

Red Hill Task Force Meeting #1
Draft Notes from September 3, 2014

(Gary Gill, DOH): Opening remarks (10:10 a.m.)

- Individual introductions
- Review agenda
- Comments on future meetings and purpose of each
 - Two additional monthly meetings: 1) Next meeting to discuss draft letter to legislature regarding recommendations from Task Force; 2) 3rd meeting to finalize letter of recommendations and authorize submittal. There could be more meetings but that's the minimum.
 - Report to include both majority and minority opinions

(Steven Linder, EPA): I wanted to point out that this task force is being done in parallel to the normal regulatory process that EPA and DOH follow to address these types of problems.

(Gary Gill, DOH): That's good to know. For those who aren't aware whenever there is a release from an underground storage tank or from any petroleum source, both federal and state laws do apply and there's a regulatory and enforcement regiment that we go through and that we are going through that as a separate track to this task force.

Aaron Poentis is the lead from the Navy and he will provide some background information about the history of the Red Hill Fuel Storage Facility and some information on the release back in January.

(Aaron Poentis, NAVFAC): *Navy powerpoint presentation available as an attachment.*

Thank you everyone. I have a formal presentation that goes through a lot of the agenda items but maybe not in that order. This is overview, a history of the Red Hill Fuel Storage Facility. And I think that it's well documented, people are pretty familiar with it. It was built in the 40's during the war. It's an incredible engineering feat. Over 3000 people were employed at its peak. Each tank is pretty large scale, about 250 feet tall and 100 feet in diameter and tall enough to house a 20-story building. What I've seen before is showing the Aloha Tower sitting in one of these tank structures. It's a steel lined tank, ¼" steel surrounded by concrete, built within basalt rock. As the bullet says, it is gravity flowed through a distribution but it's pumped from a pump house near the shore to get the fuel to the facility. Red Hill has the capacity to store about over 250 million gallons of fuel. That's the full operational capacity.

As far as modernization, we've made tremendous improvements throughout the years. We've included a fire alarm system, communications, and the tunnel system is designed to extend the

life of the facility another 50 years. We've upgraded the ventilation system and fire protection system. As of last week we've installed oil tight doors on the shaft and we currently have a MilCon project to install interior doors and other improvements which are planned for fiscal year 2015. We have a significant maintenance program. The tanks are that are required to be taken out of service for maintenance. We generally have about four tanks on cycle that are out of service. It's about a three to four year maintenance program and each round of improvements gives it integrity for another twenty years. We also do biennial tank tightness testing to ensure the pipe and tank integrity.

Now I'll talk a little about the January 13th fuel release. This tank was taken out of service for routine maintenance. It wasn't because of a failure. It actually passed the tank tightness test but it was up for routine maintenance. And we put it on a four year cycle to clean, inspect and repair the tank and this was done in 2013. We began refueling the tank in 2013 and the operators observed an unscheduled fuel movement and an alarm went off on January 11th. Subsequently, the operators identified a 'wet spot' on the exterior of tank 5. So immediately, the operators began draining the tank until January 13th.

Based on the operator calculations, what they call plus or minuses or reconciliation, once they put the tank back into service they detected a fuel discrepancy up to 27,000 gallons. And that's what was reported to the Department of Health.

In response to that reported release, we took initial responses to this action. We immediately drained the tank. We provided, as required by regulations, a report to the department. And the unified command was stood up and we coordinated all of our activities with the department, EPA and the board of water supply, who is a large stakeholder in the area. We accelerated our drinking water and groundwater monitoring efforts. We conducted additional oil/water interface monitoring. And what oil/water interface monitoring is... it looks for the presence of free product at all of our monitoring wells. We also increases the soil/vapor sampling under tank 5. These are soil/vapor probes that detect fuel vapors. Subsequent to the draining of the tank, we conducted visual testing of tank 5. This is a very lengthy process. In addition to draining the tank, it has to be vented and cleaned. Because it's such a large facility, we have to install scaffolding. It took us about two months to do 'visual testing'. That is a visual end to end, top to bottom inspection of all of the repairs and anomalies and actions within the tank. As part of this anomaly investigation, we did what we call non-destructive testing. They put a vacuum box on all of the repairs that looked unusual or what we call 'anomalies'. If the vacuum seal didn't hold, it was defined as a failure and a potential source of leak. That was done for all of the identified anomalies. To date we have identified 17 anomalies that have failed the vacuum box test.

So our response strategy is that, we have vested interest to keep our drinking water safe. Our strategy is to provide early detection, study the groundwater movement and continue to make facility improvements... including collecting sampling data for models and make the correct decision making. We follow all of the regulations and continue to conduct sound engineering processes to ensure that the water is safe. We've taken this approach from two sides, one is the environmental and the other is the facility and operations. I'm not going to describe all of the activities that we do that are illustrated on the slides but we continue to make improvements. We continue to evaluate opportunities to enhancements including secondary like considerations. As I've described, we've installed a hatch on the water source, we've implemented the Milcon for FY15 and we're also continuing to implement the regulatory approved groundwater monitoring plan. That's basically all I have to talk about.

(Ernie Lau, HBWS): Aaron, the water-tight hatch on the shaft to the Navy's water source, is this in the pump house? Where are you at installing the water tight doors in the lower access tunnel itself?

(Aaron Poentis, NAVFAC): Yes it's in the pump house. That is part of the Milcon project which is slated for FY15 project under the MilCon contract. The complete design has not been completed. It still needs congressional approval before scheduling. I'll get you a more specific answer.

(Ernie Lau, HBWS): **You mentioned the 3-4 year tank maintenance cycle, can you describe it in more detail? What is the basis for this modification of a process for above ground tanks and how you can apply it to an underground storage tank? Also, what is the justification of a 20 year life after these maintenance activities. How many of these tanks have gone through this modified process and when? What are the findings of the maintenance process of the other tanks that have gone through this process?**

(Aaron Poentis, NAVFAC): I need an expert facility person to speak on that but it is based on a modified API 653 process which is designed for above ground tanks. It involves draining the tank, looking for defects and we've made modifications to that.

