JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

January 13, 2023

Rear Admiral John Wade
Joint Task Force, Red Hill
1025 Quincy Avenue, Suite 900
Joint Base Pearl Harbor Hickam, Hawai'i 96860-5101
[via email only: john.f.wade2.mil@us.navy.mil]

Dear Rear Admiral Wade:

SUBJECT: DOH Response to "JTF-RH Response to DOH Requests for Information Regarding Red Hill Bulk Fuel Storage Facility Defueling Plan"

On December 2, 2022, the Hawai'i Department of Health (DOH) received from the Joint Task Force – Red Hill (JTF-RH) responses to the DOH's November 8, 2022 comments on the U.S. Department of the Navy's Defueling Plan Supplements 1.A and 1.B and enclosures; and the JTF-RH's Defueling Consolidated Repair/Enhancement List and enclosures. The JTF-RH's response included:

- Cover letter, dated November 30, 2022, titled "JTF-RH Response to DOH Requests for Information Regarding Red Hill Bulk Fuel Storage Facility Defueling Plan;"
- Untitled document containing JTF-RH's responses to the DOH's November 8, 2022 comments;
- Attachment 1, titled "Bow Tie Diagram – Red Hill Loss of Containment, New Barriers;"
- Attachment 2, titled "Table 2: Controls implemented at the Red Hill Bulk Fuel Storage Facility;" and
- Attachment 3, untitled, containing an event tree analysis in response to the DOH comment 3.b.

In addition, on December 22 and 29, 2022, respectively, the DOH received:

- A memorandum prepared by SGH, dated November 30, 2022, titled "Hotel Pier PVC FOR Line Replacement Prior to Defueling the Red Hill Underground Bulk Fuel Storage Facility;" and
- An updated critical path method schedule, dated December 20, 2022.

Based on the responses received, the DOH conditionally approves the following two repair deviations listed in the JTF-RH's Defueling Consolidated Repair/Enhancement List, dated October 24, 2022, and submitted on October 27, 2022. According to the repairs list, forgoing the Fuel Oil Recovery (FOR) Pipeline replacement at Hotel Pier "could reduce the overall defuel timeframe by three months and accelerate the completion of defueling from June 2024 to March 2024." Please confirm whether the expected end date for defueling will be March 2024, given the conditional approvals below.

1. F-76 Pipeline Enhancements (SGH-PM-3/4/12):
We understand the JTF-RH can complete defueling of all tanks by utilizing the JP-5 and F-24 fuel lines. Because the two tanks storing F-76 (Tanks 15 and 16) are already connected to the JP-5 line, the JTF-RH plans to reroute the F-76 product to the JP-5 line, simply by reconfiguring the

flanges on those tanks. We understand from the JTF-RH's responses to thw DOH's comments that the pipe laterals from Tanks 15 and 16 to the JP-5 line have already been inspected and were included in the NDAA assessment. The JTF-RH proposes that this non-intrusive adjustment would remove the need to install longitudinal restraints on the F-76 pipeline (SGH-PM-12). The DOH approves this deviation, with the understanding that the F-76 line will not be used.

2. Replace Polyvinylchloride (PVC) FOR Pipeline at Hotel Pier (SGH-HP-14):
The JTF-RH's Defueling Consolidated Repair/Enhancement List states, "[t]he SGH Assessment of Red Hill Underground Fuel Storage Facility noted that the PVC FOR line under Hotel Pier potentially has joints with Nitrile seals and recommends replacing the 'PVC with appropriate materials' (SGH # HP-14). SGH designated this repair as required prior to defueling." The SGH's November 30, 2022, memorandum, "Hotel Pier PVC FOR Line Replacement Prior to Defueling the Red Hill Underground Bulk Fuel Storage Facility," described an alternative to replacement for the purposes of defueling. The DOH conditionally approves this alternative provided the JTF-RH follows all of the provisions made for this alternative, which include but are not limited to:

   a. Hydrotest the existing PVC FOR pipeline to locate and repair leaks.
   b. Any resulting leaks shall be appropriately repaired and retested prior to defueling.
   c. Prior to hydrotesting, repair all damaged/missing hardware supporting the PVC FOR pipeline under the pier, including but not limited to damaged pipe hangers.
   d. Document repair and testing for submission to the DOH.

