

**Red Hill Administrative Order of Consent Scoping Meetings
Overview and Kick Off
Meeting Minutes 10/26/2015 (0800-0945 HST)**

- CAPT Tufts - Welcome, Opening Remarks
 - Discussed Honolulu Star Advertiser newspaper article of 10/25/2015 commenting that the scoping meetings are beyond the 30-day deadline set in the AOC.
 - Asked that EPA set record straight.
 - Non-disclosure Agreements (NDA) are being finalized and need to be signed.

- Introductions from All (Project Coordinator/Alternate listed)
 - Navy/DLA: Jimmy Miyamoto/CDR Burr Vogel
 - DOH: Steven Chang/Roxanne Kwan
 - EPA: Bob Pallarino/Omer Shalev

- Navy (Jimmy) discussed:
 - Non-Disclosure Agreements
 - DLA/Navy personnel sign and turn in to Jimmy
 - EPA is working with NAVFAC PAC Counsel (Steven Daugherty) on a global agreement
 - DOH has a global memo from Mr. Wade Hargrove
 - Third party subject matter experts (SMEs) to receive forms. Forms will be finalized.
 - EPA suggested a meeting with SMEs
 - Inform SMEs that spokespersons for Red Hill work are EPA, DOH, and DLA/Navy
 - SME participation doesn't mean SMEs can speak to the work
 - Navy/DLA will generate a summary within 10 business days of the meeting in accordance with SOW paragraph 1.3
 - Include contact information
 - EPA requested a draft of the summary be sent to EPA/DOH for review and concurrence
 - A third party facilitator will attend the face to face meetings
 - Requirement to include discussion about QC/QA Procedures and utilize laboratories in accordance with SOW paragraph 1.6
 - Status of Fuel Release Monitoring Systems Report & Corrosion and Metal Fatigue Practices Report Outlines
 - This is not covered in scoping meetings
 - Report outline will be finalized by Tuesday

- EPA lead (Bob), group discussed, Scoping Meeting Purpose and Outcomes
 - Outline of Scoping Document/Report for each Section of AOC SOW
 - Identification of Key Tasks
 - Development of Decision Criteria
 - Defining Success

- EPA discussed Project Framing (Tom and Steve)
 - Group discussed overall project goals/objectives and key criteria for decisions
 - Protection of Groundwater Resources
 - Prevention of Future Releases

- Infrastructure and Procedural Improvements
 - Define terminology (e.g. “protection”, “groundwater resources”, “practicable”)
 - Define standards
 - Define boundaries
 - Process for Reaching Consensus
 - One output will be a list of key risks
 - Prepare a strategy table of achievable and doable alternatives, criteria important to stakeholders
 - Decision and risk utility
 - Principles of leak detection (ROC curves)
 - DOH mentioned the use of the work breakdown structure (WBS)
 - Unified Command Structure
 - Still dealing with emergency situation
 - Navy asked if EALs and SSRBLs are acceptable
 - EPA responded that it depends on how and where measured
 - What’s reasonable?
 - What makes sense?
 - What are the current and likely future receptors?
- EPA Discussed Ensuring Transparency
 - Create a process to show progress
 - Documents and information that can be shared
 - Share all information that’s available
 - Clean or redacted
 - Document Repository
 - Proposed a separate call on how to include/engage SMEs
 - Anticipate being asked to share information
 - SMEs may not agree to sign NDAs
 - Multi-attribute decision making
 - Approximately 1.5 hours
 - Jimmy will forward to CAPT Tufts

Action Items

- Inform Ernie Lau (BWS) of the 10/26 and 10/27/2015 scoping meetings. Start date was 10/26/2015. – POC: EPA
- Sign and Submit Non-Disclosure Agreements
 - All DLA and Navy participants must sign and submit to Jimmy – by Monday 10/26
 - All DOH participants will receive the NDA form from Wade Hargrove
 - All EPA participants will use a global agreement; prepared with NAVFAC PAC Counsel (Steven Daugherty)
 - All third party SMEs will use a form prepared by NAVFAC PAC Counsel (finalized 10/26)
- Schedule a separate telcon to discuss how to include/engage SMEs – POC: Navy/DLA

**Red Hill Administrative Order of Consent Scoping Meetings
Attendees 10/26/2015**

| Name | Title/Position | Phone Number | Email Address |
|-------------------------|--|----------------|--------------------------------|
| US EPA, Region 9 | | | |
| Tom Huetteman | Associate Director, Land Division | (415) 972-3751 | huetteman.tom@epa.gov |
| Steve Linder | Regional UST/LUST Program Manager | (415) 972-3369 | Linder.steven@Epa.gov |
| Bob Pallarino | Hawaii State Project Officer/ Environmental Protection Specialist | (415) 947-4128 | Pallarino.bob@Epa.gov |
| Omer Shalev | Environmental Engineer | (415) 972-3538 | Shalev.omer@Epa.gov |
| Don Bussey | US EPA/ Environmental Response Team- West | (702) 784-8016 | Bussey.don@Epa.gov |
| Phil Meyers | PEMY Consulting (Consultant) | (925) 302-6707 | phil@pemyconsulting.com |
| Douglas Schwarm | Atlas Geotechnical (Consultant) | (808) 282-8314 | dschwarm@atlasgeotechnical.com |
| DOH | | | |
| Keith Kawaoka | Deputy Director of Environmental Health | (808) 586-4424 | Keith.kawaoka@doh.hawaii.gov |
| Joanna Seto | Safe Drinking Water Branch (SDWB), Engineering Program Manager | (808) 586-4258 | Joanna.seto@doh.hawaii.gov |
| Mark Frazier | SDWB, Groundwater Pollution Control, UIC Geologist | (808) 586-4258 | William.frazier@doh.hawaii.gov |
| Bob Whittier | SDWB, Monitoring Section, Environmental Health Specialist, Groundwater Protection | (808) 586-4258 | Robert.whittier@doh.hawaii.gov |
| Roxanne Kwan | Solid and Hazardous Waste Branch (SHWB), UST Section Supervisor | (808) 586-4226 | Roxanne.kwan@doh.hawaii.gov |
| Shunsheng Fu | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shunsheng.fu@doh.hawaii.gov |
| Shaobin Li | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shaobin.li@doh.hawaii.gov |

