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

August 11, 2015
Honolulu, Oahu

Commission Discussion and Possible Position on the Red Hill Bulk Fuel Facility Draft Administrative Order on Consent to the U.S. Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH)

SUMMARY OF REQUEST:

Commissioner Starr requested that Commission itself provide additional comments to the Chairperson's comments on the Red Hill Bulk Fuel Facility Proposed Administrative Order on Consent (AOC) dated June 17, 2015. Commissioner Starr's and Buck's letters to meet the extended July 20, 2015 deadline for comments to the AOC are provided for the Commission's consideration. Staff has also provided additional technical comments for the Commission's consideration.

BACKGROUND:

On May 28, 2015, U.S. Navy and Defense Logistics Agency signed the proposed AOC in the matter of the Red Hill Bulk Fuel Storage Facility.

EPA and DOH provided an opportunity for the public to comment on the proposed agreement via a public meeting on June 18, 2015 held at Moanalua Middle School cafeteria, 1289 Mahiole Street, Honolulu, HI 96819, which staff attended and submitted comments dated June 17, 2015 (Exhibit 1). The deadline for comments on the proposed AOC was July 1, 2015.

On June 23, 2015 EPA and DOH extended the comment deadline to July 20, 2015.

At the Commission's June 24, 2015 meeting staff shared its June 17, 2015 comments submitted to EPA and DOH. At that meeting, Commissioner Starr requested that the Commission itself be given the opportunity to provide additional comments to the proposed AOC.

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On July 7, 2015 Commissioner Starr submitted draft comments (Exhibits 2 to 6) to staff to be properly formatted and put on the Commission's August 11, 2015 meeting agenda for Commission approval.

On July 8, 2015 the Council of the City and County of Honolulu adopted Resolution 15-162, CD1, FD1, urging the United States Environmental Protection Agency and the Hawaii State Department of Health to require the immediate implementation of corrective actions as part of the Administrative Order on Consent (Exhibit 7).

On July 20, 2015 Commissioner Starr submitted comments on the proposed AOC (Exhibit 8).

On July 20, 2015 Commissioner Buck submitted comments on the proposed AOC (Exhibit 9).

ANALYSIS/ISSUES:

At the June 24, 2015 meeting there was much discussion on how the Commissioners themselves may provide comments on the proposed AOC. The options advised by the deputy attorney general were:

1. Commissioners themselves can submit comments on their own as a private individual, making it clear they are not representing an official Commission position;

2. A Commissioner can provide a draft letter and have it put on the agenda for Commission approval.

Staff has confirmed these options with the attorney general's office.

Commissioner Comments

Exhibits 8 & 9 provide Commissioners Starr and Buck comments to the draft AOC. These were submitted by the July 20, 2015 deadline for comments.

Additional Staff Comments

Staff would like to take this opportunity to provide further technical comments in addition to the those made during the task force committee meetings, the June 17, 2015 letter (Exhibit 1), and those made, and to be made, in collaboration with the Honolulu Board of Water Supply's latest numerical modelling study to be done by Intera Inc. to further assess the ground water flow patterns in proximity to the Red Hill tanks.

In general, the June 2015 AOC addresses two principal concerns in the effort to protect the underlying drinking water aquifer:
1) Upgrading the existing 20 USTs to reduce/minimize future releases, and
2) Mitigating up to 150,000 gallons of fuel products that have been released to the environment over the life of the facility.

The AOC further describes a protracted list of studies to be conducted before any action is undertaken. The result of the studies will presumably recommend an engineering solution to provide an increased tank security; in the meantime, the released products are migrating toward the drinking water aquifer. The groundwater sampling to date indicates low level contamination in the groundwater beneath the makai end of the tank farm, suggesting that the up to 150,000 gallons of historical releases have yet to migrate down into the ground water directly beneath the tank farm.

Given the large areas to the northwest and southwest of the facility with no ground water data, the CWRM has recommended locations for additional ground water monitoring wells to help define the extent of ground water contamination.

There have been no borings drilled from the ground surface near the tanks. Monitoring wells RHMW06 and 07 were drilled near the toe of the slope to the north of the Red Hill spur. Monitoring wells RHMW01, 02, 03, and 05 were all drilled down to ground water from the lower tunnel, hence no information regarding the area surrounding the sides of the tanks. During construction, the space between the welded steel plates and the lava walls were filled with concrete, but not in continuous pours. This may have resulted in weak or poor contacts between subsequent pours. Since steel plates were added row by row between concrete pours, the potential existed for debris from the lava walls and construction to accumulate on top of the previous concrete pours, and adding to potential pathways along the pour boundaries from the steel walls out to the porous lavas. Fuel may have made its way out driven by the hydraulic pressure in the tanks through pinholes, and other breaches in the steel tanks, and then migrated laterally along the pour boundaries.

It is conceivable, given the layered stratigraphy of the lavas that comprise the Red Hill spur, the released products have migrated laterally away from the tanks into the makai-dipping strata. Given that the vertical hydraulic conductivity of the layered lavas could be orders of magnitude lower than the horizontal hydraulic conductivity, the bulk of the released fuel may be migrating laterally out, and makai, from the USTs.

To intersect and remove the laterally migrating product, a series of borings could be drilled, starting around the makai end of the tank farm, and then mauka, flanking both sides of the tanks. Careful inspection of the cuttings for product would be critical. The number, location, and depth of the borings would be adjusted based upon location and depth of intercepted product. The drilled borings could then serve several purposes:

1) Intercepted product would be removed by pumping;
2) Once product was removed to the extent possible, the borings could be used to purge soil vapor;
3) The borings could also be used to introduce bioremediation products to breakdown the product adsorbed in the interstices of the lavas.

Clearly, care must be taken to not drill too deep and create vertical conduits for product to migrate deeper, and into the ground water. Exhibit 10 is a map with well locations, indicating areas lacking critical ground water data, followed by a cross section from the North Halawa

Valley to the Moanalua Valley with a conceptual scenario of laterally migrating product above the water table and proposed borings to intersect product in highly permeable horizontal layers.

Drilling to determine the extent of the product in the unsaturated zone around the tanks, followed by removing the intercepted product, could be conducted relatively quickly and would be a means for the Navy to expedite the mitigation of fuel already released, and be a positive step in reducing the risk to the underlying aquifer.

RECOMMENDATION:

That the Commission review and finalize Exhibit 2.

Respectfully submitted,

W. ROY HARDY
Acting Deputy Director

Exhibits:

Exhibit 1 – Chairperson June 17, 2015 comments on proposed AOC
Exhibit 2 – Commissioner Starr draft comments on proposed AOC for Commission approval.
Exhibit 3 – attachment 1 for Starr draft - BWS June 18, 2015 comments on proposed AOC
Exhibit 4 – attachment 2 for Starr draft – Red Hill Fuel Storage Tanks Report – Rodgers & Hasselmann, University of Missouri-Rolla
Exhibit 5 – attachment 3 for Starr draft – proposed AOC
Exhibit 6 – attachment 4 for Starr draft – June 18, 2015 public meeting presentation
Exhibit 7 – Resolution 15-162, CD1, FD1 adopted by the City Council
Exhibit 8 – Commissioner Starr's comments on the proposed AOC.
Exhibit 9 – Commissioner Buck's comments on the proposed AOC.
Exhibit 10 – Map & profile to investigate horizontal contamination above water table.

APPROVED FOR SUBMITTAL:

SUZANNE D. CASE
Chairperson

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

June 17, 2015

Dr. Keith Kawaoka, Deputy Director
Hazard Evaluation and Emergency Response Office
Department of Health
919 Ala Moana Blvd., Room 206
Honolulu, Hawaii 96814

Dear Dr. Kawaoka:

Comments on the Draft Red Hill Bulk Fuel Storage Facility
Administrative Order on Consent (AOC) and Scope of Work (SOW) by the
U. S. Navy and Hawaii Department of Health

Thank you for the opportunity to submit our comments on the draft Red Hill AOC and SOW.

As a past and continued member of the Task Force Committee, the DLNR/CWRM acknowledges that the Red Hill Bulk Fuel Storage Facility (RHBFSF) is a 'mission critical' facility for maintaining security through the presence of the military in the Pacific, and very likely will need to remain in service. However, the facility is 70+ years old, and while efforts have been made to maintain and upgrade the entire system, the facility's 20 tanks do not meet the minimum requirements of every commercial underground storage tank installed in Hawaii since 1988: double wall construction, combined with leak detection sensors.

During an April 16, 2015 public meeting, the Navy disclosed that the January 2014 release of up to 27,000 gallons of JP-8 from Tank 5 was due to poor contractor workmanship. This disclosure draws into question the effectiveness of the Navy's Quality Assurance/Quality Control (QA/QC) program, and more importantly, the effectiveness of the Navy's inspectors to ensure the proper completion of repairs to the fuel system, and in this case, repairs to Tank 5, located 100 feet above an important drinking water aquifer.

While the potable water withdrawn from the production wells proximal to the RHBFSF currently meets Safe Drinking Water standards, the long history of releases from this facility (and most recently the January 2014 release from Tank 5), makes it very clear that the drinking water aquifer beneath the site, which already has been impacted, is at serious risk to significant impacts from historical, as well as potential future releases.

The release history of this facility (~150,000 gallons [Final: 2008 RHBFSF Groundwater Protection Plan]) underscores the need for the Navy to accelerate their efforts to implement the following:

1) upgrade the facility to effectively eliminate future releases,
2) locate and delineate the vertical and horizontal extent of released fuel, and
3) develop and implement an effective mitigation/recovery of the released fuel to protect the drinking water supply in the vicinity of the facility.

EXHIBIT 1

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We offer more detailed specific comments as follows:

1. AOC, Page 5, 4 (k): Aquifer names should be correctly labeled as Aquifer System Areas (ASA).

2. AOC, Page 5, 4 (k): Correction, the current Waimalu and Moanalua ASA properties are: Waimalu ASA covers 54,227 acres, and has a sustainable yield (SY) of 45 million gallons per day Moanalua ASA covers 14,713.5 acres, and has a SY of 16 million gallons per day.

3. AOC, Page 18, 13. (a): The Department of Health, the Honolulu BWS, and the DLNR/CWRM are all acting on behalf of public's safety by providing manpower and logistics in supporting and assisting the Navy in monitoring and managing this serious threat to Honolulu's drinking water supply from a Federally owned and managed facility. Each of these agencies should be reimbursed for their reasonable and appropriate efforts and expenditures.

4. SOW, Page 1, Introduction: In accord with House Resolution 78 (Extending the Task Force), House Concurrent Resolution 66 (Collaboration Between the State and the Navy), and C&C Honolulu Resolution 15-84, CD1, FD1 (Expeditiously Implement the Task Force Recommendations), the "Parties" should include the Navy, DLA, DOH, EPA, BWS, and DLNR/CWRM.

5. SOW, Page 1, (2), 2nd sentence: Best Available Practicable Technology (BAPT). This study should identify and evaluate all available, and applicable, (including emerging) technologies.

   4th sentence: Given the gravity of the risks, once a BAPT has been chosen and approved, concerted efforts should be made to complete the upgrades on a more timely schedule than 22 years.
   - How will the order of the Tanks to receive the BAPT be determined?
   - How will a change in the BAPT be implemented?

6. SOW, Page 1, (3): Until the in-service tanks are successfully fitted with the chosen BAPT, annual testing, at a minimum, should be conducted.

7. SOW, Page 2, (4): Before additional ground water modelling efforts are conducted, a comprehensive well head (i.e., reference point for depth to GW measurements) elevation survey of all currently monitored wells, combined with at least two synoptic water level surveys in all accessible monitoring wells, is to be completed and submitted to the DOH within 30 days of the acceptance of the AOC.

8. SOW, Page 2, Overall Project Management, 1.1: Subject matter experts (BWS, DLNR/CWRM), particularly the Red Hill Task Force members, should be invited to attend and provide comments at the scoping meetings. (See Comment 4. above)

9. SOW, Page 2, 1.2 Community Involvement: To promote transparency and improve public confidence, the Navy and DLA should compile all past historic records of leaks and submit them to the DOH, to augment and complete the existing DOH public record.

10. SOW, Page 2, 1.5 Communication: Define "effective and timely", (e.g., Periodic GW Monitoring reports must be submitted to the regulatory agency (DOH) no later than 30 days after collection of samples.

11. SOW, Page 5, 3.5 TUA: How will the tanks be ranked for upgrading to the BAPT?

12. SOW, Page 11, 6. Investigation and Remediation: This section only refers to the January 2014 release. This facility has a long history of releases, totally up to 150,000 gallons since 1944. The Investigation and Remediation effort should address the suite of products released that threaten the ground water resource beneath the facility.

13. SOW, Page 12, 7. Ground Water Protection and Evaluation: This section describes Groundwater Flow and Fate and Transport models, followed by a section describing a Ground Water Monitoring Well Network. To improve ground water modelling relevance and accuracy, additional groundwater monitoring wells should be installed before modelling efforts are begun to provide actual ground water data for model input and calibration. The Groundwater Monitoring Well Network program should, at a minimum, include a discussion of the following:

    - Specific wells (existing and proposed) to be monitored and sampled.
    - Analytical suites (including analytical methods, detection limits, and applicable action levels) to be used. This list of suites should include those to detect released products, and general ground water chemistry to assess in-situ product attenuation and degradation.
    - The Program should also include a schedule for monitoring (i.e., quarterly), and a discussion of duration of monitoring, responsible parties, and monitoring data storage and dissemination.

Lastly, with the urgency of this issue, the time frames to complete the Reports should be shorter.

Currently, the approximate time frames in the SOW are:

Sect 2, TIRM Procedure Report Implementation (~9 months),
Sect. 3, TUA Decision Document and Implementation (~20 Months),
Sect. 4, New Release Detection Alternatives Decision Document and Implementation (~24 Months),
Sect. 5, Decision on Need for & Scope of Modified Corrosion and Metal Fatigue Practices (~35 Months),
Sect. 6, Investigation and Remediation of Release Decision Document and Implementation (~31 Months),
Sect. 7, Contaminant Fate and Transport Model Report (~32 Months),
Sect. 7, Ground Water Monitoring Well Network Decision Document and Implementation (~20 Months),
Sect. 8, Risk/Vulnerability assessment (~22 Months).

We respectfully ask that these timeframes be shortened where reasonably possible, especially establishing and implementing the ground water monitoring network to provide the scientific data and evidence to establish the location of the current plume of contamination.

Sincerely,

SUZANNE D. CASE
Chairperson

PC:ss

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

Commission on Water Resource Management Testimony on Administrative Order on Consent (AOC) and Scope of Work (SOW) By the U.S. Environmental Protection Agency, State of Hawaii Department of Health,.and the U.S. Navy & Defense Logistics Agency

This testimony was approved at the Commission's July 15, 2015 meeting.

The Hawaii State Commission on Water Resource Management (CWRM) does not support the proposed Red Hill AOC and SOW as written. The documents lack public transparency, corrective action specificity, and the immediate implementation of improvements that will protect our groundwater and environment. At what point do the studies, required under the AOC and SOW to determine the best practicable available technology, become actions for implementation? Studies could potentially continue for years in the name of practicality, while the existing situation remains unchanged. The Tank 5 leak which occurred, even after completing a multi-year clean-inspect-repair and modernization process, does not demonstrate that the status quo approach is protective of the environment and our drinking water.

Hawaii CWRM appreciates the long and hard work of the EPA, DOH, Navy and DLA to develop the proposed AOC and SOW. Unfortunately, the contents do not adequately address our concerns about the facility storing 187 million gallons of fuel located 100 feet above a State designated drinking water aquifer; mitigate fuel contaminants already in the groundwater underneath that facility; arrest the corroding condition of the tanks' thin 1/4 inch steel wall and their fortification to minimize the risks of a large fuel release contaminating the aquifer.

This aquifer is the only one of its kind; is essential for the well-being of Honolulu as one of the world's great cities; and there are no cost effective alternatives that can replace it. The State of Hawaii cannot countenance a long-term continuation of the significant, avoidable threat that the deteriorating Red Hill Tanks pose to the primary potable source wells for the Honolulu BWS. These wells presently show no contamination. The spectre that they may become contaminated in the future by a serious breach of even one tank is existential, and must be avoided at any cost. It is unfortunate and irresponsible that the situation has continued to deteriorate for over 70 years without an adequate maintenance and replacement program. The US Navy must acknowledge that the life and welfare of a huge community, including many DOD personnel and facilities, is at stake here. The degree of unquestionable professionalism with which the US Navy treats hull integrity issues for major fleet units, should be employed with this facility. There are no Navy ships currently in service that regularly and repeatedly leak tens of thousands of gallons through their hull containment.

The Red Hill Tanks were constructed in two years of brilliant, intensive activity during WWII, and have subsequently existed for over 70 years without adequate maintenance. During that period, very large quantities of petrochemicals (estimates say 2 million gallons or so) have leaked or been disposed of in open waste pits, with little regard to the effect on irreplaceable ground water resources. It is time to end

this irresponsible trend, and seriously to monitor, track and deal with the effects of plumes of fuel already in the ground.

CWRM is in agreement with the Honolulu Board of Water Supply, the Honolulu City Council, and the Senate of the State of Hawaii, in calling for fast action and the double-lining of the tanks with monitoring facilities between the inner and outer walls, as would comply with EPA UST requirements.

Actions that should be implemented include:

1. Double-line all 20 tanks.

2. Install advanced leak detection and tank corrosion protection.

3. Clean up the fuel that is already underneath the tanks.

4. Keep the BWS, CWRM, DOH and the public informed of its actions.

The Hawaii State Commission on Water Resource Management hereby requests that our Honorable US President Barack Obama and Administration, the US Navy, Hawaii's Senatorial and Congressional Delegations, the EPA, and other Federal or State Agencies to do whatever is needed to expeditiously cure the threat posed to Oahu's water resources by the deteriorating Red Hill Tanks.

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

June 18, 2015

Board of Water Supply
Testimony on the Red Hill Bulk Fuel Facility
Proposed Administrative Order on Consent (AOC)
And Statement of Work (SOW)

Public Meeting
Moanalua Middle School

Members of the State Legislature and Honolulu City Council;
U.S. Environmental Protection Agency (EPA);
Hawaii Department of Health (DOH); U.S. Navy;
Defense Logistics Agency (DLA) and Oahu's Residents

The Board of Water Supply (BWS) does not support the proposed Red Hill AOC and SOW as written. The documents lack public transparency, corrective action specificity, and the immediate implementation of improvements that will protect our groundwater and environment.

The BWS appreciates the long and hard work of the EPA, DOH, Navy and DLA to develop the proposed AOC and SOW. Unfortunately, the contents do not adequately address our concerns about the facility storing 187 million gallons of fuel located 100 feet above a State designated drinking water aquifer; mitigate fuel contaminants already in the groundwater underneath that facility; arrest the corroding condition of the tanks' thin ¼ inch steel wall and their fortification to minimize the risks of a large fuel release contaminating the aquifer.

This aquifer is the only one of its kind and there are no cost effective alternatives that can replace it. BWS does not want its wells that presently show no contamination to become contaminated in the future. At what point do the studies, required under the AOC and SOW to determine the best practicable available technology, become actions for implementation? Studies could potentially continue for years in the name of practicality, while the existing situation remains unchanged. The Tank 5 leak which occurred, even after completing a multi-year clean-inspect-repair and modernization process, does not demonstrate that the status quo approach is protective of the environment and our drinking water.

The AOC needs to require clean-up of the contamination that is presently in the groundwater and rocks underneath the tanks to reduce the amount available for migration to those parts of the aquifer that are still uncontaminated. The absence of free product does not preclude the finding of petroleum constituents already dissolved in the water.

