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COMMISSION ON WATER RESOURCE MANAGEMENT
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STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

January 11, 2006
Honolulu, Oahu

VIP Sanitation, Inc. / Department of Hawaiian Home Lands
APPLICATION FOR A WATER USE PERMIT
VIP Sanitation Well (Well No. 1805-16), TMK 9-1-013:009, WUP No. 750
New (Industrial and Irrigation) Use for 0.003 mgd
Malakole Ground Water Management Area, Oahu

APPLICANT:

VIP Sanitation, Inc.
662 Hoohai Place
Pearl City, HI 96782

LANDOWNER:

Department of Hawaiian Home Lands
P.O. Box 187
Honolulu, HI 96805

SUMMARY OF REQUEST:

The applicant is requesting an allocation of 0.003 million gallons per day (mgd) of brackish ground water from a proposed new well to clean and supply portable restroom units. If the well water is fresh enough, the applicant would like to use up to 50 gallons per day (gpd) to water planters around the perimeter of the property.

LOCATION MAP: See Exhibit 1

BACKGROUND:

On March 8, 2005, a Well Construction/Pump Installation Permit Application was received from VIP Sanitation, Inc. (VIP) by the Commission on Water Resource Management (Commission). Because the proposed well is located in a water management area, a water use permit must be obtained prior to the approval of any well construction permits, unless the applicant agrees to proceed with exploratory well construction at their own risk with no reliance on future favorable approval of a water use permit to use

the well water. In this case, the applicant requested that an Exploratory Well Construction Permit be issued. That permit was issued on May 13, 2005. The well drilling and testing has not been completed as yet.

On October 20, 2005, a completed Water Use Permit Application (WUPA) was received from VIP. Additional information regarding the source, use, notification, objections, and field investigation(s) is provided in Attachment A.

ANALYSIS/ISSUES:

Section 174C-49(a) of the State Water Code establishes seven (7) criteria that must be met to obtain a water use permit. An analysis of the proposed permit in relation to these criteria follows:

(1) Water availability

The proposed well will be located in the Malakole Aquifer System Area of the Ewa Caprock Aquifer Sector Area. The Commission has adopted a policy statement declaring the Ewa Caprock to be a non-potable water resource. The Ewa Caprock is managed differently than other aquifer systems in that, in lieu of an aggregate sustainable yield figure, water developed in irrigation wells are required to remain less than 1,000 mg/L of chloride. The 1,000 mg/L standard corresponds to the generally accepted upper limit of irrigation quality water. VIP's main use is industrial and minimum chloride standards to ensure the brackish portions of the aquifer (which provide irrigation quality water) are not impacted by industrial wells have not been set.

As part of their 1997 action to adopt the 1,000 mg/L chloride limit for irrigation wells, the Commission also directed staff to work with the industrial users in the Ewa Plain to propose a minimum chloride standard for industrial wells. The proposed minimum standard for industrial wells was to ensure that mostly salt water or near salt water was being used for industrial purposes and would have little impact on the irrigation quality brackish protions of the caprock aquifer.

Staff sent a letter to all Ewa Caprock water users notifying them of the action and requesting industrial users to propose a reasonable minimum chloride standard for industrial wells based on historic chloride data and actual need. In response, industrial users in the Malakole Aquifer System Area organized to form the Malakole Users' Group, comprised of six business entities located and conducting business within Campbell Industrial Park (AES Barbers Point, Inc.; Chevron Products Company; City and County of Honolulu, H-Power Plant/Honolulu Resource Recovery Venture; Grace Pacific Corporation; Hawaiian Electric Company, Inc.; and Kalaeloa Partners, L.P.). The Malakole Users' Group provided historic

chloride data for their wells and expressed concerns with the setting of individual minimum chloride standards because chloride levels could change over time due to hydrologic factors beyond their control. They proposed that they be exempt from individual chloride limits and instead all be subject to a 1,000 mg/L minimum chloride level, which would not satisfy the Commission's original intentions and purpose of the minimum standard. Staff met with group representatives and sent a letter to the group's representative informing him that staff was still reviewing the situation and considering the information provided by the group. Subsequently, staff determined that this was not a priority issue and deferred further action on the establishment of a chloride standard for industrial wells. Staff will reconvene the Malakole Users' to further discuss chloride standards for industrial wells in the Ewa Caprock.