| Name | Title/Position | Phone Number | Email Address |
|-----------------------|--|------------------------|-------------------------------|
| Josh Nagashima | SHWB, UST Section, Brownfields Coordinator | (808) 586-4226 | Josh.nagashima@doh.hawaii.gov |
| Thu Perry | SHWB, UST Section, Public Participation Coordinator | (808) 586-4226 | Thu.perry@doh.hawaii.gov |
| Rich Takaba | SHWB, UST Section, LUST Team Leader | (808) 586-4226 | Rich.takaba@doh.hawaii.gov |
| DLA | | | |
| Ron Nelson | Strategic Energy Analyst | (808) 473-4563 | Ron.nelson@dla.mil |
| Elton Saito | Project Engineer | (808) 473-1323 | Elton.saito@dla.mil |
| Navy | | | |
| CAPT Dean Tufts | Regional Engineer, Commander Navy Region Hawaii (CNRH)/ Commanding Officer, NAVFAC HI | (808) 471-3926 | Dean.tufts@navy.mil |
| CAPT Mark Manfredi | Chief of Staff, CNRH | (808) 473-3612 | Mark.manfredi@navy.mil |
| CDR Burr Vogel | NAVFAC HI Operations Officer | (808) 471-0196 | Burr.m.vogel@navy.mil |
| Jimmy Miyamoto | NAVFAC HI Deputy Operations Officer | (808) 471-7748 | James.miyamoto@navy.mil |
| Aaron Poentis | Environmental Program Director, CNRH/ Environmental Business Line Coordinator, NAVFAC HI | (808) 471-1171 x226 | Aaron.poentis@navy.mil |
| Janice Fukumoto | NAVFAC HI, Environmental Restoration Supervisor | (808) 471-1171 x229 | Janice.fukumoto@navy.mil |
| June Shimabuku | NAVFAC HI, Environmental Resources and Assessment Supervisor | (808) 471-1171 x350 | June.shimabuku@navy.mil |
| Joel Narusawa | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x222 | Joel.narusawa@navy.mil |
| Tracy Saguibo | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x340 | Tracyjoy.saguibo@navy.mil |

| Name | Title/Position | Phone Number | Email Address |
|-----------------------|--|-------------------------|-------------------------|
| Debbie Loo | NAVFAC PAC, Supervisory Environmental Engineer | (808) 472-1434 | Debra.loo@navy.mil |
| Ross Shimabuku | NAVFAC PAC, Enterprise Action Officer/ OPS PM | (808) 472-1173 | Ross.shimabuku@navy.mil |
| Stephen Fujino | NAVFAC PAC, ME, Branch Manager | (808) 472-1283 | Stephen.fujino@navy.mil |
| Perry Nakaoka | NAVFAC PAC, ME | (808) 472-1337 | Perry.nakaoka@navy.mil |
| Leslie Karr | NAVFAC Engineering and Expeditionary Warfare Center (EXWC), EV | (805) 982-1618 | Leslie.karr@navy.mil |
| Frank Kern | NAVFAC EXWC, CI POL | (805) 982-2149 | Frank.kern@navy.mil |
| Ed O'Neill | NAVFAC EXWC, CI POL | (805) 982-4253 | Ed.o'neill@navy.mil |
| Terri Regin | NAVFAC EXWC, CI POL, AOC/SOW Lead | (202) 433-5196 | Terri.regin@navy.mil |
| Mike Rocha | NAVFAC EXWC Operations, POL Program Lead | (805) 982-3597 | Mike.rocha@navy.mil |
| Stuart Strum | NAVFAC EXWC, CI POL | (805) 982-1616 | Stuart.strum@navy.mil |
| Tom Tehada | NAVFAC EXWC, CI Corrosion Lead | (808) 472-1254 | Tom.tehada@navy.mil |
| John Floyd | NAVSUP Fleet Logistics Center Pearl Harbor, Deputy Fuel Director | (808) 473-7801 | John.floyd@navy.mil |
| Danae Smith | NAVSUP Energy, Environmental Protection Specialist | (703) 767-7343 | Danae.smith@dla.mil |
| Frank Hino | HDR Inc. (Consultant), Vice President | (808) 524-3771 x6300 | Francis.hino@hdrinc.com |
| Kevin Murphy | Enterprise Engineering, Inc. (EEI) (Consultant), Principal | (907) 563-3835 x6424 | ksm@eeiteam.com |
| Stephen DiGregorio | EEI (Consultant), Project Manager/Lead | (207) 869-8006 x447 | sjd@eeiteam.com |

| Name | Title/Position | Phone Number | Email Address |
|----------------|---|----------------|-----------------|
| | Structural Engineer | | |
| Stephen Brooks | EI (Consultant), QA Reviewer/Technical Specialist/Lead Mechanical Engineer | (907) 223-8746 | ssb@eeiteam.com |

NAVFAC = Naval Facilities Engineering Command

NAVSUP = Naval Supply Systems Command

Red Hill Administrative Order of Consent Scoping Meetings

Red Hill SOW Section 2 - Tank Inspection, Repair, Maintenance (TIRM) Scoping Meeting Meeting Minutes 10/27/2015 (0800 – 0945 HST)

Navy/DLA Facilitator: Terri Regin

Meeting Minutes: Terri Regin

1. Introductions/Opening Remarks/Section Agenda Review & Changes:

- **Navy/DLA**
 - Terri Regin
 - Frank Kern
 - Leslie Karr
 - Stuart Strum
 - Martin McMorro
 - Mike Rocha
 - Ed O'Neill

- EPA
 - Phil Myers – PEMY & Assoc.
 - Doug Schwarm

- DOH

2. Contents of Tank Inspection, Repair, and Maintenance Procedures Report (refer to section 2.2 of AOC SOW)

- a. Paragraph 2.2.a.1., Current TIRM Non-destructive Procedures was presented by EXWC.

- b. EPA discussed the quality & integrity of the data that is obtained
 - Inspector/operator biases
 - Probability of detection
 - Assessment of data

- c. The other SOW elements under SOW 2.2.a were not discussed.

- d. Paragraph 2.2.b, Lessons Learned from Tank 5 was presented by EXWC. Primarily the lack of Contractor Quality Control and the Government's Quality Assurance was lacking.
 - The Government is planning to develop new specifications that provide the Quality Control requirements for tank inspection and tank repair.

- e. EPA discussed the requirements for improving the TIRM procedures:
 - Frequency of API 653 Inspection
 - Risk of Leaks
 - Reasonable alternatives
 - Trade-of analysis
 - Testing methods

- Destructive Testing
- Document level of certainty in the instrumentation

3. Role of Subject Matter Experts

BWS

4. Decision Criteria

- Improvements to current procedures
- Once TUA decision is made, develop a new TIRM
- Change in procedures:
 - Confidence in technology
 - Data Quality
 - Stakeholder acceptance
 - Ability to Implement
 - Timeliness
 - Cost/Benefit of improved performance
 - Quantify how change in procedure through risk analysis

5. Identification of Technical Issues to be further discussed at next Scoping Meeting

- Destructive Testing
- Methods of Testing

6. Action Items

NAVY:

- Provide changes made in Tank 5 procedures to avoid a Repeat. (Work Plan)

7. Additional Scoping Meetings Required?

- 30 November – 4 December 2015 Face to Face Meetings

8. F2F Agenda (if time permits)

- NAVFAC can develop an agenda and send out for review.