(Gary Gill, DOH): Let's document *all* of the questions that cannot be answered at this time. We'll get these questions to the Navy so that we can get responses prior to the next task force meeting so we can be the most productive. We have two so far right?

(Steven Linder, EPA): **To add to those questions, what types of changes have been made to that modified API 653 procedure have occurred over time from tank to tank. What went wrong with Tank 5 and why and what corrective actions have been taken place to correct this process going forward?**

(Steven Ononue, Moanalua Valley Community Association): What was the nature of these 17 holes, were they cracks, pinholes,...

(Aaron Poentis, NAVFAC): The failures have been faulty workmanship of the repairs and not the process that we implement. Like I had describe, tank 5 had passed the tank tightness test before it was taken out for maintenance and it failed after the repairs were done. We have a workplan being developed by the contractor that will be submitted this week, and that will address the warranty aspects of reevaluating the work that was done.

(Gary Gill, DOH): You just characterized all 17 leaks as workmanship problems, I'm not sure we have received reports that detail on how 17 leaks and whether they are pinholes, cracks or what. Also, although 48 anomalies that were vacuum tested and 17 failed, the remaining 600 or so discrepancies have not been tested, is that correct?

(Aaron Poentis, NAVFAC): The contractor as part of their warranty efforts will now go back and vacuum test every one of the remaining 600 repairs.

(Gary Gill, DOH): In summary, over 600 repairs were made to this tank, roughly 47 have been tested and of those 47, 17 failed the vacuum test. Does that mean that the ratio, about a third, of failures to repairs being tested can be extrapolated? So we can anticipate a third of all of those tested will fail.

(Aaron Poentis, NAVFAC): I wouldn't characterize it in that manner. They did a visual inspections were made to determine which ones were warranted additional assessment, those 47 or so anomalies underwent further investigation. So I don't think it's fair to characterize it as a straight line assessment that we would get the same percentage of failures since our initial take was driven by visual inspection.

(Gary Gill, DOH): Is there another method that the Navy is using to visually identify and inspect for these anomalies?

(Aaron Poentis, NAVFAC): We are currently using the vacuum box testing but there are other "non-destructive" methods we have used as well. As part of the warranty work, there efforts in place look at the possibility of removing the plates. But we do not have approval for that work as of today.

(Gary Gill, DOH): Again, we're talking about ¼" steel plates that are welded and patched together and the original steel is over 70 years old. Is there any way that the Navy can assess the amount of corrosion or pitting or thinning of the walls from the outside of the tank?

(Aaron Poentis, NAVFAC): No, the inspection process is conducted from the interior.

(Gary Gill, DOH): **How would an inspector know looking from the interior how much of the original 70 year old ¼” steel remains?**

(Aaron Poentis, NAVFAC): There are processes and I will take that back as an action item to response after talking to the experts.

(Ernie Lau, HBWS): The plan is to test all 600 repairs?

(Aaron Poentis, NAVFAC): That’s being discussed as an option. The work plan still needs to be approved.

(Ernie Lau, HBWS): **Can you provide more details about what “workmanship” error means for the 17 failures in terms of root causes and locations?**

(Aaron Poentis, NAVFAC): It varies but it has been described as welds that have been over sanded or other efforts that were not specifically part of the repair effort. I would like to get a facility guy to answer that question in more detail.

(EPA): **Aaron can you describe any and all characteristics or qualities that would lead to the definition of a visual anomaly of the 47 areas of concern?**

(Aaron Poentis, NAVFAC): I would like to have that addressed by the individual that actually did the inspection and evaluation process. We’ll bring that up for the next meeting.

(Gary Gill, DOH): That would be your contractor?

(Aaron Poentis, NAVFAC): Contractor or oversight team

(Gary Gill, DOH): In other words, what does it have to look like to be an anomaly? Right?

(Gary Gill, DOH): (summarizing question in audience): Over what time period were the 600 repairs made to tank 5?

(Aaron Poentis, NAVFAC): it was done over a 4 year process including entire cleaning and inspection and repair. I don’t have the breakdown.

Dan (public): I’m curious why the Navy has not prepared to have a technical facility person on hand to answer questions when you knew that these types of questions would come up?

(Aaron Poentis, NAVFAC): We were planning to bring a facilities person but they were not available.

(Andrew Pereira, KITV News): We have a couple of sources telling us that there’s a mandated stop during the filling process at the 50 foot level in order to test if there are any leaks occurring

at that level before filling up to the remainder of the tank. My sources tell me that that process was not followed for tank 5. In other words, the tank was filled to the top without doing the automatic stop at the 50 foot level.

(Gary Gill, DOH): **To restate the question, what was the Navy's process in refilling tank 5 and did they incorporate stops in increments or at least at the 50 foot level?**

(Aaron Poentis, NAVFAC): I'm not prepared to answer this question. I'll have to refer to the facilities guy to be answered prior to the next meeting.

(Gary Gill, DOH): We'll get the answers to these questions in writing prior to the next meeting hopefully. I'd like to go on to something that hasn't been address, what has the Navy done to respond to the leak in regards to the actual effort to remove the free product or jet fuel from the area outside of the tank or where ever it may be and the effort to do additional monitoring of the contamination of groundwater? Aaron can you address that? What is the Navy doing to clean up this spill and monitor the contamination?

(Aaron Poentis, NAVFAC): As I've described earlier, we've accelerated upon the initial release reporting, the monitoring efforts for all of our groundwater wells as well as our drinking water source at the water shaft. We've also accelerated our soil/vapor monitoring and oil/water interface efforts and that's designed to ensure that the quality of the water remains safe. In addition to these efforts, we have initiated the installation just last week of two additional sentinel wells that are being drilled north of the facility. Those are designed to help better refine the groundwater modeling efforts that we have in place.

(Gary Gill, DOH): When will those two wells be online and when will we have data from them will be available?

