

**Red Hill Administrative Order of Consent Scoping Meetings**  
**Red Hill SOW Sections 6 & 7 – Investigation & Remediation of Release,**  
**Groundwater Protection and Evaluation Scoping Meeting Summary**  
**11/30 – 12/4/2015**

[Items Revised per Outcome of Teleconference Held on December 10, 2015]

**ATTENDEES:**

**Navy/DLA:**

- NAVFAC PAC: Kris Saboda, Bruce Tsutsui
- NAVFAC HI: CDR Vogel, Jimmy Miyamoto, Aaron Poentis, June Shimabuku, Janice Fukumoto, Joel Narusawa, Tracy Saguibo, Raelynn Kishaba, Brian Fukuda,
- AECOM: Frank Cioffi, Jeff Johnson, John Thackston, Margie Thach, Jack Kronen
- DLA: Amanda Manó'i
- Moderator: Bharti Ujjani

EPA: Tom Huetteman, Bob Pallarino, Don Bussey

DOH: Rich Takaba, Robert Whittier, Shunsheng Fu, Joanna Seto, Mark Frazier

DOH Consultant/UH: Donald Thomas

DLNR/CWRM: Patrick Casey (11/30), Robert Chenet (11/30)

The following are the major preliminary agreements and action items from scoping meetings held during the week of November 30, 2015 and on Thursday, December 10, 2015 among the Parties identified in the AOC to discuss requirements to fulfill SOW Section 6 (Investigation and Remediation of Releases) and SOW Section 7 (Groundwater Protection and Evaluation) of the AOC. A Preliminary Work Plan/Statement of Work Task List for AOC SOW Section 6 and Section 7 was preliminarily agreed upon and is presented in Attachment 1. In some cases, the details of tasks presented in the attached Preliminary Work Plan/Statement of Work Task List for AOC SOW Section 6 and Section 7 were modified from their original description as presented in Attachment 2, "Red Hill Bulk Fuel Storage Facility AOC SOW Section 6 and Section 7". Presentation slides with additional information were used in scoping sessions during the week of November 30, 2015 and are presented in Attachment 2.

**Agreed-Upon Items:** Agreed-upon items were reviewed and discussed further among the Parties in a teleconference on Thursday, December 10, 2015 from 1100 to 1300.

1. Key objective is the protection of the groundwater resource.
2. The complex geology of Red Hill presents limitations on the practical options for investigation and removal of NAPL.
3. In addition to performing Task 1, Geological Mapping, use existing site data and previous investigations to refine the existing conceptual site model and to focus future work.
4. Combine Sections 6 and 7 Work Plan/SOW and complete within 90 days from determination of final scoping meeting. Revise schedule per AOC Section 8.
5. The Work Plan/SOW will include a section that provides a detailed summary of the site background and history.
6. Potential offsite contaminant sources utilizing DOH's information repository will be identified in the Work Plan; however, the Navy is not responsible for investigating or cleanup of other non-Navy, point sources.
7. The Work Plan/SOW will provide a detailed justification/evaluation of potential NAPL investigation methodologies, and document why those are not being pursued at this time. None of the methods discussed for investigating NAPL are currently recommended due to

