<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
<th>Presenter(s)</th>
<th>Notes</th>
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<tbody>
<tr>
<td>11:00 am</td>
<td>Welcome</td>
<td>Keith Karaoka, DoH HEER</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fenix Grange, DoH HEER</td>
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<tr>
<td>11:10 am</td>
<td>What's a brownfield?</td>
<td>Ignacio Dayrit, CCLR(02)</td>
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<td></td>
<td></td>
<td>Melody Calisay, DoH HEER (03)</td>
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<tr>
<td>11:25 am</td>
<td>Brownfields Case Studies: Community and economic development, adaptation and resiliency</td>
<td>Tim Streitz, City of Honolulu (04)</td>
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<td>WaiYi Ng, City of Honolulu (05)</td>
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<td>Marian Gushiken, EAH Housing (06)</td>
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<td>Jon Wallenstrom, Alaka’i Development (07)</td>
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<td>Q&amp;A(08)</td>
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<td>12:25 pm</td>
<td>Group Survey/Exercise</td>
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<td>HDOH-HEER programs</td>
<td>Sven Lindstrom, DoH HEER(09)</td>
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<td>12:50 pm</td>
<td>Financing, Risk and Environmental Assessments Technical Assistance/Funding Part 1</td>
<td>Scott Rodie, Bank of Hawaii (10)</td>
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<td>Ruby Edwards, DBEDT (11)</td>
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<td>Melody Calisay(12)</td>
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<td>Noemi Emeric-Ford, US EPA(13)</td>
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<td>Q&amp;A(14)</td>
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<td>1:45 pm</td>
<td>Open Forum</td>
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<td>11:00 am</td>
<td>Welcome – Day 2</td>
<td>Sven Lindstrom, DoH HEER (17)</td>
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<tr>
<td>11:05 am</td>
<td>PFAS /UXO Databases &amp; Inventories</td>
<td>Sven Lindstrom, DoH HEER (17), Robert Leon Guerrero and Joshua Santos, CNMI DEQ (18), Diana Felton, DoH HEER (19), Roger Brewer, DoH HEER (20), Iris van der Zander DoH HEER (21), Lauren Cruz, DoH HEER (22), Cameron Black, DBEDT (23), David Martin, HECO (24)</td>
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<td>12:00 am</td>
<td>Open Forum</td>
<td>Noemi Emeric-Ford, US EPA (26), Ignacio Dayrit, CCLR (27)</td>
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<td>Preparing for grant applications</td>
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<td>1:05 am</td>
<td>Recap</td>
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</table>
Hawaii Brownfields Virtual Forum

Sven Lindstrom
Voluntary Cleanup Program (VCP) Specialist

Hawaii Department of Health
Hazard Evaluation and Emergency Response Office
Site Discovery, Assessment, and Remediation
Hawaii Brownfields Virtual Forum

UXO = Brownfields?
Hawaii Brownfields Virtual Forum

UXO Challenges
Hawaii Brownfields Virtual Forum

UXO Challenges

CERCLA Process

- Preliminary Assessment/ Site Inspection (PA/SI)
  - Identifies Releases
  - Proposes Selected Remedy
- Remedial Investigation / Feasibility Study (RI/FS)
  - Authorizes Selected Remedy
  - Create Detailed Design for Selected Remedy / Implement Selected Remedy
- Decision Document (DD)
- Remedial Design / Remedial Action (RD/RA)
  - Milestone – Achievement of Successful Completion of Remedial Action Implementation
  - Verify RA Continues to Operate As Designed for Protection of Human Health & Environment
- Remedy-in-Place / Response Complete (RIP/RC)
- Long Term Management (LTM)
UXO Challenges

Map of Concentrated Munitions Use Areas (CMUA) identified for Remedial Action

CERCLA Process

- Preliminary Assessment/Site Inspection (PA/SSI)
- Remedial Investigation/Feasibility Study (RI/FS)
- Proposed Plan (PP)
- Decision Document (DD)
- Remedial Design/Remedial Action (RD/RA)
- Remedy-in-Place / Response Complete (RiP/RC)
- Long Term Management (LTM)

Identifies Releases
Proposes Selected Remedy
Create Detailed Design for Selected Remedy / Implement Selected Remedy
Verify RA Continues to Operate As Designed for Protection of Human Health & Environment

Determines Nature and Extent / Evaluate Alternatives and Identifies a Preferred Remedy

Authorized Selected Remedy

Figure 2: Area T Munitions Density

CMU A

Non-CMU A

Remedial Action

No RA
WWII Grenades Removed From Waimea Middle School Garden

March 20, 2002 at 1:21 PM HST - Updated July 11 at 10:21 PM

(Waimea-A) -- Three more live World War Two-era hand grenades have been removed from a garden at Waimea Middle School on the Big Island.