EXHIBIT 3

Also, the AOC and SOW need to include stakeholders and the public in an open process that requires the immediate installation of improvements that will protect the groundwater and environment. The AOC administrative record indicates past studies identified potential improvements that interestingly have not yet been acted upon. Further delays in taking action places our drinking water and environment at risk and defers improvement opportunities vital to the protection and future sustainability of our underground sources of drinking water.

The BWS will be submitting formal written comments on the proposed AOC and SOW by the July 1st deadline, which will be made available on our website. We also requested an extension of the July 1st comment deadline to allow us to review documents that cannot be copied and disseminated because of copyright laws but were listed in the administrative record and not available until now, mid-way through the comment period. The extension will give us the full thirty day review period originally established on the first day the AOC and SOW were announced, which was June 1st. We are making the remaining administrative record documents that can be disseminated available at http://data.hawaiiopendata.org/.

Thank you for the opportunity to testify this evening and share our perspective on this very important matter.

Very truly yours,

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

RED HILL FUEL STORAGE TANKS

J. David Rogers, Ph.D., P.E., R.G.
Karl F. Hasselmann Chair in Geological Engineering
University of Missouri-Rolla

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EXHIBIT 4

Facts About the Red Hill Storage Tanks

- Construction began Christmas 1940, completed September 1943
- Project included 20 cylindrical tanks 100 feet diameter, 250 feet high
- Design capacity of 6 million barrels fuel oil (255 million gallons)
- Final cost: $42 million
- 16 men died during construction
- Project also pumps 30 millions gallons per day of drinking water to surrounding area

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Factors Leading to Construction

- Prior to the attack on Pearl Harbor all of the Navy's fuel was stored in unprotected above ground tanks at Pearl Harbor, next to the submarine base
- When RADM Chester Nimitz was Commander of the Bureau of Yards & Docks (in 1940) he wanted the Navy's 2-1/2 year supply of fuel oil protected from aerial attack
- Standard practice was to dig a trench and bury the tanks, but this was impractical to store 255 million gallons of fuel oil

Initial Plan

- The Navy's plan was to dig a series of tunnels and insert the tanks
- Finding a suitable site was problematic, Oahu is underlain by the Koolau Volcanic series, and these flows are full of vugs, clinker, underground streams, and pools
- Navy engineers finally settled on Red Hill, about two miles from Pearl Harbor, as it was mostly homogeneous basalt

Location of Red Hill and Pearl Harbor

Red Hill

- Red Hill was not owned by the Navy, it was then under cultivation for sugar cane and pineapple plantations
- The Navy leased the land, cleared and leveled it, then began construction of temporary work camps
- Eventually the plantation owners were forced to sell out to the Navy through direct condemnation.

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Planning and Development

- Consultanting engineer James P. Growden came up with excavating large vertical tank chambers instead of horizontal tunnels
- This would increase the volume of material that could be excavated simultaneously and decrease the number of heavy equipment needed for hauling muck. It also decreased the unit cost for rock removal substantially

Design Concept for the vertically arrayed storage tanks

Nothing like this had ever been attempted previously

The contractor used gravity to “flow” rock muck to the base of each cavity

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Vertically Aligned Cylinder Tanks

- The tanks were set up in two parallel rows with two main access tunnels, one above the other, bisecting the rows
- Smaller tunnels, or adits, branched from these main axis tunnels to the tank cavities.
- To determine the depth necessary to protect the fuel from Japanese aerial attack, the engineers gathered data from the Army, multiplied it four-fold and rounded the figure off to 100 feet of rock cover

Sidehill entrance to the tank excavations and lower access tunnel, as sketched during construction

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Access Tunnels

- Once the tank invert level and radius of curvature were determined digging could commence.
- Both the upper and lower access tunnels were excavated simultaneously
- They were constructed like the horseshoe shape of railroad tunnels, flat floors and walls, with an arched ceiling
- The tunnels were rough hewn then lined with concrete for increased strength

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Chamber Adits

- As the main access tunnels moved past the location of an proposed storage chamber, more workers began digging the branch lines, or horizontal adits
- The adits were smaller, man sized, and were shored with steel H-beams bolted together and sprayed with cement
- The lower adit was excavated as far as the center point of the tank and the upper adits were stopped when they reached the outer radius

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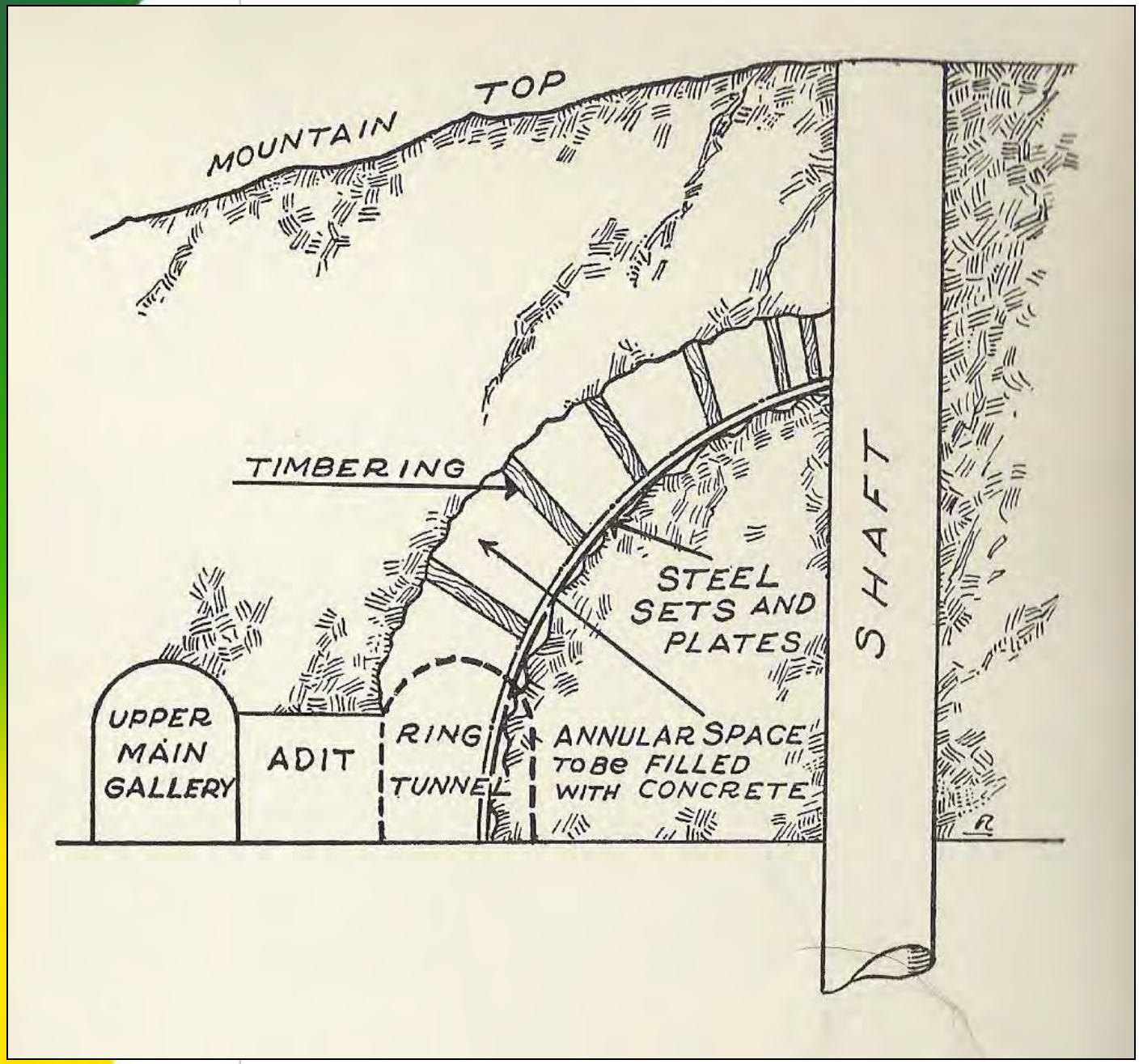
Beginning Tank Chamber Excavation

- In the upper adit, once the outer radius of the tank had been reached, a ring tunnel was dug around the radius of the tank chamber
- Upon completing the ring tunnel, the miners dug upwards in a hemisphere from all points around the ring, narrowing as they reached the central shaft
- Meanwhile, a central shaft 8 feet in diameter was excavated through the central axis of the chamber, down to the lower adit



How Each Chamber Excavation Began

The upper dome of each fuel chamber was excavated first, starting with a ring tunnel, then working upward, towards the central shaft

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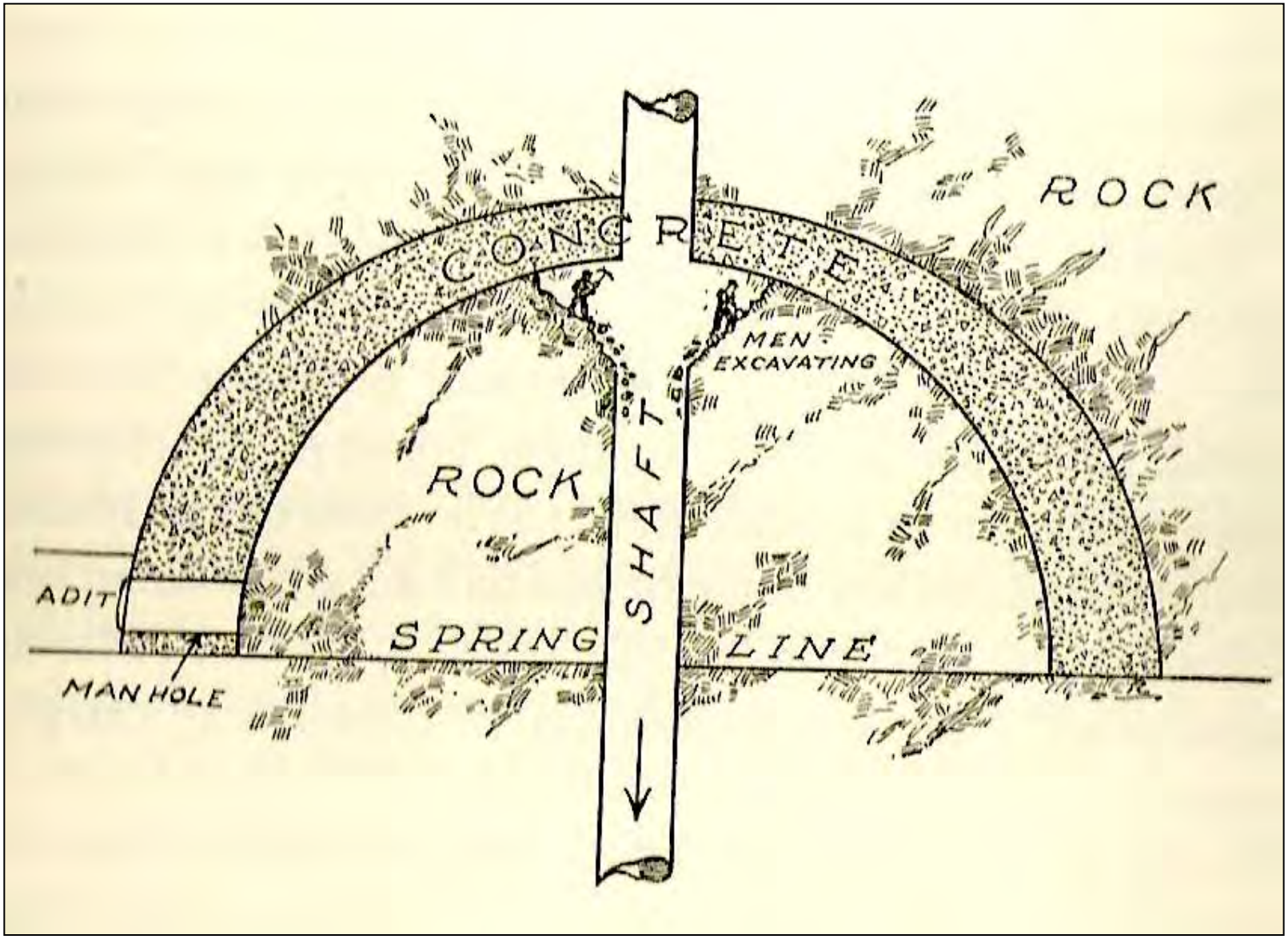
Forming the Upper Dome (1 of 2)

- Each section of the dome had to be braced with timber, prefabricated above ground in the exact curvature of the dome
- This allowed the miners to dig to a template reducing time of excavation
- I beams were then sent down and assembled to form ribs around the dome
- Sections of steel plate cut to piece together and form the dome were sent down and welded together

Forming the Upper Dome (2 of 2)

- The wood shoring had to be shortened and replaced to account for the H-beam steel sets and liner plates
- A pipe network extending down the central shaft and radiating around the dome was constructed for placing concrete to line the tank chambers
- Each chamber dome required 70 hours of continuous pouring for 5000 cubic yards of concrete



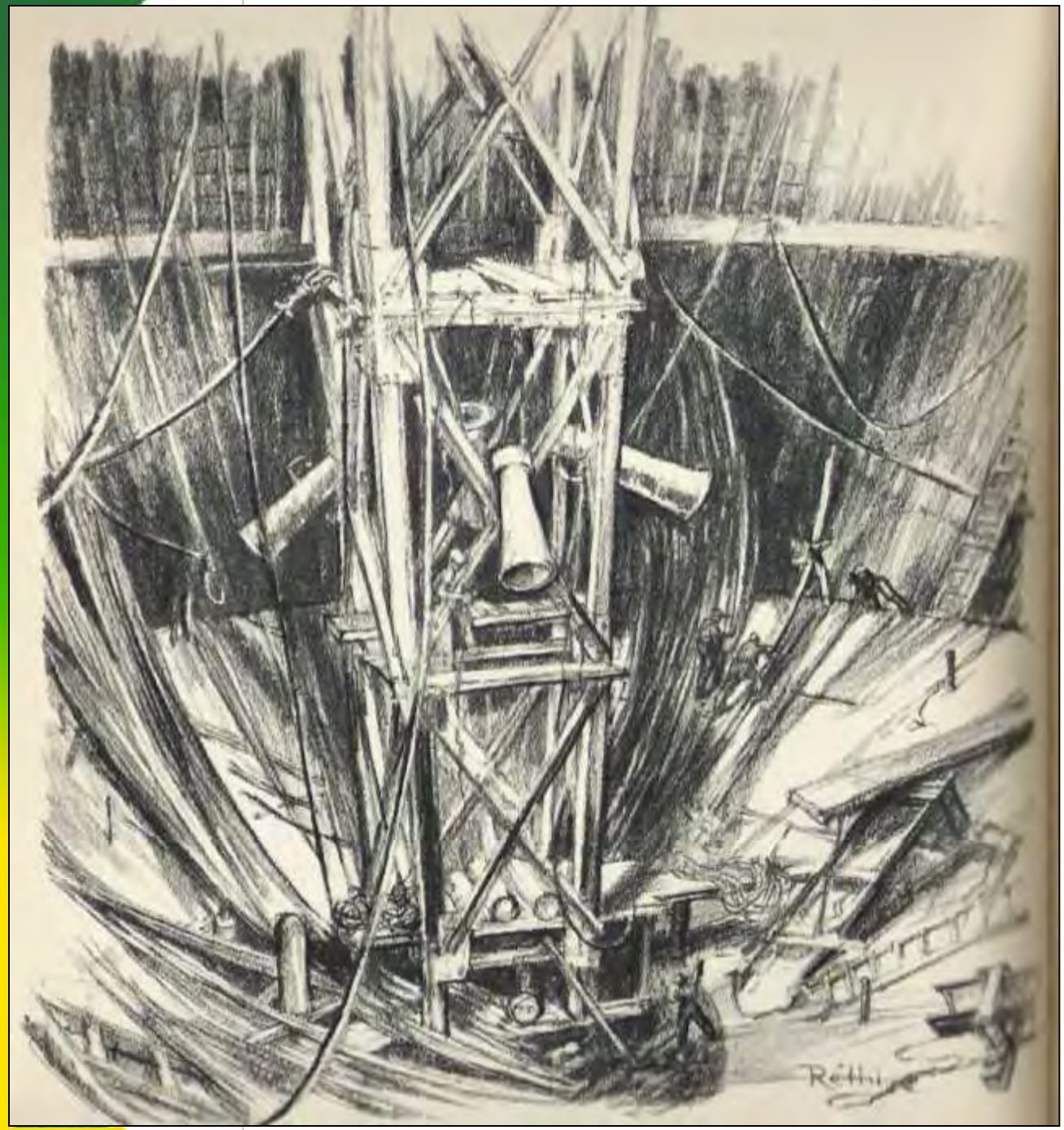
After the upper hemisphere dome was concreted, miners could begin mucking the upper tank chamber, dropping muck by gravity through the central shaft, as shown

Tank Excavation (1 of 2)

- As soon as the upper hemisphere concrete had set, workers were lowered down the central shaft to begin excavation of the tank chamber
- The miners dug outwards in all directions under the dome, keeping a 30 – 45 degree slope to the center of the shaft, so muck would slide into the shaft by gravity, greatly reducing mucking labor and transport for the project
- At the bottom of the vertical shaft rock screens (grizzlies) broke up falling rock so it could be transported on conveyors

Tank Excavation (2 of 2)

- In the lower adits an elaborate conveyer belt system was constructed to carry mucked rock out of the excavations
- The central tank shafts were expanded in a cone under the upper dome until the desired diameter was reached
- Following the deaths of a few workers falling down the central shaft, planks were rigged to the dome for them to stand on



Sketch of a tank's lower hemisphere under construction being lined with concrete with an inner steel lining

Finishing Excavation

- The miners continued to dig downwards in a cone until they reached the lower hemisphere of the tank chamber
- The lining for the lower hemisphere was placed similarly to the top
- Any cracks or holes found during excavation were grouted and sealed

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Lining the walls of the tank chamber Reinforced concrete was placed against the rock and smooth continuously welded steel plate formed the inner liner

Constructing the Tank Liner

- Rings of steel ribs were constructed above ground and sent into the shaft for assembly
- Once a skeleton was assembled through the entire shaft, steel plate was welded around the ribs to form the tank's inside liner
- Concrete was poured into the space between the tank liner and the rock

