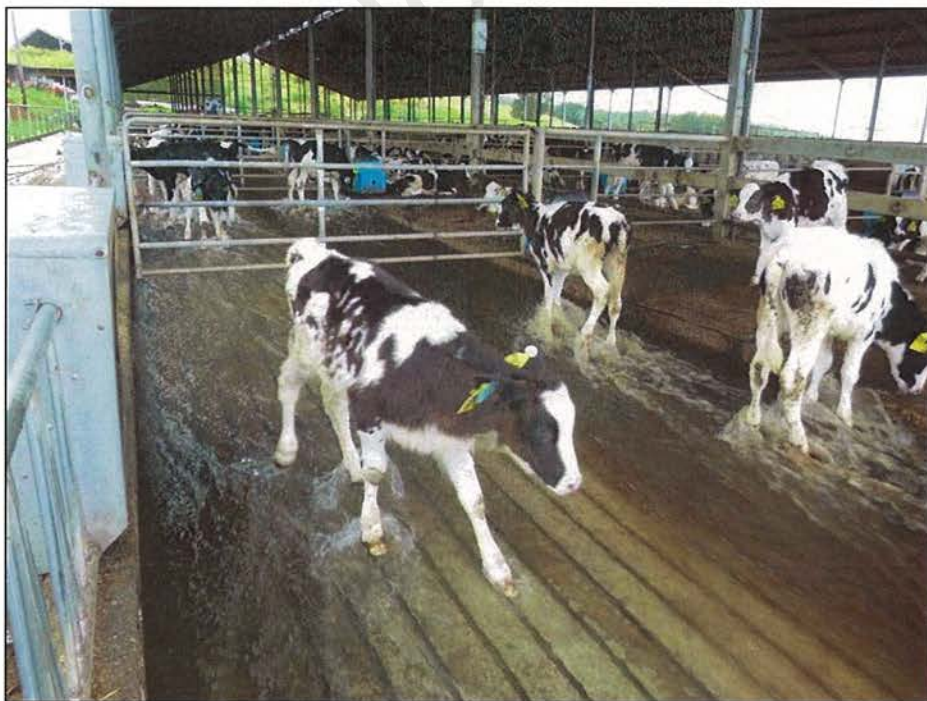
Photograph 9. View of the milking floor inside the Facility's recently constructed milking barn.
Photo by A. D'Angelo; 12/14/16.



Photograph 10. View of two 55-gallon drums of acid and two 55-gallon drums of caustic detergent used in the milking barn CIP system. The drums were stored outside, without overhead coverage or containment, and in close proximity to each other. Photo by A. D'Angelo; 12/14/16.



Photograph 11. View of the milking barn copper sulfate hoof bath. Photo by A. D'Angelo; 12/14/16.



Photograph 12. View of active flushing occurring in the 380-head calf barn. Photo by A. D'Angelo; 12/14/16.



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Photograph 13. Flush water from the 380-head calf barn is captured in a collection trough located at the end of the barn and conveyed to the manure composting building collection pit, shown in Photographs 15 and 16. Photo by A. D'Angelo; 12/14/16.



Photograph 14. View, facing northeast, of the Facility's active mortality burial pit, which was located near the manure separation cells, in an existing gulch that drains into the lower lagoon. Photo by A. D'Angelo; 12/14/16.



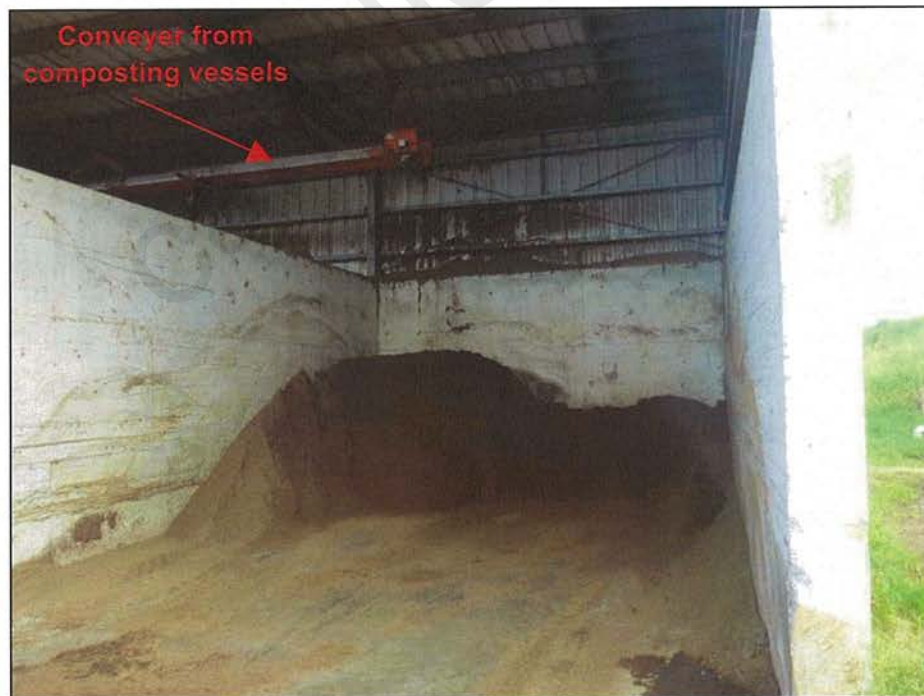
Photograph 15. View of the Facility's manure composting building collection pit. Waste streams from the freestall barns, calf barn, and milking barn gravity flow into this collection pit. Note the honeywagon stored behind the collection pit. Photo by A. D'Angelo; 12/14/16.



Photograph 16. View of the manure composting building collection pit influent pipes. Photo by A. D'Angelo; 12/14/16.



Photograph 17. View of the Facility's manure composting building which included two manure separator units, and two composting digester vessels. Photo by A. D'Angelo; 12/14/16.



Photograph 18. A conveyer belt on the back end of the composting vessels conveys composted manure (i.e., cow bedding) into a covered stockpile stall. Photo by A. D'Angelo; 12/14/16.



Photograph 19. View of BID staff actively loading cow bedding from the covered bedding stockpile stall into a trailer. Photo by A. D'Angelo; 12/14/16.



Photograph 20. View of the manure composting building collection pit overflow point. Overflow flows into the manure separation cells shown in Photographs 22 and 23. Note the honeywagon. Photo by A. D'Angelo; 12/14/16.



Photograph 21. View, facing north, of a disturbed area near Ookala Road. This area will be paved to store the honeywagon shown in Photographs 15 and 20. I observed a vegetated buffer between the disturbance and Alaiialoa Gulch. Photo by A. D'Angelo; 12/14/16.



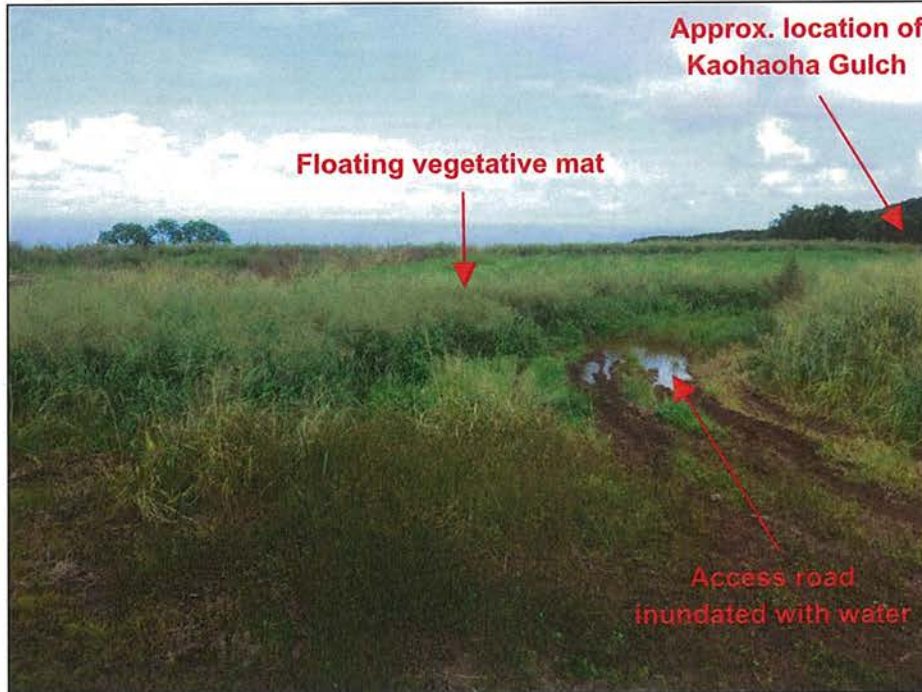
Photograph 22. View, facing east, of the Facility's manure solids separation cells located adjacent to the upper lagoon (refer to Figure 2). The uncovered cells on the left serve as the primary cells and liquid waste discharge points. Photo by A. D'Angelo; 12/14/16.



