

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
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November 16, 2022

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Roger Babcock, Jr., Ph.D., P.E.
Director
City and County of Honolulu
Department of Environmental Services

Dear Dr. Babcock,

Subject: Response to November 3, 2022 Letter Regarding the Board of Water Supply's Official Position on the Six Potential Landfill Sites

The Honolulu Board of Water Supply (BWS) is in receipt of your November 3, 2022 letter, in which the City and County of Honolulu Department of Environmental Services (ENV) "formally ask[s] for the BWS' official position on the six potential landfill sites" that were evaluated by the Landfill Advisory Committee (LAC)¹ for possible use upon the closure of the Waimanalo Gulch Sanitary Landfill and "clarity on BWS' legal authority over landfill siting."² For the reasons set forth below, the BWS does not approve any of the six proposed landfill sites that are located above (or mauka) the No Pass Zone and over Oahu's drinking water aquifer system.

The Board of Water Supply's Legal Authority Concerning Plans Proposing Waste Disposal Facilities

Safeguarding Oahu's water supply from sources of potential contamination is not a matter of discretion; it is constitutionally mandated. The Hawaii Constitution guarantees that "[a]ll public natural resources are held in trust for the benefit of the people" and directs the State, and by extension the BWS, "to protect, control and regulate the use of Hawaii's water resources for the benefit of its people." Haw. Const. art. XI, §§ 1, 7. As the largest municipal drinking water utility in Hawaii, the BWS has a constitutional public trust responsibility to protect the water resources it manages and to preserve the rights of present and future generations in the waters of Hawaii. See *Kauai Springs, Inc. v. Planning Comm'n of Cnty. of Kauai*, 133 Haw. 141, 171, 324 P.3d 951 (2014) (holding

¹ See *O'ahu Landfill Siting Study & Landfill Advisory Committee Recommendations: Final Report* (June 2022) ("LAC Final Report").

² At the October 28, 2022 meeting of the BWS Board of Directors, ENV posed similar questions during an item for information before BWS Board. However, ENV's November 3, 2022 letter is directed to the BWS Manager and Chief Engineer.

that the Hawaii State Constitution “mandates that the ‘State and its subdivisions shall conserve and protect’ the State’s water resources” (emphasis in original)). Specifically, the State and the BWS have “the duty and authority to maintain the purity and flow of our waters for future generations and to assure that the waters of our land are put to reasonable and beneficial uses.” *Id.* at 172.³ Pertinent here, drinking water is among the highest beneficial uses of groundwater. See *In re Water Use Permit Application*, 94 Haw. 97, 136-37, 9 P.3d 409 (2000).⁴

Partially because of its public trust obligation to protect Oahu’s drinking water, the BWS was granted the legal authority to “[p]rescribe and enforce rules and regulations having the force and effect of the law to carry out ... the prevention of waste and pollution of water ... and [] other matters having for their object the proper conservation and beneficial use of the water resources available for the city.” Revised Charter of the City and County of Honolulu § 7-105(j) (see also H.R.S. § 54-33). To ensure that groundwater resources utilized for domestic purposes are protected, the BWS has exercised this authority to require that waste disposal facilities, including municipal landfills, can only be sited if the plans for the same receive written approval from the BWS Manager and Chief Engineer. BWS Rules and Regulations § 3-301(1).

The BWS’ Rules and Regulations establish “No Pass Zones” which generally prohibit the installation of waste disposal facilities, including landfills, in areas that may contaminate groundwater resources used or expected to be used for domestic water supplies. See BWS Rules and Regulations Definitions, § 3-301(2).⁵ The No Pass Zone was derived from the review of geologic maps and borings that define the areas of thick caprock around Oahu. Areas that are below (or makai) the No Pass Zone are primarily located on thick caprock. The caprock formation enables the aquifer to replenish within the No Pass Zone by restricting the seaward movement of infiltrated rainwater that falls on the island. The caprock also serves as a barrier to prevent surface contamination from reaching the underlying geology. Areas that are above the No Pass Zone, have no caprock and are located directly above groundwater that is used for drinking water. When making the decision to approve or disapprove plans proposing certain waste disposal facilities, the No Pass Zone must be considered and the Manager and Chief Engineer may, at his discretion, withhold approval “if there is any basis to expect that

³ The Supreme Court of Hawaii has made clear that this responsibility is “unlimited by any surface-ground distinction,” extending to all water resources, including groundwater. *In re Water Use Permit Applications*, 94 Haw. 97, 133-135, 139, 9 P.3d 409 (2000).