**Red Hill Administrative Order of Consent Scoping Meetings
Red Hill SOW Section 3 – Tank Upgrade Alternatives (TUA) Scoping Meeting
Meeting Minutes 10/27/2015 (1300 – 1410 HST)**

1. Introductions/Opening Remarks/Section Agenda Review & Changes:

- **Navy/DLA + consultants**

Stephen Fujino – Navy/DLA Facilitator
Perry Nakaoka – Design Manager and Technical Lead
Frank Hino – HDR Engineering Inc. (Prime)
Kevin Murphy – Enterprise Engineering Inc. (EEI, A-E SME)
Steven Brooks - Enterprise Engineering Inc. (EEI, A-E SME)
Steven Digregorio - Enterprise Engineering Inc. (EEI, A-E SME)

2. Discussion of Previous and Ongoing Tank Upgrade Studies

Previous Tank Studies authored by EEI

- 1998 Study on Options to Repair Tank 19
- 2008 Red Hill Repair Tanks Options Study

EEI provided a brief history on the 1998 and 2008 studies.

Brief discussion on studies followed.

Key point raised by EEI was that there is a significant amount of additional information available about the existing tank steel liner now then there was when the previous reports were written.

Ongoing Tank Upgrade Study

Red Hill Storage Facility Tank Upgrade and Release Detection Systems and Tank Tightness Testing Study

HDR Inc. is the Prime Contractor
Enterprise Engineering Inc is the A-E SME

EEI provided a brief report on the status of the ongoing study.

3. Elements of Scope of Work for TUA Report

Determination of Potential Upgrade Technologies

Ongoing A-E study's SOW was developed from a draft AOC SOW dated 30 April 2015

HDR/EEI awarded contract on May 14, 2015 for *Tank Upgrade and Release Detection Systems and Tank Tightness Testing Study*

A-E SOW for the ongoing study was included as an Appendix to the In-Progress Report.

NAVFAC proposed that the SOW for the ongoing study be used as a baseline in developing the AOC TUA SOW.

EPA/DOH to present additional alternatives to consider along with additional criteria. Specifically, EPA requested that removal and replacement of existing steel tank, R and R, be considered as an alternative. R and R alternative to be further discussed during Face to Face, F2F, scheduled for 30 November – 4 December 2015.

Question posed on the screening process of viable alternatives - Constructible, Inspectable, Testable and Repairable. Screening method to be discussed during F2F.

Interim Deliverables

In-Progress Report issued July 24, 2015
Distribution included EPA, DOH, NAVSUP FLC PH, DLA, NAVFAC PAC/EXWC/HI.

Comments were received on the In-Progress Review submittal presented during meetings held in August 4-5, 2015
No comments received from EPA and DOH.

EPA requested and NAVFAC agreed to share comments and responses.

Prefinal Submittal scheduled for 10 December 2015, placed on hold. New delivery: TBD

4. Role of Subject Matter Experts

HDR/EEI team to serve as NAVFAC SME

NAVFAC EXWC to provide In House support

5. Quality Assurance/Quality Control Issues

HDR and EEI have internal QC processes.

6. Decision Criteria

NAVFAC developed criteria based on the draft AOC SOW dated 4/30/2015.
Ongoing study allows A-E to add additional criteria as necessary
Ongoing study requires data to be presented in a matrix format.
The intent of the study is to provide data that the Decision Makers can use to in their decision process.
The criteria are not weighted and the A-E is not tasked to provide recommendations.

General discussion was held on criteria.

Question posed on the level of confidence in the data presented. Further discussion to be held during F2F.

EPA recommended that QAQC processes, including human factors, for the tank construction work be included as factors or considerations.

EPA indicated that Independent Inspection would be important to implement during construction.

Navy proposed to use the ongoing study SOW as a baseline in developing AOC SOW TUA criteria. Further discussion of the criteria along with alternatives to be held during F2F.

EPA commented that EPA and DOH will brainstorm to develop modifications that they feel should be considered. EPA also recommended that the Navy be open to incorporating modifications identified by others, including the City and County of Honolulu Board of Water Supply.

7. Identification of Technical Issues to be further discussed at next Scoping Meeting

Discussion on AOC SOW Section 1.8, Compliance with Underground Storage Tank Regulations. Report complies with new regulations.

Inclusion and evaluation of tank nozzle.

8. Action Items

Navy

1. Forward to DOH and EPA Comments to the July 2015 EEI submittal
2. Forward revised costs estimates dated August 2015
3. AE to provide a present status of ongoing study during F2F.
4. Develop Agenda for F2F Meeting, 30 November – 4 December 2015

DOH and EPA

1. Forward to the Navy comments on the July 2015 In Progress Review Submittal

9. Additional Scoping Meetings Required?

30 November – 4 December 2015

10. F2F Agenda (if time permits)

NAVFAC to develop Agenda

11. Attendees

| Name | Title/Position | Phone Number | Email Address |
|------------------|--------------------------------------|----------------|-----------------------|
| US EPA, Region 9 | | | |
| Tom Huetteman | Associate Director, Land Division | (415) 972-3751 | huetteman.tom@epa.gov |

| Name | Title/Position | Phone Number | Email Address |
|-----------------|---|----------------|--------------------------------|
| Steve Linder | Regional UST/LUST Program Manager | (415) 972-3369 | Linder.steven@Epa.gov |
| Bob Pallarino | Hawaii State Project Officer/ Environmental Protection Specialist | (415) 947-4128 | Pallarino.bob@Epa.gov |
| Omer Shalev | Environmental Engineer | (415) 972-3538 | Shalev.omer@Epa.gov |
| Don Bussey | US EPA/ Environmental Response Team-West | (702) 784-8016 | Bussey.don@Epa.gov |
| Phil Meyers | PEMY Consulting (Consultant) | (925) 302-6707 | phil@pemyconsulting.com |
| Douglas Schwarm | Atlas Geotechnical (Consultant) | (808) 282-8314 | dschwarm@atlasgeotechnical.com |
| DOH | | | |
| Keith Kawaoka | Deputy Director of Environmental Health | (808) 586-4424 | Keith.kawaoka@doh.hawaii.gov |
| Stuart Yamada | Environmental Management Division, Division Chief | (808) 586-4304 | Stuart.yamada@doh.hawaii.gov |
| Joanna Seto | Safe Drinking Water Branch (SDWB), Engineering Program Manager | (808) 586-4258 | Joanna.seto@doh.hawaii.gov |
| Mark Frazier | SDWB, Groundwater Pollution Control, UIC Geologist | (808) 586-4258 | William.frazier@doh.hawaii.gov |
| Bob Whittier | SDWB, Monitoring Section, Environmental Health Specialist, Groundwater Protection | (808) 586-4258 | Robert.whittier@doh.hawaii.gov |
| Roxanne Kwan | Solid and Hazardous Waste Branch (SHWB), UST Section Supervisor | (808) 586-4226 | Roxanne.kwan@doh.hawaii.gov |
| Shunsheng Fu | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shunsheng.fu@doh.hawaii.gov |
| Shaobin Li | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shaobin.li@doh.hawaii.gov |
| Josh Nagashima | SHWB, UST Section, Brownfields Coordinator | (808) 586-4226 | Josh.nagashima@doh.hawaii.gov |
| Thu Perry | SHWB, UST Section, | (808) 586-4226 | Thu.perry@doh.hawaii.gov |