At this time, the DOH cannot approve the proposed third deviation or the remainder of the list until our comments and concerns are fully resolved. We offer our enclosed comments on the JTF-RH's responses. Please note, for comment numbers not included in our enclosure, the DOH has no further comment.

Additionally, in light of the November 29, 2022, aqueous film forming foam (AFFF) spill at the Red Hill Bulk Fuel Storage Facility, we request an updated Spill Prevention Control and Countermeasure Plan and Facility Response Plan for the repair phase of defueling. These documents should address spill prevention and response for hazardous substances, including AFFF and oil.

Should you have any questions regarding this letter or the enclosed comments, please contact Ms. Kelly Ann Lee, Red Hill Project Coordinator at (808) 586-4226 or kellyann.lee@doh.hawaii.gov.

Sincerely,

Kathleen Ho

KATHLEEN S. HO
Deputy Director for Environmental Health

Enclosure

c: Ms. Gabriela Carvalho, U.S. Environmental Protection Agency (w/encl.) [via email

2. The Hawai'i Department of Health (DOH) looks forward to reviewing the reasonable worst-case scenario discharge, mitigation to prevent discharge into the environment, the defueling spill response plan, and procedures (and subsequent results) associated with the planned sump tightness testing. Please coordinate the tightness testing scheduling with the DOH, as we would like an opportunity to observe the tightness testing. In addition, the floor drains leading to the sumps should be inspected for cracks and sealed to prevent leaks.

3. The DOH requested a quantitative probability assessment to further evaluate the Navy's proposal to not repair the aqueous film forming foam (AFFF) drain line or provide a backup system to remove spilled fire suppression material or oil to the existing oil recovery system in the Lower Access Tunnel. The Joint Task Force – Red Hill's (JTF-RH's) response was provided in two parts, which are addressed in 3.a and 3.b below. Also, in light of the November 29, 2022, AFFF release, we understand the Navy is conducting an investigation regarding the incident, and the JTF-RH is reevaluating the fire plan for defueling. Please submit a revised assessment to address the anticipated new information and the following comments.

a. The response identifies three potential release scenarios:
   i. Breach in the JP-5 pipeline immediately upstream of the sectional valves, releasing approximately 30,000 gallons of fuel;
   ii. Release down-gradient of the tank gallery; and
   iii. Catastrophic release from a nozzle releasing a volume greater than 50,000 gallons.

Multiple arguments were provided for scenarios i and iii. The DOH agrees utilizing the AFFF sumps and drain line will not increase the rate of fuel removal for a spill down-gradient of the tank gallery.

Scenario i states it would take about ten minutes for the AFFF sump pumps to remove 30,000 gallons of discharge, while the groundwater pump would take about five hours. During the May 6, 2021 event, the JTF-RH confirms it took twelve hours to clean the release of about 20,000 gallons, which we understand was mostly removed by the AFFF sump pumps in less than ten minutes. However, the groundwater data collected after the May 6, 2021 release shows a striking increase in contamination, even though the majority of fuel was removed in that short amount of time. Thus, the DOH takes issue with the possibility of fuel or fire suppression material sitting in the tank gallery for five hours.

Additionally, comparing the number of days for fuel to travel from the point of release to the well head to the time fuel is sitting in the tunnel, potentially seeping into the environment, does not indicate release time is negligible. We will not discuss the November 20, 2021 incident in this comment, as any release down gradient of the tank gallery (scenario ii) would not be affected by the AFFF sump system.