Staff established a monitoring network of Ewa Caprock wells and collected water level and chloride data on a quarterly basis from 1994 to 2001. The monitoring network initially included some Malakole area wells (Chevron and Hawaii Raceway Park); however those wells were subsequently dropped from the network and more focus was placed on irrigation wells in the Kapolei and Puuloa Aquifer System Areas due to development pressures at the eastern end of the Ewa Plain as the Second City was being planned and built. Staff is not aware of any well interference or adverse chloride quality issues in the Malakole Aquifer System Area.

In establishing a sustainable capacity for irrigation wells, the Commission found the following:

1. The Ewa Caprock Aquifer is a thin basal aquifer vulnerable to salinity intrusion (most salinity profiles indicate sharp salinity changes). Therefore, developable supply is wholly dependent on well location.

2. Because the Ewa Caprock Aquifer lens is very thin, salinity intrusion, particularly for wells in the makai portion of the aquifer, is a significant limitation. However, if the withdrawal from the aquifer occurs primarily in mauka areas, the developable supply may be greater.

3. The aquifer's main source of recharge is ground water inflow from the basalt aquifer at the limestone's inland margin. The amount of this leakage cannot be determined with any confidence and is dependent upon the water levels within the basal aquifer.

4. The spatial distributions of chlorides don't fit into the simple concept embodied in management by a single sustainable yield number.

5. Sustainable yield is a theoretical number which assumes optimal well placement.

6. The magnitude of tidal influences are equal to or greater than pumping influences and thus makes water level monitoring as a means for estimating sustainable yield and regulating water use extremely difficult.

7. The aquifer is para-basal inland, that is, the aquifer's bottom is truncated by the poorly permeable clay layer underlying the upper limestone aquifer.

8. The hydrology of the Ewa Caprock Aquifer is sufficiently unique to warrant consideration of alternative regulatory considerations. This is particularly appropriate given the change in return irrigation availability of reclaimed water to supplement the naturally occurring recharge.

The Commission directed that a minimum chloride standard be established for industrial use wells to ensure industrial withdrawals, which do not require irrigation-quality water, will not impact irrigation wells in the designated water management area. Exhibit 2 lists all the existing wells in the vicinity of the proposed well site. (Although wells in grid 1806 are shown, it is unlikely that the proposed withdrawal of 0.003 mgd will affect wells in grid 1806.) The "USE" column indicates the use of the well. There are no irrigation wells in the vicinity of the proposed well site.

With the exception of the Kalaeloa wells (Well Nos. 1805-04 to 09), all of the wells in Exhibit 2 are unused, sealed, salt-water, or are for emergency fire protection or back-up purposes. Chlorides in the Kalaeloa wells range from about 1,300 to 2,800 mg/L. It is unlikely that the proposed withdrawal of 0.003 mgd will impact the Kalaeloa wells, which are used for cooling water for the Cogeneration Plant.

Therefore, the staff finds water is available to meet the proposed use for the following reasons:

- VIP's industrial water needs are not dependent on a certain chloride quality of the well water.
- The aquifer is a thin basal aquifer, and the salinity impacts of withdrawals at an individual well site will be largely confined to the immediate vicinity of the pumping well.
- There are no irrigation wells in the vicinity.
- The only pumping wells that may be impacted would be the Kalaeloa Cogeneration Plant cooling wells; however, it is very unlikely that the proposed withdrawal of 0.003 mgd will result in any impacts to the Kalaeloa wells.
- There is no minimum industrial chloride limit at this time.

(2) Reasonable-beneficial

Section 174C-3 HRS defines "reasonable-beneficial use" is

"...the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is both reasonable and consistent with the state and county land use plans and the public interest".