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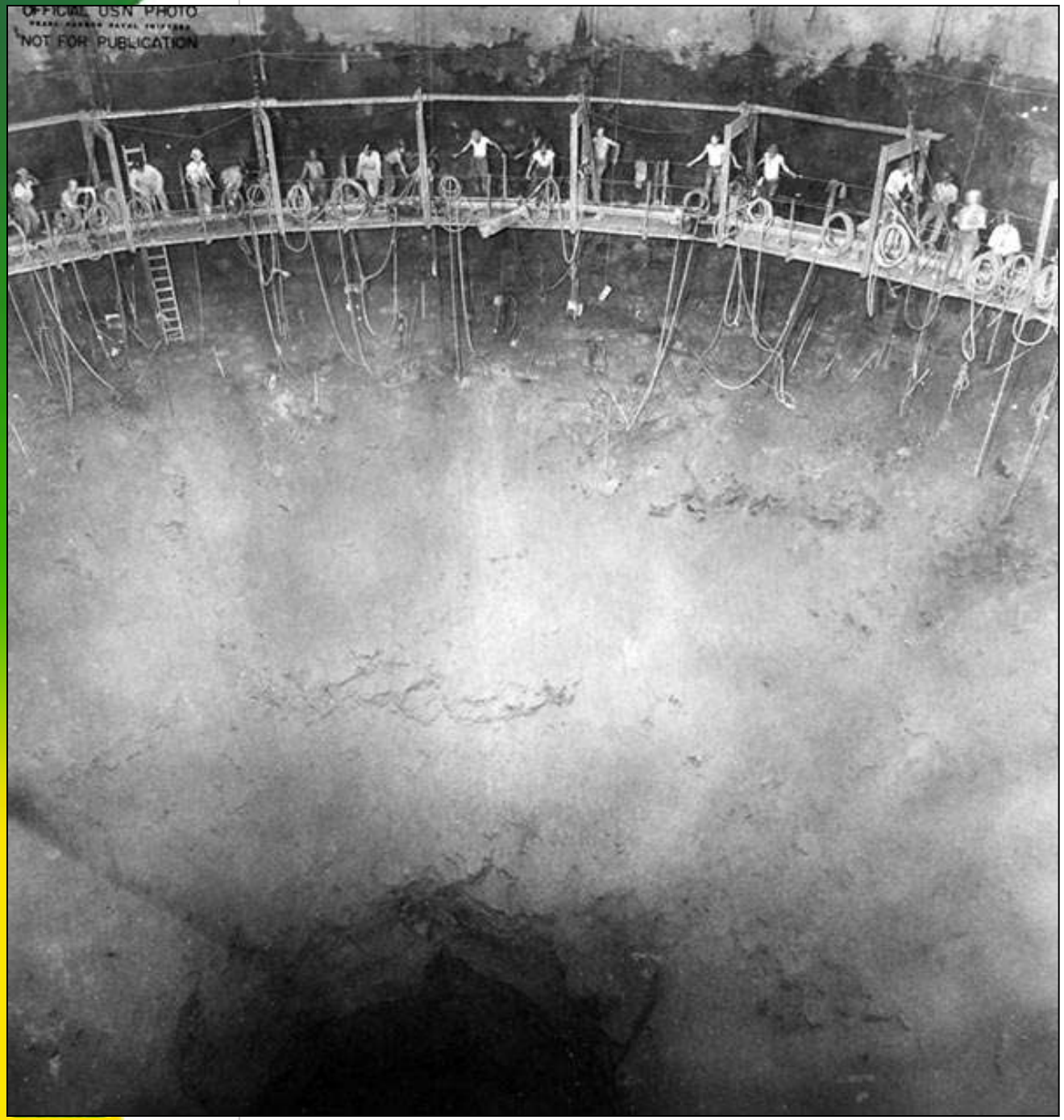

Construction of the Tank Walls
This view shows the concrete liner being poured against the rock face near the bottom of a chamber

Finishing the Tank Chambers

- Once the concrete had set, high pressure grout was injected into the tension cracks and spaces remaining between the concrete and the tank
- The Navy filled each tank with water to perform leak tests
- If there was more than a ½ inch drop in 24 hours from a pipe on top the tank chamber, they failed the test

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Checking for Leaks
This sketch shows water being fed into the tank chamber for a leak test

Fixing Leaks

- In order to locate the leaks, the tanks were filled very slowly with water, as high pressure air was injected outside the tank
- Welders in boats on the slowly rising pool of water would look for the bubbles of air entering the tank's steel lining, signal for the water level to be lowered and then weld the seam
- Two men drowned when the water level was raised too quickly and their boat capsized

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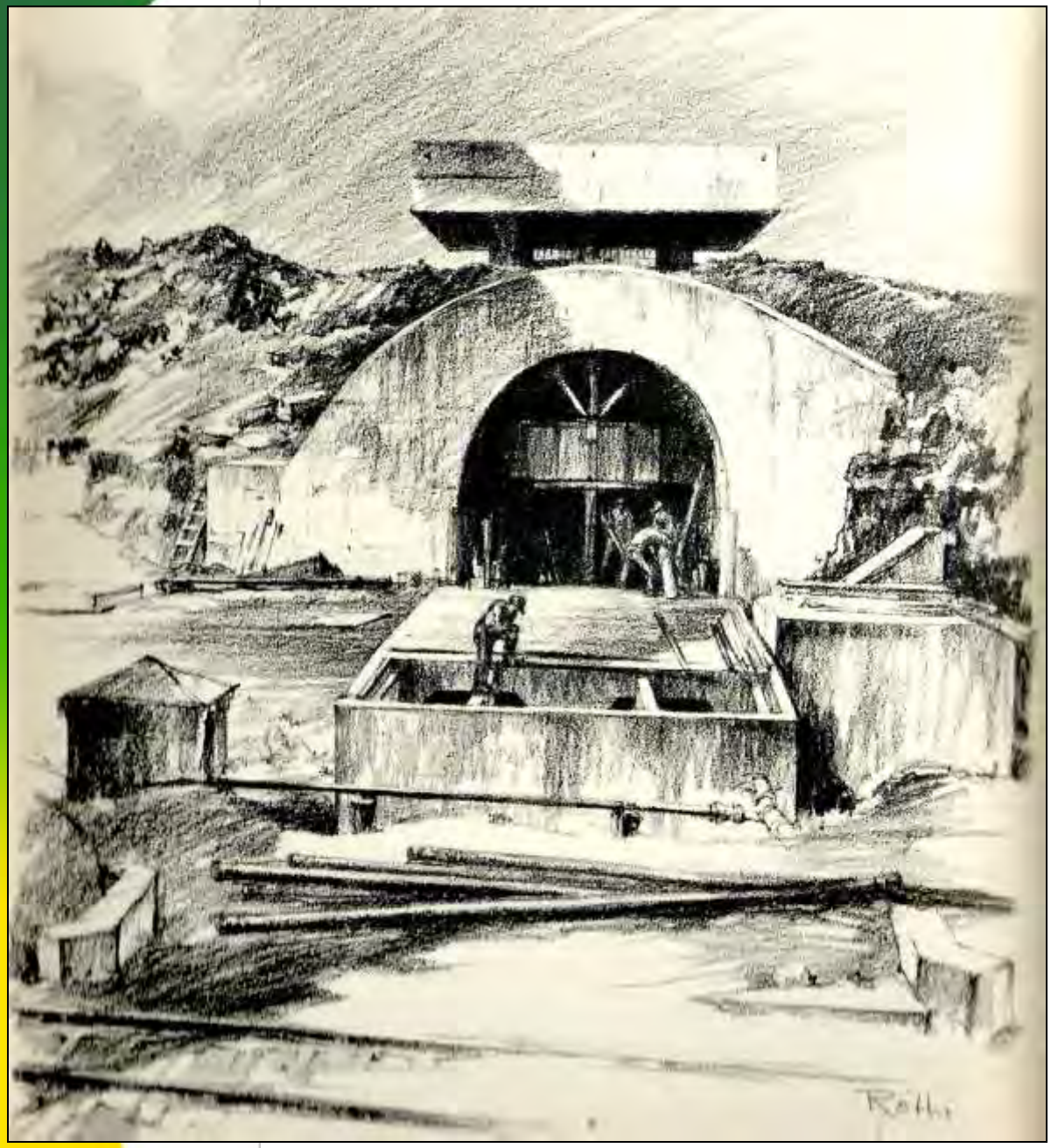

Protected Entrance to one of the Permanent Access Tunnels

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Finishing Construction

- When each tank was complete the top was closed and the access shafts above the tank chambers were filled with concrete
- The Navy also had constructed a tunnel from the Red Hill Fuel Storage Facility to Pearl Harbor and installed a high pressure pipe line to handle the flow of oil to the harbor
- The entrance to these tunnels are all hardened, being concrete encased with blast doors. Additional doors are also installed throughout the portal tunnels to prevent accidental discharge of fuel

Environmental Problems

- Despite all the leak testing during construction (60+ years ago), leaks still occur
- Several sites have been used over the years for storage of waste
- Environmental remediation is underway to remove contaminated soil and create a leak proof spill site

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References

- **Builders for Battle: How the Pacific Naval Air Bases Were Constructed, David O. Woodbury, E.P. Dutton & Co., New York, 1946, 415 pages.**
- **http://www.asce.org/history/build_redhill.swf**
- **Dr. Rogers' consultations for Navy Facilities Engineering Command Western Division**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9

THE DEPARTMENT OF HEALTH
STATE OF HAWAII

IN THE MATTER OF:

THE UNITED STATES DEPARTMENT OF THE NAVY	)	EPA DKT NO. RCRA 7003-R9-2015-01
AND	)	DOH DKT NO. 15-UST-EA-01
DEFENSE LOGISTICS AGENCY	)	
RESPONDENTS	)	
RED HILL BULK FUEL STORAGE FACILITY, OAHU, HAWAII	)	

ADMINISTRATIVE ORDER ON CONSENT

1. INTRODUCTION

(a) This administrative order on consent ("AOC") is entered into voluntarily by the DEPARTMENT OF HEALTH, STATE OF HAWAII ("DOH"); the UNITED STATES ENVIRONMENTAL PROTECTION AGENCY ("EPA") Region 9; the UNITED STATES DEPARTMENT OF THE NAVY ("Navy"), acting by and through the COMMANDER, NAVY REGION HAWAII ("CNRH"); and DEFENSE LOGISTICS AGENCY ("DLA"). DOH, EPA, Navy, and DLA are collectively referred to as the "Parties." DOH and EPA are collectively referred to as the "Regulatory Agencies." This AOC is a joint administrative action taken by the DOH and EPA concurrently and pursuant to their respective state and federal authorities to regulate underground storage tanks ("USTs") and waste and to protect drinking water, natural resources, human health, and the environment.

(b) This AOC provides for the performance by Navy and DLA of a release assessment, response(s) to release(s), and actions to minimize the threat of future releases in

EXHIBIT 5

connection with the field-constructed bulk fuel USTs, surge tanks, pumps, and associated piping at the Red Hill Bulk Fuel Storage Facility ("Facility"), located near Pearl Harbor, on the island of Oahu in the State of Hawaii, and on any property that may be affected now or in the future by petroleum or other substances released from the Facility, as specified in Attachment A ("Statement of Work" or "SOW"). The term "Site" as used in this AOC includes the Facility and any area where petroleum or other substances released from the Facility come to be located. The primary objectives of this AOC are to take steps to ensure that the groundwater resource in the vicinity of the Facility is protected and to ensure that the Facility is operated and maintained in an environmentally protective manner.

(c) Navy and DLA's participation in this AOC shall not constitute or be construed as an admission of liability. Navy and DLA neither admit nor deny the factual allegations and legal conclusions set forth in this AOC (Sections 4 and 5, Findings of Fact and Conclusions of Law).

(d) The Parties acknowledge that this AOC has been negotiated in good faith and that this AOC is fair, reasonable, protective of human health and the environment, and is in the public interest.

2. JURISDICTION

(a) The State of Hawaii obtained EPA state program approval, effective on September 30, 2002, for Hawaii's UST program to operate in lieu of EPA's UST program under Subtitle I of the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended, 42 United States Code ("U.S.C.") § 6901 *et seq*. DOH enters into this AOC in accordance with its authority, vested in the Director of Health, to regulate USTs in conformance with EPA state program approval and the provisions of chapters 340E, 342D and 342L of the Hawaii Revised Statutes ("HRS") and the rules promulgated pursuant thereto.

(b) EPA Region 9 enters into this AOC pursuant to the authority vested in the Administrator of EPA by Section 7003 of RCRA, 42 U.S.C. § 6973, which authority has been delegated to the Regional Administrators of EPA by Delegations 8-22-A and 8-22-C (April 20, 1994), and redelegated to, among others, the Director of the Land Division of EPA Region 9 by Delegations R9-8-22-A (October 10, 2014) and R9-8-22-C (October y 10, 2014).

(c) Navy and DLA agree to undertake and complete all actions required by the terms and conditions of this AOC.

3. PARTIES BOUND

(a) This AOC shall apply to and be binding upon the Parties and their successors and assigns. Navy and DLA are jointly and severally liable under this AOC.

(b) Navy and DLA shall notify the Regulatory Agencies in writing as soon as the decision to transfer or sell any property covered by this AOC is known by Navy or DLA but no later than prior to the sale or transfer. In addition, Navy and DLA shall provide a copy of this AOC to any successor to the Site prior to the effective date of such change. No change in ownership or operation of any property covered by this AOC or in the status of Navy and DLA shall in any way alter, diminish, or otherwise affect Navy and DLA's obligations and responsibilities under this AOC, except by agreement of the Parties in accordance with Section 8 or as required by subsequently enacted legislation pertaining to transfer of the Facility.

(c) Navy and DLA shall provide a copy of the AOC, or a website address for accessing this AOC, to all of its supervisory personnel who work on actions related to this AOC and prime contractors or prime consultants retained to conduct or monitor any portion of work performed pursuant to this AOC within seven (7) days of the date that the last Party signs the AOC as described in Section 25 ("Effective Date") or date of such retention, whichever is later. Navy and DLA shall condition all contracts with the aforementioned on compliance with the terms and conditions of this AOC. Navy and DLA shall instruct all supervisory personnel who work on actions related to this AOC and prime contractors or prime consultants retained to conduct or monitor any portion of work to perform such work in accordance with the requirements of this AOC.

4. FINDINGS OF FACT

(a) CNRH is a division of Navy. CNRH is the command responsible for providing, maintaining, and improving shore infrastructure, service, support, and training to enable fleet operations; CNRH oversees all Navy supporting commands involved in the operation or maintenance of the Facility.

(b) DLA is a combat logistics support agency of the United States Department of Defense ("DoD") providing the military services with the full spectrum of logistics, acquisition, and technical services. As the DoD executive agent for bulk petroleum, DLA executes the integrated materiel management responsibility for bulk petroleum owned by the DoD and is

responsible for bulk petroleum supply management from source of supply to the point of customer acceptance, with emphasis on improving efficiency. In accordance with DoD policy, DLA plans, programs, budgets, and provides funding for the operation, maintenance and repair of the Facility.

(c) Navy and DLA are the operators of the Facility.

(d) The Facility is located near Pearl Harbor on the island of Oahu, State of Hawaii.

(e) The Facility includes twenty (20) field-constructed steel USTs ("Tanks"). The Tanks are constructed of steel, encased by an estimated minimum of 2.5 to 4 feet of concrete surrounded and supported by basalt bedrock.

(f) Each tank has a fuel storage capacity ranging from approximately 12.5 to 12.7 million gallons for a total of approximately 250 million gallons of fuel. However, as of the Effective Date of this AOC, two (2) of the twenty (20) Tanks are not currently in operation.

(g) The Facility was constructed and became operational in the 1940s. The Tanks and related components at the Facility are unique.

(h) Federal and State programs for the management of USTs were first published in the 1980s. In January 2000, the State of Hawaii promulgated rules requiring owners and operators of such facilities to report suspected or confirmed releases from USTs. EPA granted final approval for the State of Hawaii's UST program on September 30, 2002, in lieu of Federal rules regarding USTs. On November 18, 2011, EPA proposed revisions to strengthen the 1988 Federal UST regulations including requirements for field-constructed USTs and new requirements for secondary containment and operator training. On April 16, 2012, the public comment period for the proposed regulations closed. Under the proposed rules, most provisions of the proposed regulations would become effective three years after the final rule is issued.

(i) The Tanks at the Facility have been used at various times to store the following fuels: diesel marine fuel, diesel oil, Navy Special Fuel Oil ("NSFO"), Navy distillate ("ND"), aviation gasoline ("AVGAS"), motor gas ("MOGAS"), Jet Propulsion Fuel No. 5 ("JP-5") and Jet Propulsion Fuel No. 8 ("JP-8").

(j) As of the Effective Date of this AOC, Navy stores three types of fuels at the Facility: JP-5, JP-8, and diesel marine fuel.

(k) The Waimalu and Moanalua Aquifers ("Aquifer identification and classification for Oahu: Groundwater protection strategy for Hawaii," February 1990), which are underground sources of drinking water, are located near the Facility. The Waimalu Aquifer covers an area of 15,193 acres and the Moanalua Aquifer covers an area of 4,442 acres.

(l) Navy Well 2254-01 is located west and hydraulically downgradient from the Facility. This well feeds into the Joint Base Pearl Harbor-Hickam Water System.

(m) The Honolulu Board of Water Supply's ("BWS") Halawa Shaft, which is part of a public water system, is near the Facility.

(n) The BWS's Moanalua Well, which is part of a public water system, is near the Facility.

(o) The first report by Navy to DOH of a release from the Facility occurred on November 10, 1998, when petroleum-stained basalt cores were discovered beneath the Tanks.

(p) In the early 2000s, Navy performed transverse cores beneath each tank and discovered evidence of staining beneath nineteen (19) of twenty (20) Tanks.

(q) On December 9, 2013, Navy placed one of the Tanks (Tank #5) at the Facility back into service after it had undergone routine scheduled maintenance. The maintenance work consisted of cleaning, inspecting, and repairing multiple sites within the tank. Upon placing Tank #5 back into service, Navy commenced filling the tank with petroleum.

(r) On January 13, 2014, Navy discovered a loss of fuel from Tank #5 and immediately notified DOH and EPA. On January 13, 2014, Navy began transferring fuel from Tank #5 to other Tanks at the Facility. The transfer of all fuel from Tank #5 was completed on January 18, 2014. On January 16, 2014, Navy verbally notified DOH and EPA of a confirmed release from Tank #5. On January 23, 2014, Navy provided written notification to DOH. Navy estimates the fuel loss at approximately 27,000 gallons.

(s) The total amount released to the environment, both attributable to the January 2014 event and historical releases, is unknown.

(t) Following the January 2014 release, Navy increased the frequency of monitoring and performed additional monitoring of Navy Well 2254-01 and shall continue to monitor Navy Well 2254-01 in accordance with the Groundwater Protection Plan approved by DOH and that will be updated in accordance with the SOW. Current drinking water monitoring results

confirmed compliance with federal and state Maximum Contaminant Levels for drinking water both before and after the January 2014 release.

(u) Marine diesel and jet fuels in general, and Jet Propulsion Fuels 5 and 8 (JP-5 and JP-8) in particular, are composed of a broad, dynamic and heterogeneous mixture of chemical constituents. Chronic exposure to these constituents can be harmful to human health. The rates at which these constituents naturally degrade in the environment are highly variable.

5. CONCLUSIONS OF LAW AND DETERMINATIONS

(a) Hawaii Conclusions of Law and Determinations:

(i) Navy and DLA are "persons" as defined in HRS §342L-1 [40 C.F.R. § 280.12].

(ii) Navy is the "owner" of the Facility as defined in HRS §342L-1 [40 C.F.R. § 280.12].

(iii) Navy and DLA are the "operators" of the Facility as defined in HRS §342L-1 [40 C.F.R. § 280.12].

(iv) The Waimalu and Moanalua Aquifers are "underground sources of drinking water" as that term is used in HRS chapter 340E and are "State Waters" as defined in HRS §342D-1.

(v) BWS's Halawa Shaft and Moanalua Well are parts of a "public water system" as defined in HRS §340E-1 and are "State Waters" as defined in HRS §342D-1.

(vi) There have been "releases" of "regulated substances" into the environment from Tanks at the Facility, as those terms are defined by HRS §342L-1 [40 C.F.R. § 280.12].

(vii) There have been releases of "contaminants" into the environment from Tanks at the Facility, as that term is defined in HRS §340E-1.

(viii) There have been discharges of "wastes" and "water pollutants" as those terms are defined in HRS §342D-1.

(ix) Navy and DLA, as the owner and/or operator of the Facility are subject to requirements regarding response and remediation in HRS chapter 342L and Hawaii Administrative Rules ("HAR") chapter 11-281 [40 C.F.R. § 280 Subpart E] and are subject to orders which may be necessary to protect the health of persons who are or may be users of a public water system as provided in HRS chapter 340E and the rules promulgated pursuant

thereto including, but not limited to, HAR §11-19 and 11-20, and are subject to administrative orders and civil actions which are necessary to address discharges to state waters as provided for in HRS chapter 342D. Additionally, the Facility, which is federally owned and operated, is subject to "all administrative orders and all civil and administrative penalties or fines, regardless of whether such penalties or fines are punitive or coercive in nature or are imposed for isolated, intermittent, or continuing violations in the same manner and to the same extent as any person is subject to such requirements," as codified in 42 U.S.C. § 6991f.