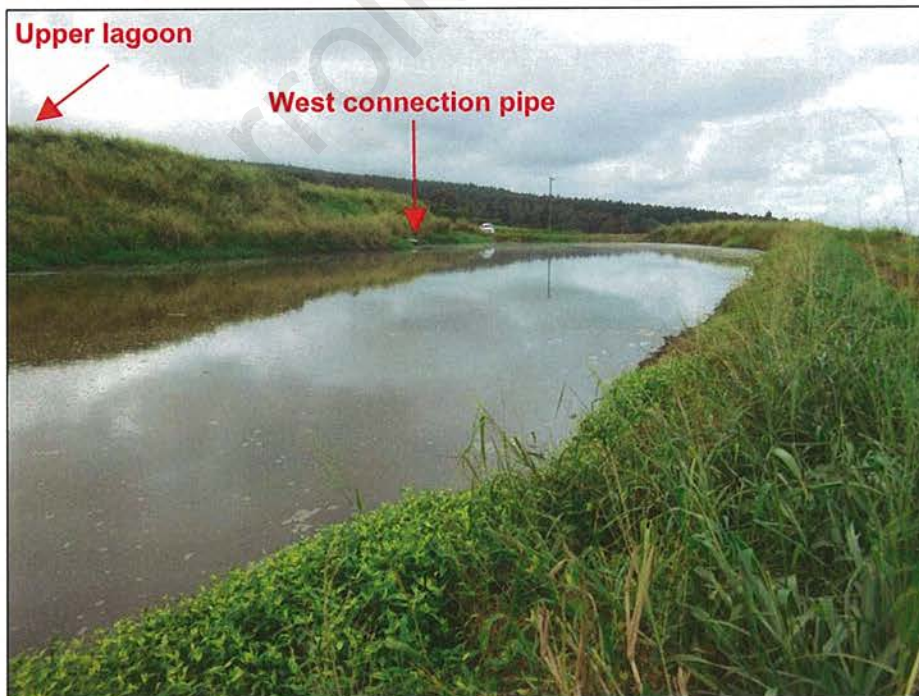
Photograph 23. View of flow from the manure composting collection pit entering the primary cells of the manure solids separation cells shown in Photograph 22. Photo by A. D'Angelo; 12/14/16.



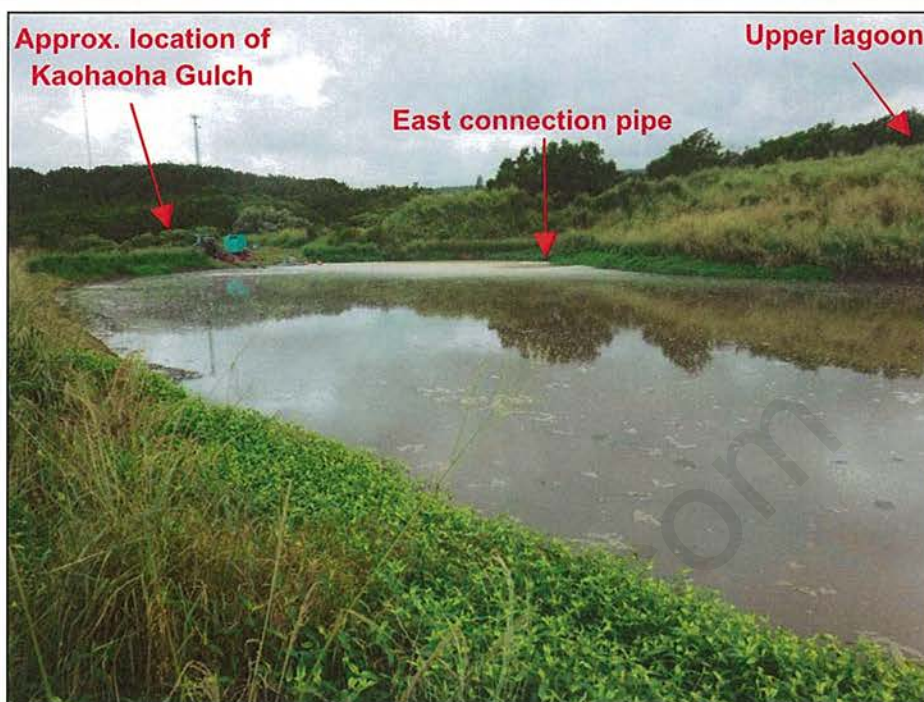
Photograph 24. View of the two pipes that drain separated liquid from the manure solids separation cells. Liquid from the cells surface flows, via an earthen conveyance channel, into the northwest side of the upper lagoon. Photo by A. D'Angelo; 12/14/16.



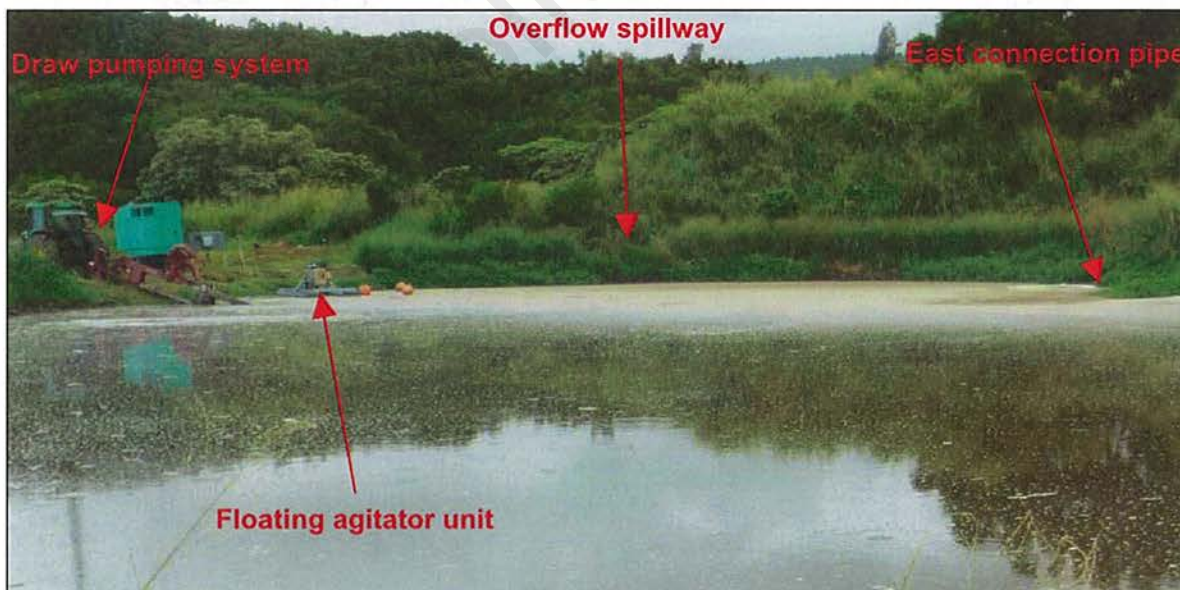
Photograph 25. View, facing east, of the upper lagoon which contained a floating vegetative mat. An access road along the south side of the lower lagoon was inundated with water. Photo by A. D'Angelo; 12/14/16.



Photograph 26. View, facing west, of the lower lagoon. The lagoon was near capacity at the time of the inspection and was not equipped with a depth marker. Photo by A. D'Angelo; 12/14/16.



Photograph 27. View, facing southeast, of the lower lagoon. I observed a floating agitator unit, draw pumping system, and overflow spillway on the southeast side of the lagoon. Photo by A. D'Angelo; 12/14/16.



Photograph 28. Zoomed-in version of Photograph 27, showing the floating agitator unit, draw pumping system, and overflow spillway of the lower lagoon. Photo by A. D'Angelo; 12/14/16.



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Photograph 29. View of the draw pumping system hose connection point to the Facility's irrigation system. Photo by A. D'Angelo; 12/14/16.



Photograph 30. View of one of the Facility's retractable irrigation distribution equipment which receives flow from the lower lagoon draw pumping system. Photo by A. D'Angelo; 12/14/16.



Photograph 31. View, facing south, of the approximate location of the lower lagoon overflow spillway. Photo by A. D'Angelo; 12/14/16.