- the complexity of the subsurface geology, site constraints, and the low likelihood of producing actionable data.
8. Additional drilling and intrusive work for the purposes of locating NAPL at the tank farm is not proposed at this time.
  9. Chemical analyses of the groundwater for this investigation will use SW-846 methods (consistent with methods used in the long-term groundwater monitoring program).
  10. The following natural attenuation parameters will be analyzed at the laboratory or in the field, as specified in the Work Plan/SOW: sulfate, nitrate, ferrous ion, dissolved oxygen, methane, and chloride.
  11. The Work Plan/SOW and Report will evaluate the existing soil vapor data. No new soil vapor data collection for the current investigation is proposed. At this time, no changes to the existing soil vapor monitoring program are proposed. This task will be coordinated with the AOC SOW Section 4 team for further evaluation.
  12. Based on currently available data it is anticipated that the following chemicals of potential concern (COPCs) may be evaluated in the modeling: TPH-G, TPH-D, TPH-O, Naphthalene, 1-Methylnaphthalene, and 2-Methylnaphthalene.
  13. The final report will reevaluate the appropriateness of all the assumptions and whether they still hold true upon completion of Work Plan/SOW activities.
  14. The general locations proposed by the Navy for the four new monitoring wells (i.e., RHMW08 through RHMW11) are acceptable. These monitoring wells will be installed as part of the current investigations, and their continued use and a determination of their adequacy as sentinel wells will be evaluated in the final report.
  15. The proposed wells will be installed prior to the refinement of the groundwater model. The final report will evaluate whether additional wells are needed to fill data gaps. Specifically, the following will be evaluated:
    - a. Whether an additional well is recommended between proposed well RHMW-08 and the Red Hill Shaft
    - b. Whether RHMW07 is appropriate for retention in the monitoring grid
    - c. Whether RHMW04 provides groundwater quality data representative of ambient background conditions, and whether or not a new monitoring well should be established to collect data that more accurately represent ambient background conditions.
  16. Continuous core logging will be performed for all newly proposed monitoring wells.
  17. The Navy intends to cooperate with the University of Hawaii on data collection efforts from Navy monitoring wells for their regional groundwater studies which may provide additional data that could supplement the existing CSM developed for Red Hill.
  18. The existing groundwater flow model prepared in 2007 will be updated utilizing the same software platform (i.e., MODFLOW) incorporating historic, current, and future data. As part of the update, a sensitivity analysis will include evaluating the potential effects of hydraulic barriers associated with the caprock formation and other lower permeability volcanics (i.e., Honolulu Volcanic Series, saprolite, valley fill), and various hypothetical pumping rate scenarios.
  19. Communication during the model development will be performed at regular intervals in addition to the deliverables specified in the AOC SOW (i.e., progress reports) to ensure the model is being developed for its intended purpose.
  20. EPA to provide additional information on the Desktop Catchment Water Model as a potential resource/tool.
  21. Preliminary remedial alternatives will be identified in the Work Plan/SOW, and discussed and evaluated in the final report. Future potential releases will also be considered (e.g., response to catastrophic releases). Coordinate with Section 8 team.

22. Final report will include an initial screening of alternatives followed by a more detailed evaluation of select remedial alternatives.
23. Conceptual site model to evaluate potential vadose zone flow mechanisms and degradation.
24. Contaminant fate and transport modeling to be performed as presented during the scoping meeting (e.g., based on the existing fate and transport model).
25. The seven tasks presented in the scoping meetings are sufficient for the Work Plan/SOW.
26. There are progress report deliverables under AOC SOW Section 7.1.2 for the groundwater flow model to be provided to regulatory agencies every four months following approval of the Sections 6 and 7 Work Plan/SOW. An evaluation of whether to perform a tracer study will be included in a progress report deliverable following monitoring well installation and receipt of initial groundwater gradient and chemical data.
27. Navy will propose a new target analyte list and sampling schedule for the AOC SOW Section 6 and Section 7 investigation in the Work Plan/SOW for regulatory review. Any revisions to the current groundwater long-term monitoring program will be proposed and evaluated in the Groundwater Monitoring Network Report (Section 7.3.3 of the AOC SOW).

**Action Items:** Action items were discussed further among the Parties in a teleconference on Thursday, December 10, 2015 from 1100 to 1300.

1. Navy to consult Counsel to ensure that the scoping meeting materials are appropriate for distribution (e.g. do not contain procurement sensitive information, critical infrastructure information, etc.).
2. Regulatory agencies, in coordination with the Navy, to contact Board of Water Supply to obtain information regarding plans for future drinking water source well(s) in the vicinity of Red Hill, specifically location and pump demand (i.e., production rate).
3. Project coordinators to take steps to modify the AOC SOW schedule to reflect one Work Plan/SOW covering both Section 6 and 7 delivered within 90 days of determination of final scoping meeting.
4. Regulatory agencies, in coordination with the Navy, to request Halawa Shaft pumping rates to provide additional data for the groundwater model.
5. The Navy, with regulatory agency assistance, will request from the Water Commission well construction information on the Halawa Shaft and Red Hill Shaft.
6. The Navy will follow up with DOH on additional LUST and well log information for Halawa Prison and Hawaiian Cement.
7. Regarding all proposed tasks to be included in the Work Plan/SOW, Navy will estimate and evaluate task durations for AOC schedule feasibility.
8. Propose a preliminary scope of work schedule. Example, determine whether to complete the geologic mapping prior to advancing the wells.