⁴ State policy for water resources in Hawaii is likewise directed toward achieving the highest water quality consistent with maximum benefit to the people of the State and “shall be liberally interpreted to obtain maximum beneficial use of the waters of the State” H.R.S. § 174C-2(c).

⁵ The BWS Rules and Regulations are clear that the BWS “may establish ‘No Pass Zones’ which ... shall be used as guidelines in implementing this Section” regulating waste disposal facilities. BWS Rules and Regulations § 3-301(2) (emphasis added). No Pass Zone “means areas in which the installation of waste disposal facilities, which may contaminate groundwater resources used or expected to be used for domestic water supplies, shall be prohibited.” *Id.* at Definitions (emphasis added).

the operation of the proposed waste disposal facility and any wastewater therefrom may to any degree affect the quality and/or quantity of water resources used or expected to be used for domestic water.” BWS Rules and Regulations § 3-301(2)-(3).

**The Board of Water Supply’s Response to the Six Potential Landfill Sites
Evaluated by the Landfill Advisory Committee**

All six of the proposed landfill sites are located above the BWS’ No Pass Zone, and all six of the proposed landfill sites are located over Oahu’s hydrogeologically-connected drinking water aquifer system.⁶ Never has the importance of this groundwater aquifer been more apparent, and never has our responsibility to protect it been more paramount. As you know, the people of Oahu are still coping with what the Hawaii Department of Health aptly described as “a humanitarian and environmental disaster” caused by fuel releases from the U.S. Navy’s Red Hill Bulk Fuel Storage Facility that resulted in the contamination of Oahu’s drinking water supply and the pollution of this island’s irreplaceable sole-source groundwater aquifer. This unfortunate environmental catastrophe is a stark reminder that we all need to be proactive in protecting all of our precious drinking water resources from underground sources of contamination. Oahu’s aquifer cannot be replaced.

As we explained in prior correspondence and presentations to the LAC, the BWS understands the need for a new landfill as well as the challenges associated with finding a new landfill site. We also recognize that modern landfill design and engineering can attempt to reduce the risk that contaminant constituents will adversely impact the environment. However, all six of the potential landfill sites evaluated by the LAC are located above the designated No Pass Zone and all six sit directly over Oahu’s drinking water aquifer system. The United States Geological Survey (USGS), citing EPA studies, has concluded that all landfills eventually will leak into the environment and that the fate and transport of leachate in the environment, from both old and modern landfills, is a potentially serious environmental problem. USGS Fact Sheet FS-040-03 (Aug. 2003).

Available data demonstrates that landfill leachates can and do contain a wide range of harmful inorganic and organic chemical constituents in varying concentrations—such as heavy metals, chlorides, volatile and semi-volatile organic, and per- and polyfluorinated substances (PFAS)—that, if released into the environment, have the potential to

⁶ Two of these landfill sites also sit directly above Oahu’s federally designated sole-source groundwater aquifer, the Southern Oahu Basal Aquifer, from which the BWS supplies 77 percent of the total island-wide water supply. In 1987, the United States Environmental Protection Agency (EPA) determined that this hydrogeologically-connected aquifer is the “principal source of drinking water” for the island, and that “[i]f contaminated, would create a significant hazard to public health.” Southern Oahu Basal Aquifer in the Pearl Harbor Area at Oahu; Principal Source Aquifer Determination, 52 Fed. Reg. 45496, at 45497 (Nov. 30, 1987).

adversely affect drinking water resources.⁷ For example, the Waimanalo Gulch Sanitary Landfill generates approximately 3.6 million gallons of leachate annually that contains elevated concentrations of heavy metals, chlorides, sodium, total dissolved solids (TDS), phenols, and amines well above their respective EPA drinking water maximum contaminant levels (MCLs).⁸ Heavy rainfall can exacerbate landfill leachate containment problems. Indeed, intense storms that occurred on Oahu in December 2010 and January 2011 resulted in the generation of additional leachate at the Waimanalo Gulch Landfill and ultimately gave rise to illegal discharges of municipal debris, medical waste, and leachate to the nearby Waimanalo Gulch stream and ultimately the Pacific Ocean.⁹ Thus, leachate from any of the proposed landfill sites would constitute a significant source of potential contamination that could impact Oahu's groundwater aquifer system.