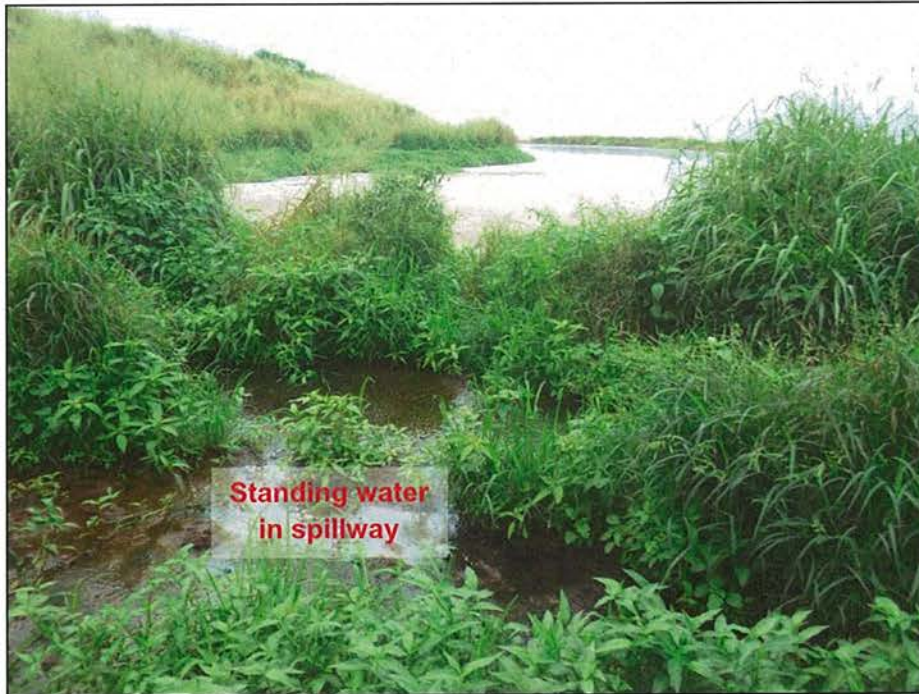
Photograph 32. View, facing southwest, of the lower lagoon overflow spillway. Note the presence of algae growth and standing water in the overflow spillway. Photo by A. D'Angelo; 12/14/16.



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Photograph 33. View of algae growth and standing water in the lower lagoon overflow spillway. Photo by A. D'Angelo; 12/14/16.



Photograph 34. Standing on the lower lagoon overflow spillway, I estimated the freeboard of the lagoon at approximately twelve inches (note the notebook for reference). Photo by A. D'Angelo; 12/14/16.



Photograph 35. View, facing southeast from the lower lagoon overflow spillway, down the vegetated channel that connects the lagoon to Kaohaoha Gulch. Photo by A. D'Angelo; 12/14/16.



Photograph 36. The channel downgradient of the lower lagoon overflow spillway was heavily vegetated; however, I observed clear channelization and a flow pathway toward Kaohaoha Gulch. Photo by A. D'Angelo; 12/14/16.



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Inspection Report Certification

I certify that the statements made in this inspection report are, to the best of my knowledge, a true and accurate representation of what was observed on December 14, 2016 at Big Island Dairy.

I certify that the thirty-six photographs (Photographs 1 through 36) described in the attached Photograph Log were taken by the undersigned and are a true, accurate, and unaltered representation of what was observed on December 14, 2016 at Big Island Dairy.

A handwritten signature in black ink, appearing to read "Anthony D'Angelo", written over a horizontal line.

January 31, 2017

Anthony D'Angelo
U.S. EPA Contractor
PG Environmental

CarrollCox.com



Hawaii Department of Health
Clean Water Branch
919 Ala Moana Blvd., Room 301
Honolulu, HI 96814

Unauthorized Discharge Inspection

Inspection Report

Facility Name: Big Island Dairy

Permit No.: HIU010287

Hawaii Department of Health Clean Water Branch Unauthorized Discharge Inspection

Facility Information

Inspection Date: March 28-29, 2017

Began: 9:30 am

End: 12:00 pm

Weather: Sunny

Inspection Report #: HA0290

Permittee: NA

Facility Name: Big Island Dairy

Permit No.: HIU010287

Effective Date: NA

Expiration Date: NA

Facility Address: 39-3308 Hawaii Belt Road, Ookala, Hawaii 96720

Facility Representatives and Title: Brad Duff (General Manager, Big Island Dairy)

Receiving Water(s): Kaohaoha Gulch, Alaiialoa Gulch, Kaula Gulch

Inspection Team: Matthew Kurano & Neil Mukai of the DOH-CWB



Background

Big Island Dairy is a local dairy farming operation that operates in the Ookala area of Hawaii Island. The dairy has been in operation since the early 2000's, but has been under current management since approximately 2012. The State of Hawaii, Department of Commerce and Consumer Affairs lists the current ownership, Big Island Dairy, LLC as having been registered since October 5, 2011. Principal members of Big Island Dairy, LLC, includes Mr. Derek Whitesides and Mr. Steve Whitesides, both listed as managers. Mr. Brad Duff is the General Manager present at the Dairy. According to dairy representatives, Big Island Dairy was previously owned by Mr. Bahman Sadeghi, Island Dairy, Inc. Details regarding the size, number of milking cows and description of the dairy are documented in the DOH, Clean Water Branch, Inspection Report, Inspection Report No. HA0289.

On March 28, 2017 and March 29, 2017, Neil Mukai and I investigated complaints that Big Island Dairy (Dairy) was illegally discharging wastewater from its dairy operations to State waters in Ookala, Hawaii. The inspections focused on three (3) areas of complaint which were voiced by community members. The three (3) areas of complaints included:

- 1) Objectionable odors coming from the Dairy;
- 2) Wastewater discharging from the Dairy's crop irrigation to State waters; and,
- 3) Wastewater discharging from the Dairy's wastewater treatment system to State waters.

The investigation was carried out over two (2) days and included:

- 1) Interviewing of several complainants (March 28, 2017);
- 2) Interviewing Mr. Brad Duff and Mr. Riley Smith, Managers at the Dairy (March 28, 2017);
- 3) Attending of an Ookala Community meeting (March 28, 2017);
- 4) Reconnaissance of Kaohaoha Gulch, the State water which is directly connected to the Dairy's wastewater lagoons (March 29, 2017).

This report is organized into multiple sections to better organize the events, statements, observations and findings made during the inspection. This report is organized as follows:

- Section 1: Introduction
- Section 2: Dairy Operations
- Section 3: Initial Interviews of Local Area Residents
- Section 4: Findings/Observations of the Dairy made on March 28, 2017
- Section 5: Community Meeting: March 28, 2017
- Section 6: Additional Interviews with Local Area Residents



- Section 7: Observations from the Inspection of Kaohaoha Gulch and the Dairy made on March 29, 2017
- Section 8: Summary Findings
- Section 9: Photo Log

Section 1: Introduction

Big Island Dairy (Dairy) is a large Concentrated Animal Feedlot Operation (CAFO) as defined in Federal standards (40 Code of Federal Regulations (CFR) 122.23(b(4))). As a large CAFO, the Dairy is subject to Clean Water Act (CWA), National Pollutant Discharge Elimination System (NPDES) permits if the Dairy discharges regulated waste streams to State waters. Discharges of pollutants to State waters are prohibited unless the discharges are in compliance with an NPDES permit.

The information documented in this report was collected in response to complaints from members of the local community.

The Dairy houses approximately 1226 mature milking cows as well as a significant number of calves and pastured heifers. An overview of the Dairy's operations can be seen in 2014 aerial image taken from Google Earth (Figure 1). Though the image is not current (imagery date: 12/6/2014), the image includes the major Dairy features. Dairy features of note include two (2) pens used to house and feed dairy heifers, two (2) separate pens for raising calves and young heifers, agriculture fields used to produce animal feed, and wastewater infrastructure that includes:

- A wastewater sump, which collects raw animal wastewater generated by the Dairy;
- A composting facility where solids are separated from the raw wastewater and composted into animal bedding material;
- Sludge beds;
- Wastewater lagoons;
- Fields used for farming feed; and,
- A milking parlor.

Figure 1 also includes:

- Kaohaoha Gulch and Alaialoa Gulch, State waters; and,
- Ookala Town

The Dairy is flanked on the east by Kaohaoha Gulch, while Alaialoa Gulch runs through the western portion of the Dairy's property, both of which are State waters. Ookala Town is situated on the ocean side of the Dairy, approximately one mile away from and 800 ft. below the heifer pens.