The one-acre garden was closed February fifth after students found another live hand grenade.

The U.S. Army Corps of Engineers says the three new grenades were discovered underground by Army contractors who surveyed the garden during the current spring break. The survey ended Thursday.

Ten World War II era munitions removed from waters off Lanikai

With three successive "fire-in-the-hole" warnings, LT Jordan Bethke of the U.S. Navy's Explosive Ordnance Disposal (EOD) team (Detachment Mid-Pacific) set off C-4 explosives attached to two potential Unexploded Ordnance (UXO) off Lanikai.

Residents of the South Kohala district, where Waikoloa is located, have lived with remnants of World War II training for decades. Some of have died from it.

Despite a Marine Corps cleanup in 1946, two Parker Ranch employees were killed and three were seriously injured in 1954 when they found a live 81-mm mortar round. A road construction employee was also killed in 1945, and two servicemen were injured in 1983.

As recently as 2002, three live grenades were found buried at Waimea Middle School.
Hawaii Brownfields Virtual Forum

Former Waikoloa Maneuver Area (WMA)
HUD DETERMINATIONS:

The following minimum requirements are established for existing and proposed HUD-assisted properties located within the WMA that are subject to environmental review requirements. These minimum mitigation requirements are in effect until a site closure letter or comparable document is issued by the HDOH declaring the area, or specific properties, safe for residential and/or commercial use. HUD program offices that established additional program-specific requirements will disseminate that information in a WMA FUDS Program Notice.

Areawide Environmental Hazard Management Plan for the Waikoloa Maneuver Area Island of Hawaii

Explosives Safety Guidance to Help Protect You from Munitions

Prepared by the Hawaii Department of Health Hazard Evaluation and Emergency Response Office March 2019
Hawaii Brownfields Virtual Forum

WMA Area-wide Environmental Hazard Management Plan (AEHMP)

The Hazard Evaluation and Emergency Response (HER) Office is part of the Hawaii Department of Health’s Environmental Health Administration whose mission is to protect human health and the environment. The HER Office provides leadership, support, and partnering in planning for, responding to, and enforcing environmental laws relating to releases or threats of releases of hazardous substances.

Explosives Safety Guidance to Help Protect You from Munitions Hazards in the Waikoloa Maneuver Area (WMA)

available online at https://www.hawaii.gov/health/9001/2010/1/WMAAEHMP.pdf

In 2015, the Hawaii Department of Health (HDOH) Hazard Evaluation and Emergency Response (HER) Office released an Area-wide Environmental Hazard Management Plan (AEHMP) for the Waikoloa Maneuver Area (WMA) on the Island of Hawaii.

The purpose of the AEHMP is to address the risk of explosions hazards from Unexploded Ordnance (UXO) present in the area from historic military use during World War II and to provide UXO safety guidance for construction and development projects within the WMA.

What’s in the AEHMP?
The following is a summary of the WMA AEHMP Guidelines:

- Property owners in the WMA should inform all users of their property (visitors, tenants, landscapers, etc.) of the potential danger presented by explosive hazards. They should also inform anyone who is potentially at risk, including children, of the potential danger.
- When developing within the WMA, use “UXO Construction Support” provided by a Department of Defense Explosives Safety Board (DESB)-Certified UXO Contractor to further reduce your risk of exposure to UXO. This is particularly important when excavating for a pool or septic tank or re-grading a property, but it is also important for small projects like installing a fence or planting a tree.
- For large-scale projects, such as a housing development or shopping center, the property owner should work with HDOH to prepare a Site-Specific EHMP (SSEHMP) to help ensure the protection of their workers and the public from UXO during and after the construction process.

February 2020 (rev. 1)
Hawaii Brownfields Virtual Forum

UXO = Brownfields?
Challenges and Opportunities

Brownfields Grant Funding From EPA

BROWNFIELDS & LAND REVITALIZATION PROGRAM
Hawaii Brownfields Virtual Forum
UXO = Brownfields?
Challenges and Opportunities

Contact info:
Sven Lindstrom: sven.lindstrom@doh.hawaii.gov or (808) 586-4249

Links:
WMA AEHMP Fact Sheet: https://eha-cloud.doh.hawaii.gov/iheer/api/documents/173252/download

HUD Notices:
Site Assessment & Remediation

• The Site Assessment and Remediation (SAR) program conducts environmental oversight of CERCLA sites and manages the Brownfields program.