Since Oahu's groundwater is hydrogeologically connected and groundwater is always moving, contamination in one part of the aquifer can spread to and impact other parts of the aquifer. Further, groundwater flow can be unpredictable and can move relatively quickly (greater than ten feet per day in some instances). Because of this, contaminant migration along preferential flow paths will likely elude even a robust monitoring well network, and undetected contaminants could make their way to drinking water production wells before any corrective action can occur. As a result, contamination from landfill leachate poses a considerable risk to both Oahu's groundwater aquifer and drinking water resources. If such contamination were to occur, it could—as was the case for Red Hill—eventually cause the BWS to shut down its water supply wells in the vicinity of the source of contamination at the landfill.

Accordingly, there is a compelling basis upon which to expect that any landfill sited at one of the six locations proposed by ENV may impact the quality and/or quantity of the water resources used or expected to be used as drinking water. See BWS Rules and

⁷ Aptim. 2021. First Semi-Annual 2021 Monitoring Report, Waimanalo Gulch Sanitary Landfill, Kapolei, Oahu, Hawaii. Prepared for Waste Management of Hawaii. August 2021. Submitted to the State of Hawaii Department of Health, Solid & Hazardous Waste Branch on August 23, 2021 (https://www.honolulu.gov/rep/site/env/envref/envref_docs/WGSL_1SA21_GWMMR_Final.pdf); United States Environmental Protection Agency (EPA). 2020. Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances. Interim Guidance for Public Comment. December 18, 2020 (https://www.epa.gov/system/files/documents/2021-11/epa-hq-olem-2020-0527-0002_content.pdf); Michigan Waste & Recycling Association. 2019. Statewide Study on Landfill Leachate PFOA and PFOS Impact on Water Resource Recovery Facility Influent. Technical Report. Completed in Collaboration with Michigan Department of Environmental Quality. March 1 (Section Revision March 6) (<https://www.bridgemi.com/sites/default/files/mwra-technical-report.pdf>).

⁸ *Id.*

⁹ Complaint ¶¶ 20-25, 54-63, 82-88, *United States v. Waste Management of Haw.*, No 19-224 (D. Haw. 2019); Margo Perez-Sullivan, *EPA Resolves Clean Water Act Violations with Honolulu and Waste Management at Waimanalo Gulch Landfill*, EPA (Apr. 29, 2019), <https://www.epa.gov/newsreleases/epa-resolves-clean-water-act-violations-honolulu-and-waste-management-waimanalo-gulch>.

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Regulations § 3-301(3). Upon due consideration of the requisite guidelines and pertinent factors, the BWS must disapprove all six of the proposed landfill sites above the No Pass Zone.¹⁰

The No Pass Zone was established to protect Oahu's drinking water from underground sources of contamination. The BWS continues to urge ENV to explore new landfill sites that are below the No Pass Zone, including, where appropriate, requesting additional time from the Land Use Commission to explore other siting options.

If you have any questions, please feel free to contact me at (808) 748-5061.

Very truly yours,



ERNEST Y.W. LAU, P.E.
Manager and Chief Engineer

cc.: The Honorable Rick Blangiardi, Mayor, City and County of Honolulu
Michael D. Formby, Managing Director, Department of Environmental Services
Michael O'Keefe, Deputy Director, Department of Environmental Services
Brian Andaya, Chair, BWS
Erwin Kawata, Deputy Manager, BWS

¹⁰ The City Council of the City and County of Honolulu agreed when it adopted Resolution 03-09, FD1 (April 16, 2003). In that resolution, the Council resolved to establish a policy "of the city that municipal solid waste landfills should not be located anywhere ... within the [BWS'] groundwater protection zone, or over any of the City's drinking water sources." This resolution was partially a result of the Council's finding that "there is no current landfill technology that can guarantee that hazardous or other harmful substances from a ... landfill placed over the city's aquifer will not, over the long-term, enter the city's drinking water sources and pose a risk to the public health and welfare of Honolulu's citizens."

The LAC came to similar a conclusion in its Final Report, specifically noting the importance of the "Board of Water Supply No Pass Zone" in not recommending any of the final landfill sites. Indeed, "[a]ll LAC members expressed concerns related to the location of the proposed sites in the No Pass Zone and, consequently, the potential implications for O'ahu's drinking water resources" (LAC Final Report 1-4) and "[t]he LAC strongly felt that they could not support a landfill sited within the BWS No Pass Zone due to their convictions in ensuring preservation of groundwater resources on O'ahu" (LAC Final Report 6-4).