| Name | Title/Position | Phone Number | Email Address |
|--------------------|--|---------------------|------------------------------|
| | Public Participation Coordinator | | |
| Roy Ilaga | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Roy.ilaga@doh.hawaii.gov |
| Rich Takaba | SHWB, UST Section, LUST Team Leader | (808) 586-4226 | Rich.takaba@doh.hawaii.gov |
| Jenny Bernier | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Jenny.bernier@doh.hawaii.gov |
| DLA | | | |
| Ron Nelson | Strategic Energy Analyst | (808) 473-4563 | Ron.nelson@dla.mil |
| Elton Saito | Project Engineer | (808) 473-1323 | Elton.saito@dla.mil |
| Navy | | | |
| CAPT Dean Tufts | Regional Engineer, Commander Navy Region Hawaii (CNRH)/ Commanding Officer, NAVFAC HI | (808) 471-3926 | Dean.tufts@navy.mil |
| CAPT Mark Manfredi | Chief of Staff, CNRH | (808) 473-3612 | Mark.manfredi@navy.mil |
| CDR Burr Vogel | NAVFAC HI Operations Officer | (808) 471-0196 | Burr.m.vogel@navy.mil |
| Jimmy Miyamoto | NAVFAC HI Deputy Operations Officer | (808) 471-7748 | James.miyamoto@navy.mil |
| Aaron Poentis | Environmental Program Director, CNRH/ Environmental Business Line Coordinator, NAVFAC HI | (808) 471-1171 x226 | Aaron.poentis@navy.mil |
| Joel Narusawa | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x222 | Joel.narusawa@navy.mil |
| Tracy Saguibo | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x340 | Tracyjoy.saguibo@navy.mil |
| Debbie Loo | NAVFAC PAC, Supv Environmental Engineer | (808) 472-1434 | Debra.loo@navy.mil |
| Ross Shimabuku | NAVFAC PAC, Enterprise Action Officer / OPS PM | (808) 472-1173 | Ross.shimabuku@navy.mil |
| Stephen Fujino | NAVFAC PAC, ME, | (808) 472-1283 | Stephen.fujino@navy.mil |

| Name | Title/Position | Phone Number | Email Address |
|--------------------------|---|----------------------|-------------------------|
| | Branch Manager | | |
| Perry Nakaoka | NAVFAC PAC, ME | (808) 472-1337 | Perry.nakaoka@navy.mil |
| Leslie Karr | NAVFAC Engineering and Expeditionary Warfare Center (EXWC), | (805) 982-1618 | Leslie.karr@navy.mil |
| Frank Kern | NAVFAC EXWC, | (805) 982-2149 | Frank.kern@navy.mil |
| Ed O'Neill | NAVFAC EXWC, | (805) 982-4253 | Ed.o'neill@navy.mil |
| Terri Regin | NAVFAC EXWC, | (202) 433-5196 | Terri.regin@navy.mil |
| Mike Rocha | NAVFAC EXWC Operations, POL Program Lead | (805) 982-3597 | Mike.rocha@navy.mil |
| Stuart Strum | NAVFAC EXWC, | (805) 982-1616 | Stuart.strum@navy.mil |
| Tom Tehada | NAVFAC EXWC, Corrosion SME | (808) 472-1254 | Tom.tehada@navy.mil |
| CAPT Ken Epps | NAVSUP Fleet Logistics Center Pearl Harbor, Commanding Officer | (808) 473-0961 | Ken.epps@navy.mil |
| John Floyd | NAVSUP Fleet Logistics Center Pearl Harbor, Deputy Fuel Director | (808) 473-7801 | John.floyd@navy.mil |
| Greg Yamasaki | NAVSUP Fleet Logistics Center Pearl Harbor, Chief Engineer | (808) 473-7829 | Greg.yamasaki@navy.mil |
| Danae Smith | NAVSUP Energy, Environmental Protection Specialist | (703) 767-7343 | Danae.smith@dla.mil |
| Frank Hino | HDR Inc. (Consultant) Vice President | (808) 524-3771 x6300 | Francis.hino@hdrinc.com |
| Kevin Murphy | Enterprise Engineering, Inc., Principal (Consultant) | (907) 563-3835 x424 | ksm@eeiteam.com |
| Stephen DiGregorio, P.E. | Enterprise Engineering, Inc. (Consultant) Project Manager/Chief Engineer - Civil/Structural | (207) 869-8006 x447 | sjd@eeiteam.com |
| Stephen Brooks, P.E. | Enterprise Engineering, Inc. (Consultant) QA Reviewer/Technical Specialist/Lead Mechanical Engineer | (907) 223-8746 | ssb@eeiteam.com |
| End | | | |

Red Hill Administrative Order of Consent Scoping Meetings
Red Hill SOW Section 6 – Investigation and Remediation of Releases Scoping Meeting
Meeting Minutes 10/26/2015 (1430 – 1530 HST)

1. Introductions/Opening Remarks/Section Agenda Review & Changes:
 - See list of attendees
 - Navy/DLA + consultants.
 - EPA + consultants
 - DOH + consultants intro

2. Review of Tank #5 Investigation efforts to date
 - Prepared a list of considerations to improve the groundwater flow model and contaminant fate and transport model
 - Installed two new monitoring wells (RHMW06 and RHMW07)
 - Submitted documents to regulators:
 - Draft Work Plan/Sampling and Analysis Plan, Tank 5 Area Characterization
 - Draft Monitoring Well Installation Report (for RHMW06 and RHMW07)

3. Elements of Scope of Work
 - a. Identification of Tank #5 Release locations

 - b. Site Characterization and Conceptual Site Model Development
 - i. Uniform Federal Policy (UFP) QAPP type Work Plan
 1. Work Plan will be submitted to regulators for review
 - ii. CSM will be refined in Investigation Report

 - c. Sampling and Data Collection
 - i. Well Design
 1. Number of wells
 2. Depth of wells
 3. Reasons
 - ii. Exploratory borings
 1. Local geology
 2. Regional geology
 - iii. Quality Assurance/Quality Control
 1. SOPs for environmental projects
 - a. Recently updated in May 2015
 - b. Identify which ones will be followed

 - d. Potential Remediation Methods
 - i. Feasibility Study Report
 1. Analysis of alternatives
 2. Nine National Contingency Plan evaluation criteria
 - a. Overall protection of human health and the environment
 - b. Compliance with ARARs (applicable or relevant and appropriate standards)
 - c. Long-term effectiveness and permanence
 - d. Reduction of toxicity, mobility or volume

- e. Short-term effectiveness
- f. Implementability
- g. Cost
- h. State acceptance
- i. Community acceptance

EPA comments:

- Data Quality Objectives
 - Need further scoping discussion
 - How get adequate data to solve the problem?
 - Is it possible?
- Request write it out – schedule and how it fits within the framework of SOW Section 6
- Lots to discuss on what is feasible and practical
- What are the options to proceed with assessments?
- What are the costs/benefits?