(Aaron Poentis, NAVFAC): Our schedule is to have these wells completed by October and baseline sampling shortly after and by year end we should have data from those two wells.

(Gary Gill, DOH): Just to make it clear, the Navy has projected that 27,000 gallons have leaked from the tank, how much of this has been recovered?

(Aaron Poentis, NAVFAC): We have not recovered any product to date. But we have a work plan that is being reviewed by your office, we're waiting comments, for the site characterization efforts and that is to describe the extent of the petroleum contamination that may have been released from tank 5 and also evaluate options to remediate and product recovery and treatment methods if deemed feasible.

EPA: Aaron has the Navy done any work on estimating the probability to recover... what's feasible to recover?

(Aaron Poentis, NAVFAC): We are currently evaluating various cause to look at the possibility, one is the warranty work we are seeking to have the contractor which may or may not involve removal of plates to get to any free product. In addition, we are looking at whether there is any interstitial space between the tank and the concrete and if there is, if it's feasible to recover product within the interior structure behind the steel plates. We are looking at the opportunities and evaluate options of free product recovery.

(Steven Linder, EPA): What are your thoughts of the probability to recover 80% of the product?

(Aaron Poentis, NAVFAC): We have not calculated a percentage of capability of recovery.

(Gary Gill, DOH): Do we have a timeline? When do you anticipate action?

(Aaron Poentis, NAVFAC): As I mentioned earlier our work plan is being developed to be submitted this week based on input on the work plan, we'll have a better idea on the schedule and get that to you.

(Gary Gill, DOH): Do we have a range? End of the year?

(Aaron Poentis, NAVFAC): We're hopeful by the end of the year.

(Steven Ononue, Moanalua Valley Community Association): You would have to cut the tank in order to get to the fuel? So it's stuck in the concrete basin?

(Aaron Poentis, NAVFAC): There are several COAs or courses of action that we are evaluating. Most of the courses of action that we're looking at look at working from the interior of the tank, not the exterior. We are evaluating whether or not those interstitial spaces exist.

(Steven Ononue, Moanalua Valley Community Association): It didn't just leak out, go down the tunnel to Pearl Harbor did it?

(Aaron Poentis, NAVFAC): Our assessment indicates that it's within the interstitial space or passed through the concrete into the basalt.

(Gary Gill, DOH): The question is where may have the spilt material have gone. This is a display that 19 of the 20 tanks had staining under in the borings from beneath the tanks. And the one tank that doesn't have staining in the core, has reported leaks in it historically. So we know that there is petroleum product in the basalt below the concrete lining of each of these steel tanks and we know there's petroleum product that has traveled 80-100 feet down into the groundwater below. So the question for tank 5 remain, is there anything that could still be trapped in between the concrete and steel tank or has it seeped through the concrete and is on its way to the groundwater? And I think the Navy's response is we haven't collected anything and we're looking into courses of action to find out since January.

(Ernie Lau, HBWS): I know this sounds like an interrogation of the Navy but it's important that the task force understand the issues and data about what's going on with this facility. **In terms of the water quality results since January and the three points below each tank testing for soil/vapor, what have you seen under tank 5 in terms of elevated levels of petroleum vapor pressure since the release in January? There is a monitoring well 2 near bottom of tank 5 that goes to groundwater, have you seen in any of your monitoring wells higher levels or fluctuations or increases in petroleum products in any of these points under each tanks. What are the results?**

(Aaron Poentis, NAVFAC): Upon discovery and identification of the release, we did see an increase in concentrations of the soil/vapor data under the tank and over time it did radiate out a little bit over the other tank monitoring wells. But they have subsided over time. For the groundwater monitoring that was accelerated, we initially had an increase in MW2 which is directly under tank 5, but months later, it returned to historical levels found prior to this release.

(Ernie Lau, HBWS): Would you say that the 27,000 gallons has moved through the unsaturated zone of the basalt, the unsaturated zone and has hit the groundwater that plume of material has moved passed the location of your monitoring well? Is that why you see a peak and then it went down again?

(Aaron Poentis, NAVFAC): That is one plausible explanation but there's also competing explanation and that's part of the site characterization efforts to identify this. It may not have moved that quickly and may have been a displacement by other material. Or the fact that we have filled the tank, caused an expansion of the tank but those kinds of information will be defined to our site characterization efforts we are conducting.

(Ernie Lau, HBWS): **I would like to request that the water quality data including the soil/vapor monitoring data be made available for the task force, historically from when it was first collected all the way to the present. This would include the three vapor points under each tank and the monitoring wells inside and outside the facility that the Navy is currently collecting.**

(Aaron Poentis, NAVFAC): Probably 2008 is when we had the first reports.

(Steven Chang, DOH): There are three monitoring devices under each tank.

(Gary Gill, DOH): Does DOH have this information as part of their quarterly reports? I don't know if we have the most recent stuff though.

(Aaron Poentis, NAVFAC): We submit them as required.

(Gary Gill, DOH): DOH can put together that data for the task force and if there's data that's missing or additional data that is required, then we can ask the Navy to provide that.

(Senator Gabbard): Back in June, I know that BWS and DOH were frustrated about how long it was taking to get work done. It's now early September, is there some reason why it takes so long, considering the seriousness of what's at stake here, to get things working?

(Aaron Poentis, NAVFAC): Part of it is securing the funding, the other part is that it is a prescribed process, we have to develop work plans, health and safety plans, and environmental documentation because there's endangered species in the area. That process is not inherently quick. There's limitation on equipment available on the island. The technical experts that do this type of work had to be put in place. I know that it seems like we took a long time but we did try to expedite things.

Audience question: Is the installation of the two monitoring wells going to be done in house or is going to be contracted out?

(Aaron Poentis, NAVFAC): It was contracted was awarded in May.

(Gary Gill, DOH): I want to move to agenda item 5a to address the short and long term effects on the leak including effects relating to the health of residents, safe drinking water and the environment. I know the BWS has been monitoring the municipal drinking water wells so Ernie if you could bring us up to date that you've found that could be impacting the Honolulu drinking water from this spill.