• The program also works closely with the *Department of Defense (DOD)* to identify and investigate contamination of *Formerly Used Defense Sites (FUDS)* and other searches for the contaminated sites of the island.

• The CNMI State Response Program provides leadership in the CNMI’s prevention, planning, response, elimination and mitigation of releases of harmful pollutants or contaminants.
• BF128(a)
Section 128(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, authorizes a noncompetitive $50 million grant program to establish and enhance state and tribal response programs. Generally, these response programs address the assessment, cleanup, and redevelopment of brownfields sites and other sites with actual or perceived contamination.

Formerly Used Defense Sites (FUDS)

The Department of Defense (DOD) is now responsible for the investigation and environmental restoration (cleanup) of properties that were formerly owned by, leased to or otherwise possessed by the United States.

With the CNMI being heavily involved during World War II, the islands have been utilized as defense sites. As part of the FUDS program, U.S. Army Corps of Engineers works with DEQ providing oversight during all remedial actions.
Tanapag Fuel Farm

- Formerly a U.S. Naval Operating Base during and after World War II (from 1944-1950).

- Total of (42) forty-two tanks were dispersed over 96 acres in Tanapag.
  - (15) fifteen 10,000 barrel (bbl) tanks to store Navy Special Fuel Oil (NSFO);
  - (9) nine 10,000-bbl tanks to store Diesel fuel;
  - (18) eighteen 1,000-bbl tanks to store Aviation gasoline (AVGAS).

- Total of (4) four additional 10,000-bbl tanks were placed at Sadog Tasi.

- Historical information suggests there were up to 42 tanks which held different types of gas and oil.
  - Of those tanks, this removal effort is aimed at six that are considered high priority. In 2006, USEPA R9 (Michelle Rogow) and DEQ spearheaded the removal of the 6 ASTs.

- In 2015, the Removal Action for (7) tanks in Tanapag and Sadog Tasi, has been completed and undergone post-excavation confirmation sampling and Soil Bioremediation.
CONCEPTUAL SITE MODEL – SITE OVERVIEW

Site located in southwestern Saipan, northwest of the international airport.
- Two tank farm areas divided by As Perdido Road:
  - Chalan Kanoa Tank Farm in Fina Sisu (north of As Perdido Road)
    - 64 acres, containing 9 10,000-bbl ASTs (Tanks #1-9) for aviation and automobile gasoline
  - Old South Tank Farm in Chalan Piao (south of As Perdido Road)
    - 32 acres, containing 10 1,000-bbl ASTs (#10 through #19) for aviation and automobile gasoline
• Upcoming Action Items

• Public Meeting (January 2021)
• Start of Fieldwork (January 2021)
Challenges

• No UXO Technician on island, assistance provided by Navy EOD (Guam).

• In need of UXO Awareness Training, having staff registered to take a Unexploded Ordnance Technician I course.

• Department of Fire and Emergency Medical Services (DFEMS) is the primary agency in response to any UXOs discovered. However, lack of personnel due to other duties.

• With new developments in the CNMI, there is a high chance of UXOs being uncovered during intrusive activities.

• UXOs are everywhere, on the surface and in the sub-surface.
Other FUDS Projects (On-going)

- Naftan Bomb Storage
- Naftan Ordnance Disposal
- Hospital Dump Site
- Ordnance Plan
- North Field (Marpi)
- Tinian Mortar Range (U.S. Navy – NAVFAC)
The CNMI Division of Environmental Quality ("DEQ") received Brownfields 128a funding from the United States Environmental Protection Agency ("EPA") since 2004 for the development and enhancement of the DEQ Brownfields Program or CNMI State Response Program. One element required under the Brownfields 128 (a) funding State Response Program. One element required under the Brownfields 128a funding is the development and maintenance of a Public Record for the CNMI State Response Program. The EPA's goal is to enable states and tribes to make the public record easily accessible to the public via internet or other means. The CNMI Public Record is accessible to the public on the DEQ website (http://www.deq.gov.mn) and in hard-copy versions at the Joeten-Kiyan Public Library and the Northern Marianas College Library.)
3Rs’ of Explosives Safety

To protect yourself, your family, your friends and your community, it is important to follow the 3Rs of Explosives Safety should you know or suspect you have come across a military munition:

Recognize – when you may have come across a munition, and that munitions are dangerous.

Retreat – do not approach, touch, move, or disturb a suspect munition, but carefully leave the area.