DOH comment: Consider non-intrusive investigation too.

4. Role of Subject Matter Experts

We're not aware of the information BWS can bring to the table.

Looking for NAPL around Tank 5

EPA comments:

- NAPL probably migrated outside footprint of Facility to some degree.
- NAPL probably migrated vertically to some degree.
- Determining the complete horizontal and vertical extent of contamination is probably not attainable.
- End up spending lots of money for very little information.
- What is the value of delineating contamination?
- BWS experts suggested prospecting efforts to locate all contamination.
- How would we do it?
- How much would it cost?
- How do you define success in remediation?

5. Decision Criteria

Similar to other sections

6. Identification of Technical Issues to be further discussed at next Scoping Meeting

- Data quality objectives
- Non-intrusive methods

7. Action Items

- Prepare a description of the proposed work plan elements
 - Sequencing
 - How it fits within the framework of Section 6 scope of work
- Research non-intrusive methods
- Prepare a list of questions for SMEs (BWS, DLNR, USGS) - by Friday 06 Nov
 - Are there known effective non-intrusive methods that can be used for this site?

8. Additional Scoping Meetings Required?

30 November – 4 December 2015

9. F2F Agenda (if time permits)

NAVFAC to develop agenda

**Red Hill Administrative Order of Consent Scoping Meetings
Attendees 10/26/2015 (Section 6, 7.1, 7.2, and 7.3)**

| Name | Title/Position | Phone Number | Email Address |
|-------------------------|--|----------------|--------------------------------|
| US EPA, Region 9 | | | |
| Tom Huetteman | Associate Director, Land Division | (415) 972-3751 | huetteman.tom@epa.gov |
| Steve Linder | Regional UST/LUST Program Manager | (415) 972-3369 | Linder.steven@Epa.gov |
| Bob Pallarino | Hawaii State Project Officer/ Environmental Protection Specialist | (415) 947-4128 | Pallarino.bob@Epa.gov |
| Omer Shalev | Environmental Engineer | (415) 972-3538 | Shalev.omer@Epa.gov |
| Don Bussey | US EPA/ Environmental Response Team- West | (702) 784-8016 | Bussey.don@Epa.gov |
| Phil Meyers | PEMY Consulting (Consultant) | (925) 302-6707 | phil@pemyconsulting.com |
| Douglas Schwarm | Atlas Geotechnical (Consultant) | (808) 282-8314 | dschwarm@atlasgeotechnical.com |
| DOH | | | |
| Keith Kawaoka | Deputy Director of Environmental Health | (808) 586-4424 | Keith.kawaoka@doh.hawaii.gov |
| Joanna Seto | Safe Drinking Water Branch (SDWB), Engineering Program Manager | (808) 586-4258 | Joanna.seto@doh.hawaii.gov |
| Mark Frazier | SDWB, Groundwater Pollution Control, UIC Geologist | (808) 586-4258 | William.frazier@doh.hawaii.gov |
| Bob Whittier | SDWB, Monitoring Section, Environmental Health Specialist, Groundwater Protection | (808) 586-4258 | Robert.whittier@doh.hawaii.gov |
| Roxanne Kwan | Solid and Hazardous Waste Branch (SHWB), UST Section Supervisor | (808) 586-4226 | Roxanne.kwan@doh.hawaii.gov |
| Shunsheng Fu | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shunsheng.fu@doh.hawaii.gov |
| Shaobin Li | SHWB, UST Section, Environmental Health Specialist | (808) 586-4226 | Shaobin.li@doh.hawaii.gov |

| Name | Title/Position | Phone Number | Email Address |
|-----------------------|--|------------------------|-------------------------------|
| Josh Nagashima | SHWB, UST Section, Brownfields Coordinator | (808) 586-4226 | Josh.nagashima@doh.hawaii.gov |
| Thu Perry | SHWB, UST Section, Public Participation Coordinator | (808) 586-4226 | Thu.perry@doh.hawaii.gov |
| Rich Takaba | SHWB, UST Section, LUST Team Leader | (808) 586-4226 | Rich.takaba@doh.hawaii.gov |
| DLA | | | |
| Ron Nelson | Strategic Energy Analyst | (808) 473-4563 | Ron.nelson@dla.mil |
| Elton Saito | Project Engineer | (808) 473-1323 | Elton.saito@dla.mil |
| Navy | | | |
| CAPT Dean Tufts | Regional Engineer, Commander Navy Region Hawaii (CNRH)/ Commanding Officer, NAVFAC HI | (808) 471-3926 | Dean.tufts@navy.mil |
| CAPT Mark Manfredi | Chief of Staff, CNRH | (808) 473-3612 | Mark.manfredi@navy.mil |
| CDR Burr Vogel | NAVFAC HI Operations Officer | (808) 471-0196 | Burr.m.vogel@navy.mil |
| Jimmy Miyamoto | NAVFAC HI Deputy Operations Officer | (808) 471-7748 | James.miyamoto@navy.mil |
| Aaron Poentis | Environmental Program Director, CNRH/ Environmental Business Line Coordinator, NAVFAC HI | (808) 471-1171 x226 | Aaron.poentis@navy.mil |
| Janice Fukumoto | NAVFAC HI, Environmental Restoration Supervisor | (808) 471-1171 x229 | Janice.fukumoto@navy.mil |
| June Shimabuku | NAVFAC HI, Environmental Resources and Assessment Supervisor | (808) 471-1171 x350 | June.shimabuku@navy.mil |
| Joel Narusawa | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x222 | Joel.narusawa@navy.mil |
| Tracy Saguibo | NAVFAC HI, Remedial Project Manager | (808) 471-1171 x340 | Tracyjoy.saguibo@navy.mil |