(Ernie Lau, HBWS): Ok thank you. Since learning of the release, we've shut down the five nearest drinking water sources that BWS controls then we went through two rounds of testing those wells for petroleum products. Once we found that everything was non-detect, we put those wells back into service. Since that time, we've initiated quarterly monitoring the five wells and we have as of July in the last round of sampling still continue to find non-detect for petroleum. And we will continue in this quarterly monitoring phase forever basically until we can be sure that no contamination possibly is migrating towards our drinking water source.

(Gary Gill, DOH): Ok, so does BWS through your engineering, considering past history of releases and this most recent release in January... do you have any particular theory or estimate of how fast the contaminants may be moving and in what direction and how close to the drinking water wells the contamination may be?

(Ernie Lau, HBWS): You know, that's a good question. I wished I knew the answer, if I did with any surety I wouldn't be participating in this task force. That is the concern that we have with this complex geology and from the Navy reports they have changed their idea that the

groundwater gradient flows from Mauka to Makai but subsequently from their own reports, they have indicated a potentially northwesterly flow towards our Halawa shaft. So we don't know if contamination is emulating from your facility and in what directions and that's why we're here.

(Gary Gill, DOH): so the Navy has reported to be installing two monitoring wells to the North of this facility and hopefully we'll have results in a couple of months from that. Would you say that's an adequate amount from BWS standpoint?

(Ernie Lau, HBWS): I would say that's just the beginning to properly characterize the contamination that may be emulating from the facility from past or current leaks, we believe more monitoring wells will be needed. Right now you have a facility that stretches out 1000 feet, they will be very lucky if they capture plumes coming towards those two monitoring wells... sort of like trying to find a needle in a haystack. More monitoring wells will eventually be needed and hope that DOH will be open to that. **I heard about a site characterization plan mentioned, which from what I understand is trying to characterize current contamination in and around the facility, we would love to have the opportunity to provide comments on that work plan that was submitted to DOH.** Two monitoring wells is a good start but we don't think it should stop there.

(Gary Gill, DOH): The other concern for drinking water is the Navy's own system and it's been reported in the publi that trace amounts of naphthalene and other petroleum constituents in the Navy's own drinking water source. Can you describe what the Navy's done to continue to monitor the drinking water and what you may have found in since the January spill.

(Aaron Poentis, NAVFAC): We have had *not* persistent detections at the lowest sensitivity of the EPA approved test method. So we have found them but they are not persistent. However, our drinking water has been safe. Concentrations have never been close to any action levels or exceedances of the Safe Drinking Water Act and all of the reports have been submitted to your office for evaluation and assessment.

(Gary Gill, DOH): Thank you for that. So the Navy has not seen an increase in its own drinking water since the spill, is that correct?

(Aaron Poentis, NAVFAC): Yes that's correct

(Gary Gill, DOH): Let's get something clear from our Drinking water staff, a reference to an EPA standard for petroleum contamination like agricultural pesticides, what is the standard for safe petroleum contamination for our drinking water?

(Stuart Yamada, DOH): There's no maximum or standard because the basic understanding is that it should not be there.

(Gary Gill, DOH): Just to be clear, there are certain safe standards for agricultural pesticides that BWS has an intricate process of stripping out carbons if we find that but there's no such process for petroleum and it's byproducts for drinking water because the expectation is that it should be zero.

(Stuart Yamada, DOH) I think that's fair to say.

(Gary Gill, DOH): So we'll never reach a threshold in the law because none is allowed. Is that accurate because I don't want to play the numbers game? If we find petroleum products at any level in drinking water, is it acceptable under the law?

(Stuart Yamada, DOH): Philosophically it's probably not, under the law I think that our attorneys could argue otherwise. The other constituents of petroleum, particularly those associated with gasoline, namely Toluene, Xylene and Benzene.

(Erwin Kawata, HBWS): Xylene has a standard in drinking water, under the law as well as Benzene and Toluene.

(Gary Gill, DOH): Are any of those constituents, the benzene, toluene, the xylene... are those expected to be found in the jet fuel that was spilled in January?

(Erwin Kawata, HBWS): The answer is yes, even in the jet fuel.

(Aaron Poentis, NAVFAC): However certainly, for all of the petroleum constituents that are regulated and that have a standard, we have not exceeded it.

(Steven Linder, EPA): I just wanted to clarify. Are there any other constituent of fuels that may have been stored at Red Hill that have not yet been tested at the Red Hill Shaft

(Aaron Poentis, NAVFAC): Not that I'm aware of. We test for all of the constituents for all of the stored material.

(Ernie Lau, HBWS): Aaron there have been references to Aviation gas, Mogas and Navy special fuel... bunker seed maybe, did they use EDB as an anti-knock agent?

(Aaron Poentis, NAVFAC): I'll have to take that down. I believe those fuels were stored but I don't know if they had that knocking agent.

(Ernie Lau, HBWS): In other situations in New Mexico, EDB is problem in the groundwater and should be monitored here. Is it being tested at the monitoring well now? If not, I'd like consideration that it be added to the list of tested constituents.

(Gary Gill, DOH): **You want the question added... should the navy be testing for other fuel additives such as EDB?**

(Ernie Lau, HBWS): **It should be based on what was stored in its 70 year history of stored fuels. There may be additional constituents.**

(Gary Gill, DOH): Beyond threat to drinking water is there concern of any other environmental impact from these storage tanks leaking or otherwise, like vapors or explosion or dangers to native or endangered species?

(Steven Ononue, Moanalua Valley Community Association): My constituents would be concerned of any explosion or fire threats to the neighborhood. I believe that this facility was designed to be bomb proof?

(Aaron Poentis, NAVFAC): It was designed to be partly away from main base, partly secured.