I. Purpose of Use

VIP is requesting use of brackish, non-potable ground water to clean and supply portable restroom units. If the well water is fresh enough, VIP would like to use up to 50 gallons per day (gpd) to water planters around the perimeter of the property. These are considered industrial and irrigation uses of water. The Declaration of Policy section, §174C-2(c) HRS, states that the Water Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for various purposes including industrial and irrigation uses.

The 2000 Legislature amended the Water Code to include a new section, §174C-51.5 HRS that provides the Commission with the authority to require dual line (potable and non-potable) water supply systems in new industrial and commercial developments located in designated water management areas. In this case, the applicant does not have potable water service and is proposing to install only a single non-potable system. Therefore, this provision does not need to be invoked.

As a side note, §174C-51.5(3)(b) HRS requires the county boards of water supply, in consultation with the department of health, to adopt standards for non-potable water distributed through dual line water supply systems and rules regarding the use of non-potable water. The standards and rules shall be adopted in accordance with Chapter 91 and shall protect existing water quality and the health and safety of the public. Staff will follow up with the county boards of water supply as to the status of their dual-line standards and rules adoption, so that the Commission may invoke this provision under appropriate future circumstances.

II. Quantity Justification

VIP is requesting a total of 0.003 mgd for the portable restroom supply and wash down water. If sufficiently fresh, about 50 gpd of water will be used to water Bougainvillea planters surrounding the perimeter of the property. Based on water bills for previous water use from a private basal well (Well No. 2101-01),VIP uses approximately 900 gpd. With the addition of some new accounts and large event clients, VIP estimates present demands at 2000 gpd, with large events requiring as much as 5000 gpd for each day of the event. High-

pressure water will be used onsite and off-site to wash the portable unit's interior, exterior, and waste tank. In addition, replenishing of each portable units' waste tanks accounts for about 2 to 3 gallons of water.

III. Efficiency of Use

VIP states that its operations are as water efficient as possible because use of greater quantities of water would result in greater expense for both the wash down water supply as well as the disposal of the wastewater, which is hauled to the Honouliuli Wastewater Treatment Plant or designated liquid waste hauler sites. According to VIP, because of limited truck tank storage, operations are forced to be efficient. In addition, VIP will install a float-switch that will automatically shut off the pump when the holding tanks fills up. With regard to the proposed irrigation use, Bougainvillea is a water-efficient plant.

IV. Analysis of Practical Alternatives

VIP has identified four alternatives to the proposed use of brackish caprock water. An analysis of each of the alternatives follows:

- Reclaimed Water – VIP initially stated that it was not aware of any R-1 transmission lines in the vicinity of the base yard, and that any R-1 pipeline would have to cross a big ditch that is presumable a fire lane for the former Barbers Point airstrip.

  On December 8, 2005, the Mayor's Office sent a letter stating the use of salt or brackish water in portable toilets is not desirable because discharge into the City's sewer system would increase the level of chlorides and potentially impact existing and future reclaimed water uses and/or affect treatment plant operations. High chlorides may make it more difficult for the City to accept the waste at a designated liquid waste hauler site. The letter recommended that the applicant contact the Board of Water Supply (BWS) to explore the use of reclaimed water because there is a reclaimed water line in proximity to the base yard and on the same side of the ditch as the baseyard.

  On December 15, 2005, staff forwarded the letter to VIP and requested that it supplement its reclaimed water alternatives analysis with additional information to address the Mayor's comments.

  On December 23, 2005, VIP's consultant submitted a brief in support of VIP's application (Exhibit 3). VIP clarified that most of its waste disposal consists of the waste accumulated through use of the portable facility. In addition, each portable

tank holds about 2 to 3 gallons of water. Regarding the chloride concentration of the wastewater, VIP compared its proposed 0.003 mgd use to the 38 mgd capacity of the Honouliuli Wastewater Treatment Plant and the 12 mgd reclamation facility and asserted its use is a very small fraction of the daily waste stream. With respect to the use of reclaimed water, following a review of the BWS web site and consultation with BWS staff, VIP has determined that the reclaimed water is high in organic nutrients and not suitable for its cleaning needs which involves regular human contact.