(x) The actions Navy and DLA have agreed to perform in accordance with this AOC are necessary to address potential impacts to human health, safety and the environment, as envisioned by HRS §§ 340E-4, 342D-9, 342D-10, 342D-11, 342L-8, 342L-9 and 342L-52, due to historical, recent and potential future releases at the Facility.

(b) EPA Conclusions of Law and Determinations:

(i) Navy and DLA are "persons" as defined in Section 1004(15) of RCRA, 42 U.S.C. § 6903(15).

(ii) EPA has determined that any fuel released from the Facility would be a "solid waste" within the meaning of Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

(iii) EPA has determined that Navy and DLA have contributed to or are contributing to the handling, storage, treatment, transportation or disposal of solid waste at the Facility.

(iv) EPA has determined that Navy and DLA's handling, storage, treatment, transportation, or disposal of solid waste may present an imminent and substantial endangerment to health or the environment.

(v) The actions required by this AOC may be necessary to protect health and the environment.

(vi) Navy and DLA are departments, agencies or instrumentalities of the Executive Branch of the federal government, and as such, are persons subject to the requirements of Sections 6001 and 9007 of RCRA, 42 U.S.C. §§ 6961, 6991f.

6. WORK TO BE PERFORMED

(a) Based upon the administrative record for the Site and the Findings of Fact (Section 4) and Conclusions of Law and Determinations (Section 5) set forth above, and in

consideration of the promises set forth herein, it is hereby agreed to and ordered that Navy and DLA comply with all provisions of this AOC, including, the SOW, Attachment A, which is incorporated into and made an enforceable part of this AOC. The term "Work" shall mean all the activities and requirements, including but not limited to all deliverables, specified in the AOC and SOW. A deliverable is any report or other document listed under Section 9 of the SOW or otherwise expressly required to be submitted under this AOC.

(b) The Work undertaken pursuant to this AOC shall be conducted in accordance with all applicable EPA and DOH guidance, policies and procedures, and this AOC, and is subject to approval by the Regulatory Agencies.

(c) Navy and DLA shall undertake and complete all of the Work to the satisfaction of the Regulatory Agencies.

(d) Navy and DLA shall commence performing their obligations under this AOC upon its Effective Date.

(e) The DOH Project Coordinator shall be DOH's designated representative for the Site. As of the Effective Date of this AOC, the DOH Projector Coordinator shall be:

Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
Department of Health
919 Ala Moana Blvd., Room 212
Honolulu, Hawaii 96814
(808) 586-4226
Steven.Chang@doh.hawaii.gov

The EPA Project Coordinator shall be EPA's designated representative for the Site. As of the Effective Date of this AOC, the EPA Project Coordinator shall be:

Bob Pallarino
U.S. EPA Region 9
Underground Storage Tank Program Office
75 Hawthorne Street (LND-4-3)
San Francisco, California 94105
(415) 947-4128
Pallarino.Bob@epa.gov

The Navy and DLA Project Coordinator shall be Navy and DLA's

representative for the Site. As of the Effective Date of this AOC, the Navy and DLA Project Coordinator shall be:

Jimmy Miyamoto
Deputy Operations Officer
NAVFAC Hawaii
400 Marshall Road
JBPHH, HI 96860-3139
(808) 471-0196
james.miyamoto@navy.mil

Any of the Parties may change their Project Coordinators at any time. Any of the Parties making such change will provide the other Parties with written notice within fourteen (14) days of such a change.

(f) Unless otherwise provided in this AOC, all reports, correspondence, notices, or other submittals relating to or required under this AOC shall be in writing and shall be sent to the "Project Coordinators" at the addresses specified above. Unless otherwise specified in the SOW, all reports, correspondence, notices or other submittals related to or required under this AOC may be delivered via email to the addresses above, or if otherwise agreed to by the Parties, by U.S. Postal Service or private courier service to the address above. The Regulatory Agencies may require Navy and DLA to submit a follow-on paper copy of any submission. All correspondence shall include a reference to the "Red Hill Administrative Order on Consent."

7. REGULATORY AGENCIES' APPROVAL OF DELIVERABLES

(a) Deliverables required by this AOC shall be submitted to the Regulatory Agencies for approval or modification pursuant to Subparagraph (b). The Regulatory Agencies must receive all deliverables by the due date specified in this AOC or by schedules developed pursuant to this AOC.

(b) After review of any deliverable that is required pursuant to this AOC, the Regulatory Agencies will: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Navy and DLA modify the submission; or (e) any combination of the above. However, the Regulatory Agencies will not modify a submission without first providing Navy and DLA at least one notice of deficiency and an opportunity to cure within thirty (30) days, except where the Regulatory Agencies determine

that to do so would cause serious disruption to the Work or where the Regulatory Agencies have disapproved previous submission(s) due to material defects and the Regulatory Agencies determine that the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

(c) In the event of approval, approval upon conditions, or modification by the Regulatory Agencies, pursuant to Subparagraph (b), Navy and DLA shall proceed to take any action required by the deliverable, as approved or modified by the Regulatory Agencies subject only to Navy and DLA's right to invoke the Dispute Resolution procedures set forth in Section 14 (Dispute Resolution) with respect to the modifications or conditions made by the Regulatory Agencies. In the event that the Regulatory Agencies modify the submission to cure the deficiencies pursuant to Subparagraph (b) and the Regulatory Agencies determine the submission has a material defect, the Regulatory Agencies retain their right to seek stipulated penalties, as provided in Section 15 (Penalties).

(d) Upon receipt of a notice of disapproval, in whole or in part, Navy and DLA shall, within thirty (30) days or such longer time as specified by the Regulatory Agencies in such notice, correct the deficiencies with respect to any disapproved part and resubmit the deliverable for approval. Any stipulated penalties applicable to the submission, as provided in the stipulated penalty provisions of Section 15 (Penalties), shall be stayed during the thirty (30) day opportunity to cure period or other specified period. A written explanation will accompany any disapproval, in whole or in part, by the Regulatory Agencies, including the identification of a material defect.

(e) Notwithstanding the receipt of a notice of disapproval, Navy and DLA shall proceed, at the direction of the Regulatory Agencies, to take any action required by any unrelated non-deficient portion of the submission. Implementation of any unrelated non-deficient portion of a submission shall not relieve Navy and DLA of liability for stipulated penalties for the disapproved portion under Section 15 (Penalties).

(f) In the event that a resubmitted deliverable, or portion thereof, is disapproved by the Regulatory Agencies, the Regulatory Agencies may again require Navy and DLA to correct the deficiencies, in accordance with the preceding Paragraphs. The Regulatory Agencies also retain the right to modify or develop the plan, report or other item, consistent with Subparagraph

(b). Navy and DLA shall implement any action as required in a deliverable which has been modified or developed by the Regulatory Agencies, subject only to Navy and DLA's right to invoke the procedures set forth in Section 14 (Dispute Resolution).

(g) If upon resubmission, a deliverable is disapproved or modified by the Regulatory Agencies due to a material defect previously identified by the Regulatory Agencies in accordance with Subsection 7(d), Navy and DLA shall be deemed to have failed to submit such deliverable timely and adequately unless Navy and DLA invoke the dispute resolution procedures set forth in Section 14 (Dispute Resolution) and the Regulatory Agencies' action to disapprove or modify a deliverable is overturned pursuant to that Section. The provisions of Section 14 (Dispute Resolution) and Section 15 (Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If the Regulatory Agencies' disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section 15 (Penalties).

(h) All deliverables required to be submitted to the Regulatory Agencies under this AOC, shall, upon approval or modification by the Regulatory Agencies, be incorporated into and made enforceable under this AOC. In the event the Regulatory Agencies approve or modify a portion of a deliverable required to be submitted to the Regulatory Agencies under this AOC, the approved or modified portions shall be enforceable under this AOC. Navy and DLA shall implement all deliverables in accordance with the schedule and provisions approved by the Regulatory Agencies.

8. MODIFICATION OF THE SOW AND THIS AOC AND ADDITIONAL WORK

(a) Modification of the Work in the SOW

(i) If at any time during the implementation of the SOW, Navy and DLA identify a need for a compliance date modification or modification of the Work in the SOW, Navy and DLA shall submit a memorandum documenting the need for the modification to the Project Coordinators of the Regulatory Agencies. The Project Coordinators of the Regulatory Agencies will determine if the modification is warranted and will provide written approval or disapproval. If disapproved, the Regulatory Agencies will provide a written explanation of the reason for the disapproval. Any approved, written modification of a compliance date or

modification of Work required by this AOC shall be incorporated by reference into this AOC.

(ii) In the event that during the performance of this AOC, Navy and/or DLA encounters any condition or situation that constitutes an emergency situation or may present an immediate threat to human health or the environment, Navy and DLA shall immediately take all appropriate actions to prevent and/or minimize such emergency or threat, and shall immediately notify the DOH Project Coordinator and the EPA Project Coordinator. Navy and DLA shall take such immediate and appropriate actions in consultation with the DOH Project Coordinator and the EPA Project Coordinator. Navy and DLA shall then submit to DOH and EPA written notification of such emergency or threat at the Site within twenty-four (24) hours of such discovery and, if further action is required, submit a plan to further mitigate the threat within seven (7) days of sending the written notification of the emergency. After approval or approval with modification of the plan by the Regulatory Agencies, Navy and DLA shall implement the plan as approved or modified and the plan shall be incorporated by reference into and made part of this AOC and be enforceable as such. In the event that Navy and DLA fail to take appropriate response action as required by this Paragraph, either or both of the Regulatory Agencies may take a response action consistent with their statutory and regulatory authorities and may require Navy and DLA to reimburse them for their response costs pursuant to those authorities.

(b) Modification of this AOC

(i) This AOC may be modified only by the mutual agreement of the Parties. Any agreed modifications shall be in writing; be signed by all the Parties; have as their effective date the date on which the last Party signs the modification; and be incorporated into and be enforceable under this AOC.

(ii) No informal advice, guidance, suggestion, or comment by the Regulatory Agencies regarding deliverables submitted by Navy and DLA shall relieve Navy and DLA of their obligation to obtain such formal approval as may be required by this AOC, and to comply with all requirements of this AOC unless it is modified as provided under this AOC. Any deliverables, required by this AOC are, upon approval by the Regulatory Agencies, incorporated into and enforceable under this AOC.

(iii) In the event future regulatory requirements for field-constructed USTs are determined by the Regulatory Agencies to conflict with the Work to be performed under this

AOC, such that Navy and DLA could not comply with both this AOC and the regulatory requirements, the Parties will make good faith efforts to promptly resolve such conflict.

(c) Additional Work. The Regulatory Agencies may determine, or Navy and DLA may propose, that certain tasks or activities are necessary in addition to or in lieu of the Work when such additional performance is necessary for protection of human health and the environment. The Regulatory Agencies may determine that Navy and DLA shall perform additional work and the Regulatory Agencies will specify, in writing, the basis for the determination that additional work is necessary. Within thirty (30) days after the receipt of such determination, Navy and DLA shall have the opportunity to meet or confer with the Regulatory Agencies to discuss any additional work. Upon meeting or conferring, the Parties shall agree on a schedule for submitting a work plan for additional work; Navy and DLA shall either invoke dispute resolution or submit the schedule for approval within thirty (30) days from Navy and DLA's meeting or conferring on the additional work, unless otherwise agreed to by the Parties. Upon approval of a work plan, Navy and DLA shall implement the work plan in accordance with the schedule and provisions contained therein. The work plan shall be incorporated by reference into and made a part of this AOC and be enforceable as such.

9. DOCUMENT CERTIFICATION

(a) Any deliverable specifically listed in the SOW and submitted by Navy and DLA pursuant to this AOC shall be certified by the Commander of Navy Region Hawaii or the Regional Engineer for CNRH or designee but no lower than the Deputy Regional Engineer. Certification of additional deliverables may be required, if specified as a requirement in an approved implementation plan.

(b) The certification required by Paragraph 9(a) above, shall be in the following form:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violation.

Signature:_____

Name:_____

Title:_____

Date:_____

10. SAMPLING, ACCESS AND DOCUMENT AVAILABILITY

(a) Sampling and Analysis

(i) All results of sampling, testing, modeling or other data generated (including raw data, which shall be made available if requested) by Navy and DLA, or on Navy and DLA's behalf, during implementation of this AOC shall be submitted to the Regulatory Agencies within thirty (30) calendar days of Navy and DLA's receipt of the data. Data shall be provided in the same format that it was provided to Navy and DLA unless a different format is otherwise agreed to by the Parties. Upon request, the Regulatory Agencies will make available to Navy and DLA data generated by DOH or EPA for the purposes of oversight of the Work unless it is exempt from disclosure by any federal or state law or regulation. All sampling and analysis shall be subject to a quality assurance and control process as specified in the SOW.

(ii) Navy and DLA shall provide written notice to the Regulatory Agencies at least seven (7) calendar days prior to conducting field sampling, or as otherwise agreed to by the Parties. At the Regulatory Agencies' request, Navy and DLA shall allow split or duplicate samples to be taken by the Regulatory Agencies.

(b) Access to Areas Controlled by Navy and/or DLA

(i) EPA has the authority to enter the Site under federal environmental law and DOH has authority to enter the Site under state law.

(ii) Navy and DLA shall provide the Regulatory Agencies and/or their representatives with access to the Site at all reasonable times for the purposes consistent with the provisions of this AOC. Such access shall include, but not be limited to: inspecting records, logs, contracts, and other documents relevant to implementation of this Agreement; reviewing and monitoring the progress of Navy and DLA, their contractors, and lessees in carrying out the activities under this AOC; conducting tests that the Regulatory Agencies deem necessary;

assessing the need for planning additional response actions at the Site; and verifying data or information submitted to the Regulatory Agencies.

(iii) Navy and DLA shall honor all requests for access to the Site made by the Regulatory Agencies subject to the requirements in Subparagraph (v). Navy and DLA may require presentation of credentials showing the bearer's identification and that he/she is an employee or agent of the Regulatory Agencies, including contractors employed by either of the Regulatory Agencies. Navy and DLA's Project Coordinator or his/her designee shall provide briefing information, coordinate access and escort to restricted or controlled-access areas, arrange for base passes, and coordinate any other access requests that arise. Navy and DLA shall use their best efforts to ensure that conformance with the requirements of this Subsection do not delay access.

(iv) The rights granted in this Section to the Regulatory Agencies regarding access shall be subject to regulations and statutes, as may be necessary to protect national security information ("classified information") as defined in Executive Order 12958. Such requirement shall not be applied so as to unreasonably hinder the Regulatory Agencies from carrying out their responsibilities and authority pursuant to this AOC.

(v) The Facility is a controlled access area and subject to safety and security requirements. Other parts of the Site may be controlled or restricted. Navy and DLA shall provide an escort whenever the Regulatory Agencies require access to controlled or restricted areas for purposes consistent with the provisions of this AOC. The Regulatory Agencies shall provide reasonable notice to the Navy and DLA Project Coordinator, or his or her designee, to request any necessary escorts for such areas. Navy and DLA shall not require an escort to any area of the Site unless it is a restricted or controlled-access area. Upon request of the Regulatory Agencies, Navy and DLA shall promptly provide a written list of current restricted or controlled-access areas of the Site.

(vi) Upon a denial of any aspect of a request of access, Navy and DLA shall provide an immediate explanation of the reason for the denial, including reference to any applicable regulations, and upon request, a copy of such regulations. Within forty-eight (48) hours, Navy and DLA shall provide a written explanation for the denial. To the extent possible,

Navy and DLA shall expeditiously provide a recommendation for accommodating the requested access in an alternate manner.

(vii) Pursuant to this Section, any denial of access contrary to the terms of this AOC at reasonable times to any portion of the Site, where a request for access was made for the purposes of enforcing the requirements of federal or state law, or implementing or enforcing this AOC, shall be construed as a violation of the terms of this AOC subject to the penalty provisions outlined in Section 15 (Penalties) of this AOC.

(c) Access to Areas Not Controlled by Navy and/or DLA

Where action under this AOC is to be performed in areas owned by, or in possession of, someone other than Navy or DLA, Navy and DLA shall use their best efforts to obtain all necessary access agreements in a timely manner. Navy and DLA shall commence efforts to obtain such agreements within thirty (30) days of approval of any Work for which access is necessary. Any such access agreement shall provide for access by the Regulatory Agencies and their representatives to move freely in order to conduct actions that the Regulatory Agencies determine to be necessary. The access agreement shall specify that Navy and DLA are not the Regulatory Agencies' representative(s) with respect to any liabilities associated with activities to be performed. Navy and DLA shall provide DOH's Project Coordinator and EPA's Project Coordinator with copies of any access agreements. Navy and DLA shall immediately notify the Regulatory Agencies if after using Navy and DLA's best efforts, they are unable to obtain such agreements within the time required. Best efforts as used in this Paragraph shall include, at a minimum, a certified letter from Navy and DLA to the present owner of such property requesting access agreements to permit Navy and DLA, the Regulatory Agencies, and the Regulatory Agencies' authorized representatives to enter such property, and the offer of payment of reasonable sums of money in consideration of granting access. Navy and DLA shall, within ten (10) calendar days of receipt of a denial of access, submit in writing, a description of their efforts to obtain access. The Regulatory Agencies may, at their discretion, assist Navy and DLA in obtaining access. Where access on state owned property is needed, DOH will make best efforts to assist Navy and DLA with access.

(d) Document Availability

All data, information, and records created or maintained for purposes of implementation of this AOC, and all records relating to Facility operations and maintenance, or to site conditions, shall be made available to the Regulators upon request unless Navy or DLA assert a claim that such documents are legally privileged from disclosure and meets the burden of demonstrating to the Regulatory Agencies that such a privilege exists. Navy and DLA may assert a claim that certain documents or portions of documents are protected from public disclosure under federal or state law (e.g., documents exempt from disclosure under applicable laws such as FOIA, Procurement Integrity Act, Privacy Act, etc.). Navy and DLA shall clearly mark the material in which such a claim is asserted (e.g., documents shall be marked on each page and shall be reasonably segregated) and cite to the legal authority allowing withholding. If no such claim accompanies the information when it is submitted to the Regulatory Agencies, it may be made available to the public by EPA or DOH without further notice to Navy and DLA. Navy and DLA agree not to assert such claims with respect to any data related to Site conditions, including but not limited to, sampling, analytical, monitoring, hydrogeologic, scientific, chemical or engineering data or any other documents or information evidencing conditions at or around the Site.

(e) Nothing in this AOC shall be construed to limit the Regulatory Agencies' right of access, entry, inspection, and information gathering pursuant to applicable law.

11. COMPLIANCE WITH OTHER LAWS

Navy and DLA shall perform all actions required pursuant to this AOC in accordance with all applicable local, state, and federal laws and regulations. Navy and DLA shall use best efforts to obtain or cause their representatives to obtain all permits and approvals necessary under such laws and regulations in a timely manner so as not to delay the Work required by this AOC.

12. FUNDING OF THE WORK

(a) It is further agreed to and ordered that Navy and DLA shall timely seek sufficient funding through their budgetary processes to finance and perform all the Work. Navy and DLA recognize the requirements of this AOC as necessary actions subject to the provisions of Executive Order 12088 requiring request of sufficient funds in the agency budget. It is the

expectation of the Parties to this AOC that all obligations of Navy and DLA arising under this AOC will be fully funded.