(Steven Ononue, Moanalua Valley Community Association): If Pearl Harbor were to be attacked for instance, they would still be able to get fuel through gravity feed from the top. That design is so that it wouldn't need to be pumped to Pearl Harbor, let's say if it was attacked. Are there any ignition sources at the facility from vapors from any spills?

(Gary Gill, DOH): Is there an explosion danger anywhere in the Red Hill Facility or surrounding communities and homes?

(Aaron Poentis, NAVFAC): Fuel is designed to burn, but certainly we have contingency plans in place to minimize that potential.

(Steven Ononue, Moanalua Valley Community Association): Fire extinguisher systems?

(Aaron Poentis, NAVFAC): We have a fire suppression system that was recently upgraded. There's a venting process. I think it's a foam process system. We exercise and coordinate with DOD and municipal fire departments to respond. The chances are remote to none, however we implement all of these contingency plans specifically to mitigate that potential. Security to the facility is 24 hours a day, it's gated and manned.

(Gary Gill, DOH): Any other broader environmental concerns? Senator I hope we're satisfying the requirements of your resolution so far. We'll move on to 5b regarding the Groundwater Protection Plan. Steve, do you want to start the presentation on this?

(Steven Chang, DOH): *DOH powerpoint presentation available as an attachment.*

I want to get everyone up to speed on the historical aspects of the facility. We just promulgated requirements of the Energy Policy Act of 2005. One of the key provisions is that any new tanks that are installed, like at your corner service station, they are required to have a whole series of preventative measures installed. Improved leak detection, secondary containment, spill buckets and overfill protection for under dispenser systems. We have over 1200 gas stations in Hawaii. The key thing is that there are 46 field constructed tanks. Red Hill tanks are the largest but the next smallest on is 1 million gallons down to 20,000 gallons and located on Kauai, Mililani, and Pearl Harbor. All of our field constructed tanks are 70 years or older, that's a reality. And as part of our current UST regulations, they are not required to comply by the same standards as someone who's putting in a brand new service stations. Only the items in black. If there's a release, they need to follow release response reporting and investigation process and to develop a release action plan. They are subject to closure. If they are decide that they are no longer operating their tanks, there is a closure process that they must abide by and they are subject to enforcement. But those are the only things that field constructed tanks are required to do.

Our involvement with Red Hill tanks began in 1986 when EPA required all underground storage tank owners to register with DOH. Navy Region Hawaii was identified as the owner of the tanks and Naval Fuel Supply operates the tanks for the Navy. In 2008 we received information in a report that highlighted the Navy's release detection system probably from 1947 to about 1983. It was a very rudimentary system installed on the outside of the tank that would be able to collect any fuel spilled outside of the tank. The system was very inaccurate and by about the late 1970s and 1983 the Navy took out the system because they could not confirm the accuracy of the system. The issue is that over the course of that 40 years there have been releases that have occurred. The information is sketchy, sometimes it's in the form of a release rate over time or sometimes there was an actual quantity calculated. We know Tanks 1 and 19 were taken out of use. Also in the record there were six tanks where releases were not detected by this system but in 1998 they started doing borings based on that history, under all of the tanks from the lower access tunnel. The results show, as you can see here, there was petroleum staining in the basalt in 19 of the 20 tanks and in some places found liquid where fuel mixed with the rainwater. Based on this information in 2002, the Navy reported a confirmed these releases to DOH for 19 of their 20 tanks.

Diagram showing 20 tanks and releases from borings is attached.

Between 2005 and 2009 the Navy started drilling monitoring wells within the complex. This is where most of the information we have about petroleum in the groundwater come from. You can see monitoring well number 2 has always shown the highest concentration of petroleum

product and the most constituents. As we move away from the tanks down towards the drinking water wells, we see the concentrations decreasing. The critical thing here is that the tanks are located 80-100 feet above groundwater and this is the Navy drinking water source through an infiltration gallery, where water flows into it and it's pumped out for Navy use. The distance from the infiltration gallery to the nearest tank is 1500 feet.

The question is, 'what is the DOH doing?' As part of the regulations regarding release response. They give us notification 7 days upon confirmation of a release. The first thing they are supposed to do is to remove as much product to prevent further release. It took them three days to remove the fuel from tanks. During the site characterization, if they identify free product they are required to attempt to remove any free product and continue to do investigations... what we call, looking at the extent of contamination. Once a release has occurred, how far has it moved away from its site. With a normal service station if they report a release or a huge loss of product, in most cases those tanks are removed from the ground and look at the soil and the groundwater. Of course in this situation, how do you remove a 12 ½ million gallon tank buried 100 feet below ground? We are working with the Navy to look at methods to get a better idea of what's happening under tank 5.

The key thing is that tank 5 represents a very current release. The information latest information before that is 1983. We have seen any additional studies from 1983 to the present. We have a fresh product somewhere on the sides of the tank or below the tank and based on historical evidence, it eventually will reach the groundwater. The information that we got is that somewhere between the 90-100 foot elevation, these pinhole leaks appear... you can see that you can follow this line down the side of the tank to the stain in the tunnel. There is three feet of concrete on the sides of the tank and we don't know if it moves outwards in that direction or simply moves down the side of the tank.

The basic premise is that the steel tanks expand and contract over time so there's a good possibility that it is creating an interstitial space between itself and the concrete. The fuel could be in the concrete or in the basalt, it's hard to tell. It's the best guess we have at this time. That's why there was some talk about possibly removing plates to see if how much product has migrated downward and collected.

(Ernie Lau, HBWS): Can you show me monitoring well 2 which shows the highest level relative to tank 5?

(Steven Chang, DOH): Monitoring well 2 is located in the tunnel, maybe 50 feet north of tank 5. It's very close to tank 5. The closest of the four monitoring wells in in the tunnel system.

(Gary Gill, DOH): So the monitoring well is in the tunnel and it goes straight down between the rows of tanks.

(Ernie Lau, HBWS): Have you seen spikes or elevations in the monitoring wells since the releases?

