



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

July 12, 2006
Honolulu, Hawaii

Mr. William A. Lydgate
Dry Gulch Flats Well (Well No. 0521-10)
Petition to Amend the Interim Instream Flow Standards
Streams in the Waikaea Surface-Water Hydrologic Unit
Kapaa, Kauai (TMK: (4) 4-4-004:028)

APPLICANT:

William A. Lydgate
P. O. Box 68
Kapaa, Hawaii 96746

LANDOWNER:

William A. Lydgate

SUMMARY OF REQUEST:

The applicant is petitioning to amend the Interim Instream Flow Standards (IIFS) for streams in the Waikaea Surface-Water Hydrologic Unit, near Hauiki Road, Kapaa, Kauai, to use water from Dry Gulch Flats Well for domestic uses and fire flow demand requirements at four residential dwellings (Condominium Property Regime). The applicant is required to petition to amend the IIFS because pumping the well may affect streamflow in the Hydrologic Unit.

LOCATION:

Exhibit 1.

BACKGROUND:

January 28, 2005 - staff received a completed Well Construction/Pump Installation permit application for the Dry Gulch Flats Well (Well No. 0521-10).

February 23, 2005 – date of approval of the Well Construction Permit to Oasis Water Systems.

May 27, 2005 – staff received a telephone message that a new driller will be selected to drill the well.

May 31, 2005 - a letter was sent to Mr. Lydgate from the Commission notifying him of the process to transfer the Well Construction Permit to another driller.

July 13, 2005 – date of approval of the Well Construction Permit and Pump Installation Permit to Valley Well Drilling.

December 14, 2005 – letter to Valley Well Drilling from the Commission regarding Kauai Department of Water's requirement of a 250 gallons per minute (gpm) pump capacity for the well for fire protection purposes.

March 16, 2006 - the Well Completion Report Part 1 was submitted along with the results of the required pumping tests.

April 18, 2006 – letter to Mr. Lydgate from the Commission notifying him of the following:

“The pump test indicates that a recharge boundary was hit. There are two streams in the immediate vicinity of the well. Before we are able to issue a certificate of pump installation completion, which allows you to commence pumping the well for production purposes, a successful petition to amend the interim instream flow standard for the affected stream must be made. We have attached a copy of the appropriate forms.”

June 14, 2006 – Certificate of Well Construction Completion for Well No. 0521-10 issued to Mr. Lydgate.

May 2, 2006 – Petition to Amend the Interim Instream Flow Standard for Dry Gulch Flats Well (Well No. 0521-10) submitted to the Commission.

DISCUSSION/ISSUES:

The project is located in the Waikaea Surface-Water Hydrologic Unit (2039)(Exhibit 2). Two streams, Waikaea (also named Kainahola Stream on the TMK) and Konohiki, meet near the town of Kapaa, and flow into the Waikaea Canal.

The applicant owns property at TMK: (4) 4-4-004:028 within the Waikaea Hydrologic Unit, and has drilled a well on his property. The well will be used to provide water for four residential dwellings and for fire flow demands. The applicant originally proposed a pumping rate of 60 gpm, but was required to install a 250 gpm pump to provide for fire protection. The applicant has stated in a letter, dated April 27, 2006 (Exhibit 3), that “this well is built to serve four, and only four, residential dwellings in a completed Condominium Property Regime (CPR) Project of Kauai. No commercial use of the well is permitted. No agricultural use, outside of residential landscaping for four dwellings is contemplated.”

The results of the long-term test pump indicated that a recharge boundary was encountered. When a well is pumped, water levels around the well gradually decline. Ideally the area of declining water levels is shaped like a cone so it is often referred to as a cone of depression. The cone of depression increases in size with time. When the cone of depression extends to a stream or other source of surface water, such as a reservoir or ditch, or from a more permeable part of the same ground-water aquifer, water from this other source may start flowing towards the well. This is an example of a recharge boundary. The Dry Gulch Well appeared to have hit a recharge boundary about 200 minutes into the test.