| Name | Title/Position | Phone Number | Email Address |
|-----------------------|--|-------------------------|-------------------------|
| Debbie Loo | NAVFAC PAC, Supervisory Environmental Engineer | (808) 472-1434 | Debra.loo@navy.mil |
| Ross Shimabuku | NAVFAC PAC, Enterprise Action Officer/ OPS PM | (808) 472-1173 | Ross.shimabuku@navy.mil |
| Stephen Fujino | NAVFAC PAC, ME, Branch Manager | (808) 472-1283 | Stephen.fujino@navy.mil |
| Perry Nakaoka | NAVFAC PAC, ME | (808) 472-1337 | Perry.nakaoka@navy.mil |
| Leslie Karr | NAVFAC Engineering and Expeditionary Warfare Center (EXWC), EV | (805) 982-1618 | Leslie.karr@navy.mil |
| Frank Kern | NAVFAC EXWC, Civil Engineer | (805) 982-2149 | Frank.kern@navy.mil |
| Ed O'Neill | NAVFAC EXWC, Supervisory General Engineer | (805) 982-4253 | Ed.o'neill@navy.mil |
| Terri Regin | NAVFAC EXWC, NAVFAC POL SME | (202) 433-5196 | Terri.regin@navy.mil |
| Mike Rocha | NAVFAC EXWC Operations, POL Program Lead | (805) 982-3597 | Mike.rocha@navy.mil |
| Stuart Strum | NAVFAC EXWC, Physical Scientist | (805) 982-1616 | Stuart.strum@navy.mil |
| Tom Tehada | NAVFAC EXWC, NAVFAC Cathodic Protection SME | (808) 472-1254 | Tom.tehada@navy.mil |
| John Floyd | NAVSUP Fleet Logistics Center Pearl Harbor, Deputy Fuel Director | (808) 473-7801 | John.floyd@navy.mil |
| Danae Smith | NAVSUP Energy, Environmental Protection Specialist | (703) 767-7343 | Danae.smith@dla.mil |
| Frank Hino | HDR Inc. (Consultant), Vice President | (808) 524-3771 x6300 | Francis.hino@hdrinc.com |
| Kevin Murphy | Enterprise Engineering, Inc. (EEI) (Consultant), Principal | (907) 563-3835 x6424 | ksm@eeiteam.com |
| Stephen DiGregorio | EEI (Consultant), Project Manager/Lead Structural Engineer | (207) 869-8006 x447 | sjd@eeiteam.com |

| Name | Title/Position | Phone Number | Email Address |
|----------------|---|----------------|-----------------|
| Stephen Brooks | EI (Consultant), QA Reviewer/Technical Specialist/Lead Mechanical Engineer | (907) 223-8746 | ssb@eeiteam.com |

NAVFAC = Naval Facilities Engineering Command

NAVSUP = Naval Supply Systems Command

Red Hill Administrative Order of Consent Scoping Meetings
Red Hill SOW Section 7.1 – Groundwater Flow Model Scoping Meeting
Meeting Minutes 10/26/2015 (0955 – 1120 HST)

1. Introductions/Opening Remarks/Section Agenda Review & Changes:
See list of attendees
 - Navy/DLA + consultants
 - EPA + consultants
 - DOH + consultants

2. Discussion of Most Recent Modeling efforts:
 - 2007 Groundwater Flow Model, Contaminant Fate and Transport Model
 - 2010 Re-evaluation of Groundwater Flow Direction/Gradient and Tier 3 Risk Assessment

Documents:

- 2007 Final Technical Report
 - 2010 Type 1 Letter Report – Re-evaluation of the Tier 3 Risk Assessment/Groundwater Model & Proposed Course of Action
3. Identification of Knowledge/Information Gaps:
 - Pump Tests
 - One recently performed by USGS
 - More needed?
 - Additional groundwater monitoring wells
 - Where?
 - How many?
 - Screening depth?
 - Geochemistry
 - Groundwater sampling and analysis of new and existing wells
 - EPA commented that the focus should be more on flow and transport, historical data quality, how the historical model was calibrated, etc.
 - DOH (Bob Whittier) prepared a list of data gaps:
 - Valley fills and other potential barriers
 - Expected model
 - Local and regional groundwater flow
 - Resurvey levels of wells

EPA asked: Who is the consultant on groundwater flow model for DLA/Navy? The Navy needs to bring an expert to the table.

A Navy contractor prepared a list of considerations for the next groundwater flow model and contaminant fate and transport model. The list will be provided to EPA and DOH.

Data gaps include geochemistry, tracer tests, and using other groundwater flow models.

4. Role of Subject Matter Experts:

DLA/Navy is working on getting a consultant to attend the face to face meetings.

USGS and BWS may be there and have useful information, such as the flow regime, what is the probability of narrow flow pathways, etc.

SMEs in context of the AOC: BWS, DLNR, USGS

- DOH sent out notifications to BWS, DLNR for the face to face scoping meetings.
- USGS is not available.
- DOH hasn't received responses.

If SMEs can't attend the face to face scoping meetings, we can send written correspondence

- What data gaps do they see?
- What suggestions do they have?
- Request specific information, such as results of the recent pump study.

5. Elements of Scope of Work:

Revise/update the DLA/Navy SOW and send to EPA and DOH.

- a. Data Requirements
- b. Interim Deliverables
- c. Progress Reports
- d. Quality Control/Quality Assurance

6. Decision Criteria:

- Data quality
- Level of confidence
- Level of implementability
- Reliability – this is critical; what is considered reliable enough?
- Cost
- Stakeholder input
- Time constraints

BWS consultant, INTERA Geoscience & Engineering Solutions, provides modeling services.

7. Identification of Technical Issues to be further discussed at next Scoping Meeting:

EPA (Don Bussey) recommended data input from additional wells.

Navy noted the previous groundwater flow model used textbook values, not site-specific values. There's no data available for the area between the Red Hill Facility and Halawa Shaft.

8. Action Items:

Navy:

- Provide to EPA and DOH the statement of work for the existing contract
- Coordinate and schedule a presentation (before face to face scoping meetings) of the previous groundwater flow model by the KTR who ran the model - provide status by Friday 30 Oct
- Prepare a list of questions for SMEs (BWS, DLNR, USGS) - by Friday 06 Nov
 - What is the flow regime, probability of narrow flow pathways?
 - What data gaps do they see?
 - What are their suggestions?
 - Request specific info (e.g. pump study)
- Procure consultant services to attend face to face scoping meetings

9. Additional Scoping Meetings Required? Yes

30 November – 4 December 2015

10. F2F Agenda (if time permits)

NAVFAC to develop agenda

Red Hill Administrative Order of Consent Scoping Meetings
Red Hill SOW Section 7.2 – Fate and Transport Model Scoping Meeting
Meeting Minutes 10/26/2015 (1135 – 1230 HST)

1. Introductions/Opening Remarks/Section Agenda Review & Changes:

See list of attendees

- Navy/DLA + consultants
- EPA + consultants
- DOH + consultants intro

2. Discussion of any Previous F&T Modeling efforts

Navy asked: What gaps do the regulators see in the current model?