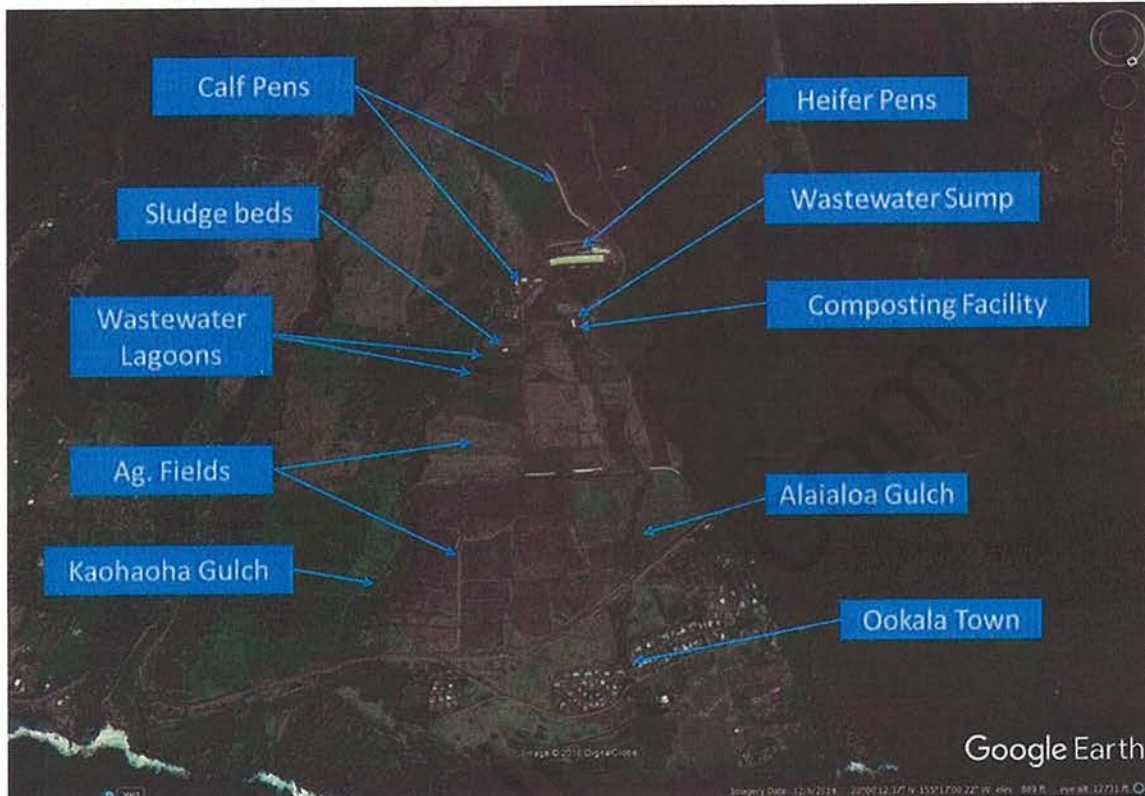


Figure 1: Overview of Big Island Dairy
Image Source: Google Earth (Saved 4/4/2017)
Call Outs Overlaid By: M. Kurano

Description: Notable features include single family homes located in Ookala Town, the location of the animal pens, wastewater lagoons, sludge separation, composting facility, wastewater sump and State waters (Kaohaoha Gulch and Alaialoa Gulch).

Based on previous statements by Dairy representatives, wastewater generated from the CAFO operations flow to a wastewater sump located on the south side of the composting facility. From the sump, solids are separated from the liquid portions of the wastewater, composted and re-used as animal bedding. The liquid portion of the wastewater is directed to a two-stage wastewater lagoon system where it is stored and used for crop irrigation and fertilization. The wastewater lagoons are believed to have capacities of 3.1 million gallons and 7.0 million gallons. The blue dotted lines in Figure 2 (below) depict the flow of wastewater to the Dairy's wastewater lagoons.

As stated above, wastewater from the lagoons is re-used for crop irrigation. The green dotted lines represent a simplified diagram of the Dairy's irrigation system (Figure 2). The Dairy uses a pump to pressurize the wastewater used for crop irrigation. The Dairy utilizes a combination of water cannons and hoses to distribute the wastewater throughout the Dairy's crop fields. Crop



fields, pasture areas and the wastewater lagoons all contain drainage features such as ditches or grades that are potential pathways for wastewater to discharge from the Dairy to the nearby gulches.



Figure 2: Overview and Simplified Diagram of Dairy Wastewater Irrigation System

Image Source: Google Image

Overlay By: M. Kurano

Description: Facility representatives stated that the wastewater generated by the concentrated animal feedlot operations (Blue Arrows) flow to the Dairy's wastewater lagoon and is then used to fertilize and irrigate the Dairy's feed farming operations.

Section 2: Dairy Operations

Figure-3 (below) is a diagram generated by the DOH-CWB, that depicts the Dairy's waste streams. As depicted below, raw materials including feed, cows and fertilizer are either cultivated onsite, or imported. Mature dairy cows are confined and used to produce milk for local sale. The primary waste stream from the dairy operation is the wastewater produced from feeding and housing the cows. The Dairy currently uses a wastewater system designed to



recover waste products for reuse as bedding (solids) and fertilizer (liquids) to improve efficiency from an operational and business standpoint. Of note, there are three (3) waste streams which constituted areas of focus for the March 28-29, 2017, investigation. The three (3) waste streams include odors potentially resulting from wastewater handling, unauthorized discharges from the wastewater lagoons, and unauthorized discharge of wastewater from crop irrigation. As stated before, Hawaii water pollution laws prohibit the unauthorized discharge of wastewater to State waters.

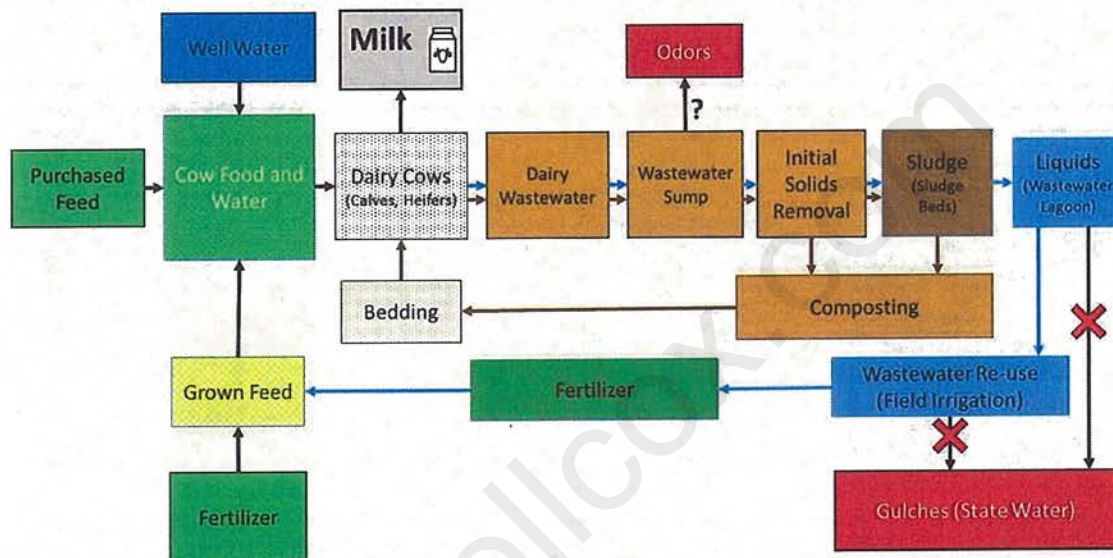


Figure 3: Simplified schematic of the Dairy's operations. Note that discharges to State waters are prohibited.

Section 3: Initial Interviews with Local Area Residents

As previously stated, the March 28-29, 2017 investigation focused on addressing the three (3) areas of complaint which included odors potentially resulting from wastewater handling at the wastewater sump, unauthorized discharges originating from the wastewater lagoons and unauthorized discharges of wastewater from the Dairy's crop fields. The complaint investigation consisted of two rounds of interviews with local area residents, an inspection of the Dairy's grounds and operations site, and a reconnaissance of the Kaohaoha Gulch, the State water located directly east of the Dairy's wastewater lagoons, with the Dairy's management.

The following notes do not constitute a comprehensive record of all statements made by subjects interviewed. The notes are a record of details thought to be relevant at the time this report was written.

Interview of Complainant A:



At approximately 9:45 AM, I met with a Complainant A who owns a home in Ookala Town. The interview was conducted at the Department of Health, Environmental Health Services Office, located at 1582 Kamehameha Ave, Hilo, Hawaii 96720. A. Cook, DOH, Wastewater Branch, N. Mukai and I were present during the interview. The complainant provided the following information:

- 1) In approximately 2013, Complainant A started to notice a strong odor at regular but intermittent frequencies. The odor is very strong and normally is most pronounced in the early evenings and middle of the night. Complainant A stated that the odors are frequently present following light rains earlier in the day and come from the direction of the Dairy. The complainant stated that the smell was not like rotten eggs but very pungent.
- 2) Complainant A stated that he/she also has serious concerns about "contaminated water" flowing down local gulches including Alaiialoa Gulch (Photographs 1 and 2). He/she stated that the water in the gulches is brown, frothy and has a strong odor of manure. Complainant A stated that the problem was getting worse and more frequent. He/she stated that the gulches shouldn't always be flowing but Alaiialoa Gulch is almost never dry anymore.
- 3) Complainant A stressed that this is a real problem that is worsening. He/she stated that both the odors and presence of what he/she described as contaminated water in the gulches is making it difficult to live in the area.
- 4) Complainant A stated that in the early evening the typical wind pattern (tradewinds) blows from the ocean up towards the mountain reverses and could be transporting odors from the Dairy down to Ookala town.

The interview concluded at approximately 10:30 AM.

Interview of Complainant B:

At approximately 11:30 AM, I met with Complainant B at a location in Ookala Town. The interview was conducted in the presence of N. Mukai. The complainant provided the following information:

- 1) The complainant has lived in the Ookala his/her whole life.
- 2) The Dairy property was formerly a sugar plantation until approximately 1995.
- 3) Complainant B stated that as a child, he/she would play in the local gulches and streams and that the water would be clear. He/she stated that the streams have been brown



and dirty since the Dairy has been in operation. He/she feels that the problem has increased with the number of cows maintained by the Dairy.