Report – immediately what you saw and where you saw it to local law enforcement – call 911.
PER- and POLYFLUOROALKYL SUBSTANCES (PFASs)

Diana Felton MD
State Toxicologist, Hawaii Department of Health
Hazard Evaluation and Emergency Response Office (HEER)
Hawaii Brownfields Workshop

July 29, 2020
PFASs

Human-made chemicals (>3000)
Confusing taxonomy and nomenclature
PFOS and PFOA most studied
Hydrophobic and lipophobic
“Mobile, persistent and bio-accumulative*”

ENVIRONMENTAL CHALLENGES OF PFAS

- High Persistence
- High Toxicity
- Range of Mobility
- Complicated Remediation

Adapted from E. McWayne NEMA 2020
PFAS SOURCES

- Waterproof and stain resistant agents
- AFFF firefighting foam (military bases and airports)
- Wastewater treatment plants, Landfills
- Manufacturing (not in Hawaii)
PFAS & HUMAN HEALTH

- Universal Presence
- Most research done with drinking water exposure
- Health effects vary with chemistry
- Associations with:
  - Developmental problems
  - Increased cholesterol levels
  - Immune system alterations
  - Thyroid issues
  - Certain types of cancer
PFAS CONTAMINATION - HAWAI'I

- No manufacturing
- No known drinking water problems
- Main source concerns: Fire-fighting training sites, WWTPs, landfills
FISH AND NEARSHORE WATER

- 14 sites around Oahu
- Fish and passive water samplers
- Frequently consumed market bought fish
- Collaboration with NIST, HPU, USGS
- Awaiting results
- Funded by EPA State Response Program

MULTI-MEDIA

- WWTP influent & effluent
- WWTP biosolids
- Landfill leachate
- Soils where WWTP effluent re-used and biosolids added as soil amendment
- Start 2021
- Funded by EPA multipurpose grant
REGULATORY ISSUES

Lacking Universal Standards

States taking the lead but vary widely

More data needed especially for non-PFOS/PFOA chemicals
February 2019

“EPA’s PFAS Action Plan outlines concrete steps the agency is taking to address PFAS and to protect public health.”

Criticized for not doing enough
EPA ACTIVITIES IN PROGRESS

- Evaluating need for MCL for PFOA and PFOS
- Designate PFOS/PFOA as “hazardous substances”
- Groundwater cleanup recommendations
- Toxicity values for GenX and PFBS
PFAS REGULATORY ACTION IN HAWAII

- Newly released Environmental Action Levels (EALs) for 18 PFASs

Contact me with any questions
diana.felton@doh.hawaii.gov
Environmental Action Levels (EALs) for Per- and Polyfluoroalkyl Substances (PFASs)

Roger Brewer, PhD
Hawai‘i Department of Health
Hawai‘i Brownfields Virtual Workshop (July 28-29, 2020)
References

Interim Soil and Water Environmental Action Levels (EALs) for Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs), July 20, 2020 (public review draft):
https://health.hawaii.gov/heer/guidance/additional-guidance-documents/

Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater (EALs):

Technical Guidance Manual (site investigations):
http://www.hawaiidoh.org/

Recorded Webinars:
https://health.hawaii.gov/heer/guidance/heer-webinars/
Types of PFAS Compounds

[names: “Perfluoro” + “# carbon atoms” (penta, hexa, hepta, octa, etc.) + Family]

Sulfonic Acids (sulfonates)
- PFHxS
- PFOS

Carboxylic Acids (carboxylates)
- PFHxA
- PFOA

Other
- HFPO-DA (GenX)
- 5:3 FTCA (alcohol)
### Common PFASs and Sources (partial only)

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<th>California “Big Eight” +</th>
<th>Fire Fighting Foam</th>
<th>Landfill Leachate</th>
<th>Biosolids</th>
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<tr>
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<td>PFHxS</td>
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<td>PFNA</td>
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<td>Other: PFBA, FTCAs</td>
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PFASs in Hawaii
Maui Airport PFAS Plume

- Low risk (not drinking water);
- Potential discharge to shoreline;
- Two areas tested;
- One or two sources?
- Ok to only focus on PFOS and PFOA?
- Expanded action levels needed

PFAS Makeup – Fire Training Area

Relative Percent of Total PFASs
PFHx, 41%
PFOS, 22%
PFBS, 10%
Other...

PFAS Makeup – Downgradient Area

Relative Percent of Total PFASs
PFHx, 41%
PFBS, 35%
PFOS, 20%
Other...
Potential Environmental Concerns Associated with Contaminated Soil and Groundwater

- Direct Exposure
- Irrigation
- Leaching
- Plant Uptake
- Ecotoxicity
- Vapor Intrusion
- Drinking Water
- Dissolved plume
- Free Product
- Discharge to aquatic habitats

Prevailing Wind Direction

Commercial Industrial

Residential

Stream

Gross Contamination

Groundwater
Environmental Action Levels

Groundwater Categories
A-1: Drinking water, not within 150m of a surface water body.