(b) Any requirement for the payment or obligation of funds, including stipulated penalties, by Navy or DLA, established by the terms of this AOC may be subject to the availability of appropriated funds. No provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

(c) If Navy and DLA determine that there are insufficient funds to carry out the Work in accordance with the AOC, Navy and DLA shall notify the Regulatory Agencies within thirty (30) days thereafter and request a meeting to work with the Regulatory Agencies to explore cost-savings or re-scoping measures to off-set the shortfall. The meeting shall be held within thirty (30) days of the request for the meeting, unless otherwise agreed to by the Parties. If re-scoping or cost savings measures are not sufficient to offset the shortfall such that schedules developed pursuant to this AOC should be modified, then Navy and DLA shall submit a modified schedule to the Regulatory Agencies for approval within the time frame agreed to in the meeting. The time frame agreed to in the meeting shall be in writing, signed by the Parties and be enforceable under this AOC. If funds are not available in any year to fulfill Navy and DLA's obligations under this AOC and the Parties are unable to agree on cost-savings or re-scoping measures to offset the shortfall or a modified schedule, DOH and EPA reserve their respective rights to initiate any action against any person(s) or to take any response action which would be appropriate absent this AOC.

13. REIMBURSEMENT OF DOH COSTS

(a) Subject to the provisions of this Paragraph, Navy and DLA agree to pay reasonable service charges incurred by DOH with respect to the Work. Reasonable service charges shall mean reasonable and necessary costs above and beyond normal regulatory responsibilities (i.e., required overtime or contracted effort) that DOH incurs in monitoring Navy's and DLA's performance under this AOC to determine whether such performance is consistent with the requirements of this AOC, including costs incurred in reviewing plans, reports and other documents submitted pursuant to this AOC. Reasonable service charges incurred by DOH shall be limited to no more than fifty thousand dollars ($50,000) per calendar year unless otherwise agreed in writing by Navy and DLA. DOH shall advise Navy and DLA

prior to accruing any costs for which it intends to seek reimbursement pursuant to this section and shall obtain concurrence that such costs are reasonable. Navy and DLA shall make good faith efforts to negotiate a separate cooperative agreement with DOH which will detail the modalities for payment of reasonable service charges incurred by DOH with respect to the Work. If Navy, DLA, and DOH cannot agree on the reasonableness of the proposed costs, they shall attempt to resolve any disputes under this Section amongst themselves. In the event that a separate cooperative agreement is developed, any dispute resolution related to this Paragraph shall be pursuant to that agreement and applicable regulation and shall not be subject to Section 14 (Dispute Resolution).

(b) DOH reserves the right to bring an action against Navy and DLA under any applicable law for recovery of all reasonable service charges incurred by DOH with respect to the Site that have not been reimbursed by Navy and DLA if Navy and DLA and DOH fail to enter into a separate cooperative agreement or make other arrangements for reimbursement of reasonable service charges incurred by DOH with respect to the Work.

14. DISPUTE RESOLUTION

(a) The Parties intend to work cooperatively to avoid disputes in the implementation of the AOC. The Parties shall make reasonable efforts to resolve disputes informally at the lowest level. The process for dispute resolution set forth in this Section shall be the exclusive remedy through which the Parties resolve any and all disputes arising from this AOC and the implementation and execution of the Work. At any point during the dispute resolution process, Navy and DLA may withdraw their dispute and commence or resume the previously disputed Work in accordance with direction from the Regulatory Agencies.

(b) A dispute resolution committee ("DRC") shall serve as the initial forum for resolution of disputes for which agreement has not been reached through informal dispute resolution among the Parties. Each Party shall designate one individual and an alternate to serve on the DRC, and may change those designations at will, with written notice to be provided to the other Parties, but shall at all times have persons so designated and available to participate in the dispute resolution process as needed. The persons designated to serve on the DRC shall be employed at the senior management level (e.g., Senior Executive Service (SES) or equivalent) or be delegated the authority in writing to participate on the DRC by an SES or equivalent level

official, or higher, for the purposes of dispute resolution under this agreement.

(i) Within thirty (30) days after any action which leads to or generates a dispute, the disputing Party shall submit to the DRC a written statement of dispute setting forth the nature of the dispute, the disputing Party's position with respect to the dispute and the technical, legal and factual information the disputing Party is relying upon to support its position.

(ii) Prior to any Party's issuance of a written statement of dispute, the disputing Party shall engage the other Parties in informal dispute resolution among the Project Coordinators and/or their immediate supervisors. During this informal dispute resolution period, the Parties shall meet and/or confer as many times as are necessary to discuss and attempt resolution of the dispute.

(iii) Within twenty (20) calendar days of receipt by the DRC of the disputing Party's written request for formal dispute resolution, unless additional time is provided by the DRC, the other Parties may submit their own statements of position with respect to the dispute to the DRC for its consideration.

(iv) The DRC shall have forty-five (45) calendar days from the date it receives a timely written request from the disputing Party for formal dispute resolution to unanimously resolve the dispute and issue a written decision signed by the designee of each Party then serving on the DRC, except that such designees may agree unanimously to extend the period of time to reach decision if necessary. This decision may include any necessary findings and instructions, as appropriate, to proceed with Work interrupted or delayed by the dispute.

(c) In the event the DRC is unable to unanimously resolve the dispute within the forty-five (45) day period, the written statement of dispute shall be forwarded to the Senior Executive Committee (SEC) for resolution, within ten (10) days after the close of the forty-five (45) day period. EPA's representative on the SEC is the Regional Administrator of EPA Region 9. DOH's representative on the SEC is the Director of Health. Navy's representative on the SEC is the Commander Navy Installations Command. DLA's representative on the SEC is the Chief of Staff of DLA. The SEC members shall, as appropriate, confer, meet, and exert their best efforts to resolve the dispute and issue a unanimous written decision signed by all Parties. If unanimous resolution of the dispute is not reached within thirty (30) days of elevation to the SEC, the Regional Administrator of EPA Region 9 shall issue a written position on the dispute

within forty (40) days of elevation to the SEC. The Assistant Secretary of the Navy for Energy, Installations & Environment, or the Director of DLA, within thirty (30) days of the EPA's Regional Administrator's issuance of the EPA's position, may issue a written notice elevating the dispute to EPA's Assistant Administrator of the Office of Enforcement and Compliance Assurance (EPA Assistant Administrator) for resolution. In the event that Navy, DLA or DOH elects not to elevate the dispute to the EPA Assistant Administrator within the designated thirty (30) day escalation period, the other Parties shall be deemed to have agreed with the EPA's Regional Administrator's written position with respect to the dispute.

(d) Upon elevation of the dispute to the EPA Assistant Administrator pursuant to Paragraph 14(c) above, the EPA Assistant Administrator will review and resolve the dispute. Upon request, and prior to resolving the dispute, the EPA Assistant Administrator will meet and confer with the Assistant Secretary of the Navy for Energy, Installations & Environment, the Director of DLA, and the Governor to discuss the issue(s) under dispute. The EPA Assistant Administrator will resolve the dispute within thirty (30) days of receipt of the dispute, unless the Assistant Secretary of the Navy for Energy, Installations & Environment, the Director of DLA, or the Governor request a meeting with the EPA Assistant Administrator prior to resolving the dispute, in which case the dispute will be resolved within thirty (30) days of such meeting. Upon resolution, the EPA Assistant Administrator will provide the other Parties with a written final decision setting forth resolution of the dispute.

(e) The existence of a dispute and the Regulatory Agencies' consideration of matters placed in dispute shall not excuse, toll, or suspend any compliance obligation or deadline required pursuant to this AOC during the pendency of the dispute resolution process except as agreed by the Regulatory Agencies in writing pursuant to Section 8 of this AOC or determined by the Administrator or his or her designee. In the event that a dispute is resolved in favor of Navy and DLA pursuant to this Section, stipulated penalties incurred with respect to the specific subject of that dispute will not be due and owing.

(f) Within thirty (30) calendar days of receipt of any final decision and instructions with respect to any dispute resolved pursuant to the procedures specified in this Section, unless otherwise specified in the decision, Navy and DLA shall incorporate the final decision and

instructions into the appropriate plan, schedule or procedures and implement this AOC in accordance with such plan, schedule or procedures.

(g) Resolution of a dispute pursuant to this Section constitutes a final resolution of any dispute arising under this AOC. All Parties shall abide by all terms and conditions of any final resolution of dispute obtained pursuant to this Section of the AOC.

15. PENALTIES

(a) In the event that Navy and/or DLA fails to comply with any term, condition or requirement of this AOC, EPA and/or DOH may assess and Navy and DLA shall be liable for stipulated penalties in the amounts set forth in this Section unless a Force Majeure event has occurred as defined in Section 17 (Force Majeure) and the Regulatory Agencies have approved the extension of a deadline as required by that Section. Compliance with this AOC by Navy and DLA shall include completion of any Work in accordance with this AOC and within the specified time schedules approved under this AOC. A stipulated penalty may be assessed in an amount not to exceed $5,000 for the first week (or part thereof) and $10,000 for each additional week (or part thereof) for which a failure set forth in this Subsection occurs.

(b) Stipulated penalties incurred pursuant to this Section shall begin to accrue on the day after complete performance is due or the day the violation occurs and shall continue to accrue until the violation is corrected to the satisfaction of the Regulatory Agencies.

(c) Upon determining that Navy and DLA have failed in a manner set forth in this Subsection, the EPA or the DOH will notify Navy and DLA. Any such notification shall be in writing. If the failure in question is not already subject to dispute resolution at the time such notice is received, Navy and DLA shall have thirty (30) days after receipt of the notice to invoke dispute resolution on the question of whether the failure did in fact occur and whether there is no mitigating reason for the failure. Where dispute resolution is invoked, no assessment of a stipulated penalty shall be final until the conclusion of dispute resolution procedures related to the assessment of the stipulated penalty. Notwithstanding any other provision of this Section, the Regulatory Agencies may, in their unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this AOC.

(d) No later than sixty (60) days after receipt of a written demand for payment from the Regulatory Agencies, unless the dispute resolution provisions of Section 14 (Dispute

Resolution) are invoked, Navy and DLA shall pay the penalty. If the stipulated penalties become payable by Navy and DLA, they shall pay one half (50%) of the total penalty amount by cashier's or certified check payable to the "State of Hawaii Director of Finance" for deposit into the Hawaii's Leaking Underground Storage Tank Fund [HRS § 342L-51] and delivered to the Director's Office, 1250 Punchbowl Street, Honolulu, Hawaii. They shall pay the other half (50%) of the total penalty amount by certified or cashier's check payable to the United States Treasury and delivered to the U.S. Environmental Protection Agency. Cincinnati Finance Center, Box 979077, St. Louis, MO, or other agreed-to method. All payments by Navy and DLA shall reference Navy and DLA's name and address, and the docket number for this action.

(e) This Section shall not affect Navy or DLA's ability to obtain an extension of a timetable, deadline, or schedule pursuant to Section 8 of this AOC.

(f) Nothing in this AOC shall be construed to render any officer or employee Navy or DLA personally liable for the payment of any stipulated penalty assessed pursuant to this Section.

16. ENFORCEABILITY

(a) The Parties agree to exhaust their rights under Section 14 (Dispute Resolution), prior to DOH exercising any rights to pursue a civil action and seek judicial review that it may have.

(b) Subject to the Dispute Resolution Provisions of Section 14 and the Regulatory Agencies' Covenants in Section 19, nothing in this AOC shall preclude the State of Hawaii from seeking to enforce the terms and conditions of this AOC as a final order of DOH against Navy and DLA in a civil action to collect penalties and/or enforce its provisions pursuant to HRS §§ 340E-4, 340E-8, 342D-9, 342D-10, 342D-11, 342L-8, 342L-9, 342L-12, and 342L-52, Section 7002 of RCRA, 42 U.S.C. § 6972, or in a civil action for breach of this AOC and from seeking any other relief as may be necessary to protect the public health, a source of drinking water and the environment. However, DOH will not seek to collect, in a judicial proceeding, civil penalties for a breach of this AOC if it or EPA has already collected such penalties under the penalty provisions of this AOC for the same matter, or if such penalties have been overturned through the dispute resolution process of Section 14.

(c) Failure to diligently conduct the Work may subject Navy and DLA to an action under Section 7002 of RCRA, 42 U.S.C. § 6972.

(d) Navy and DLA waive their opportunity to confer with the Administrator of EPA pursuant to 42 U.S.C. § 6961(b)(2) and any right to further review of the issuance of this AOC pursuant to any provisions of state and federal law.

(e) In any action to enforce the terms of this AOC, all Parties agree to be bound by the terms of the AOC and agree to not contest the validity of this AOC, its terms or conditions, or the procedures underlying or relating to them in any action brought by the Regulatory Agencies to enforce its terms.

17. FORCE MAJEURE

(a) Navy and DLA agree to perform all requirements under this AOC within the time limits established under this AOC, unless the performance is delayed by a force majeure. For purposes of this AOC, a force majeure is defined as any event arising from causes beyond the control of Navy and DLA, or Navy or DLA's contractors, that delays or prevents performance of any obligation under this AOC despite Navy and DLA's best efforts to fulfill the obligation. The requirement that Navy and DLA exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event: (1) as it is occurring, and (2) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. Force majeure does not include financial inability to complete the Work, increased cost of performance, changes in Navy and DLA's business or economic circumstances, or inability to attain media cleanup standards.

(b) If any event occurs or has occurred that may delay the performance of any obligation under this AOC, whether or not caused by a force majeure event, Navy and DLA shall orally notify the Regulatory Agencies within forty-eight (48) hours of when Navy or DLA knew or should have known that the event might cause a delay. Such notice shall: (1) identify the event causing the delay, or anticipated to cause delay, and the anticipated duration of the delay; (2) provide Navy and DLA's rationale for attributing such delay to a force majeure event; (3) state the measures taken or to be taken to prevent or minimize the delay; (4) estimate the timetable for implementation of those measures; and (5) state whether, in the opinion of Navy and DLA, such

event may cause or contribute to an endangerment to public health or the environment. Navy and DLA shall undertake best efforts to avoid and minimize the delay. Failure to comply with the notice provision of this Paragraph and to undertake best efforts to avoid and minimize the delay shall waive any claim of force majeure by Navy and DLA. Navy and DLA shall be deemed to have notice of any circumstances of which their contractors had or should have had notice.

(c) If the Regulatory Agencies determine that a delay in performance or anticipated delay in fulfilling a requirement of this AOC is or was attributable to a force majeure, then the time period for performance of that requirement will be extended as deemed necessary by the Regulatory Agencies. If the Regulatory Agencies determine that the delay or anticipated delay has been or will be caused by a force majeure, then the Regulatory Agencies will notify Navy and DLA, in writing, of the length of the extension, if any, for performance of such obligations affected by the force majeure. Any such extensions shall not alter Navy and DLA's obligation to perform or complete other tasks required by this AOC which are not directly affected by the force majeure.

(d) If the Regulatory Agencies disagree with Navy and DLA's assertion of a force majeure, then Navy and DLA may elect to invoke the dispute resolution provision, and shall follow the procedures set forth in Section 14 (Dispute Resolution). In any such proceeding, Navy and DLA shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that Navy and DLA's best efforts were exercised to avoid and mitigate the effects of the delay, and that Navy and DLA complied with the requirements of this Section. If Navy and DLA satisfy this burden, then the Regulatory Agencies will extend the time for performance as the Regulatory Agencies determine is necessary.

18. RESERVATION OF RIGHTS

(a) Notwithstanding any other provisions of this AOC, the Regulatory Agencies retain their authority to take, direct, or order any and all actions necessary to protect public health, any source of drinking water or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants, or contaminants, or hazardous or solid waste or constituents of such wastes, on, at, or from the Facility, including but not limited

to the right to bring enforcement actions under RCRA, the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), the Clean Water Act ("CWA"), the Safe Drinking Water Act ("SDWA"); HRS chapters 340E, 342D and 342L; and any other applicable statutes or regulations. However, unless required on an emergency basis, no such action shall be taken in relation to any activity within the scope of this AOC unless a Party has first made good faith efforts to address the issue through a modification to this AOC and, if necessary, through the Dispute Resolution process set forth in Section 14.

(b) The Regulatory Agencies reserve all of their statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to Navy and DLA's failure to comply with any of the requirements of this AOC.

(c) Navy and DLA reserve all of their statutory and regulatory rights and defenses both legal and equitable, including but not limited to rights and defenses against third parties. Nothing in this AOC shall be taken as an admission of fact or law in any dispute with a third party or in any dispute outside the context of enforcement of this AOC.

(d) This AOC is not intended to be nor shall it be construed to be a permit. Navy and DLA acknowledge and agree that EPA or DOH's review and approval of the Work does not constitute a warranty or representation that the Work will achieve the required cleanup or performance standards. Compliance by Navy and DLA with the terms of this AOC shall not relieve Navy and DLA of their obligations to comply with applicable local, state, or federal laws and regulations.

19. REGULATORY AGENCIES' COVENANTS

(a) Except as provided in Section 18 (Reservation of Rights), EPA covenants not to take administrative action against Navy or DLA pursuant to Section 7003 of RCRA, 42 U.S.C. § 6973, for the Work. EPA's covenant shall take effect upon the Effective Date of this AOC. EPA's covenant is conditioned upon the satisfactory performance by Navy and DLA of their obligations under this AOC. EPA's covenant extends only to Navy and DLA and does not extend to any other person.

(b) Except as provided in Section 18 (Reservation of Rights), DOH covenants not to take administrative enforcement action against Navy or DLA with respect to any Work on the

condition that the Work is consistent with Navy's and DLA's obligations under this AOC and/or that the Work has been satisfactorily completed and approved by the DOH.

20. OTHER CLAIMS

By issuance of this AOC, the Regulatory Agencies assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Navy and DLA. The Regulatory Agencies shall not be deemed a party to any contract, agreement or other arrangement entered into by Navy and DLA or its officers, directors, employees, agents, successors, assigns, heirs, trustees, receivers, contractors, or consultants in carrying out actions pursuant to this AOC.

21. RECORD RETENTION

(a) Navy and DLA shall preserve all records related to the Facility in accordance with the appropriate federal records retention schedule. In addition, Navy and DLA shall preserve all documents shared with the Regulatory Agencies relating to the Work performed under this AOC, monitoring data, and other raw data generated pursuant to this AOC, for at least ten (10) years following the termination of the AOC. Navy and DLA shall make such records available to DOH or EPA at their request.

(b) All substantive documents exchanged between the Parties relating to the Work performed under this AOC and all monitoring data related to the Facility shall be stored by Navy and DLA in a centralized location at the Site, or an alternative location mutually approved by the Project Coordinators to promote easy access by the Regulatory Agencies or their representatives.

22. PRESIDENTIAL EXEMPTION

The Parties recognize that the President may exempt a solid waste management facility from requirements of RCRA pursuant to 42 U.S.C. § 6961(a) or a UST from the requirements of RCRA pursuant to 42 U.S.C. § 6991f for a period of time not to exceed one (1) year after the President grants the exemption. This exemption may be renewed. Navy and DLA shall obtain access to and perform all actions required by this AOC within all areas inside those portions of the Site, which are not the subject of or subject to any such exemption by the President.

23. PUBLIC COMMENT

(a) Upon signature by Navy and DLA, the Regulatory Agencies shall provide public notice, a public meeting and a reasonable opportunity for public comment on the proposed

settlement. After consideration of any comments submitted during a public comment period of not less than thirty (30) days (which the Regulatory Agencies may extend), the Regulatory Agencies may sign this AOC, or withhold consent, or seek to amend all or part of this AOC if the Regulatory Agencies determine that comments received disclose facts or considerations which indicate that this AOC is inappropriate, improper, or inadequate.

(b) If a modification is necessary, the Regulatory Agencies shall transmit a modified copy of the AOC to Navy and DLA for review and signature, or further negotiations, as appropriate. If the modification is determined by the Regulatory Agencies to be significant, the process for public comment, described in Section 23(a), will repeat.