(Richard Takaba, DOH): Historically it's been 1-2 ppm, spiked to I think 4 or 5 ppm and back down. (*Inaudible*)

(Gary Gill, DOH): MW 2 is the most contaminated but it does ebb and flow, even before this release between 1-3 ppm.

(Ernie Lau, HBWS): What was the highest spike and when?

(Richard Takaba, DOH): *inaudible*

(Gary Gill, DOH): We'll get the numbers for the next meeting since it's the most telling of the monitoring wells and the closest to tank 5.

(Senator Gabbard): Can you show the map of the wells and show where the two new wells are going to be?

(Aaron Poentis, NAVFAC): Here and here (indicates on map)

Just to put it in context, can you explain the regulations for reporting. I know it's spotty but when did we have a regulatory requirement to report?

(Steven Chang, DOH): That would've in 1984 when the federal rules were adopted but reporting was always a component even with the deferral for field constructed tanks.

(Aaron Poentis, NAVFAC): I think that the point is upon adoption of the rule, we've made every effort to comply whenever we discovered a release. The actions of the past preceded the regulations and were just the common practice at the time.

(Steven Chang, DOH): Up until 1995 documents from the facility were considered classified. In 1998 is when we start to see Navy actively doing work to investigate the historical releases under the tanks. First that was doing the borings under the tanks and then the installation of groundwater monitoring wells. The process is consistent with what we expect with a release response activities but it just take so long that we really can't tell how old those releases really were. 1940 or 1980s? Who knows?

(Aaron Poentis, NAVFAC): But subsequent to those efforts we did do the risk assessments like the 2008 Groundwater protection plan. And the data from the groundwater monitoring efforts indicate that we have not exceed any site specific risk based EALs.

(Ernie Lau, HBWS): Those green dots on the map, what do they represent?

(Steven Chang, DOH): The one up here is DLNR deep monitoring well to measure conductivity and these two wells are from the Navy as part of the CERLA/superfund cleanup. During the earlier periods, when they were storing the heavier bunker seeds or oils, they would accumulate of sludge and water so it was past practices of the Navy to empty that sludge and run it down to the pond here for disposal. There are articles documenting the smoke coming from these burn pits. There have been investigations whether contaminants are going directly into the stream.

(Ernie Lau, HBWS): **Are those wells being tested and what are the results from those?**

(Steven Chang, DOH): Yes, they are being monitored.

(June Shimabuku, NAVFAC): One of the oily pit wells and DLNR one is monitored. (inaudible)

(Gary Gill, DOH): We're hearing that there's quarterly testing at the old oily waste disposal site. Please speak loud for those on the phone to hear.

(Ernie Lau, HBWS): And what are you finding trace petroleum contamination in these wells at any level?

(June Shimabuku, NAVFAC) there's nothing above risk levels.

(Steven Chang, DOH): I think we still are seeing levels.

(Gary Gill, DOH): Can we include data from these monitoring wells?

(Barry Usagawa, HBWS): **There are going to be two monitoring wells installed to the north of the facility, why aren't there any monitoring wells planned for the south side of the facility?**

(Aaron Poentis, NAVFAC): The existing data we have to date, and certainly we will reevaluate it as this new data comes in, indicates that the hydraulic gradient, the elevation is higher to the south than the north. It seems counter intuitive but that's the existing information that we have from the data from existing wells.

(Steven Chang, DOH): For those who are not familiar, this is Moanalua Board of water supply drinking water well here, Halawa is here and Navy drinking water source is here. And then BWS has three additional well locations, like Aiea.

(Ernie Lau, HBWS): **Does the Red Hill facility overlap with the Halawa aquifer system or the Moanalua aquifer system or Waimalu actually. Not the physical gradient but the water table levels itself, height above sea level.**

(Steven Chang, DOH): The information I've heard goes, if you go in this direction there's a six inch drop so it's moving towards Halawa supposedly.

(Gary Gill, DOH): We don't have the answers to the questions now so let's record it. In regards to the hydrogeology, that might be a whole another conversation.

(Steven Chang, DOH): We've spoken to USGS and everybody about putting together a picture of the aquifers in relation to each other.

(Aaron Poentis, NAVFAC): We're evaluating that. Ernie, my understanding is that you folks are doing that too with USGS. We're using the same model. It seems a little redundant but we're going to do that and submit it to the department for evaluation.

(Ernie Lau, HBWS): Actually we've just executed a cooperative agreement with USGS to do expansion of the Pearl Harbor groundwater modeling including this area, quite a number of months ago. We're close to confirming the elevation data that we can measure the water table elevation accurately from all of these different locations. The Moanalua wells or drinking water system is in the same aquifer system that some of the fuel facility overlies and the water table elevations are almost two feet higher than the Waimalu side. So Barry's question is a good question, why no monitoring wells to the south to look at the potential contaminant migration to our Moanalua wells.

(Gary Gill, DOH): As you said earlier, you're not satisfied with the two wells going in and they are only on one side of the facility and it's fair to say that the DOH is proposing to the Navy additional wells, both on the north and south. Which segues us into the next question by the legislators which is what are the response strategies to mitigate the effects of future leaks at Red Hill? So in addition to more monitoring wells addressing this currently release and historical releases, what do we do to prevent leaks in the future or contain them and collect them before they get into the groundwater. The Navy, EPA and the DOH are in amidst of an order on consent, negotiated agreement on the kind of work that needs to be done that prevent additional leaks in the future. So not just responding to this but what kind of upgrade to the tanks, secondary containment, double lining tanks, things like that would be necessary to prevent the future leaks or if there's a future leak to accurately describe and contain it from going beyond the facility into the drinking water. So I have expressed clearly to the Navy and to the public from the DOH standpoint, and in principal we've heard agreement from the Navy that that would be a good thing to do, the question is 'what is the technology that is out there?' EPA has assessing that into the technical market as what to technology would be applied to provide better containment and leak detection on the tanks at Red Hill, to the extent that they remain in service. I think that we will get to the last part in section D here. Let's move onto section C which is ways to improve communication between the United States Navy, the State

and the public. This task force is one way of doing that but the public and the task force are here, we're hoping for suggestions, 'is there some method that you would like to have to increase or enhance communication?'... regular monthly newsletter, or whatever you'd like to suggest and would be something that we'd like to incorporate and include in our recommendations.