A-2: Drinking water, within 150m of a surface water body.

B-1: Not drinking water, not within 150m of a surface water body.

B-2: Not drinking water, within 150m of a surface water body.
## PFASs with Toxicity Factors
And Physiochemical Constants

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<th>PFAS</th>
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<td>USEPA, ATSDR, European Chemical Agency, ITRC, etc.</td>
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<td><strong>HH Toxicity Factors</strong> (main)</td>
<td><strong>PFAS</strong></td>
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<tr>
<td>Michigan (2019)</td>
<td>PFHxS, PFHxA, PFNA</td>
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<td>Minnesota (2018)</td>
<td>PFBA</td>
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<td>Texas (2016)</td>
<td>PFOSA</td>
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<tr>
<td>Europe (RIVM 2018)</td>
<td>PFHpS, PFDS, PFPeA, PFHpA, PFDA, PFUnA, PFDoDA, PFTrDA, PFTeDA</td>
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# Aquatic Toxicity
(limited action levels available)

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<tr>
<th>Reference</th>
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<tr>
<td>Giesey et al (2010)</td>
<td>PFBS</td>
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<td>Australia (2018)</td>
<td>PFOS, PFOA</td>
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<tr>
<td>European Chemical Agency (2018)</td>
<td>PFHxA</td>
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<tr>
<td>UNDEP (2028) Environment</td>
<td>PFHxS (assumed = PFOS)</td>
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Example PFOS Environmental Action Levels

Hawai'i DOH (PFASs Draft July 2020)

- **Terrestrial Ecological Impacts**
  - Indoor Air (ug/m$^3$) (not volatile)
    - Vapor Intrusion into Buildings (not volatile)
  - Human Health Impacts
    - Direct Exposure 1.3E-01

- **Impacts to Aquatic Habitats**
  - Vapor Intrusion into Buildings (not volatile)

- **Gross Contamination**
  - 5.0E+04

- **Soil (mg/kg)**
  - Soil Tier 1 EAL: 2.5E-03
  - Leaching 2.5E-03

- **Groundwater (ug/L)**
  - Lowest GW EAL: 4.0E-02

- **Soil Vapor (ug/m$^3$)** (not volatile)
  - DP

- **Example PFOS Environmental Action Levels**

  - **Leaching to groundwater drives risk for most PFASs (lowest soil action level)**
  - **Impacts to Aquatic Habitats 1.3E-01**
  - **Gross Contamination 1.0E+03**
  - **Soil (mg/kg) 1.3E-01 4.0E-02 (not volatile)**
  - **Groundwater (ug/L) 5.0E+04 4.0E-02**
  - **DRW Toxicity drives risk if potable**

- **PFOS**
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<td>0.003</td>
<td>0.024</td>
</tr>
<tr>
<td>HFPO-DA</td>
<td>0.011</td>
<td>0.160</td>
</tr>
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</table>

**TABLE A. ENVIRONMENTAL ACTION LEVELS (EALs)**

Groundwater IS Current or Potential Source of Drinking Water
<table>
<thead>
<tr>
<th>CHEMICAL PARAMETER</th>
<th>&gt;150m to Surface Water</th>
<th>&lt;150m to Surface Water</th>
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<tbody>
<tr>
<td></td>
<td>Soil (mg/kg)</td>
<td>Groundwater (ug/L)</td>
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<tr>
<td>PFBS</td>
<td>34</td>
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</tr>
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<td></td>
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<td></td>
<td>0.002</td>
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<tr>
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<td>0.02</td>
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<td></td>
<td>0.004</td>
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<tr>
<td>PFOS</td>
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<td>31</td>
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<td>0.008</td>
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<tr>
<td>PFDS</td>
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<td>0.02</td>
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<td>7.6</td>
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<td>PFHxA</td>
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<td>0.011</td>
<td>0.160</td>
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</tbody>
</table>
PFASs Toxicity vs Mobility: Risk to Drinking Water

- **RfD** (mg/kg-day)
- **Koc** (cm$^3$/g)

**High Toxicity**
- PFHxA
- PFPeA
- PFHpA
- PFBS
- PFBA
- PFHxS
- PFOA
- PFNA
- PFOS
- HFPO-DA
- PFOSA
- PFHpS
- PFUnDA
- PFDoDA
- PFTeDA
- PFTrDA

**High Mobility**
- <1.0E-03

**Low Toxicity**
- Low Mobility

**Risk Levels**
- High
- Med
- Low
Hypothetical PFASs Groundwater Plume Separation (based on sorption and mobility)

- High sorption PFASs concentrated in and near source area;
- Low sorption PFASs at leading edge of plume

Source Area
PFDA, FTCAs, etc.