24. SEVERABILITY

If any provision of this AOC or the application of this AOC to any party or circumstances is held by any judicial authority to be invalid, the remainder of the AOC shall remain in full force and effect.

25. EFFECTIVE DATE

After this AOC is signed by each of the Parties and after the public comment period and review as described in Section 23 (Public Comment), this AOC shall become effective. The undersigned representatives certify that they are fully authorized to enter into the terms and conditions of this AOC and to bind the party they represent to this document.

26. TERMINATION AND SATISFACTION

The provisions of this AOC shall be deemed fully satisfied upon the Regulatory Agencies' execution of a written acknowledgement ("Acknowledgement") specifying that Navy and DLA have demonstrated to the satisfaction of the Regulatory Agencies that the terms and conditions of this AOC have been fully and satisfactorily completed. Prior to termination of this AOC, the Parties shall discuss whether an agreement, or additional regulation, is necessary to ensure continued protection of health and the environment. Termination of this AOC shall not terminate Navy and DLA's obligation to comply with Sections 10 (Sampling and Access) and 21 (Record Retention) of this AOC or the Regulatory Agencies' reservation of rights in Section 18. IN WITNESS WHEREOF, the Parties have duly executed this presents as of the day and year subscribed below.

Agreed this 27th day of MAY, 2015.

By: _____

Richard L. Williams, Rear Admiral
Commander Navy Region Hawaii, U.S. Navy

Agreed this 27th day of May, 2015.

By: _____

Renee L. Roman, Chief of Staff
Defense Logistics Agency

It is so ORDERED and Agreed this _____day of _____, 2015.

By: _____
Keith Kawaoka, Deputy Director
Department of Health

APPROVED: _____
AS TO Wade H. Hargrove III, Deputy Attorney General
FORM Hawaii Department of Attorney General

It is so ORDERED and Agreed this _____day of _____, 2015.

By: _____

Jeff Scott, Director, Land Division
Region 9, U.S. Environmental Protection Agency

Red Hill Bulk Fuel Storage Facility

Proposed
Administrative Order on Consent

EXHIBIT 6

Tonight's Purpose and Agenda

- Purpose
  - Inform the Public
  - Obtain Public Comment on the Administrative Order on Consent
- Agenda
  - Informational Presentation
  - Question and Answer Session
  - Public Comment

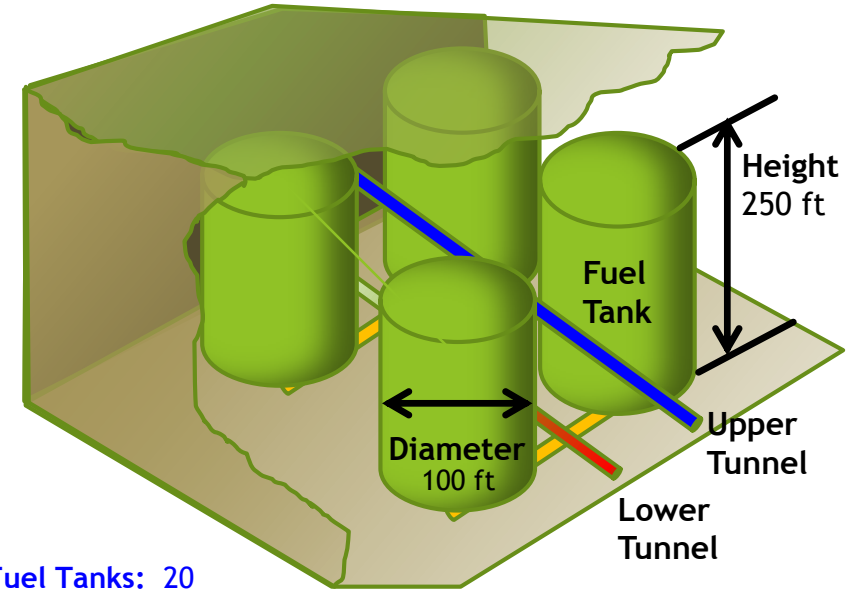
Informational Presentation

What is an Administrative Order on Consent (AOC)?

- Enforceable Order under federal and state environmental statutes
- Negotiated scope of work to be performed
- Signed voluntarily
- Red Hill AOC was negotiated between DOH/EPA and Navy/DLA
- Includes an Administrative Record
- Effective upon signature of all Parties

Red Hill Bulk Fuel Storage Facility

- Provides fuel for military's Pacific Command
- "Field-Constructed" 1940 to 1943
  - 20 vertical cylindrical tanks (250 feet x 100 feet each)
  - Tank capacity = 12.5 million gallons each
  - Welded steel plates backed with 2.5 - 4 feet of concrete against basalt rock
- National Historic Civil Engineering Landmark
- Located three miles uphill from Pearl Harbor
- Operators are Navy and DLA



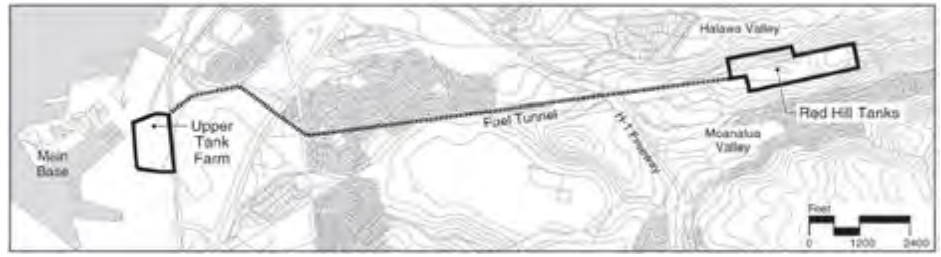
Fuel Tanks: 20

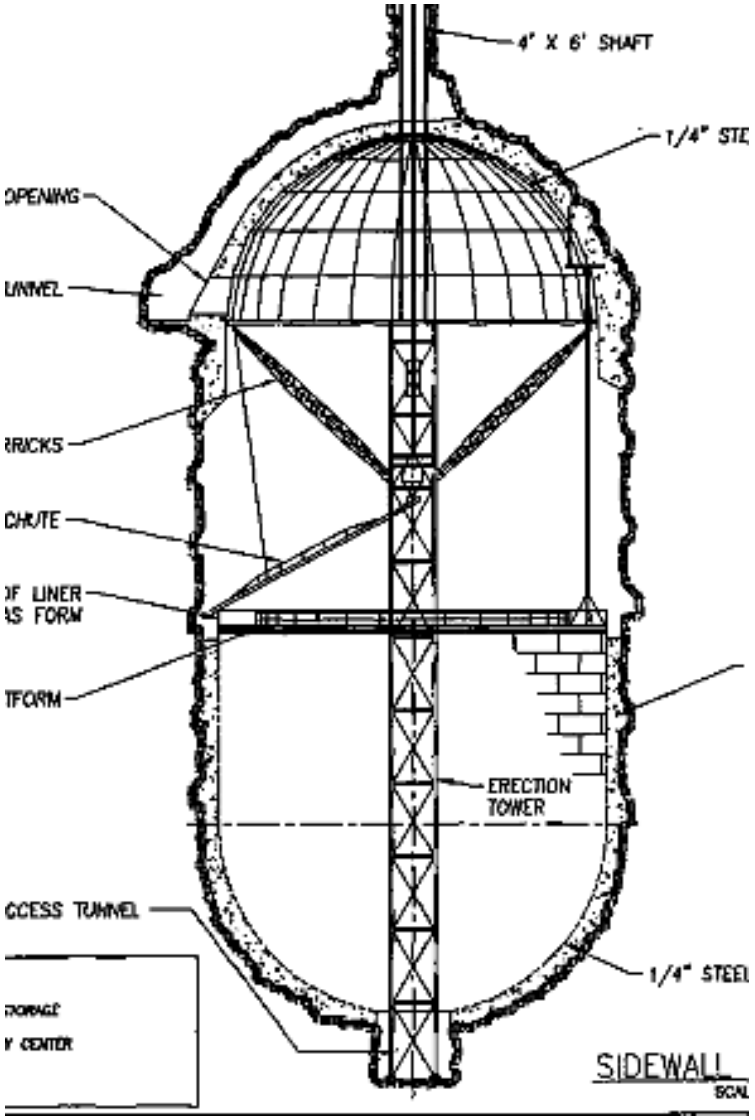
Capacity: 250 million gals

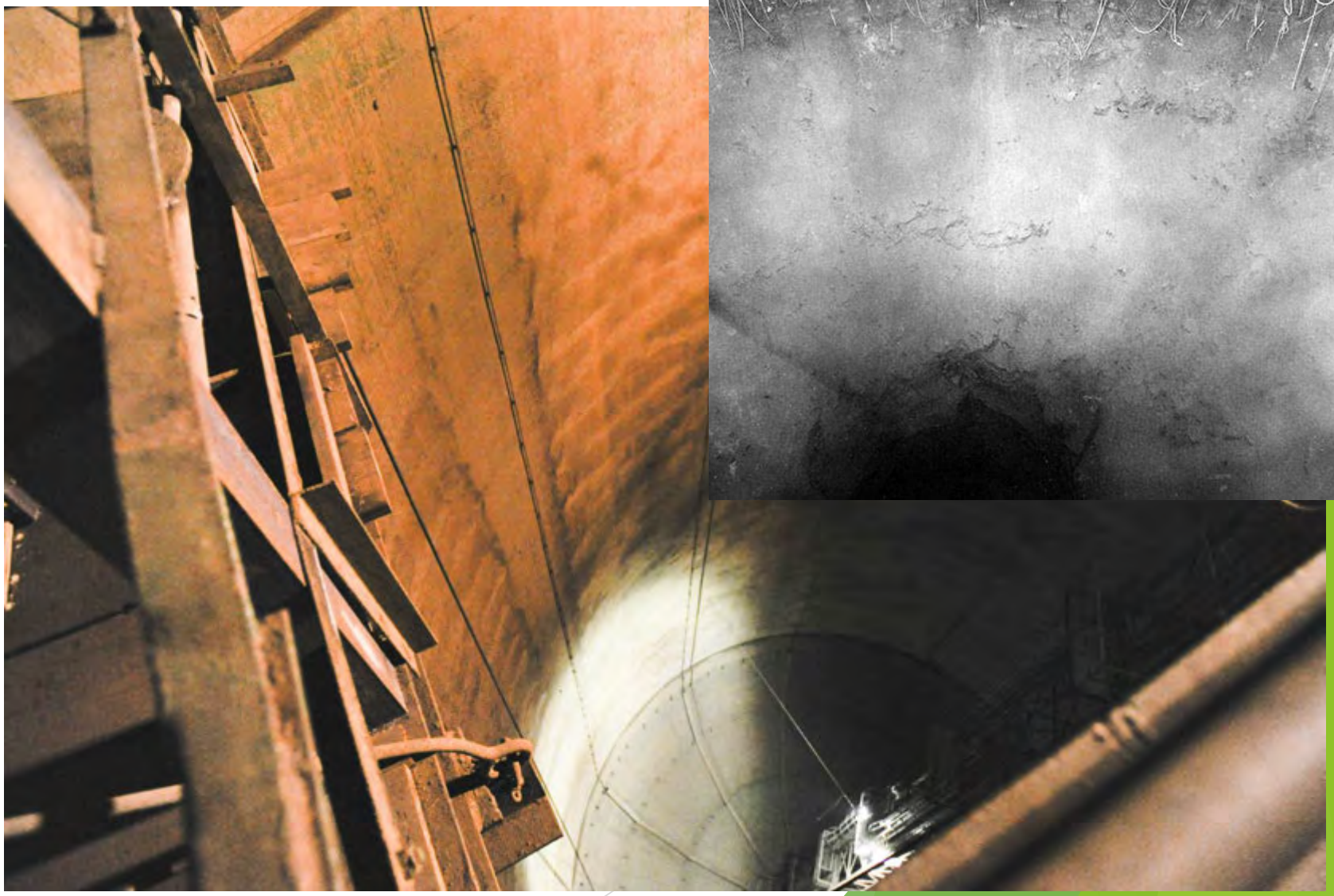
Length of Tunnels: 7.13 miles

Miles From Pearl Harbor to Red Hill Facility: ~3 Miles

Depth from ground surface to top of tank: 110 to 175 feet




4' X 6' SHAFT
1/4" STE
OPENING
TUNNEL
BRICKS
CHUTE
OF LINER
AS FORM
TFORM
ERECTION
TOWER
CCESS TUNNEL
1/4" STEEL
SIDEWALL



NOT FOR PUBLICATION

Release at Tank #5

- Navy reported a release on January 13, 2014
- Release occurred after Tank #5 had undergone scheduled maintenance and repair
- Release of approximately 27,000 gallons of fuel
- Led to the development of this AOC

Key Features of this AOC

- Protects groundwater resources
- Ensure that Facility is operated in an environmentally protective manner
- Requires the Navy/DLA to:
  - Reduce the risk of future fuel releases
  - Investigate and remediate releases to protect drinking water supplies
  - Obtain DOH and EPA approval for all work (AOC Section 7)

How is the AOC enforceable?

- Establishes required work and schedules for the Navy/DLA (AOC Section 6)
- Monetary penalties for failure to comply (AOC Section 15)
- Dispute resolution process places EPA as the ultimate decision maker if needed (AOC Section 14)

Statement of Work (SOW)

- The Statement of Work attached to the AOC provides the details of work to be performed and schedules.
  - Introduction (Section 1)
  - Tank Inspection, Repair and Maintenance (Section 2)
  - Tank Upgrade Alternatives (Section 3)
  - Release Detection/Tank Tightness Testing (Section 4)
  - Corrosion and Metal Fatigue (Section 5)
  - Investigation and Remediation of Releases (Section 6)
  - Groundwater Protection and Evaluation (Section 7)
  - Risk/Vulnerability Assessment (Section 8)

General Process for Key Work Tasks

- All tasks generally follow a similar process:
  - Study Phase
  - Decision Document
  - Implementation
- The timelines vary by task

Stakeholder Involvement

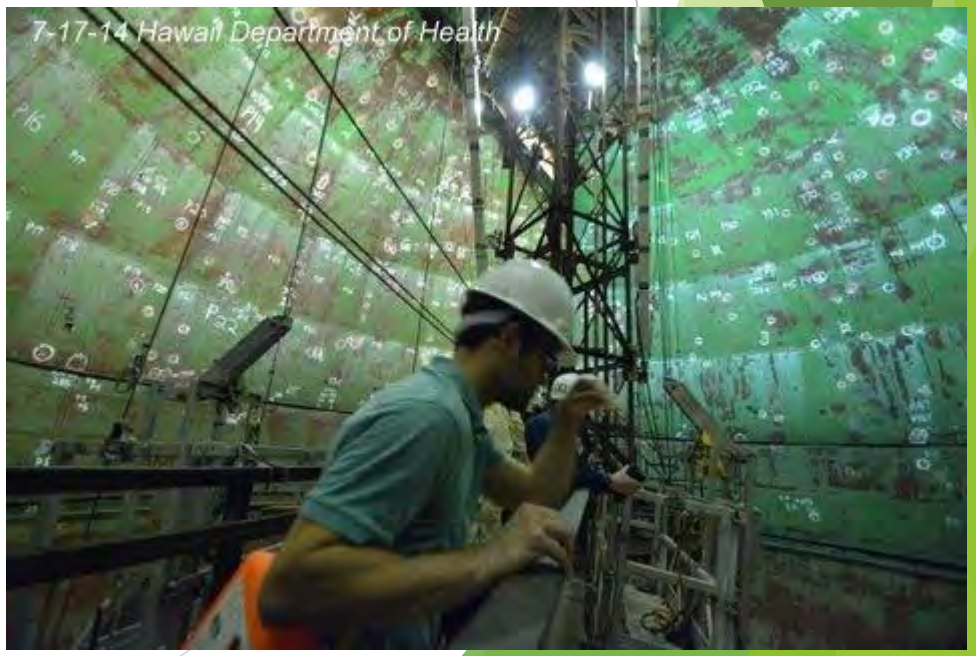
- The SOW provides for two levels of stakeholder involvement
  - Subject Matter Experts to provide input for scoping meetings or during the review of work products. (Section 1.1)
  - Summaries of final reports will be made available to the public. (Section 1.2)

Tank Inspection, Repair, and Maintenance –"TIRM Procedures" (Section 2)

- Evaluates current tank inspection, repair, and maintenance procedures.
- Investigates and proposes options for improving current practices
- TIRM procedures revised based on tank upgrade decisions

Tank Upgrade Alternatives (Section 3)

- Evaluates various tank upgrades alternatives
- Selects and implements the Best Available Practicable Technology (BAPT) to upgrade the tanks
- BAPT to be based on consideration of:
  - Risks and Benefits
  - Feasibility
  - Operational Life
  - Cost



Tank Upgrade Alternatives (continued)

- Initial BAPT determination made within two years
- Pilot technologies may be proposed to fully evaluate a particular technology
- BAPT will be implemented in five-year phases over 20 years
- Every five years, BAPT is re-evaluated

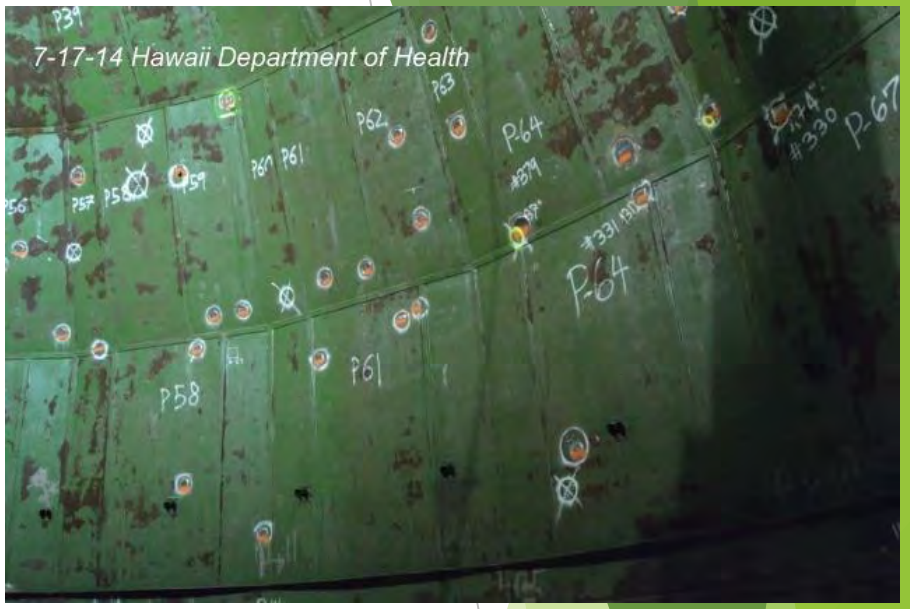
Tank Upgrade Alternatives (continued)

- Why 20 year schedule for tank upgrades?
  - A significant engineering challenge – enormous size of each tank
  - Facility constraints – tank access, power needs, etc.
  - Schedule is enforceable
  - Facility remains operational – ability to continue to meet military fuel needs
- Tanks that are not upgraded within 20 years will be emptied and taken out of service
- Due to funding complexities, Regulatory Agencies may allow up to five additional years to complete all upgrades

Release Detection and Tank Tightness Testing (Section 4)

- Red Hill utilizes three methods to detect releases:
  - Continuous measurement of fuel levels in the tanks
  - Tank tightness testing
  - Monthly soil vapor sampling
- Navy to immediately increase frequency of tank tightness tests to annually
- New release detection practices evaluated and the selected method implemented

Corrosion and Metal Fatigue Practices (Section 5)



- Report detailing current corrosion and metal fatigue assessment procedures
- Destructive testing on at least one of the tanks to assess condition of outside of tank wall
- Based on results, current procedures may be modified