(Steven Ononue, Moanalua Valley Community Association): We do have newsletters that go out, if you'd you like to include that report for the Moanalua Valley Community Association, as well as Moanalua Gardens Community Association. You can submit the article to me and I can submit it to them.

(Gary Gill, DOH): How often do those newsletters go?

(Steven Ononue, Moanalua Valley Community Association): Usually every month.

(Gary Gill, DOH): Ok. Great suggestion that there's a regular community newsletters, at least two where we can provide regular updates at least to those two communities.

(Steven Ononue, Moanalua Valley Community Association): You are welcome to send a representative to speak at our monthly board meetings as well as Salt Lake's community board.

Audience: Will the task force have a website?

(Gary Gill, DOH): We don't currently have a plan for a specific website for this task force but DOH has a website that is regularly updated so we can submit any reports or findings to the DOH website. There's a lot going on in the DOH so we'd have to make it easy to navigate and find but that's possible. So regular updates to websites would be a good suggestion.

(Ernie Lau, HBWS): I have a suggestion in a handout to improve communication and collaboration to address this important issue here. One suggestion is to create one common technical library for the tons of information like its history and also interesting to hear someone suggest a website. I'll also suggest that this information here but put on a website and because a lot of the issues are very technical, maybe some of the task force member will struggle to deal with some of the technical issues like groundwater hydrology, chemistry, fate and transport modeling that maybe the task force could create a subcommittee of the technical experts of all of the stakeholders and we could work together to digest some of this information on history of the facility, past releases to future studies needed. But most importantly, on the bottom there on items 5 and 6, we feel that the proper design of monitoring wells and construction be done very consistently to avoid any problems with data being unclear and uncertain. And that the monitoring well sampling be looked at and be done very consistently and thoroughly to provide best data. Again, it would be like garbage in then garbage out. If your monitoring wells are not

well constructed or if they are constructed differently from one location to another.... It's like apples and oranges. And also your testing data, your testing protocol for the wells can be done very consistently across the board on all of the monitoring points. So those are my suggestions. A common electronic library to contain all of the information easily and accessible to the public and the agencies and stakeholders, also free access of information through an online access. Also a technical subcommittee of this task force to look at the highly technical issues to digest the large amount of information regarding this facility.

(Gary Gill, DOH): Excellent. Any response to BWS suggestions?

(Ernie Lau, HBWS): Can I also suggest that the technical subcommittee meetings be open to the public as well?

(Gary Gill, DOH): If it's a subcommittee of this committee, it will be covered by the sunshine law. So that would be a public meeting with an agenda posted at least 6 days in advance.

(Senator Gabbard): So the technical subcommittee would translate it into lay language.

(Ernie Lau, HBWS): Yes, so that it's digestible for folks like myself, or yourself Senator and other members of the public. There are a lot of technical resources in this room and outside the water commission, at BWS we have geologist, hydrogeologist, chemist and water quality experts, USGS, the Navy's experts, the health department's experts, there may be other like the University of Hawaii even.

(Aaron Poentis, NAVFAC): On a side note, I'd like to mention that the Navy Region does maintains a website that have the various press releases, fact sheets and some of the presentation materials that we have provided over time and maintained. We'll certainly provide that link.

(Gary Gill, DOH): Any other suggestions for communications? We can incorporate suggestions so far into a report for the next meeting. It's up to the task force if they want to create a technical subcommittee but if there's a desire of anybody in the room has technical expertise and wants to spend time doing technical reviews, please identify yourself to our staff so that we can assess the popularity of that idea. I'm not sure who would want to do more work.

(Ernie Lau, HBWS): I volunteer myself.

(Gary Gill, DOH): I thought you might.

(Gary Gill, DOH):: I'm going to move onto the implications of shutting down the Red Hill Facility and the Navy response to that and maybe let me try to explain some of the conversations that have gone on so far on this topic. Generally, amongst the public and amongst the different

layers of the Department of Defense... To put it simply in my view, we're not talking simply of just one Navy here, there's the Pacific Command and the Pearl Harbor Command and the facilities command and there's the Defense Logistics Agency that owns the fuel and there's guys in the pentagon, God knows who they are, still can't figure that out but they all have something to say about this question from their points of view. If can simplify it, there are those who may believe that continuing the use of these underground storage tanks, these 70 year old tanks, as well as they have been maintained and all creates a liability of concern for the owner of the fuel. These things have leaked, they will continue to leak. Around the nation, tanks have leaked so.... The DOD is looking at ways of reducing that liability including closing old facilities and perhaps privatizing the fuel supply or building new tanks somewhere else. The concept of closing down Red Hill is not something that is just a community idea but is something that in my experience with conversations with various decision makers, is something that is on the table. If we wanted to protect the groundwater, we would remove these tanks. These tanks underground as they are configured are inherently, in my view, a threat. They have leaked. Tanks leak. There's always going to be that threat as long as we have these tanks. We can mitigate that threat but the threat continues to exist as long as those tanks exist. On the flipside is what we hear from different part of the military is the functionality of these tanks is not something that the Navy wants to give up ok? They have huge capacity, strategic interest, operational interest of the Navy with the ability to provide fuel to various ships that come into Pearl Harbor is of high importance to many people in the Navy, at the highest levels. This is not something that you are going to find too many admirals with lots of stars on their shoulders going, 'oh yea, we don't need this.' They really feel it's an important facility to maintain. I put out my political perspective in a sound bite which I will repeat here, which is, if the Navy intends to continue to operate this facility in place in some capacity, it ought to be upgraded to the highest standards of double wall containment and leak detection. That's not a good sound bite. A good sound bite is, 'fix it up or shut it down.' That's what I've been saying ought to be on the table here. To what extent does this facility for Naval defense purposes need to be retained and how do we balance that with the need to have the highest possible of protection for the groundwater and drinking water which is a public trust. It's not the Navy's. They don't own the groundwater. That is owned by everyone in this room and needs to be maintained and protected in trust by the state government and by extension, by the county government. So I'm going to ask Senator Gabbard if you'd like to comment on this since you're the ranking legislator who drafted and passed this resolution. For shutting down the Red Hill facility, is there anything you'd like to add to that?