PFOS, PFNA

PFOA, PFHxS

PFBS, PFHxA, PFPeA, PFHpA
PFASs in Hawaii
Maui Airport PFAS Plume

- Single groundwater plume?
- Most PFOS trapped in source area?
- Downgradient area dominated by more mobile PFASs (e.g., PFHxA, PFBS, PFHxS);
- DW action levels for all PFASs exceeded.

**Relative Percent of Total PFASs**
- PFOS, 41%
- PFHxA, 22%
- PFHxS, 22%
- PFBS, 35%
- Other...

**PFAS Makeup – Downgradient Area**

**PFAS Makeup – Fire Training Area**

Draft!
PFASs in Hawaii
Maui Airport PFAS Plume

- Risk driven by PFOS in source area;
- Risk driven by PFHxS in downgradient area;
- Addressing risk posed by PFOS and PFOA not adequate to address risk posed by other PFASs in some cases.

**PFAS Risk Driver – Fire Training Area**

- PFHxA, 0.54%
- PFHxS, 43%
- PFOS, 49%
- Other, 5.0%

**PFAS Risk Driver – Downgradient Area**

- Relative Percent of Total
- PFHxA, 0.1%
- PFHxS, 92%
- PFOS...
Summary

• EALs generated for 18 PFAS compounds;
• Significantly expands other state & USEPA guidance;
• Primary concerns:
  • Impacts to drinking water resources;
  • Natural or construction-related discharge to aquatic habitats;
  • Leaching from soil and impacts to groundwater;
  • Bioaccumulation in aquatic organisms (EALs pending);
  • Uptake into edible plants (EALs pending).
• Limited focus PFOS and PFOA could miss potential risks from other PFASs also present;
• Current public review period through end of August (ok to use now);
• Final “Interim EALs” anticipated Fall 2020;
• Expanded presentation in October 2020 (SRA)
Hawaii Brownfields Virtual Forum

Iheer Database and Public Record Request

- Map-Based System of HEER Sites
- Online Public Record
- Restrictions and Limitations, some data gaps
- It’s not perfect - improvements to come; work in progress
- Tool only good if you know how to use it and what its limitations are.

Iris van der Zander, Ph.D.
Remedial Project Manager

Read online instructions & restrictions at:
https://health.hawaii.gov/heer/siteinfo/iheer-information/
Depending on your internet connection it can take a short waiting period (e.g. 15 seconds to load the sites)
Switch between Incidents (Emergency Response) And Sites (Non-Emergency Response Sites)

Viewer Features
Incident Limitations

- Post July 2015 Sites
- Only Incident NFA Sites shown
- Not Sites that are under investigation by On-Scene Coordinators
Site Limitations

- Sites not included where all documents cannot be shown publicly
- Sites shown may still have some documents not shown publicly
- Sites may have missing location information
- In those cases note Site ID and Site Name and use those for a public record request

Record Request Instruction, iHeer restrictions, and Map at: https://health.hawaii.gov/heer/siteinfo/iheer-information/
Why Should I Use iheer?

Examples:

• **Liability protection** (Phase I, AAI), Bank Loans

• Are there harmful contaminants on site?

• Costs and adequate planning environmental work early enough to not risk delay, stoppage of construction, or permit revocation

• To **develop**, remediate, and restore underutilized contaminated sites to productive use. (How bad is it?)

• As response to **Hawaii One Call notification** that warned you that you are planning to dig in an area that is contaminated soil
Connection to 811 Call

Dig Clean Safety and Land Use Advisory No. 2945106
Excavation Ticket No. 20009427

To:  RICHARD VASCONCELLOS
Email: rvasconcellos@honolulu.gov
Phone: (808)768-3645

From: Iris van der Zander (Primary Contact)
Email: Iris.Vanderzander@doh.hawaii.gov
Phone: 808-586-4249

Excavation Ticket No. 20009427
Ticket Priority: ROUTINE

Sites Potentially Impacted by Planned Excavation

Site 1: Kapalama Container Yard Project 5 Sand Island Access Rd Honolulu, HI (UID 1343310)
https://hea-cloud.doh.hawaii.gov/iheer/#!/site/1226/details/view

Iheer direct link to HEER Site
Connection to NPDES Permit Application Associated With Construction (NOI Form C)

C.2 - Existing Pollution Sources/History of Land Use

Determine if the existing Facility/Project site may contain any existing pollution source(s) by using the following references. Place a check next to all references you utilize to determine existing pollution source(s). You are required to check at least one reference.