For scenario iii, when a release is greater than 50,000 gallons, the JTF-RH states pump rate becomes irrelevant because the volume capacity is only about 50,000 gallons for

the FOR system (42,300 gallons for Tank S311 and 9,700 gallons for the pipeline). However, the AFFF drain line and associated tank can provide an additional capacity of more than 100,000 gallons. Thus, pump rate can still play a role in spill response to a greater extent.

b. With regards to the quantitative assessment, we have the following preliminary comments:
   i. Two of the five mitigation controls to reduce the risk of groundwater contamination take place after the groundwater has already been impacted: Groundwater treatment system and increased groundwater monitoring. We comment on these two topics below.
      - The current groundwater treatment system (also known as the granular activated carbon system) is not designed to prevent a fuel release from migrating towards other sources of drinking water supplied from groundwater wells. The system was intended to prevent outward movement of fuel that was discharged around Red Hill Shaft. There is no current indication that the pumping at Red Hill Shaft will prevent contaminant movement from any part of the facility.
      - Increased groundwater monitoring by itself does not mitigate contamination. It only provides data on groundwater quality at the given location.
      - The fuel recovery system was in place prior to the May 6, 2021 event. Additionally, removing the AFFF drain line from use is a reduction of mitigative measures, which should be considered in the evaluation.
   ii. The DOH disagrees with using Table 1: Initiating Events and Corresponding Frequencies to set the initial tank failure conditions for the probability analysis because:
      - No backup data was provided to state how these numbers were developed (other than referencing the book used);
      - The known failures were due to operational errors, not catastrophic tank or pipe failures;
      - The reasonable-worst case scenario release we have been discussing to compare the AFFF pump removal rate to the groundwater pump rate (5,000 to 50,000 gallons per hour) does not necessarily involve a catastrophic tank failure. Thus, this is not the appropriate data point to start with; and
      - Most importantly, Table 1 does not concur with the initial probability for leaks in the 2018 Quantitative Risk and Vulnerability Assessment (QRVA) prepared by the U.S. Department of the Navy (Navy), which shows a yearly probability of 27% for leaks from 1,000 to 30,000 gallons and 1.3% for leaks from 30,000 to 60,000 gallons (Table ES-1).

Table ES-1. Acute Scenario Risk Results Summary

Fuel Release Volume Range Category (gallons)	Sequence Group Frequency (events/year)	Exceedance Frequency (events/year)	Sequence Group Recurrence Interval (years)	Sequence Group Probability (1 year)	Sequence Group Probability (100 years)	Potential Volume Released – Point Estimate (gal./year)
1000 to 30000	0.3230500	0.3424131	3.10	0.2760623	1.0000000	1,960
30000 to 60000	0.0129880	0.0193631	77.00	0.0129040	0.7271410	515
60000 to 120000	0.0022056	0.0063751	453.40	0.0022032	0.1979305	191
120000 to 250000	0.0011526	0.0041695	867.58	0.0011519	0.1088656	219
250000 to 500000	0.0024041	0.0030169	415.96	0.0024012	0.2136946	1,097
500000 to 1000000	0.0000622	0.0006128	16067.35	0.0000622	0.0062045	42
1000000 to 2000000	0.0003678	0.0005505	2718.94	0.0003677	0.0361109	604
2000000 to 10000000	0.0000335	0.0001828	29821.72	0.0000335	0.0033477	253
> 10000000	0.0001492	0.0001492	6701.52	0.0001492	0.0148112	1,703
Total	**0.342**	**0.342**	**2.920**	**0.290**	**1.000**	**6,584**

iii. Note that Table ES-1 in the QRVA is for the total combined acute releases (including human error), which are more relevant than chronic releases for the short period of defueling (which we are assume will take one year or less). The QRVA states on Page ES-2: "These results are developed under the mathematical assumption that the facility will effectively be operated in the current configuration with the same operating profile (fuel movement profile, processes, operating procedures and policies, maintenance, testing, and design) hypothetically for hundreds of years with no intervening risk-mitigating improvements." Thus, this seems to be the appropriate probability to start with before considering the mitigations in place (i.e., potential mitigations were not included in the QRVA, so the actual risks associated with defueling should be lower).

iv. In addition, the QRVA states: "This specific baseline QRVA is broken into four distinct phases, as follows: (1) internal events (excluding internal fire and flooding), (2) internal/external fire and flooding, (3) seismic events, and (4) other external events. The first phase of the baseline QRVA, which is the topic of this report, is designed to focus on internal events (not including the risk from internal fires or internal floods)." As we have discussed previously, the chance of fire or seismic event during the short duration of defueling is negligible. Therefore, this document appears to provide the appropriate probability assessment to evaluate the initial conditions needed to assess the difference in risk between using the FOR line versus a quicker removal method in the event of a spill of 60,000 gallons or less. Please note, larger "catastrophic" spills would have to be contained or mitigated in other ways, which may be covered in the Navy's upcoming spill response plan.

v. Other important information in the QRVA document:

- (ES-2) – It is important to note these total "roll-up" values represent the risk from all the scenarios that fit into the associated category, including human error.