As required by law, the Commission sent a copy of VIP's WUPA to BWS for review and comment. The Commission's October 31, 2005 letter established a November 28, 2005 deadline for returning comments. Because BWS did not return any comments, but was referenced in the Mayor's letter, on December 29, 2005, staff contacted BWS and requested their position on the matter.

On December 29, 2005, BWS' Water Resources section provided its written comments via email (Exhibit 4). BWS recommended that VIP explore a combined potable/R-1 alternative whereby VIP brings in potable water in a tanker for sanitation and drinking purposes and uses R-1 water for portable unit wash down purposes. BWS suggests that use of best management practices can minimize human contact with the R-1 water. BWS' letter notes that the R-1 line is not active near Malakole and may be stagnant and remain stagnant until more users are brought online. BWS' letter concludes by emphasizing the importance of maintaining the chlorides of the effluent processed by the treatment plant and that even though VIP's proposed use is relatively small, cumulative impacts over time could impact R-1 quality and utility.

Staff forwarded BWS' statement to VIP, and on December 30, 2005, VIP provided further information to support its application via an email response to BWS (Exhibit 5). VIP claims most of the water used drains onto the ground as its service technicians drive to the various event sites and service the units (pressure washing inside and outside of each unit). VIP's workers wear gloves and safety glasses, but do not wear Hazmat protection outfits nor breathing apparatus equipment. VIP feels that use of R-1 water is not safe for its workers.

Staff Analysis: There are two separate issues here. The first is whether R-1 water is a practical alternative to the proposed use of brackish well water. As clarified by the Supreme Court, evaluating this alternative is a requirement under the Water Code criteria for reasonable-beneficial use (i.e., an analysis of practical alternatives). The second issue is a waste disposal (R-1 impact) issue that staff feels is peripheral issue.

Regarding the combined potable/R-1 water alternative suggested by BWS, staff has requested clarification from BWS as to whether the R-1 water is available at this time or whether more users are needed to provide sufficient turnover such that stagnation is not a problem. If R-1 is immediately available, other than the human contact concern, VIP has not stated why this is not a practical alternative. The Department of Health's Guidelines for the Treatment and Use of Recycled Water (May 15, 2002) states that "high pressure water blasting to clean surfaces" is an allowable use of R-1 water, but also listed as an allowable use "industrial process that does not generate mist or facial contact with recycled water unless personal protective gear is worn". Staff recommends VIP obtain a concurrence letter from the Department of Health clarifying whether or not VIP's proposed use is allowable under the Reuse Guidelines. Therefore, staff finds that VIP has not adequately analyzed this alternative and recommends the Commission require more information, including the health and economic impacts of the proposed alternative.

Regarding the waste disposal issue, staff has computed some preliminary estimates for the potential increase in chlorides. To be most conservative, we assumed that the well produces 3,000 gallons of pure salt water, 100% of which finds its way into the 12 mgd reclamation facility. The results show the addition of the well water will increase chlorides from 300 to 305 mg/L, or about a 1.5% increase in chloride concentration. (Most likely, the real impact will be much less than this worse case scenario.) However, the operation of the treatment facility is the City's jurisdiction and staff understands the City's need to be vigilant against any increase in chlorides.

Ultimately, staff questions whether the disposal issue is a Water Commission issue (not a Water Code criteria). If the City refuses to accept the waste, then VIP must find an alternate disposal means. If it is unable to, then VIP will be unable to use the well water and the permit may be revoked after four years due to nonuse. Standard Condition 14 provides that "*[t]he permittee shall request modification of the permit as necessary to comply with all applicable laws, rules, and ordinances which will affect the permittee's water use*". In addition, because there is no established sustainable yield for industrial wells in the Malakole Aquifer System Area, having an unused allocation will not detrimentally impact any proposed future use of the resource. However, because the City has raised this waste disposal concern in the context of this WUPA, staff is recommending that the waste disposal issue be addressed by the applicant.