☐ b. Phase I and/or Phase II Environmental Site Assessments, as applicable
☐ c. Recent site inspections
☒ d. Past land use history
☐ e. Soil sampling data, if available
☐ f. Other (specify): ____________________________

You are also required to check the Department of Health, Hazard Evaluation and Emergency Response (HEER) Office Sites, Incidents and Records through the “Viewer” in iHEER at: https://eca-cloud.doh.hawaii.gov/ih eer.

Note: The HEER Office is currently updating site information for sites. Most, but not all sites may be displayed on the viewer map. Site Document data upload is ongoing and not all documents may be currently available via this website. To get the complete record for the site, a record request form can be filled and submitted to the HEER Office. Users will then be notified when they are able to download all information via the iHEER system website.

Describe any existing pollution source(s) identified in the references you checked above and from HEER Office Sites, Incidents and Records: None

Describe any corrective measures that have been undertaken for any existing pollution source(s): None

Iheer direct link to HEER Site
How do I use iheer? - Part 1 - Viewer

- Type in target address slowly in top box
- Select blue pop-up box
- Click search icon
- Blue marker shows site location
- Green dots = site centroids of HEER sites
- Green polygons = site boundaries or area wide

All documents shown can be downloaded immediately
How do I use iheer? - Part 2 – Site List

<table>
<thead>
<tr>
<th>Name</th>
<th>Island</th>
<th>Location Description</th>
<th>Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1240 Mookaula Street</td>
<td>Oahu</td>
<td>1240 Mookaula St, 986 McGregor Ln and 1125 N King St</td>
<td>Lauren Cr</td>
</tr>
<tr>
<td>1385 Coburn Street</td>
<td>Oahu</td>
<td>1385 Colburn St, Honolulu, HI 96817</td>
<td>Eric Sado</td>
</tr>
<tr>
<td>2051-2057 Kalakaua Avenue</td>
<td>Oahu</td>
<td>2051-2057 Kalakaua Ave</td>
<td>Eric Sado</td>
</tr>
<tr>
<td>2147 Aasio Street LST Removal</td>
<td>Oahu</td>
<td>2147 Aasio St</td>
<td>Unassigned</td>
</tr>
<tr>
<td>2319 Ala Wai Blvd</td>
<td>Oahu</td>
<td>2319 Ala Wai Blvd</td>
<td>Unassigned</td>
</tr>
</tbody>
</table>

*Sorry, we can only display 500 of the total 2218 sites. Use the keyword and/or advanced search to narrow the results.*
Summary:

• iHEER is a map-(and list-) based HEER site management tool; available 24/7

• Includes an address search for any property

• Includes keyword, TMK, address and name search for HEER sites

• Not all sites are shown, but there are supplemental tools (lists and maps to identify those sites); note ID and Name for record request

• The public can easily access most documents for sites; accelerates record review for Phase Is, and information distribution about sites where development and construction may take place

Mahalo!!

For more information visit our new HEER Office website at: https://health.hawaii.gov/heer/
E-Permitting And Electronic Document Submittal

Welcome to the e-Permitting Portal

Welcome to the e-Permitting Portal, Hawaii Department of Health (DOH) Environmental Health Administration (EHA) permit applications. The DOH/DOH e-Permitting Portal provides access to environmental permit applications, related instructions and information. It allows for online application completion and submission, online application fee payment and online submittal tracking.

The e-Permitting Portal is provided as a service for the public by the DOH/EHA. The EHA oversees the overall administration of the Environmental Management Division (EMD), Environmental Health Services Division (EHS), and State Laboratory Division (SLD), including branches within each of these divisions. The EHA also provides overall administration of the Office of Compliance Assistance, Environmental Planning, Environmental Resources, and Hazard Evaluation and Management.

To search for a specific permit application, please use the Application Finder. You may also use the Organization Finder. If you do not know the organization responsible for the permit application, once a permit application is submitted, our primary goal is to process your permit application in an efficient and timely manner while ensuring environmental health protection.

Contact Information

Address:
1141 Mano Road
Puna City, Hi 96765

Contact:
808-443-9550

Forms

Electronic Signature Subscriber Agreement

Can't find a specific form? Please use our Form Finder

Direct Link to e-Permitting:
https://eha-cloud.doh.hawaii.gov/epermit/
E-Permitting And Electronic Document Submittal

Forms

EPR Information and Report Upload (NOT HEPCRA; NOT Written Release Notification)
Upload option for additional information requested by OSCs

Form For Written Release Notification (Upload of Pre-filled Form)
This form should be used to report a release to the HEER Office.