- (ES-5) – "It is important to note these results are for events and conditions leading only to fuel release from the facility but not necessarily directly into the water table." Mitigation to prevent a release in the tunnel from reaching the environment should reduce the QVRA probability accordingly. The DOH is concerned about potential releases into the environment and potentially contaminating the groundwater, not only the probability of impacting drinking water. Thus, the probability and mitigation assessment should end at an environmental impact.
- Page 1-2 – Risk assessment level 2 is defined as "Frequency (and annual probability) of Uncontrolled Release of Fuel Inventory (by volume range) outside the Red Hill Bulk Fuel Storage Facility Property Boundaries that Could Impact Red Hill Groundwater Shaft Water Quality."
- Page 1-2 – "Experience has shown that Levels 1 and/or 2 above are often adequate to facilitate effective risk management decision-making for the facility owner/operator. The QRVA described in this report focuses on a Level 2 risk assessment, as defined above."
- Table ES-1 and the following text in the QRVA lists the items that are important to risk. Those include (roughly in order of importance):
    1. The availability of tank ullage to accommodate emergency movement of fuel from a leaking tank to a safe storage tank or other safe container is important to risk.
    2. The availability and quality of potential fuel release emergency response procedures and associated operator training are important to risk.
    3. The capability and reliability of tank fuel inventory (fuel level) instrumentation and control systems are important to risk.
    4. In response to potential fuel release scenarios, operator actions are generally more important than equipment failures to overall risk. Specific examples are identified in Sections 8 and 13 of this report.
    5. Following tank inspections and maintenance, quality control during the tank return-to-service process is important to risk.
    6. Strategies for responding to fuel releases inside the RHBFSF Lower Access Tunnel (e.g., strategies for removing and controlling fuel released into the Lower Access Tunnel) are important to risk.
    7. Potential fuel releases from the tank nozzles (the main fuel flow piping leading into and out of the main storage tanks up to the upstream flange connections for the tank skin valves) are important to risk.

8. The capability and reliability of fuel piping isolation in response to fuel release incidents in the RHBFSF Lower Access Tunnel are important to risk.
9. Safety management and control of specific maintenance actions at the facility (e.g., tank nozzle and skin valve maintenance) is important to risk.
10. The design and proximity of the RHBFSF Lower Access Tunnel and the Red Hill Water Pump Area is important to risk. This is because potential fuel releases into the RHBFSF Lower Access Tunnel could potentially propagate to this area and flow (in a near-direct path) to the drinking water table.

vi. Accordingly, mitigations to any of the ten factors listed above, subsequent to this report, would lower the probability from that shown in the report. Some of these may coincide with an additional layer of protection, as defined in the JTF-RH's initial response according to the referenced book. Based on the information provided in the QRVA, the DOH believes this is the appropriate assessment to set the initial probability of a release within a year because it includes all potential causes for a release. Mitigations subsequent to this 2018 report should reduce that overall probability.

c. Other comments on the JTF-RH's submittal:

i. Attachment 3 (event tree) shows the risk reducing from 9.89E-05 to 9.89E-06 through the box of "preventative barriers" (response to pressure indicating transmitters, watchstanders, and procedures) but does not explain how this reduction was derived (other than referencing the book used for layers of protection). Attachment 2, which appears to list items in this "box," contains some items that do not directly impact the environment, such as groundwater monitoring and the groundwater treatment system. By the time these items come into play, the environment has already been impacted. (However, we note some of these measures may prevent drinking water wells from being impacted after a release.)

ii. Reducing the number of tanks containing fuel only prevents a release by reducing the time needed to defuel. This should be considered in the analysis. For example, if a year to defuel is assumed, like in the QRVA yearly probability, defueling in less than one year should reduce the release probability accordingly.

iii. There is no indication of how much, or if, items contribute to risk reduction, other than some general idea of a "layer," which is not defined in the response. To make the assessment easier to understand, the DOH recommends breaking risk into categories (e.g., physical repairs, updated operation procedures, added spill prevention, etc.) instead of layers. Each category would represent a risk reduction, combining to arrive at the final probability of a release impacting the environment. This would likely be easier to follow, and even conservative assumptions may result in low probabilities when the probabilities of occurrence are multiplied together.