DLA/Navy has a list of considerations to improve the groundwater flow model and fate and transport model. It wasn't shared with EPA or DOH. Improvements to the models were on hold due to the AOC.

3. Identification of Knowledge/Information gaps

EPA: The following items need to be addressed:

- Site conceptual model
- Fuel movement in vadose (unsaturated) zone and groundwater
- What do the flow paths look like? Magnitude?
 - Small release will biodegrade
 - Massive release won't biodegrade quickly
- Release scenarios – contaminant migration that could affect drinking water
- Draft Site Investigation Work Plan
 - No site conceptual model
 - What is the draft Work Plan based on?
 - Flow pathways of fuel
 - What part of Tank 5 did fuel release from?
 - Preferential pathways
- Meeting of minds needed before punch holes

Navy: Draft Work Plan consists of 3 parts:

- Vertical modeling
- Locate released fuel
- Install wells for pilot bioventing

EPA commented:

- Data set is grossly inadequate
- Do we need to understand and know where fuel was released and where it has gone? May not be the best approach.

- Look at what Don Bussey (EPA) put together
 - Generally where fuel may be
 - Right below tank, concrete base
 - Free phase product spreading laterally
 - More shallow than deep
 - Based on literature review

Navy agrees with Don's memo

- Previous groundwater flow model and contaminant fate and transport model only modeled horizontal movement
- Worse case, conservative scenario

Navy commented:

- Vertical model is limited
- We don't have a handle on the extent of contamination
- Hazards are usually raked and stacked
- Need more data points in the area to verify the extent of contamination

EPA commented:

- Stop as soon as you hit contamination
- This will limit vertical migration of contamination

4. Role of Subject Matter Experts

Navy: SME is the contractor that submitted the proposal (Battelle?). Intend to have them present at face to face meetings

EPA: BWS may have experience from drilling in the area

- Preferential pathways, anomalies
- Similar locations, lava tubes
- Knowledge of geology of area
- Ties in with Section 8 – Risk/Vulnerability Assessment

DOH comment: It's strange to talk about modeling prior to investigation.

5. Elements of Scope of Work

a. Data Requirements

- i. Identify data gaps for the extent of contamination
- ii. POL sitting near tanks
- iii. Gather more groundwater data and geotechnical information

b. Interim Deliverables

- i. Status reports
- ii. Lab reports

- iii. General conceptual site model
Navy: The existing CSM of 2007 identified several limitations
 - Source geometry
 - Insufficient wells, data points
 - Overall TPH degradation rates
 - Update/supplement study
 - Impact of leachate, hard to get a handle on a reliable model for fractured rock
 - Mobile/immobile LNAPL
 - Geochemistry

c. Progress Reports

d. Quality Control/Quality Assurance

Some information is included in the list of considerations.

6. Decision Criteria

Same as groundwater flow model, including:

- Cost benefit
- Confidence
- Data quality
- Stakeholder acceptance
- Use of innovation

Contractor to provide factors considered/used.

7. Identification of Technical Issues to be further discussed at next Scoping Meeting

Navy contractor will attend next scoping meetings.

8. Action Items

- Coordinate and schedule a presentation (before face to face scoping meetings) of the previous contaminant fate and transport model by the KTR who ran the model
- Prepare a list of questions for SMEs (BWS, DLNR, USGS)
 - Based on previous experience from drilling in the area, what are the known preferential pathways? Anomalies?
 - What is their knowledge of the local geology?
- Provide the list of considerations prepared by Navy KTR for contaminant fate and transport model update
- DLA/Navy to procure consultant services to attend face to face scoping meetings

9. Additional Scoping Meetings Required?

30 November – 4 December 2015

10. F2F Agenda (if time permits)

NAVFAC to develop agenda

Red Hill Administrative Order of Consent Scoping Meetings

Red Hill SOW Section 7.3 – Groundwater Monitoring Well Network Scoping Meeting Meeting Minutes 10/26/2015 (1320 – 1430 HST)

1. Introductions/Opening Remarks/Section Agenda Review & Changes:
 - See list of attendees
 - Navy/DLA + consultants
 - EPA + consultants
 - DOH + consultants intro

2. Review of Existing Monitoring Well Network
 - Two additional wells were installed to the north of the Facility.
 - Information hasn't been incorporated into groundwater flow model or contaminant fate and transport model.
 - Re-evaluation and improvement of the models are included in the AOC.
 - Leverage DLNR well to the northeast.
 - The rest of the wells are in a linear line with the potable water shaft west of the Facility.
 - Existing reports include the Final Technical Report of August 2007.
 - General conceptual model of groundwater movement to the southwest
 - Potential concern of component to the northwest
 - Validity of new well RHMW07 questioned

EPA asked: What are the objectives of the current network?

- RHMW01 – groundwater monitoring for contamination, site characterization
- RHWM02, RHMW03, RHMW04 – groundwater monitoring for contamination, site characterization
- RHMW05 – sentinel
- RHMW06, RHMW07 – sentinel
- OWDFMW01
- HDMW2253-03

EPA comments:

- More wells close to the tanks may not be as useful as sentries compared to fewer wells away from the Facility.
- It's likely additional wells will be needed beyond Navy property (e.g. prison grounds).
- Several wells are in alignment with the assumed flow.
- May need wells further away or closer to source.
- Sentinel wells may use a more frequent sampling sequence.
- Work on flow model, interplay, contaminant definition.
- Assess dissolved phase and preferential LNAPL gravity movement from release point.
- Wells could serve multiple purposes.

Navy: After sentinel wells are installed, they can also be used to supplement the models.

EPA comments:

- Water table is approximately 16 to 18 feet above sea level.
- Essentially monitoring well.
- Expect hydrocarbons at the top of the water table.
- Effect of pumping can draw down contamination.
- Travel time issues from Tank 5 to Red Hill Shaft – it could take 5 to 10 years.

DOH comments:

- Red Hill ridge and other side are constrained where wells can be installed.
 - Mountain to the northeast
 - Caprock
- The two primary water sources use skimming wells.

EPA agrees transmissivity is high.

DOH comments:

- Release may be shallow.
- Release may be at depth (diving plume).
- Seems to be a data gap.
- Look for discrete pathways near the source, clinker zone.
- Sentinel well – larger diameter.
- Fresh water lens is approximately 700 feet.
- Need to know screening depth of source wells.
- Cluster of wells needed.
- If the wells are too far apart, might miss contamination.