- 4) Complainant B stated that dairy operations began in the mid 2000's and that at first, the odors were not very strong. Complainant believes the odors started to get stronger around 2012-2013.
- 5) Complainant B stated that odors are most noticeable in the evenings and on days when there is light to moderate rain. Complainant B described that odor as not smelling like rotten eggs but sometimes having a "burnt" smell and a smell of cow manure.
- 6) Complainant B also stated that in the early evening the typical wind pattern (tradewinds) blows from the ocean up towards the mountain reverses and could be transporting odors from the Dairy down to Ookala town.
- 7) Complainant B directed me to talk to two (2) other community members that witnessed polluted discharges from the Dairy.

The interview concluded at approximately 12:15 PM.

Interview of Brad Duff and Riley Smith, Managers at Big Island Dairy:

At approximately 2:30 PM, I met with Mr. Brad Duff and Mr. Riley Smith, Managers of Big Island Dairy, at the Dairy. The interview was conducted in the presence of N. Mukai. I informed both B. Duff and R. Smith that the purpose of the interview and inspection was to follow up on the December 2016 inspection conducted by the DOH and PG Environmental, as well as to gain more information about the odor and discharge complaints received by the DOH. B. Duff and R. Smith provided the following information:

- 1) Since the December inspection by the DOH-CWB and PG Environmental, the Dairy has actively tried to reduce risk of any unauthorized discharges. B. Duff stated that changes include:
 - a. Re-grading crop fields immediately North (makai) of the old "airstrip" to be more terraced so that irrigation water will not runoff to Alaialoa Gulch.
 - b. Re-grading the area surrounding the composter (composting facility) so that any storm water that contacts the area is kept onsite.
 - c. Lowering the wastewater lagoon levels to prevent the possibility of discharge over the spillway to Kaohaoha Gulch.
- 2) Crop fields are typically irrigated between 10am and 2pm.



- 3) The Dairy is aware of the odor complaints. B. Duff stated that the Dairy receives the highest density of odor complaints between November and March.
- 4) Most Dairy workers finish their workday at approximately 5:30 PM. No unusual activities/operations are conducted at the end of the work day.
- 5) The source of the odors may be the wastewater sump that is located near the composting facility.
- 6) The wastewater lagoons have capacities of 3.1 million gallons (old lagoon) and 7 million gallons (new lagoon). The Dairy is sure that the 7-million-gallon lagoon is lined but is not sure that the 3.1-million-gallon lagoon is lined.
- 7) The wastewater lagoons do not receive storm water runoff.
- 8) Neither B. Duff nor R. Smith believed that the Dairy discharges wastewater, either directly from the wastewater lagoons or from crop irrigation to State waters.

The interview concluded at approximately 3:35 PM. Following the interviews with B. Duff and R. Smith, N. Mukai and I conducted a cursory inspection of the Dairy prior to a scheduled public meeting.

Section 4: Findings/Observations of the Dairy Inspection made on March 28, 2017

The following findings, observations or notes are not a comprehensive record of all activities, conversations or observations made during the investigation. The following documentation represents the facts and statements made with respect to the issues investigated.

- 1) The crop fields, immediately North (makai) of the "airstrip" appeared to be recently graded (Photograph 3). I observed corn growing in the fields in rows perpendicular to the slope of the property. What appeared to be small trenches were cut perpendicular to the slope of the property such that any excess irrigation water would stay onsite. Further, the fields sloped up towards Alailoa Gulch such that there was a low potential for storm water or irrigation water to discharge from the fields. Of note, the grading and terrace-like features was not ubiquitous throughout the Dairy's fields. The field pictured in Photograph 3 depicts one (1) of the fields B. Duff stated was modified following the DOH inspection in December 2016.
- 2) As detailed in the December 2016, report, the Dairy's composting facility (Photograph 4) is located adjacent to Alailoa Gulch. I walked to the compost bays to make



observations about the facility as I suspected that the compost might be a source of the odor complaints. As in December 2016, the compost stockpiled in the bays did not have a strong odor. B. Duff had previously stated that the compost collected in the bays is used as bedding material for the milking cows and is sterilized in the process of composting.

- 3) While at the compost bays, I smelled a strong odor emanating from the Dairy's wastewater sump (Photograph 5). The wastewater collected in the wastewater sump was being agitated to suspend wastewater solids as is routine. The odor was very pungent and easily traced to the wastewater sump. Solids from the wastewater sump is separated to be processed as compost while remaining wastewater flows to the Dairy's sludge beds. Sludge separated in the sludge beds is then routed back to the wastewater sump for re-separation.
- 4) N. Mukai and I left the Dairy at approximately 4:00pm.

Section 5: Community Meeting: March 28, 2017

At approximately 5:30 PM on March 28, 2017, N. Mukai and I attended a community meeting in Ookala Town. The community meeting was held as a follow-up to a previous community meeting held approximately two (2) weeks prior. The topics scheduled for discussion at the meeting included County of Hawaii, Department of Water, drinking water testing in Ookala; Department of Health, Clean Water Branch, involvement with respect to possible illegal discharges from Big Island Dairy; and, Director Scott Enright representing the Department of Agriculture, with respect to Big Island Dairy. N. Mukai and I represented the DOH, Clean Water Branch during the meeting.

Overall, community members expressed their concern over what appeared to be wastewater flowing down local area gulches as well as the regular odor problems that they believe are associated with Dairy operations. Community members expressed discontent at the lack of DOH action and suggested that the DOH look further into the issue of illegal discharges. Specifically, community members suggested that DOH inspect the gulches within the Dairy property.

Following my participation in the public meeting, two (2) complainants requested to speak privately.

Section 6: Additional Interviews with Local Area Residents

Interview of Complainant C:

At approximately 7:30 PM, I met with Complainant C at a location in Ookala Town. The interview was conducted in the presence of N. Mukai after I attended the Ookala community



meeting at the Ookala post office complex. The complainant provided the following information:

- 1) Complainant C lives in Ookala and is familiar with the Dairy property.
- 2) In September of 2016, Complainant C observed a direct discharge into Kaohaoha Gulch from the Dairy. Complainant C believes that the discharge was from the Dairy's wastewater lagoons. Complainant C stated that he/she saw wastewater flowing into Kaohaoha Gulch from base of the wastewater lagoon spillway. Complainant C stated that the discharge may not have been coming directly from the surface of the spillway but he/she was sure it was wastewater.
- 3) Complainant C does not believe there is a pipe connecting the wastewater lagoon to Kaohaoha Gulch but stated that there may be another way wastewater is discharging from the Dairy's wastewater lagoons.

Interview with Complainant D:

At approximately 7:45 PM, I met with Complainant D in Ookala Town. The interview was conducted in the presence of N. Mukai after I attended the Ookala community meeting at the Ookala post office complex. The complainant provided the following information:

- 1) Complainant D corroborated the statements made by Complainant C.
- 2) Complainant D stated that N. Mukai and I need to inspect the gulches within the Dairy property as there would be evidence of illegal discharges.

Section 7: Observations from the Inspection of Kaohaoha Gulch and the Dairy made on March 29, 2017

On March 29, 2017, N. Mukai, B. Duff and I conducted an inspection to determine whether the Dairy had discharged wastewater from its fields or wastewater lagoons to Kaohaoha Gulch. The inspection included a hike through Kaohaoha Gulch along the path depicted in Figure-4 (below). Observations taken during the inspection are noted following Figure-4.