When there is a known relationship between ground water and surface water in an aquifer, we assume that pumping ground water from a well in the aquifer will affect the surface water to some degree, depending on the relationship. For instance, in the Waiahole Ditch Contested Case Hearing, it was established that there is essentially a one-to-one relationship between ground water and surface water. Therefore, in that situation, we assume that developing say a million gallons per day of ground water from a tunnel (essentially a well) in the area will diminish stream flow in the area by a million gallons per day. Another case of essentially a one-to-one relationship between ground and surface water is in Waikolu Valley, Molokai that has a dike-complex situation similar to that found in the Waiahole area.

The well is located approximately 1,200 feet south of Upper Kapahi Reservoir, 600 feet south of Waikaea Stream, 150 feet northeast of an irrigation ditch that diverts water from Waikaea Stream, and 2,200 feet from the closest tributary of Konohiki Stream to the southwest.

The Commission's Registration of Stream Diversion Works and Declaration of Water Use database indicates there is one diversion on Kainahola Stream, and one diversion that appears to be on Konohiki Stream (the Declaration was incomplete). Both were registered in May 1989. The first diversion is a two-inch pump that takes water from Kainahola Stream during dry periods when ditch water is unavailable. The water is used to irrigate pasture and vegetable crops. The second diversion appears to take water from Konohiki Stream via a pump, for pasture, crop, and landscape irrigation and for livestock. The first diversion is about half a mile downstream from the well. The second diversion is about a mile away and on a different branch of the stream system.

The Division of Aquatic Resources (DAR) data base indicates that no surveys have been conducted in the Waikaea Hydrologic Unit using the point quadrat methodology.

The Hawaii Stream Assessment (HSA) identifies Waikaea Canal as a perennial stream and Konohiki Stream as a tributary to Waikaea Canal. The Aquatic Ranking determined by the HSA Aquatic Resources Committee was "Unknown." An aquatic survey in 1978 indicated an abundance of opae (*Atya bisulcata*) in Waikaea Stream and the possible presence of oopu hiukole (*Lentipes concolor*) in Konohiki Stream. The introduced Tahitian prawn and swordtail were present to common in Waikaea Stream.

ANALYSIS:

Correlative Rights: The applicant has the correlative right to use the water from his well, on his property, for a reasonable-beneficial use. The use of water for residential dwellings may be considered a reasonable-beneficial use.

Domestic Use: The Hawaii Supreme Court, in the Waiahole Decision of August 22, 2000, stated the following concerning domestic use.

"Whether under riparian or prior appropriation systems, common law or statute, states have uniformly recognized domestic uses, particularly drinking, as among the highest uses of water resources."

"Accordingly, we recognize domestic water use as a purpose of the state water resources trust."

Resource Protection: During the pump test of the well, a boundary was reached that indicates pumping from the well may affect surface water (streams, reservoirs, or ditches) or ground water (more permeable

portions of ground-water aquifers) in the area. There are streams, reservoirs, and ditches in the area. We do not have much information concerning the aquifer characteristics in the area. The Hawaii Supreme Court, in the Waiahole Decision of August 22, 2000, stated, “[T]his court has likewise acknowledged resource protection, with its numerous derivative public uses, benefits, and values, as an important underlying purpose of the reserved water resources trust.” To err on the side of caution, we assume there is some effect on the surface-water and ground-water resources in the Hydrologic Unit. Therefore, the applicant was asked to submit a petition to amend the interim instream flow standard.

Establishing an Interim Instream Flow Standard. Section 174C-71(2)(D) states:

“In considering a petition to adopt an interim instream flow standard, the commission shall weigh the importance of the present or potential instream values with the importance of the present or potential uses of water for noninstream purposes, including the economic impact of restricting such uses.”