3. Necessity of additional Monitoring Wells

- a. Support of Groundwater Flow Model
- b. Support of Fate and Transport Model
- c. Discussion of need for Sentinel Monitoring Wells
 - i. Agreement on need for more sentinel wells
 - ii. More wells will give more data
 - iii. Where to drill to get more bang for buck?
 - iv. In the area of RHMW07, but more west
 - v. Sentinel wells for Red Hill Shaft
 - vi. Others may be expecting sentinel well around the Facility
 - vii. Navy consulted with a contractor, BWS, DOH

EPA asked: Why is RHMW07 giving weird data? Were there well installation problems?

DOH: The well was installed properly.

Navy: Water level is 4 feet higher than nearby wells.

- Review of well boring logs and well development logs indicate low recharge
- Well may be screened in dense basalt, low permeability
- It may be a perched water body in confined conditions

DOH: It's possible there may be dikes in the area.

4. Role of Subject Matter Experts

EPA comments:

- USGS raw data is available online
- Results are not available
- BWS doesn't release pumping data
- Peer review process may take 1 to 1.5 years before modeling report is complete

5. Elements of Scope of Work

- a. Development of Well Installation Plan
- b. Sampling and Analysis Plan
- c. Interim Deliverables
- d. Progress Reports
- e. Quality Control/Quality Assurance

6. Decision Criteria

- Effective in protecting Red Hill Shaft?
- Effective in protecting neighboring wells?
- Likelihood of false positives?
- Likelihood of false negatives?
- Cost benefits
- Feasibility/implementability
- Stakeholders/public perception
- Long-term benefit
- Different purposes of network
- More refined and explicit than SOW Sections 7.1 (groundwater flow model) and 7.2 (contaminant fate and transport model); see SOW Section 7.3.4 (Groundwater Monitoring Well Network Decision Meeting)

7. Identification of Technical Issues to be further discussed at next Scoping Meeting

- Further refinement of location of initial wells, purpose, drilling access, desired locations
- Tied to presentation of past modeling efforts
- Varying opinions of flow direction
- What data points would eliminate flow direction uncertainty
- Contaminant flows more at the surface
- Factors that push the flow downward
- DOH comment: There are at least a half-dozen coalescing downgradient magma in contact with saltwater
- Discuss further in meeting prior to face to face scoping meetings

8. Action Items

- Prepare a list of questions for SMEs (BWS, DLNR, USGS)
 - Request BWS pumping data
- Presentation of past modeling efforts - June

9. Additional Scoping Meetings Required?

30 November – 4 December 2015

10. F2F Agenda (if time permits)

NAVFAC to develop agenda

**Red Hill SOW Section 8 – Risk/Vulnerability Assessment (RVA) Scoping Meeting
Minutes 10/27/2015 (1000 – 1200)**

1. Introductions/Opening Remarks/Section Agenda Review & Changes

- Navy currently evaluating who would be the best lead/POC for this SOW section. Until the POC is selected, NF HI will be the POC. NF HI noted that clarity on specific items/events that should be assessed needs to be identified and agreed upon.
- EPA noted fire and earthquake are examples of events to be evaluated. EPA noted a Catastrophic Release Plan would be the end product of the AOC.
- EPA noted vulnerability to types of construction should be evaluated. For example, what types of fluids are in the pipes and the probability to cause fire or explosions if released would be a scenario example to be evaluated.

2. Discussion of any previous Risk Assessments performed by Navy/DLA

- There are three (3) studies/reports completed by the Navy. A 1998 Wilbros Report, a NAVSUP FLCPH Study, and a Navy Region HI (NRH) Oil Spill Response and Clean-up Plan. The 1998 Wilbros Report was a government contracted report which evaluated life safety issues at Red Hill. The NAVSUP FLCPH Study evaluated fuel release scenarios in the Red Hill Tunnels, with the assumption that the release would flow through the tunnels, versus permeating through the concrete/ground. The NRH Oil Spill Response and Clean-up Plan studied oil spill scenarios throughout the NRH, including the Red Hill Facility.
- All agreed that the previous studies/reports would not cover the requirements of SOW Section 8 and all agreed a comprehensive study needs to be completed. The comprehensive study needs to identify hazards, safeguards, and the plan to implement if a hazardous event occurs.
- EPA noted the question “Where are the receptors located?” will influence vulnerability understanding. Do we take into consideration only the current drinking water locations or do we include potential future locations?

3. Elements of Scope of Work

a. Probability of Catastrophic Events

- The RVA report needs to discuss the impact the facility would incur in the event of an earthquake. EPA noted that Oahu is not considered a high seismic region compared to California or the Big Island but the report still needs to discuss the seismic risk in the report.
- All agreed the lower Red Hill and other fuel facilities are not part of this SOW.
- All agreed acts of war (i.e. terrorist attack, nuclear bombing) will not be events to be assessed due to national security reasons.

b. Probability of Mechanical or Human Errors

- EPA noted scenarios in the Red Hill Tunnels such as a fire, explosion, and construction failures (i.e. tank connections failing) should be events which the RVA report evaluates and prepares a response plan.

c. Development of Risk Matrix

- EPA recommended a 3x3 or 5x5 risk matrix be developed which is the “What if check list?” The matrix would pair an event to the probability/risk of occurrence.
- EPA suggested that all assumptions need to be identified and if the probability of occurrence is low, it should be stated so in the report.

d. Studies needed to Support Assessment

- SOW Section 7 groundwater studies impact this report.

e. Effectiveness of Risk Mitigation and Protective Measures

- EPA noted that study needs to have the capability to identify the maximum credible release scenario and be able understand where the release will go.

f. Alternative Storage Locations

- Navy noted alternative storage locations outside the island of Oahu will not be evaluated and was accepted by EPA.
- Navy will evaluate if above ground versus underground storage is the evaluation criteria for this suggested scope of work item. A cost to benefit analysis would be required if comparable discussion adds value to this evaluation.
- EPA noted that public comment triggered this alternative storage location question.

4. Role of Subject Matter Experts

- BWS was discussed as the SME which needs to accept and buy-in to this RVA report.

5. Decision Criteria

- This discussion was deferred until the specific events to be evaluated are determined.

6. Identification of Technical Issues to be further discussed at next Scoping Meeting

- Technical issues were not identified at this meeting.

7. Action Items

- Navy POC: EPA noted they will submit suggestions. The Navy will review insurance companies (I.e. Lloyd's Register) and risk analysis experts/tools (I.e. Dan Brooks/Priority System) as a starting point in selecting a facilitator/consultant in developing the RVA report.
- Navy will develop critical path graph/chart to better coordinate the different SOW tasks and intervention of the different SOW sections. EPA suggested gantt chart as an example to illustrate the critical path.
- Navy will coordinate a follow on meeting prior to the 30 Nov F2F.
- NAVSUP FLCPH will prepare a paper which addresses the alternative location discussion.

8. Additional Scoping Meetings Required?

- 30 November – 4 December 2015

9. F2F Agenda

- The group did not develop a F2F Agenda at this time.