(Senator Gabbard): I would Gary, and I'd like to ask a question which is can the state require the Navy to have leak detection or secondary containment? Can the state require them to go along with one or both of these conditions, even if the federal government has a deferral?

(Gary Gill, DOH): That's a few billion dollar question really and it's at the heart of the negotiations that we are currently having with the Navy over the consent order. And I don't know if I can give you a definitive answer but simply, 'can the state of Hawaii boss the Navy around pursuant to our state rules and state law?' An argument can be made either way. And it hinges on a couple of things, the way the law is crafted, and our rules, various other laws and the situation as to whether there is an imminent and substantial endangerment to public health and or the environment. But I would think our preferred approach to this is to avoid those kinds of legal contests which could drag out and actually slow down any Navy response which would be to join with the Navy in a negotiated agreement so that we are all on the same page and have a timeline to move forward. That's our preferred option. If that's not successful, then your question is the authority of the state to order the Navy to do something will come into question and likely be litigated.

(Senator Gabbard): My understanding is that there is a precedent in Florida. I don't have the details in front of me but if it comes to that, you would prefer the former route rather than the later. We have to be talking about this, it's on the table.

(Gary Gill, DOH): It's on the table and hopefully will be resolved soon. While we're in negotiations with EPA, DOH and the Navy, we're not at liberty to discuss the exact positions are back and forth at this point but I can say that we will have a better idea in a few weeks.

(Aaron Poentis, NAVFAC): As Gary has indicated, we are negotiating and we are always evaluating opportunities for improvements of the facility. I think what's important is what I had stated earlier which are we have a vested interest. We want to protect the groundwater. According to our data, the drinking water is safe and certainly we want to keep it that way. We want to be a partner in this process. Saying that, the facility is of national strategic asset that we cannot do without. It has the capabilities that cannot be duplicated in the Pacific. The Red Hill facility's physical security and proximity to customers and ability to rapidly and efficiently provide large quantities of liquid fuel to joint base Pearl Harbor and the fleet are essential to our military readiness in the Pacific. We are continuing to make Red Hill work without jeopardizing the environment or the public's health and safety. I think that indicates our desire to operate in a safe environment and in a proper manner.

(Gary Gill, DOH): I invite the task force to chime on the implications of shutting down the Red Hill facility. Anything that you would like analyzed or have included in the report to the legislators? On the task force or in the audience?

(Ernie Lau, HBWS): I understand that there have been analysis or studies about alternatives technologies and what the cost would be for secondary containment. What are the options that were pursued?

(Aaron Poentis, NAVFAC): I've heard of such studies but I'm not personally aware of. That may be a conscious decision of our internal document.

(Ernie Lau, HBWS): **I think that it would be grave importance to the Task force if we could see the studies or at least understand what the options that were looked at and what the conclusions that were found in that study.**

(Aaron Poentis, NAVFAC): I'm not certain if that study is available for distribution.

(Gary Gill, DOH): We can add that to the list of documents we would like from the Navy. I think that it would be safe to say that the availability of documents from the Navy's point of view, is somewhat sensitive. And they are part of the discussions that we are having as part of this consent order negotiations including a broad range of historical documents that we would like to have provided and the method of doing so. That's a big part of the discussions that are going on.

(Ernie Lau, HBWS): When do you think that these negotiations on the agreement of consent will be completed?

(Gary Gill, DOH): I'm going to tell you before December 1st. It is a negotiated situation where at any point, it could conclude or fail to conclude so certainly, I'm motivated to try to get this thing wrapped up soon. I think that in the interest of the public and it will help everyone if we have a clear path moving forward and I would hope that within a month we can have a conclusive determination of which path we will take forward. We're getting close. Any other point 6 questions?

Audience: Are task force meetings going to be a regular scheduled event?

(Gary Gill, DOH): Actually that's a point 7 question that we are about to discuss about future meetings and determining dates.

Audience question: inaudible

(Gary Gill, DOH): So the state of the art technology for your neighborhood gas station is a double lined tank for leak detection. Nothing like that to my knowledge has ever been put in place at the size of these tanks so that's the technical issue. We can all agree that would be great but the question is how would you do, how much would it cost and how fast could you do it. And those are questions I can't answer now.

At the beginning, what I said was what I anticipate is that there would be at least three meetings of this task force prior to December where we need to have a report to the legislature and this task force could continue beyond that but our immediate goal is to get a report to the

legislators 20 days before the session. Generally speaking, I'd suggest your comments on whether we meet a month from now and a month after that. So early October and early November? That would give us time in case we needed a forth one in December and holidays which is always difficult. The next meeting we would get the questions that haven't been answered. We will circulate those and hopefully get the answers to those prior to the next meeting. We would come to the next meeting with a preliminary report for discussion by the Task force. At the October meeting we could add additional suggestions and recommendations and then have a draft final report before the task force in November... Which could be voted on and finalized and submitted to the legislature... with a little bit of buffer, if we need to have another meeting in December.

That's what I'd like to suggest and then Ernie, your suggestion for a technical subcommittee could be something that we could work on between now and the next meeting to be decided. Does that general scheme sound appropriate to you folks? I see people nodding. We don't have to take a vote on it. If anyone wants to meet more or less often, now is the time to say. Ok so it sounds like an adequate scheme going forward. Can we try to do the first Wednesday in October? We have to check on the availability of this room. October 1st Wednesday is the target but we'll confirm with everybody if that works for you.

Is there anything else we need to address before adjourning? If not thank you all for coming, we'll see you in a month.

DRAFT (9/3/2014)