- City Water – VIP states that there is no potable water line in place and its proposed non-potable use is not a good use of potable water. VIP has researched this possibility and concluded that it's too expensive. Obtaining City water would require

installation of 1,500 ft of transmission line along Malakole Street, with additional hook-up and development rights cost.

- Salt Water – VIP could use either brackish or salt water, whatever quality the well produces would be fine. Plant irrigation is not a requirement.

- Desalt Water – There is a State desalting plant in the vicinity, but it is not operational.

The consistency of these applications with other reasonable-beneficial use criteria will be analyzed in the following sections.

(3) Interference with other existing legal uses

(A discussion of other ground water users is contained under section (1) above.)

(4) Public interest

In its application, VIP states its proposed use is in the public interest for the following reasons:

- VIP employs 11 people.
- VIP's new location provides moneys to the Department of Hawaiian Home Lands (DHHL) through lease rent.
- The previously brush covered property has been paved and plans for Bougainvillea planters will improve the aesthetics of the property.
- Portable restrooms are inherently water conservative compared to conventional flushing toilets.
- VIP provides a needed service to the community while being consistent with the surrounding industrial property usage.

(5) State & county general plans and land use designations

The parcel is located in the State Land Use Urban District. Activities or uses within the Urban District are the jurisdiction of the respective counties. Attached to the application is a letter from DHHL to the City Department of Planning and Permitting (DPP), wherein DHHL has informed DPP that DHHL is exercising its authority to exempt the site from City and County of Honolulu land use zoning.

(6) County land use plans and policies

(See discussion under (5) above.)

(7) Interference with Hawaiian home lands rights

The parcel is owned by Department of Hawaiian Home Lands. DHHL has signed the application as joint applicant, pursuant to §174C-51(1)(B) HRS.

OTHER ISSUES:

The State Department of Aquatic Resources (DAR) has commented that, although the well site is located close to areas of the Ewa karst known to support populations of the native opae ula, the volume of water is relatively small and will not pose a serious threat to the opae ula habitat. However, DAR requests that DAR be notified if the applicant recovers opae ula in the well water, and that the specimens be turned over to DAR for analysis. Staff will recommend that this be a special condition attached to the water use permit, if granted.

The Department of Health commented that if the source is connected to a potable water line for standby, a backflow preventor should be connected to prevent cross contamination of the potable system. This is already a requirement under the Hawaii Well Construction and Pump Installation Standards (2004) section 4.3(d).

If the Commission agrees that VIP has not met its burden to show that no practical alternatives exist, specifically why the combined potable/R-1 water alternative is not a practical alternative, the Commission may either defer action on the application or deny the application with prejudice. Following the Commission's action in the recent Waiawa by Gentry Golf Course Wells application, staff recommends that the Commission defer action pending the submittal of additional supporting information. However, to ensure that this application doesn't remain pending to perpetuity, staff will also recommend that if the additional information isn't submitted within the next ninety (90) days, that the application be deemed denied without prejudice without further action by the Commission.

RECOMMENDATION:

Staff recommends that the Commission find that additional information is needed to support the applicant's request, specifically an analysis of the health and/or economic impacts of the combined potable/R-1 alternative suggested by Board of Water Supply. The analysis should include a concurrence letter from the Department of Health regarding the consistency of the proposed use with the Reuse Guidelines. In addition, the applicant shall address the City's concern regarding the waste disposal. If additional supporting information is not received within ninety (90) days from this submittal's date, then the application shall be deemed denied without prejudice without further action by the Commission.

Respectfully submitted,

DEAN A. NAKANO
Acting Deputy Director

Attachment(s): A (Water Use Permit Detailed Information)

Exhibit(s):
1 (Location Map)
2 (Nearby Wells and Water Uses)
3 (December 23, 2005 Letter to Ms. Lenore Nakama from Mssrs. Bert Ito and Tracy Runnells)
4 (December 29, 2005 Comments from Board of Water Supply)
5 (December 30, 2005 Email from Mr. Bert Ito to Mr. Barry Usugawa)
6 (Malakole Aquifer System Area Graph of Water Use)

APPROVED FOR SUBMITTAL:

PETER T. YOUNG
Chairperson