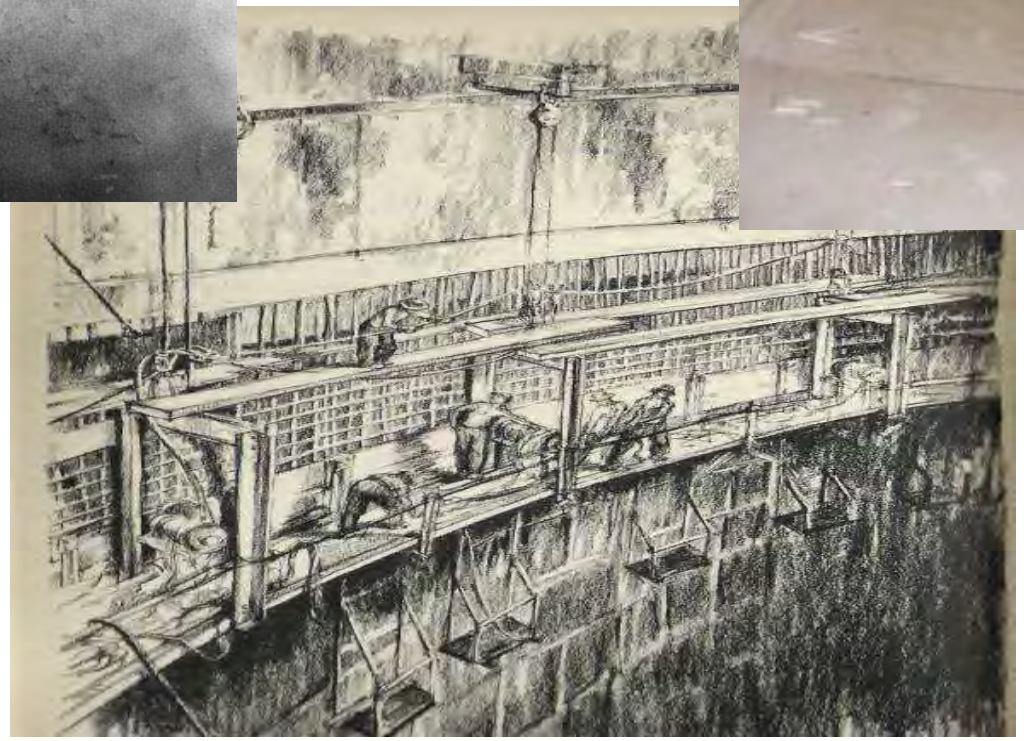
Statement of Work (SOW)

- The Statement of Work attached to the AOC provides the details of work to be performed and schedules.
  - Introduction (Section 1)
  - Tank Inspection, Repair and Maintenance (Section 2)
  - Tank Upgrade Alternatives (Section 3)
  - Release Detection/Tank Tightness Testing (Section 4)
  - Corrosion and Metal Fatigue (Section 5)
  - Investigation and Remediation of Releases (Section 6)
  - Groundwater Protection and Evaluation (Section 7)
  - Risk/Vulnerability Assessment (Section 8)

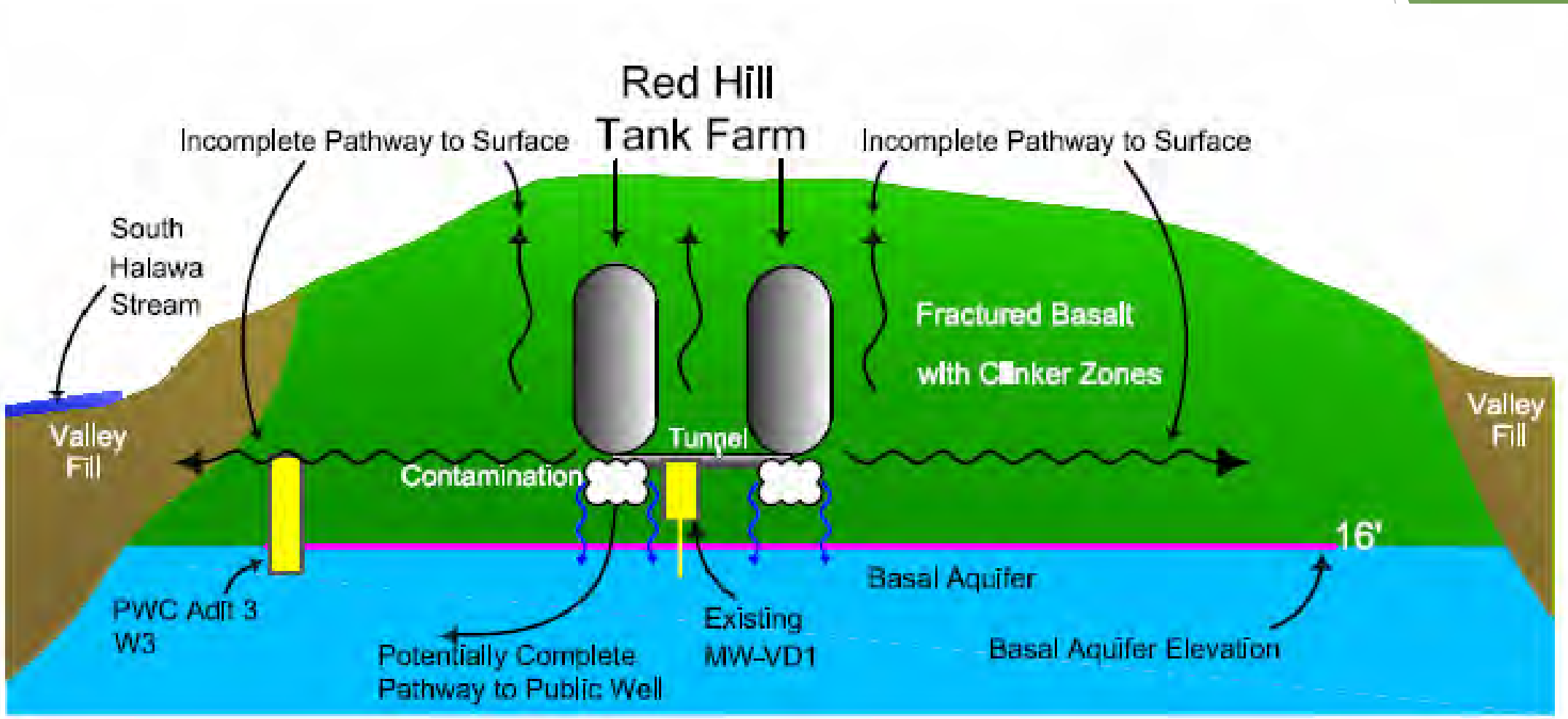
Investigation and Remediation of Releases (SOW Section 6)

- Purpose of SOW Section 6 is to evaluate alternatives for investigating and remediating releases from the Facility
  - Including response to January 2014 release
  - Considers complex geological setting
- Selects and implements most appropriate remedial alternative

Step 1. Finding the Leak



Step 2. Remove free product (if possible)

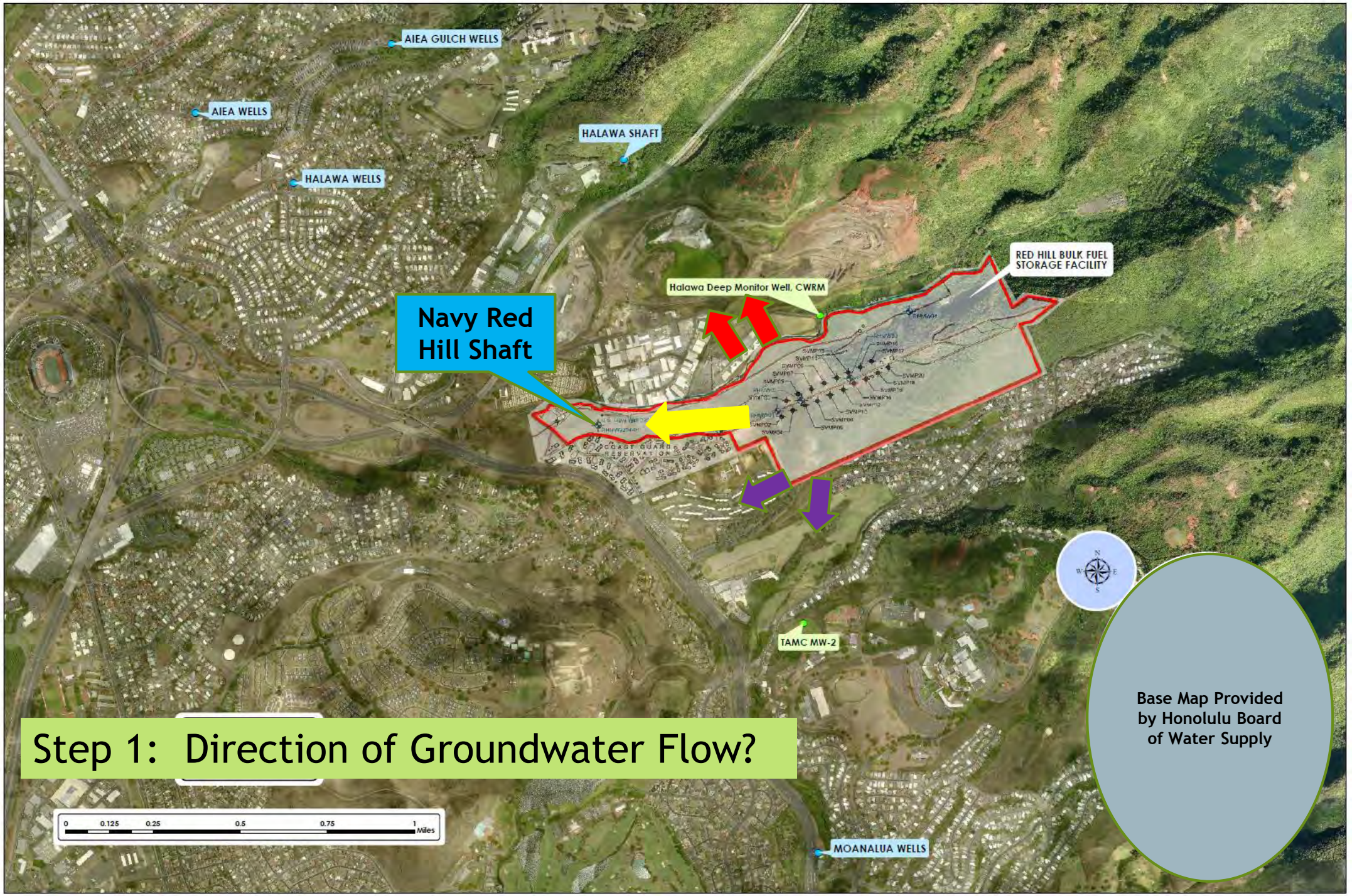


Step 3. In Situ Cleanup (Remediation)

Not all contamination can found or be removed

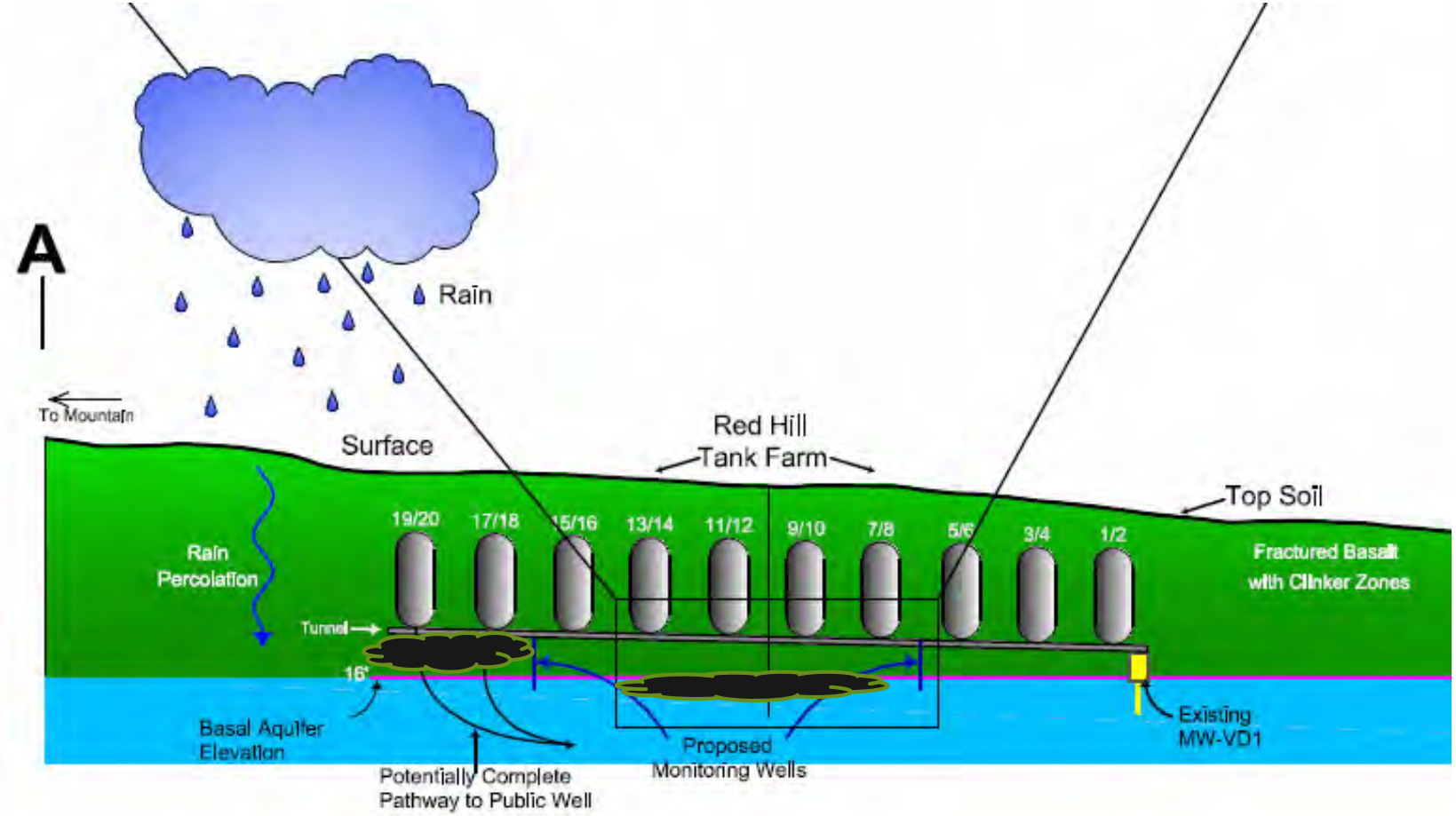
Groundwater Protection and Evaluation (SOW Section 7)

- Purpose of SOW Section 7:
  - Determine the direction and rate of groundwater flow within aquifers around the facility
  - Estimate what happens if contaminants are released from the facility (fate and transport)
  - Finalize a groundwater monitoring network



Step 1: Direction of Groundwater Flow?

Step 2: What happens to contaminants (fate and transport)



Step 3: Install additional monitoring wells as needed.

Risk/Vulnerability Assessment (SOW Section 8)

- Purpose of SOW Section 8 is to assess the level of risk the Facility may pose to groundwater resources from vulnerabilities associated with:
  - Catastrophic events (e.g., seismic events)
  - Mechanical and human errors
  - Risk mitigation and protective measures
- Includes engineering and environmental factors
- The assessment will inform selection of BAPT (tank upgrades)

AOC in Summary

- Requires Navy/DLA to take steps to ensure that the groundwater is protected
- Focused on Long-Term prevention of fuel leaks through upgrades to the Facility
- Enforceable, including penalties
- EPA/DOH oversight of all work under the AOC

Next Steps

- All comments will be reviewed and evaluated by EPA/DOH
- EPA/DOH decide whether to:
  - (1) Sign the AOC as is; OR
  - (2) Re-open negotiations with Navy/DLA based on public comment; OR
  - (3) Not sign the AOC
- AOC is finalized only after EPA and DOH signature

Question and Answer Period at Information Stations

Public Comment Session

OFFICE OF THE CITY CLERK
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3077 / TELEPHONE 523-4352

GLEN TAKAHASHI
CITY CLERK

July 8, 2015

Suzanne Case, Chairperson
Board of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Ms. Case:

This is to inform you that Resolution 15-162, CD1, FD1, urging the United States Environmental Protection Agency and the Hawaii State Department of Health to require the immediate implementation of corrective actions as part of the Administrative Order on Consent in the matter of the Red Hill Bulk Fuel Storage Facility, was adopted by the Council of the City and County of Honolulu at its meeting on Wednesday, July 8, 2015.

As directed by the Resolution, a copy is attached for your information.

Sincerely,

GLEN TAKAHASHI
City Clerk

ds

Attachment

EXHIBIT 7

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

No. **15-162, CD1, FD1**

RESOLUTION

URGING THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND THE HAWAII STATE DEPARTMENT OF HEALTH TO REQUIRE THE IMMEDIATE IMPLEMENTATION OF CORRECTIVE ACTIONS AS PART OF THE ADMINISTRATIVE ORDER ON CONSENT IN THE MATTER OF THE RED HILL BULK FUEL STORAGE FACILITY.

WHEREAS, on June 1, 2015, the U.S. Environmental Protection Agency ("EPA") and the Hawaii State Department of Health ("DOH") released for public review and comment a proposed Administrative Order on Consent ("AOC"), and Statement of Work ("SOW") attached thereto, with the U.S. Navy and the Defense Logistics Agency ("DLA") that requires the military to take measures to minimize the threat of future leaks at the Navy's Red Hill Bulk Fuel Storage Facility ("Facility"); and

WHEREAS, the AOC requires the U.S. Navy and DLA to undertake actions to minimize the threat of future fuel releases from the Facility, and the SOW sets forth the tasks and requirements to be undertaken by the U.S. Navy and DLA in compliance with the AOC; and

WHEREAS, the public comment and review period for the AOC and SOW closes on July 1, 2015; and

WHEREAS, in Departmental Communication 442, dated June 4, 2015, the Board of Water Supply (BWS) informed the EPA and DOH that seven files pertinent to the current leak and to future leak hazards are missing from the Red Hill AOC Administrative Record and, as of June 4, 2015, were not available for public review; and

WHEREAS, the SOW indicates minimal opportunities for local state and county government, community stakeholders, and the public to participate in the design, review, and implementation of the additional studies and work to be performed under the agreement; and

WHEREAS, the SOW lacks specificity with regard to committing the U.S. Navy and DLA to implement immediate improvements to mitigate the existing situation, which, if unchanged, enables Facility operations to continue unabated; and

WHEREAS, Oahu's groundwater and environment are held in trust for all of Oahu's people, and the outcomes of any corrective actions, successful or not, will directly impact residents of Oahu in terms of cost and environmental quality; and

WHEREAS, the lack of immediate implementation actions is of grave concern to residents of communities immediately adjacent to the Red Hill Bulk Fuel Storage

Facility, as well as for state and county agencies responsible for safeguarding Honolulu's water quality and keeping the City's drinking water free of contaminants; now, therefore,

BE IT RESOLVED by the Council of the City and County of Honolulu that the U.S. Environmental Protection Agency and the Hawaii State Department of Health are urged to require the U.S. Navy and the Defense Logistics Agency to implement upgrades and improvements already identified in past studies of the Red Hill Bulk Fuel Storage Facility; and

BE IT FURTHER RESOLVED that the parties involved in developing the Administrative Order on Consent and Statement of Work are urged to make the processes transparent and involve all stakeholders and the community; and

BE IT FURTHER RESOLVED that the EPA and the DOH are urged to immediately make all studies and reports identified in the Red Hill AOC Administrative Record available to the BWS and the public and to consent to the BWS' request to make the documents available for review on-line; and

BE IT FURTHER RESOLVED that the EPA and DOH are urged to revise the AOC and SOW to require the U.S. Navy and DLA to comply with all existing and new federal underground storage tank regulations and, in the event there arises a conflict between the AOC and SOW requirements and those specified in federal regulations, the federal regulations and compliance with such regulations shall take precedence; and

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

No. **15-162, CD1, FD1**

RESOLUTION

BE IT FINALLY RESOLVED that copies of this Resolution be transmitted to the members of Hawaii's Congressional delegation, Commander of the United States Pacific Command, Commander of the United States Pacific Fleet, Administrator of the Environmental Protection Agency, State Director of Health, Chairperson of the Board of Land and Natural Resources, Chairperson of the Board of Directors of the Honolulu Board of Water Supply, and Manager and Chief Engineer of the Honolulu Board of Water Supply.