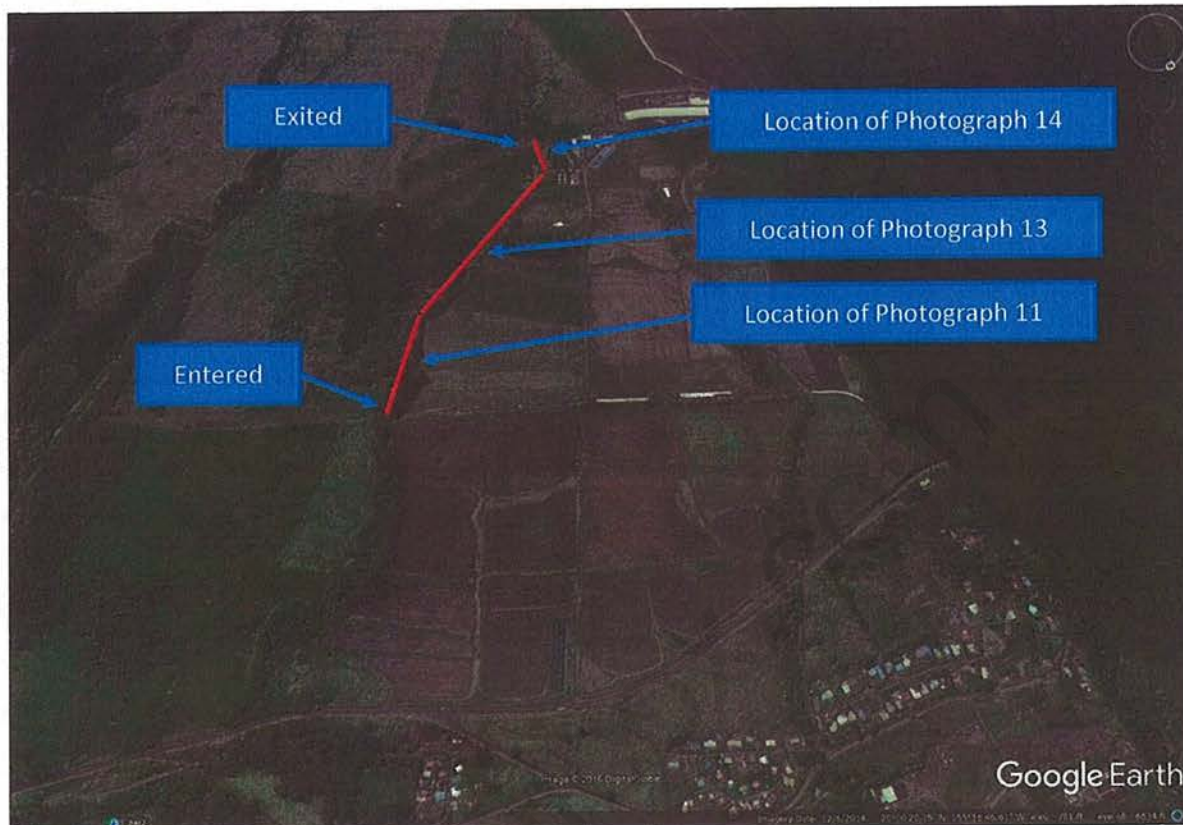


Figure 4: View of the segment of Kaohaoha Gulch inspected on March 29, 2017

Image Source: Google Earth (Image Saved 4/12/2017)

Overlay By: M. Kurano

Description: The red line is the path upon which N. Mukai, B. Duff and I followed in the inspection of Kaohaoha Gulch. Photograph 11 is the location where a discharge of wastewater from fertilization of the fields was observed. Photograph 13 is the location where evidence of discharge from the wastewater lagoons was observed. Photograph 14 is the location where the dry streambed was observed.

March 29, 2017, Observations made during the Inspection of Kaohaoha Gulch:

- 1) At approximately 11:00 AM on March 29, 2017, N. Mukai and I met B. Duff at the Dairy. N. Mukai and I met B. Duff at the "airstrip". Earlier in the day, B. Duff called me and requested that as a follow-up to the community evening the previous day, that I inspect the gulches to assist the Dairy in finding the location of any discharges which may have occurred. Figure-4 (above), is a diagram of the path of the inspection of Kaohaoha Gulch and includes the location where key observations were made.



- 2) N. Mukai, B. Duff and I, entered Kaohaoha Gulch at the terminus of the "airstrip". Kaohaoha Gulch is a well-defined State water with a clearly defined streambed. Kaohaoha Gulch was flowing at the time of inspection.
- 3) Upon descent into Kaohaoha Gulch, pools of what appeared to be polluted water (Photograph 6) was observed. The water appeared to have a scum layer with accumulated floatable sludge. The sludge appeared to be organic material. Ordinary water marks on the sides of the stream were easily viewed due to a brown stain.
- 4) N. Mukai, B. Duff and I continued to hike upstream (southwest). Stream water was markedly impaired (Photograph 7). In natural ponds, the water accumulated was cloudy with a layer of what appeared to be foam.
- 5) On the east bank of Kaohaoha Gulch, I observed clear evidence of erosion due to a concentrated flow (Photograph 8). The flow path was covered by a layer of what appeared to be a sludge-like cake. Within the layer of sludge, I observed residual fibrous material that looked like short segments of straw, similar to the compost I observed at the Dairy's composting facility.
- 6) N. Mukai, B. Duff and I followed the trail of what appeared to be sludge up the east bank of Kaohaoha Gulch and emerged in one of the Dairy's fields (Photograph 9). The location pictured in Photograph 9 is located at approximately 20°0'8.91"N, 155°16'35.80"W. At this location, I observed a heavily vegetated drainage ditch cut perpendicular to the slope of the field. The ditch appeared to be designed to receive excess irrigation and/or storm water and direct excess water to Kaohaoha Gulch. The ditch was very damp with small ponds of standing water.
- 7) I observed a black trail of what appeared to be dried wastewater solids running from the fields to the ditch that directs excess water to Kaohaoha Gulch. The black trail of solids (Photograph 10) is clear evidence that irrigation water is flowing off of the Dairy's fields and ultimately into Kaohaoha Gulch. After recording clear visual evidence that wastewater used to fertilize and irrigate the field was discharging into Kaohaoha Gulch, N. Mukai, B. Duff and I traced the excess wastewater from the fields back into Kaohaoha Gulch to resume the inspection (Photograph 11).
- 8) At multiple locations between where I entered Kaohaoha Gulch at the "airstrip" and where I ultimately exited Kaohaoha Gulch at a location near the calf pens, I observed evidence of locations where wastewater used to fertilize the Dairy's fields entered into Kaohaoha Gulch. The locations showed clear signs of erosion and dried sludge-like solids (Photograph 12).
- 9) At the location where the Dairy's wastewater lagoon's spillway connects to Kaohaoha Gulch, I observed clear evidence of previous discharges. A cascade (Photograph 13) of



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what appeared to be a yellow tinted crystalline material covered the rock face from the top bank of Kaohaoha Gulch to the bottom. The material increased in width from the top of the bank top. The material was a soft mineral-like texture with what looked like inorganic salts embedded in it. The material had a slight glint and crumbled to a fine powder. The cascade was 2-4 inches thick and looked to have slowly deposited on the rock face over an extended period of time. The material was very dry. There did not appear to have been recent discharges at the time of inspection.

- 10) Near the area where N. Mukai, B. Duff and I exited Kaohaoha Gulch at approximately 19°59'46.97"N, 155°16'58.50"W, Kaohaoha Gulch was dry (Photograph 14). B. Duff stated that Kaohaoha Gulch doesn't always flows at elevations above the Dairy but will always flow in lower areas due to overflow water from the Dairy's well (Photograph 15). Based on the lack of flow in Kaohaoha Gulch near the location I exited the gulch, the flow observed lower in Kaohaoha Gulch was due to discharges from the Dairy.
- 11) After exiting Kaohaoha Gulch, N. Mukai, B. Duff and I walked to the location where the Dairy's well overflow pipe (Photograph 15) is located. B. Duff stated that discharge from the overflow pipe was variable depending on the amount of water used in the Dairy operation. B. Duff stated that during the day, the Dairy consumes more water for Dairy operations and as such, less water discharges into Kaohaoha Gulch.
- 12) Between the Dairy's well overflow pipe and Kaohaoha Gulch, I observed that the Dairy's overflow water flows through an area where cows were confined (Photograph 16). The confined area had a layer of cow waste and the waste was discharging into Kaohaoha Gulch at the time of inspection. Though the volume of discharge was relatively low at the time of inspection, during the times of day when less water is consumed by Dairy operations, discharges from this area would likely be greater.
- 13) Following the inspection of Kaohaoha Gulch, N. Mukai and I provided B. Duff with a verbal summary of preliminary observations. The observations included:
 - a. I observed evidence of ongoing discharges of wastewater associated with the irrigation of the fields.
 - b. I observed clear evidence of discharges from the Dairy's wastewater lagoon at the location near the lagoon spillway into Kaohaoha Gulch. It was clear to me at the time that the Dairy had not recently discharged. I estimated that it likely had not discharged for a number of weeks but could not be certain based on limited study of the area.
 - c. Discharges of wastewater from the Dairy to State waters is prohibited and must be stopped as soon as possible. I stated that it was in the best interest of all



parties that the Dairy address the discharges to prevent any further discharges to State waters.

- d. I observed a strong odor at the Dairy's wastewater sump. I could not definitively determine if the odor was the source of the odors which area residents have stated is a problem. However, based on the odor emanating from the Dairy's wastewater sump, the Dairy should investigate this issue further to determine if odor control units are necessary.

- 14) B. Duff stated that the Dairy did not know that it was discharging wastewater into Kaohaoha Gulch and that the Dairy is committed to preventing further discharges. B. Duff also stated that the Dairy is constructing a new well system and that the system observed will not be used when the new system is put into operation.

Section 8: Summary Findings

Below is a consolidated list of major findings from the activities documented in this report. The following list is not a comprehensive list of all potentially actionable findings but is a summary of findings to assist the reader.