The Commission must consider and weigh the following:

- 1) The applicant has the correlative right to drill a well on his property and use the water for a reasonable-beneficial use;
- 2) The domestic use proposed by the applicant is a recognized public trust purpose;
- 3) Pumping of the well may adversely affect surface-water and/or ground-water natural resources, which are also considered public trust purposes;
- 4) In the Waikaea Hydrologic Unit, the relationship between ground water and surface water is unknown. The pump test indicates there may be a relationship, but we do not have enough information to determine what that relationship is. We cannot determine from the available data whether the recharge comes from a surface-water source or a ground-water source;
- 5) The Aquatic Ranking of “Unknown” for Waikaea Canal in the HSA is due to the lack of information, especially for the upper reaches of the Hydrologic Unit. The lack of aquatic surveys can probably be attributed to the history of diversions, ditches, and reservoirs that crisscross the area dating back to the cultivation of sugar cane in the area, making it unlikely to have a high Aquatic Ranking;
- 6) The abundance of opae in Waikaea Stream and the possible presence of lentipes concolor in Konohiki Stream in 1978 indicate possible good aquatic habitat;
- 7) The proposed amount of use of water is relatively small: 60 gpm, or 86,400 gallons per day (gpd), or 0.086 million gallons per day (mgd). Only in case of a fire would the pumping increase up to 250 gpm, or 360,000 gpd, or 0.36 mgd.
- 8) The proposed amount of use is small, but what about the cumulative effect of many such small uses in the future?

There is a conflict between two public trust purposes in this action: 1) domestic use, particularly drinking water, considered “among the highest uses of water resources,” and 2) resource protection. The pump test indicates there may be a relationship between the ground water and the surface water in the area. However, the nature of the relationship is unknown. The quality of the biological resources in the area is generally unknown, though a 1978 survey indicated the presence of lentipes concolor in Konohiki Stream. The abundance of ditch systems and reservoirs in the area reduces the likelihood of favorable habitat. Although the proposed amount of use is relatively small, the cumulative effects of many such small uses could be detrimental to the water resources in the future. However, the cumulative effects of additional withdrawals in the Hydrologic Unit can be monitored by required flow meters, reporting of pumpages, and periodic evaluations of the Hydrologic Unit as may be required.

RECOMMENDATION:

1. That the Commission approve the petition to amend the Interim Instream Flow Standard for streams in the Waikaea Surface-Water Hydrologic Unit, to use water from Dry Gulch Flats Well (Well No. 0521-10), to install up to a 250 gpm pump in the well and use approximately 60 gpm for domestic use and residential landscaping, and up to 250 gpm for fire protection for four residential dwellings at TMK: (4) 4-4-004:028, Hauiki Road, Kapaa, Kauai.

2. That the Interim Instream Flow Standard for all streams on Kauai, as adopted by the Commission on June 15, 1988, be amended to include for the Waikaea Hydrologic Unit, at TMK: (4) 4-4-004:028, that the applicant may pump from Well No. 0521-10, up to 86,400 gpd, at the pumping rate of rate of 60 gpm, for domestic use and residential landscaping, and up to 360,000 gpd, at the pumping rate of 250 gpm, for fire protection. The amendment to the interim instream flow standard shall be subject to the conditions for interim instream flow standard amendments in Exhibit 4.

(Note: Installation of an approved flowmeter is a standard condition of the Pump Installation Permits, and is a condition of this IIFS amendment)

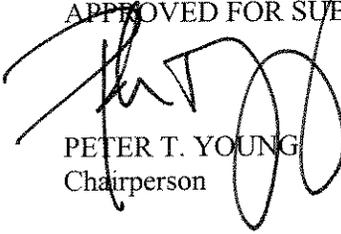
Respectfully submitted,



DEAN A. NAKANO
Acting Deputy Director

- Exhibit(s):
- 1 Location on Island of Kauai
 - 2 Waikaea Hydrologic Unit: 2039
 - 3 April 27, 2003 Letter
 - 4 Conditions for Interim Instream Flow Standard Amendments

APPROVED FOR SUBMITTAL:



PETER T. YOUNG
Chairperson