INTRODUCED BY:

Carol Fukunaga

Councilmembers

DATE OF INTRODUCTION:

June 5, 2015
Honolulu, Hawaii

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII
CERTIFICATE

RESOLUTION 15-162, CD1, FD1

Introduced: 06/05/15 By: CAROL FUKUNAGA Committee: PUBLIC WORKS, INFRASTRUCTURE AND SUSTAINABILITY

Title: RESOLUTION URGING THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY AND THE HAWAII STATE DEPARTMENT OF HEALTH TO REQUIRE THE IMMEDIATE IMPLEMENTATION OF CORRECTIVE ACTIONS AS PART OF THE ADMINISTRATIVE ORDER ON CONSENT IN THE MATTER OF THE RED HILL BULK FUEL STORAGE FACILITY.

Voting Legend: * = Aye w/Reservations

06/17/15	PUBLIC WORKS, INFRASTRUCTURE AND SUSTAINABILITY	CR-264 – RESOLUTION REPORTED OUT OF COMMITTEE FOR ADOPTION AS AMENDED IN CD1 FORM.
07/08/15	COUNCIL	RESOLUTION AMENDED TO HANDCARRIED FD1. 8 AYES: ANDERSON, ELEFANTE, FUKUNAGA, KOBAYASHI, MARTIN, MENOR, OZAWA, PINE. 1 ABSENT: MANAHAN. CR-264 AND RESOLUTION 15-162, CD1, FD1 WERE ADOPTED. 8 AYES: ANDERSON, ELEFANTE, FUKUNAGA, KOBAYASHI, MARTIN, MENOR, OZAWA, PINE. 1 ABSENT: MANAHAN.

I hereby certify that the above is a true record of action by the Council of the City and County of Honolulu on this RESOLUTION.

GLEN TAKAHASHI, CITY CLERK

ERNEST Y. MARTIN, CHAIR AND PRESIDING OFFICER

from the desk of Jonathan Starr

Commissioner, The Hawaii State Commission on Water Resource Management, Department of Land and Natural Resources, Hawaii

Re: Red Hill Navy Deteriorating Fuel Storage, Draft AOC & SOW

July 20, 2015

Hawaii Department of Health, Solid and Hazardous Waste Branch;

United States Environmental Protection Agency, Region 9;

United States Department of the Navy, Commander Navy Region Hawaii;

United States Defense Logistics Agency;

The Honorable President Barack Obama, Office of the President;

US Senator Brian Schatz;

US Senator Mazie Hirono;

US Congresswoman Tulsi Gabbard;

US Congressman Mark Takai;

Hawaii Governor David Ige;

Hawaii Lieutenant Governor Shan Tsutsui;

Hawaii State Legislators.

Dear & respected members of the HDOH Solid and Hazardous Waste Branch, EPA, US Navy, USDLA, our Honorable President and Hawaii's fine Elected Officials:

On June 1, 2015, the U.S. Environmental Protection Agency (EPA) and the Hawaii State Department of Health (DOH) released for public review and comment a proposed Administrative Order on Consent (AOC) and Statement of Work (SOW) that require the U.S. Navy and the Defense Logistics Agency (DLA) to take measures to minimize the threat of future leaks at the Navy's Red Hill Bulk Fuel Storage Facility. I am pleased to offer the following comments to these documents:

EXHIBIT 8

General Comments

As Commissioner on the Hawaii State Commission on Water Resource Management (CWRM), I strongly disagree with the proposed Red Hill AOC and SOW as written. The documents lack public transparency, corrective action specificity, and the immediate implementation of improvements that will protect our groundwater and environment. At what point do the studies, required under the AOC and SOW to determine the best practicable available technology, become actions for implementation? Studies could potentially continue for years in the name of practicality, while the existing situation remains unchanged. The most recent recorded leak of 27,000 gallons of fuel from Tank 5, which occurred shortly after completing a multi-year clean-inspect-repair and modernization process, does not demonstrate that the status quo approach is protective of the environment and drinking water.

Hawaii CWRM members appreciate the long and hard work of the EPA, DOH, Navy and DLA to develop the proposed AOC and SOW. Unfortunately, the contents do not adequately address our concerns about the facility storing 250 million gallons of fuel located 100 feet above a State designated drinking water aquifer; mitigate fuel contaminants already in the groundwater underneath that facility; arrest the corroding condition of the tanks' thin 1/4 inch steel wall and their fortification to minimize the risks fuel releases contaminating the aquifer.

This aquifer is the only one of its kind; is essential for the well being of Honolulu as one of the world's great cities; and there are no cost-effective alternatives that can replace it. The State of Hawaii cannot countenance a long-term continuation of the significant, avoidable threat that the deteriorating Red Hill Tanks pose to the primary potable source wells for the Honolulu BWS. These wells presently show no contamination. The specter that they may become contaminated in the future by a serious breach of even one tank is existential, and must be avoided at any cost. It is unfortunate and irresponsible that the situation has continued to deteriorate for over 70 years without an adequate maintenance and replacement program. The US Navy must acknowledge that the life and welfare of a huge community, including many DOD personnel and facilities, is at stake here. The degree of unquestionable professionalism with which the US Navy treats hull integrity issues for major fleet units, should be employed with this facility. There are no Navy ships currently in service that regularly and repeatedly leak tens of thousands of gallons through their hull containment.

The Red Hill Tanks were constructed in two years of brilliant, intensive activity during WWII, and have subsequently existed for over 70 years without adequate maintenance. During that period, very large quantities of petrochemicals (estimates say 2 million gallons or so) have leaked or been disposed of in open waste pits, with little regard to the effect on irreplaceable ground water resources. It is time to end this irresponsible trend, and seriously to monitor, track and deal with the effects of plumes of fuel already in the ground.

I am in agreement with the Honolulu Board of Water Supply, the Honolulu City Council, and the Senate of the State of Hawaii, in calling for fast action and the double-lining of the tanks with monitoring facilities between the inner and outer walls, as would comply with EPA UST requirements.

Recognition of the Groundwater Aquifer

The AOC and SOW do not recognize the location of the Red Hill facility to be within the boundaries of the Southern Oahu Basal Aquifer designated by EPA in 1987 under the sole source protection authority in Section 1424 (e) of the Safe Drinking Water Act (SDWA).

This aquifer, one of 77 sole source designations nationwide, includes the Waimalu and Moanalua aquifer sector areas, and its designation requires studies to assess the impacts on aquifer water quality by all federally funded projects within its boundaries.

According to the sole source aquifer protection authorized under the SDWA, [Public Law 93-523, 42 U.S.C. 300 et. seq., Section 1424(e)] "If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer."

By this letter, EPA is requested to determine whether the existing Red Hill contamination has created a hazard to public health and if so, to publish its findings and ensure that federally funded projects for this facility do not further contaminate and create further hazards to public health. Furthermore, if there is a hazard to public health, cleanup of the site should be required to remove the hazard.

Public Transparency

According to Section 7003 of the Resource Conservation and Recovery Act (RCRA), the public should be involved to the maximum extent possible based on the needs and concerns intrinsic to the situation, which in this case are the Red Hill tanks located 100 feet above the groundwater table and the contamination underneath the facility detected to date. Specifically, RCRA Section 7003 states

that Regions should ensure that public notice and an opportunity to comment are provided during the remedy selection process, which in this case is the SOW. Given the intrinsic concerns of the facility on the Southern Oahu Basal aquifer, and the absence of cost effective alternatives to take its place, we strongly urge EPA revise the AOC and SOW processes to increase the amount of stakeholder and public participation in the identification and implementation of remedies to address the situation at Red Hill.

Corrective Action Identification and Due Dates

The processes outlined in the SOW are extremely protracted and lack specific due dates for completing each process. The SOW also requires evaluating the feasibility of improvements that have already been identified. For example, the 2008 Red Hill Repair Tank Options Study identified the following two alternatives for upgrading the tanks.

1 Alternative 1 – Composite Tank: The Composite Tank consists of inspecting and repairing the existing steel liner in each tank, which would become the secondary containment system, and then constructing a new liner with a 3 inch wide interstitial space between the new liner and the existing liner. The interstitial space would be filled with grout and have a leak detection system.

2 Alternative 2 – Tank Within A Tank: The Tank Within A Tank concept consists of inspecting and repairing the existing steel liner in each tank which would become the secondary containment system, and constructing a new tank inside the existing tanks, with a 5 feet wide annular space between the new tank and existing tank shell that is accessible for inspection and visual leak detection.

The study consultant recommended to the Navy to authorize a single tank repair project to start the program as a means of proving up the concepts and confirming overall cost validity. According to the study report, the same consultant also performed a similar study in 1998 to develop possible repair options for Tank 19. According to the report, the 1998 study was performed due to tank integrity issues, environmental concerns, lack of leak detection capability, and lack of secondary containment at Red Hill. There should be no need to do a new two-year study to examine tank improvements when the assessment has already been done repeatedly.

As written, the processes in the SOW appear to enable the Navy to continue the operations of Red Hill as done in the past. While there are timeframes for executing the work elements, the language lacks compliance with specific due dates to ensure steady progress. Protractive repeating of studies is not protective of the groundwater and environment.

Actions that should be implemented include:

1. Double-line all 20 tanks.

2. Install advanced leak detection and tank corrosion protection.

3. Add sufficient in-ground monitoring facilities.

4.Clean up the fuel that is already underneath the tanks.

5. Recognize the location of the Red Hill facility to be within the boundaries of the Southern Oahu Basal Aquifer designated by EPA in 1987 under the sole source protection authority in Section 1424 (e) of the Safe Drinking Water Act (SDWA).

6. Keep the BWS, CWRM, DOH and the public informed of its actions.

I hereby request that our Honorable US President Barack Obama and Federal Administration, Hawaii's Senatorial and Congressional Delegations, the US Navy, the EPA, USDLA, HDOH, and other relevant Federal or State Agencies perform whatever is needed to expeditiously cure the threat posed to Oahu's water resources by the deteriorating Red Hill Tanks.

Our entire State Commission on Water Resource Management was scheduled to meet on July 15th, to discuss this matter and approve these remarks for formal submittal by CWRM/DLNR before the July 20th cutoff for testimony. Unfortunately, the meeting was cancelled beyond our control due to a perceived technical noticing issue, so as senior member I am submitting these remarks under my own signature at this time, since members cannot meet, discuss or approve any items outside of Hawaii sunshine-law noticed meetings. It is likely that remarks will be forthcoming from the Commission after our next meeting.

Thank you for the opportunity to provide these comments.

With Warmest Aloha,

Jonathan Starr
Commissioner,
Hawaii State Commission on Water Resource Management (CWRM)
Department of Land and Natural Resources, State of Hawaii

kalepa@maui.net (808) 283-1183
1942 Main Street, Suite 104, Wailuku, Maui, Hawaii, 96793

My name is Michael G. Buck and I currently serve as a Commissioner on Hawaii's Commission of Water Resources Management. I am writing to urge the United States Environmental Protection Agency (EPA) and the Hawaii State Department of Health (HDOH) to require the immediate implementation of corrective actions as part of the Administrative Order on Consent (AOC) in the matter of the Red Hill bulk fuel storage facility.

Oahu's groundwater and environment are held in trust for all of Oahu's people, and timely corrective actions are needed now to the storage facility to avoid what could irreparable impacts to the residents of Oahu and its environmental quality.

The lack of immediate implementation actions is of grave concern to residents of communities immediately adjacent to the Red Hill Bulk Fuel Storage Facility, as well as for state and county agencies responsible for safeguarding Honolulu's water quality and keeping the City's drinking water free of contaminants.

I urge the EPA and the HDOH to require the U.S. Navy and the Defense Logistics Agency to implement upgrades and improvements already identified in past studies of the Red Hill Bulk Fuel Storage Facility.

I also recommend that the parties involved in developing the A O C and Statement of Work (SOW) to make the processes transparent to involve all stakeholders and the community. A critical first step in this process would be for the EPA and the DOH to immediately make all studies and reports identified in the Red Hill AOC Administrative Record available to the Honolulu Board of Water Supply (BWS) and the public and to consent to the BWS' request to make the documents available for review on-line.

In addition, I urge the EPA and DOH to revise the AOC and SOW to require the U.S. Navy and Defense Logistics Agency to comply with all existing and new federal underground storage tank regulations and, in the event there arises a conflict between the AOC and SOW requirements and those specified in federal regulations, the federal regulations and compliance with such regulations shall take precedence.

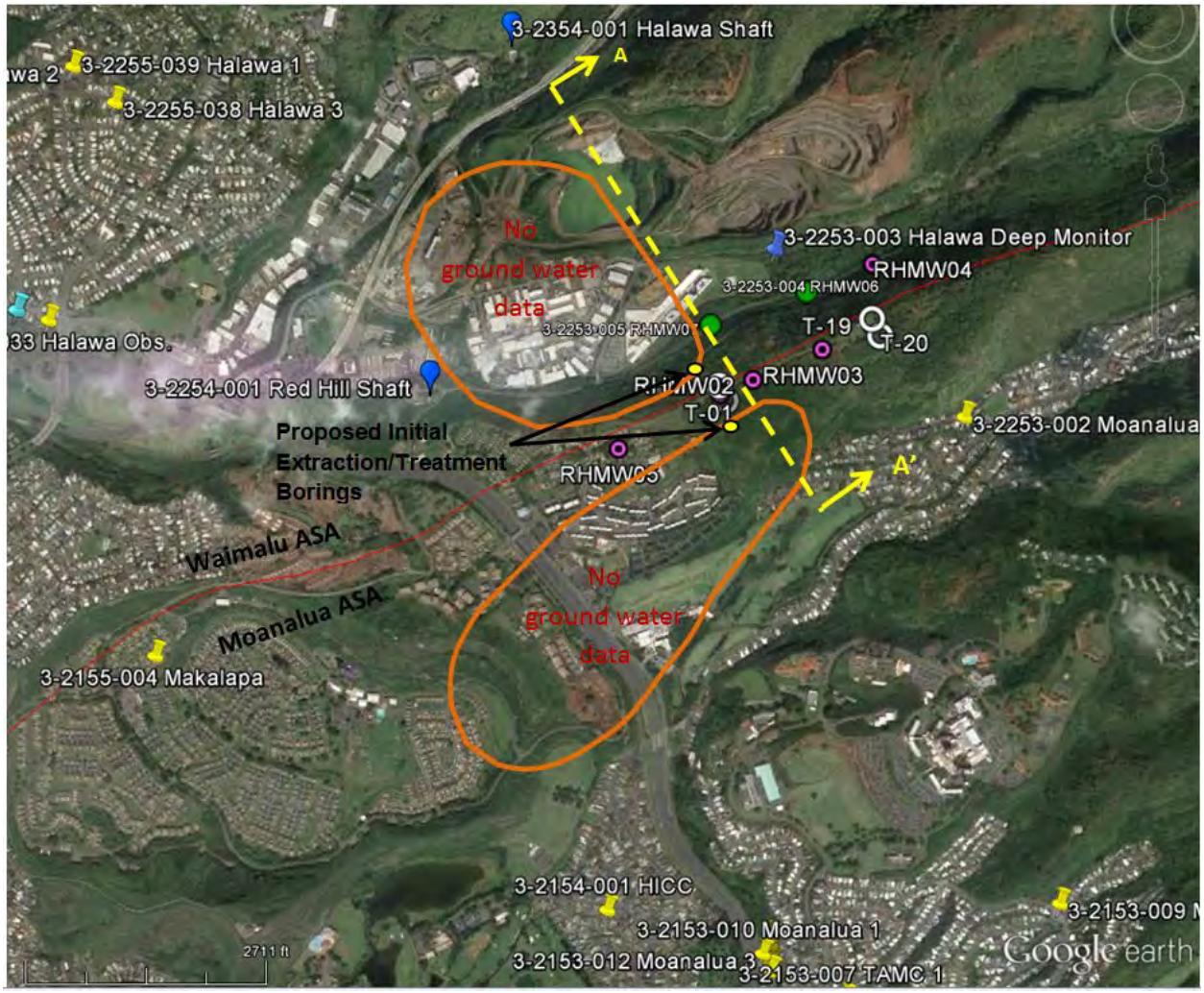
The processes outlined in the SOW are extremely protracted and lack specific due dates for completing each process. The SOW also requires evaluating the feasibility of improvements that have already been identified. For example, the 2008 Red Hill Repair Tank Options Study identified two alternatives for upgrading the tanks. The study consultant recommended to the Navy to authorize a single tank repair project to start the program as a means of proving up the concepts and confirming overall cost validity. According to the study report, the same consultant also performed a similar study in 1998 to develop possible repair options for Tank 19. According to the report, the 1998 study was performed due to tank integrity issues, environmental concerns, lack of leak detection capability, and lack of secondary containment at Red Hill. There should be no need to do a two-year study to examine tank improvements when the assessment has already been done.

As written, the processes in the SOW appear to enable the Navy to continue the operations of Red Hill as done in the past. While there are time frames for executing the work elements, the language lacks compliance with specific due dates to ensure steady progress. More studies will not protect Oahu's groundwater and environment. Action is needed now, before irreparable damage occurs.

Thank you for the opportunity to provide comments.

Michael G. Buck

Michael G. Buck
41-665 Kumuhau Street
Waimanalo, HI 96795
(808) 259-8946
mbuck@hawaii.rr.com



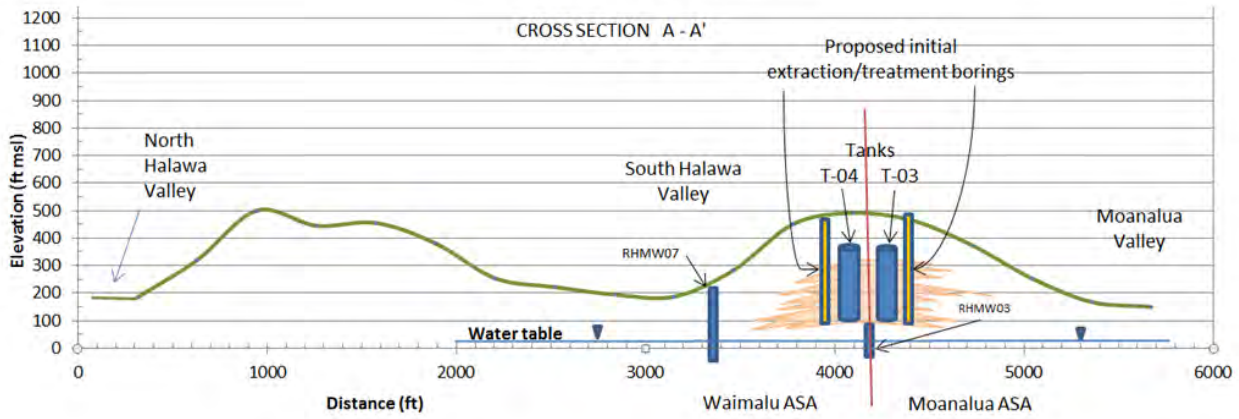


Exhibit 10. Map and profile of additional investigation soil borings.