- 1) Multiple members of the Ookala Town community have observed a strong odor that comes from the Dairy. Community members believe that the odor is most noticeable during early evening when winds shift and blow down from the Dairy property towards Ookala Town and is strongest along Alaialoa Gulch.
- 2) Based on my observations made during the inspection, a possible source of the odors is the Dairy's wastewater sump. I could not definitively confirm the wastewater sump as the root cause or sole source of the odor complaints; however, it is a potential source.
- 3) Evidence of recent and regular discharges of wastewater from the Dairy's field irrigation operations to Kaohaoha Gulch was observed. The discharges caused erosion within Kaohaoha Gulch and was caused due to a lack of impoundment in the Dairy's crop fields.
- 4) Evidence of previous discharges from the Dairy's wastewater lagoons at a location within Kaohaoha Gulch near the wastewater lagoon's spillway was observed. The deposition of crystalline solids observed suggest prolonged discharge; however, there did not appear to have been discharges within weeks of the inspection.
- 5) A direct discharge of cow waste into Kaohaoha Gulch was observed where the Dairy's well water overflows.



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- 6) Based on observations of field re-grading in the area below the "airstrip," there appears to be the potential to prevent the discharge of wastewater from the Dairy's crop fertilization/irrigation operations.
- 7) The cause of the wastewater discharge from the Dairy's wastewater lagoons is unclear. The Dairy needs to investigate the cause and cease all unpermitted discharges from the wastewater lagoons to State waters.
- 8) As a large CAFO which discharges to State waters, the Dairy is subject to regulation under Hawaii NPDES discharges permits. The Dairy is not currently permitted to discharge regulated waste streams to State waters.
- 9) It is still unclear whether the Dairy's upper lagoon is lined or not. The Dairy must determine whether it is lined and comply with DOH wastewater requirements.
- 10) At present, the discharge of pollutants from the Dairy to State waters is not authorized.
- 11) The Dairy must determine if there are other locations/sources of discharge not investigated during the DOH's March 28-29, 2017 activities and take corrective actions to prevent any further unpermitted discharges.
- 12) Waters within Kaohaoha Gulch appeared to be mixed with wastewater discharge from the Dairy.



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Section 9: Photograph Log



Photograph 1

Date Photograph Taken: March 28, 2017

By: Matthew Kurano

Description: Alaiialoa Gulch, Ookala, Hawaii. Complainant A stated that odors from the Dairy are strongest near Alaiialoa Gulch (Red Arrow) along Old Cemetery Road (pictured), Ookala, Hawaii.



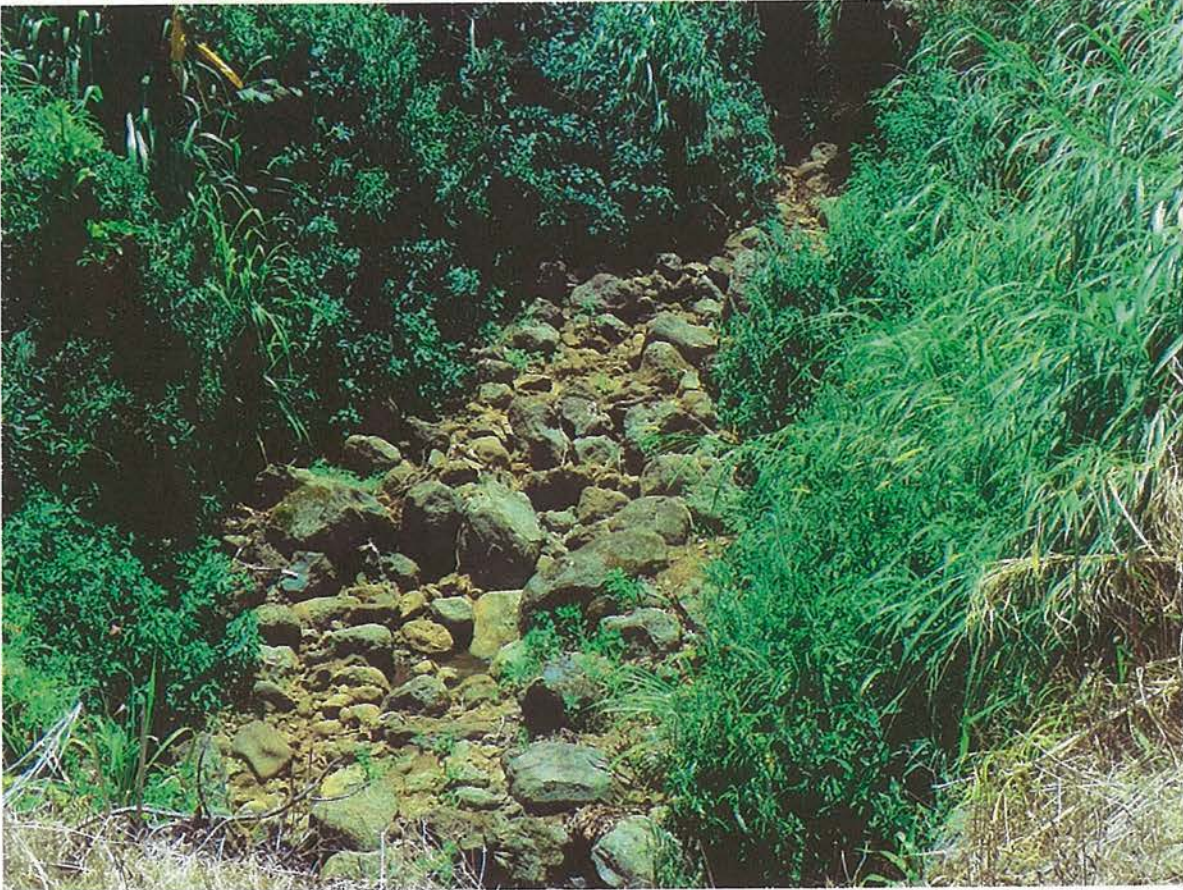
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Photograph 2

Date Photograph Taken: March 28, 2017

By: Matthew Kurano

Description: View of the streambed within Alaioloa Gulch in Ookala Town (same location pictured in Photograph 1). Alaioloa Gulch was not flowing at the time of inspection. Complainant A stated that there is regularly a pond of stagnant brown colored water and intermittent stream flows even on days when the other area gulches are not flowing.



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Photograph 3

Date Photograph Taken: March 28, 2017

By: Matthew Kurano

Description: View of the Dairy's corn fields immediately East of the "airstrip". The fields were recently re-graded (Red Arrow) to better impound irrigation water and prevent discharges to State waters. B. Duff stated that the changes made to the pictured fields were done in response to discussions between DOH and the Dairy during the December 2016 inspection.



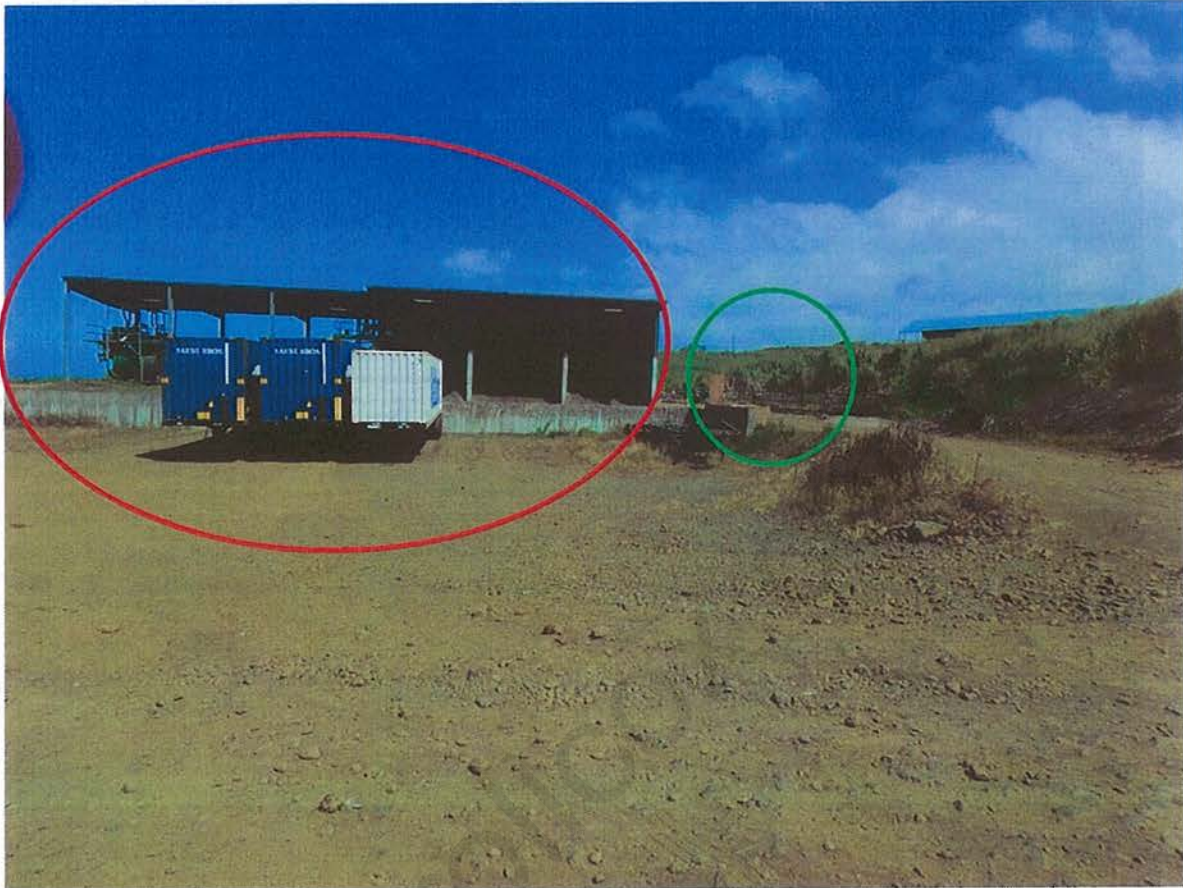
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Photograph 4

Date Photograph Taken: March 28, 2017

By: Matthew Kurano

Description: View of Dairy's composting facility (Red Oval) and wastewater sump (Green Circle). Composted wastewater solids are re-used as bedding material. Sludge that is not initially screened at the composting facility is separated prior to entering into the Dairy's wastewater lagoons and returned to the Dairy's wastewater sump. I observed a strong foul odor at the Dairy's wastewater sump. The wastewater sump is a potential source of the odors which are the subject of complaint for Ookala Town community members.