The collective reduction in risk contributed by all the mitigation measures should first be combined, then subtracted from the respective risks of groundwater contamination when using the FOR line versus a faster method.

iv. Attachment 3 is difficult to follow beyond what is mentioned above. The piping breach includes the 10E-5 probability and is reduced to 10E-6 after the box (one layer), but then splits into true-false lines. The "true" line says 0.9% probability then goes to "release contained and mitigated." Does "true" mean if there is a release, there is a 90% probability it will reach the environment without mitigation? Or does "true" mean, even with mitigation and containment there is a 90% probability it would reach the environment? The "false" line says 0.1% and then goes to limited containment and mitigation. Does "false" mean if there is no release there is a 0.1% change of impacting the environment? It is not clear what "limited containment and mitigation" means in this case.

5. Defueling release scenarios and the associated plan still need to be developed. The DOH looks forward to receiving an updated Facility Response Plan (FRP) with relevant worst-case scenarios for defueling, as mentioned in our response for comment 2. We look forward to participating in the interagency response planning team meetings and spill exercises for defueling.

12. Please explain the status of this design contract in light of the November 29, 2022 AFFF release. What was the purpose of the new design? What enhancements were intended? We understand the Navy is investigating the cause of the AFFF release and that NAVFAC's fire system designers are currently re-evaluating the design of the fire suppression system. We look forward to receiving a copy of the investigation report when completed and the new fire plan.

16. The DOH assumes the Navy will continue to complete minor repairs, and no further discussion or evaluation is required for these items. If the current repairs list will not delay the defueling end date, a reevaluation may not be necessary. However, items that appear to be more than minor, and therefore may collectively cause a delay, include the following. We appreciate notification if any of these or other repairs on this list are determined to cause delay.

Count	Description/Repair
39	For JP-5 piping between the Sectional valves near Tank 1 to PS 1: Various sections of pipe are floating from the saddles and the saddles are offset from the support frame. Reset saddles to bear the pipe and also be centered on the support frame. Assume 15 support saddles need to be reset.
40	F-24 pipeline is unsupported between supports, approximately 58 feet. Install saddle or shim the pipe or pipe supports to uniformly support the pipe.
78	Concrete has been chipped out and removed on tank side around flange for the F-24 and JP-5 lines; concrete around F-24 line has broken out (but not fallen) on opposite side. Repair concrete.

