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June 18, 2019

Mayor Ezzy Ashcraft and Members of the Alameda City Council
RE: Agenda Item 6-F: Proposed Nautilus Data Center – Alameda Point

Dear City of Alameda Mayor and Council Members,

In our letter for the May 7, 2019 City Council meeting we expressed opposition to the proposed Nautilus Data Technologies data storage facility at Alameda Point based on the potential for harmful algae blooms caused by the warm water discharged from the data center cooling system. **We continue to hold that position.** Simply stated, harmful algae blooms occur under conditions of increased nutrients, whether from runoff or upwelling of existing nutrients, rising temperature and slow moving water. The proposed discharge area has slow moving water.

There is no significant environmental benefit to locating this water-cooled data center at Alameda Point, but there is a distinct possibility that it will have unwanted environmental consequences from operation of the currently proposed cooling system. The staff claim that Nautilus's technology "could have a positive environmental impact through the significant reduction in energy used to power the data server" is baseless. By 2020, all of the Alameda Municipal Power (AMP) electrical supply will be carbon free. In fact, as stated elsewhere in the staff report, AMP is supportive of the project because of the large increase in its energy sales. The driving factor for the data storage industry in shifting to water cooling of data centers is operational cost savings to stay competitive. The co-benefit of greenhouse gas reductions would be operative in other energy service areas, but not in Alameda.

**Untested System** - The staff report acknowledges that the Nautilus water-cooling system is untested. Yet, the staff is recommending approval of what, in essence, will be a multi-million-dollar science experiment on a Public Trust Land waterway. Prudence should dictate that Nautilus first be required to conduct tests under simulated conditions, much like other new technology startups at Alameda Point, such as Natel Energy and Makani Energy, have been doing for years.

Important facts about the Nautilus cooling system are absent from the staff report. What is the size of the water pipe, volume of water being pumped, temperature of the water as it leaves the facility, and decibel noise level of the pump motor? We only know second-hand that Nautilus will be pumping 10,000 gallons per minute at the start up through a five-foot-diameter pipe, eventually increasing the water flow as cooling needs for more servers increases. We don't know how loud the pump will be and whether or not

nearby residents will be subjected to a round-the-clock motor hum.

Per City Council direction, the staff has proposed an independent city-run testing and reporting program to reassure the council that this test site does not go sour. But the new language only stipulates that the city will have the right to engage a consultant/biologist, not that it will. It is of little comfort and a bit naïve to expect that a single biologist will be able to declare a "significant adverse impact" and cause the entire multi-million-dollar server facility to be shut down. The factors leading to negative impacts to the marine ecosystem can be multi-faceted, cumulative and erratic. Establishing a cause-and-effect relationship between the Nautilus project and negative impacts could be the subject of years of litigation. What we know today without any litigation, verified by multiple agencies such as the US Environmental Protection Agency and National Oceanic and Atmospheric Administration, is that warming water is a key contributing factor for toxic algae blooms. Being risk-averse would mean not adding more warm water.

The staff report enthuses its presentation by pointing to Nautilus's approved barge-mounted data facility in Stockton. But that pilot project will be on a flowing river, and the Port of Stockton has given them only a five-year lease. The Stockton facility will have a capacity of 6 Megawatts of electricity, one-fifth the size of the Alameda Point facility at full capacity.

**Sensitive Marine Area** - <u>We are strongly opposed to routing the discharge pipe through the south harbor and through the jetty</u>. Some parts of nature should be left alone, and this is one of them.

The only disturbance to this harbor in the past century has been the construction of the jetty in 1945, which created the harbor, and limited dredging at the ferry maintenance facility site in 2016. As such, this marine environment is very mature and alive with wildlife and sea vegetation, including eelgrass, that should qualify the harbor for designation as a marine reserve. When viewed as a complete ecosystem, the proposed five-foot-diameter water discharge pipe on the Bay floor would introduce a permanent barrier, in effect a wall, bisecting the harbor and to some extent interrupting the natural flow of currents and nutrients, as well as movement of marine wildlife and organisms.

Additionally, discharging the cooling system water into the relatively calm waters of the Bay, as currently proposed, poses risks to the ecosystem that should be avoided. First, the discharged water, by definition, will be warmer than at intake. That is the whole point of the cooling system. No proof has been offered as to how much warmer it will be. No scientific evidence has been presented by Nautilus showing the heat dissipation rate of their system at the projected 25–30 Megawatts of electricity usage. This permanent warm water zone in the Bay could potentially become the site of a harmful algae bloom. Warming water, along with growing availability of nutrients, are the key conditions for

algae blooms. The city should be risk averse and not authorize the introduction of heated water into a very slow moving body of water when it is a known risk factor.

Secondly, the volume at which the water will be pumped will create a turbulent and potentially an inhospitable marine environment. The initial projected flow rate, based on 10 megawatts of electricity usage at startup, is 10,000 gallons per minute. The company anticipates ramping up to 30 Megawatts of electricity usage at full capacity, with an accompanying increase in water flow.

**Water Intake/Output Impacts** – The projected volumes of water being drawn into the pipe under the pier at the wharf will create its own underwater current. While regulations mandate a fish screen at the intake, this neglects to address the wider impact of the water current on the marine ecosystem. Small fish, microorganisms, nutrients, and seasonally herring eggs could be affected by the new turbulent conditions. We are concerned about the wider impacts of the intake system.

The type of water cooling system proposed by Nautilus, called once-through, is frowned upon by state regulators. We share the concerns and recommendations spelled out in Baykeeper's June 10 letter to you. The antiquated cooling system could harm the Bay ecosystem and, as they wrote, "Alameda should require Nautilus to develop a more creative solution to these problems instead of relying on decades-old technology to dispose of their waste heat in the Bay."

**Alternative Discharge Route** - ***Should you still decide to proceed with a lease that authorizes a once-through cooling system, we urge you to require evaluation of an alternative route other than the south waterway for the discharge pipe, and to exclude the south waterway from any project***. We are not advocating for a specific alternative route for the water discharge pipe, only that the environmental review, permitting process and lease of city property exclude the south waterway from consideration.

**In sum, the Sierra Club urges you to take the precautionary approach to minimize impacts to the environment.** Demand more science, better technology and accept fewer promises. The areas around Alameda Point that will be impacted by this project are Public Trust Land. We urge you, as stewards of the public trust land, to place the environment on equal footing with economic development and not sacrifice the former for the latter.

Sincerely,

Sophie Hahn, Chair
Sierra Club Northern Alameda County Group