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Photograph 5

Date Photograph Taken: March 28, 2017

By: Matthew Kurano

Description: View of the Dairy's wastewater sump. All wastewater from the Dairy's concentrated animal feeding pens flow to the the pictured wastewater sump. Wastewater in the sump is agitated to suspend solids for downstream separation and composting. After initial separation, the wastewater is directed towards the Dairy's sludge beds and wastewater lagoon. Sludge separated in the Dairy's sludge beds are returned to the wastewater sump to reprocessing. I smelled a strong unpleasant odor coming from the Dairy's wastewater sump at the time of inspection.



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Photograph 6

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of Kaohaoha Gulch. Stream water was observed during the inspection. Floating scum and organic material (Red Arrow) was observed all through the section of Kaohaoha Gulch inspected.



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Photograph 7

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of State waters within Kaohaoha Gulch. Water quality was poor (i.e. murky, covered by a layer or protienous scum, tinted, etc.) throughout Kaohaoha Gulch in areas fed by the Dairy.



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Photograph 8

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of an area eroded by discharges from the Dairy's fields. The eroded path was covered by a layer of organic material that included what appeared to be spent bedding material and Dairy wastewater.



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Photograph 9

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the location where N. Mukai, B. Duff and I emerged from Kaohaoha Gulch after flowing the trail of sludge from the streambed up the gulch's east bank. This location is one of the Dairy's crop fields where wastewater is used to irrigate feed crops. The vegetation pictured is growing in a ditch (Red Arrow) that drains into Kaohaoha Gulch. The eroded bank observed in Photograph 8, was caused due to discharges of wastewater from the heavily vegetated ditch pictured.



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Photograph 10

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the fields immediately uphill from the vegetated ditch pictured in Photograph 9. Evidence of wastewater used to irrigated the fields running off into the vegetated ditch was observed. The dark colored material (Red Arrow) pictured was damp wastewater runoff that originated from the Dairy's irrigation system. Due to the grade of the field, wastewater not absorbed by the field flows into the vegetated ditch that drains into Kaohaoha Gulch.



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Photograph 11

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the source of the transition between the Dairy's crop fields and Kaohaoha Gulch. Wastewater from the field pictured in Photograph 10 discharged into Kaohaoha Gulch at this location. N. Mukai, pictured, is traversing the transition between the Dairy's fields and Kaohaoha Gulch. A layer of wet organic material covered the areas where erosion was observed.



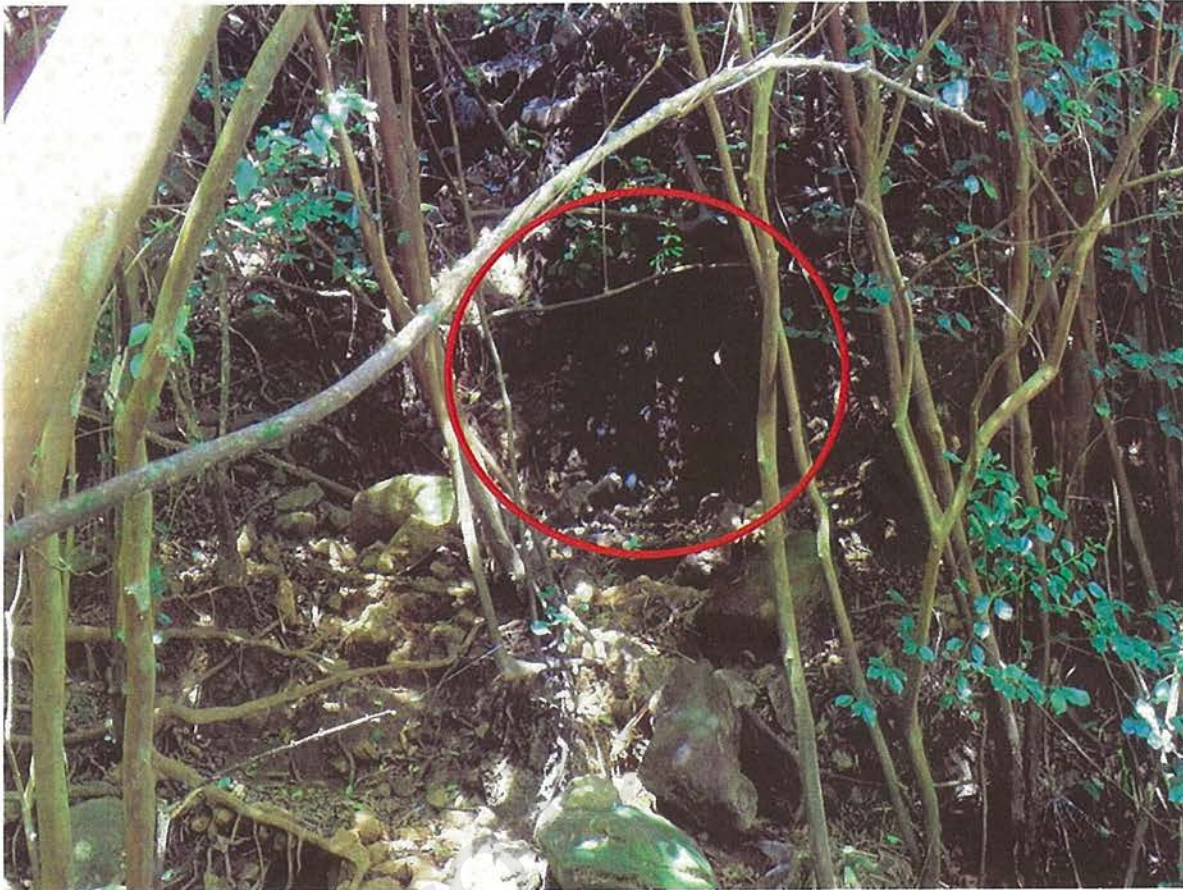
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Permit No.: HIU010287



Photograph 12

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of a second location where erosion was caused by discharges into Kaohaoha Gulch from the Dairy's fields. The areas that served as transitions between the crop fields and the gulch were covered with black sludge (Red Circle). I observed several similar discharge points in the area of Kaohaoha Gulch that I inspected.



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Photograph 13

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the location directly below the Dairy's wastewater lagoon spillway. A layer of what appeared to be crystallized wastewater residue was observed. The dried residue was crystalline in and degraded to a fine powder when rubbed. The material also had a glint in the sunlight.



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Photograph 14

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View the streambed within Kaohaoha Gulch above the Dairy's lower animal feeding operations. The stream was dry at the time of inspection. It appears that water flowing through the lower reaches of Kaohaoha Gulch was due to overflow water from the Dairy's well.



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Photograph 15

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the Dairy's well overflow pipe (Red Circle). Excess water from the Dairy's watertank flows from the pipe, across a pen area, before discharging into Kaohaoha Gulch.



Hawaii Department of Health
Clean Water Branch
919 Ala Moana Blvd., Room 301
Honolulu, HI 96814

Unauthorized Discharge Inspection

Photograph Log

Facility Name: Big Island Dairy

Permit No.: HIU010287



Photograph 16

Date Photograph Taken: March 29, 2017

By: Matthew Kurano

Description: View of the well overflow water flowing over a pen area before discharging into Kaohaoha Gulch.



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Honolulu, HI 96814

Unauthorized Discharge Inspection

Inspection Report

Facility Name: Big Island Dairy

Permit No.: HIU010287

Inspection Report Certification

- I certify that the attached photographs 1-16 described above were taken by the undersigned and are a true and accurate representation of what was observed on 3/28/17 and 3/29/17 at the locations described, Ookala, Hawaii 96774.
- I certify that the statements made in this inspection report are, to the best of my knowledge, a true and accurate representation of what was observed on 3/28/17 and 3/29/17 at the locations described, Ookala, Hawaii 96774.

Matthew Kurano
Environmental Health Specialist

Date