79	Concrete at F-24 line has been broken out on tanks side, no flange visible. Repair concrete.
95	Dresser coupling joints and associated joint harness at Tanks 18, 19, and 20 are damaged due to the May 6th event. Repair damaged piping. Carefully reset the mainline into its original position at the Tanks 17/18 and 19/20 cross-tunnels. Provide cross-tunnel pipe supports and frames at Tanks 18 and 20. Quantity is four (two at each of Tanks 18 and 20). Provide new frames and adjustable height low friction pipe supports. Remove existing piping and replace the cross-tunnel piping at Tank 18 and Tank 20 from (including) the reducer to the ball valve. Provide new insulated compression sleeve pipe coupling, Buna-N resilient material, and restraint harness.
113	The 2-inch FOR pipeline between the tee and gate valve at Door C is covered with a stained plastic wrap and c-clamps. This is indicating a weep at the threaded joint. Replace piping.
117	The FOR connection from the product lines is constructed out of a combination of hard pipe and hoses. Replace connections and hoses with hard pipe.
118	The tank sampling piping associated with Tanks is showing signs of minor to moderate corrosion at areas where the piping has not been upgraded. Tank 9 sample piping is severely corroded and requires replacement. Repair by replacement the small-bore tank sample piping up to the sampling stations associated with Tank 9.
120	Three temporary pipe clamps on 4-inch FOR pipeline within trench adjacent to S-23. Pipe clamp lengths are 6-inch, 16-inch, 8-inch. Also, UTT indicates pipe wall loss in this area over 55% metal loss is present. Repair pipe.
125	Condition of underground segment of the FOR pipeline is unknown. Per the 2021 CP Report, this section of buried pipe had ineffective magnesium anodes. Perform borescope examination of the underground pipeline segment to assess internal condition of the pipeline.
128	Severe corrosion and pitting at several locations between ADIT 3 and S-311. Wall Loss observed between 60%-79%. Severe corrosion also observed at pipe support cradle interfaces. Repair pipe.
143	Support completely deformed, removed from baseplate. API 570: Damaged pipe support (impacted by a moving vehicle). Replace support.
182	Non-standard repair at bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. There is a repair sleeve through the bulkhead. The UGPH side of the bulkhead has a full encirclement sleeve. The ADIT 2 side of the bulkhead has a half sleeve. 10 ft pup to eliminate the non-standard repair in the bulkhead. The piping will need to be re-anchored. Replace piping through bulkhead.
183	Reported corrosion of 46% at the bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. 10 ft pup to eliminate metal loss at the bulkhead. The piping will need to be re-anchored.
184	Reported corrosion of 71% at the bulkhead. Pipe is anchored to the bulkhead using welded collars inside cast in place concrete. 10 ft pup to eliminate metal loss at the bulkhead. The piping will need to be re-anchored.
188	Corrosion at bulkhead. Three separate features. Reported corrosion depths 26.8%, 30.8%, and 38.0%. Remaining thickness < minimum thickness per API 574. Remove, provide, and install 10 ft 18" pup piece to eliminate the corroded areas in the bulkhead. One repair for 18-ILI-27, 18-ILI-28, and 18-ILI- 29.

219	ILI data reports metal loss of 31.5%. Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
220	ILI data reports metal loss of 32.0%. Not able to assess without coating removal. 4-ft, remove coating and inspect. FFS assessment and repair if necessary.
236	Remove and replace the elevation and alignment change spool piece at PS 20. Spool is flanged and includes two rolled 45 elbows and straight segment. [18-TG-25]
237	Remove approximately 38-inch length mainline bell connection segment between PS 22 and PS 23. Provide 5 lf welded pup replacement. [18-TG-28]
238	Between PS 38 and PS 39, remove the 12 o'clock NPS ¾ threaded pipe and valve. Replace with welded NPS ¾ Sch 80 pipe, flange, and Class 150 ball valve with threaded cap. [18-TG-34]
240	Remove approximately 46-inch length mainline bell connection segment between PS 59 and PS 60. Provide 6 lf welded pup replacement. [18-TG-41]
241	Remove the corroded mainline tee at the Tanks 5/6 cross-tunnel junction. Replace mainline as-needed to install a branch connection. Rework cross-tunnel piping as needed to connect the branch connection. Re-connect mainline to cross-tunnel piping with provision for spectacle blind. [18-TG-44]
242	Remove approximately mainline bell connection segment between PS 68 and PS 69, on both sides of the bulkhead. Provide 10 lf welded pup replacement in two segments. [18- TG-46]
243	Remove and replace approximately 96-inch length mainline segment at PS 75. Replace 6- ft above to 2-ft below PS 75. [18-TG-53] Replace the corroded pipe saddle with new.
245	Replace damaged segment of the mainline at PS3. [18-TG-2]
249	Remove and replace a 10-foot pup of JP-5 mainline at the concrete bulkhead near Sta 24+89 [18-ILI-EML-15]. Pipe is anchored to the bulkhead. A method using a reduced diameter sleeve is acceptable. Anchor new pup to concrete.

17. The DOH did not receive an updated CPM schedule at the end of November but received one at the end of December. Thank you for the submission.

20. We look forward to receiving the results.

24.a. Thank you for the clarifications. Were these other pumped pipelines assessed during the NDAA evaluation and will any repairs indicated be completed prior to defueling?

24.b. The DOH understands different design criteria were used for the two reports. One report states surges cannot be mitigated by structural or piping modifications, yet the Navy is using structural and piping modifications to mitigate risk (in addition to operation procedures), as recommended in the second report. These statements and actions are contradictory. Further clarification by the authors is appropriate.