HEPCRA Tier II Submittal
Use this form to submit HEPCRA Tier II reports

HEPCRA Tier II Submittal-Multiple Facilities (Multiple Selections)
Use this form to submit HEPCRA Tier II reports

Late Submittals HEPCRA Tier II Submittal-Multiple Facilities (Multiple Selections): 2017 and later
Use this form to submit HEPCRA Tier II reports

Late Submittals HEPCRA Tier II Submittal-Multiple Facilities (Multiple Selections): Prior to and Including 2015
Use this form to submit HEPCRA Tier II reports

Notification of Construction Activities
Use this form to notify HEER of construction, demolition, or soil disturbing activities

Record Request HEER Office
Record Request Form for HEER Office

Release Reporting Form - HECO, MECO, HELCO
This form can be used for written Release Reporting of P2S releases relating to HECO, MECO, HELCO

Report Submittal for HEER Office (Assessment and Remediation Related Reports; NOT Written Release Notification Forms; NOT HEPCRA TIER II Forms)
This form is used to submit reports to HEER's Non-Emergency Group Managing Cases of Site Assessment and Remediation (Site Assessment and Remediation Reports; NOT HEPCRA or Written Release Notification Form)

Upload of Supplemental Info for Previously Reported Case for HECO, MECO, HELCO
This Form should be used for upload of additional information only (e.g., pending items such as laboratory reports)
Construction - Environmental Hazard Management Plans
Purpose of a C-EHMP

- Document the presence of residual contaminated media on a site
- Describe how the residual contamination will be managed during construction activities
- Describe measures to be taken to protect human health from hazards associated with contamination
When to Prepare a C-EHMP?

For planned construction projects:

• Following a thorough site assessment and completion of HDOH approved response action and
• Where residual contamination still remains in-place.

OR

• When contamination is detected during construction and HDOH agrees that site assessment may either be conducted concurrently with construction or following completion of construction.

Note: EHMPs are NOT intended to be the default response action when contamination is identified at a Site.
Primary Elements in C-EHMP

• Background
  • Existing Environmental Conditions
  • Compatibility of construction materials with contaminants
• Summary of Potential Environmental Hazards
  • Hazard Maps
• Notification Requirements
  • Contact info for key project personnel
• Requirement for Onsite Environmental Oversight
• Summary of Construction Activities
• Contaminated Media Management Plans
  • Soil, groundwater, stormwater, free product, vapor, etc.
• Spill or Release Response
• Worker Protection Measures
General C-EHMP Challenges

- Requires planning ahead by the developer and contractors
  - This may include providing the details for various options to provide flexibility
- May require the preparer of the C-EHMP to consult with other contractors to properly complete
- Should be completed and submitted to HDOH at least 90 days prior to start of construction
- Needs to be updated and re-submitted if plans change
HDOH C-EHMP Template

• Currently available as an editable Microsoft Word file

• Sections have pre-written text options and tables to be completed

• Preparer would need to simply include project-specific information and choose appropriate text option.

• If used, **ALL** sections should be completed.

• Not required to be used, but recommended
HDOH C-EHMP Addendum Template

• For projects at sites with a thorough, relevant HDOH-approved site-specific or Programmatic/Area-wide EHMP

• Must submit Addendum Request Form for HEER approval prior to completing the C-EHMP Addendum

• Provides construction project-specific details that are lacking in the site-specific or Programmatic/Area-wide EHMP
HDOH C-EHMP Guidance and Templates

• Available at: https://health.hawaii.gov/heer/guidance/environmental-hazard-management-plans/
  • Templates are living documents and will be updated as needed.

• Choosing an Environmental Consultant Fact Sheet
  • https://health.hawaii.gov/heer/files/2020/05/HowToChooseAConsultant05062020.pdf

• Easily notify HDOH HEER Office of planned construction activities in contaminated areas
  • https://eha-cloud.doh.hawaii.gov/epermit/Home/09e4679dd3a-4bee-b0d6-1112e0a9217d
Any Questions or Comments:
Lauren Cruz
Hawaii Department of Health
Hazard Evaluation and Emergency Response Office
(808) 586-0956
lauren.cruz@doh.hawaii.gov
Brightfields Ahead

Cameron Black
Energy Analyst
cameron.b.black@hawaii.gov

Hawaii Brownfields Virtual Workshop

July 29, 2020
2007 (H.R.S. 342B-71) Statewide GHG in 2020 that is equal to or below the level of GHG in 1990; GHG from airplanes shall not be included.

2009 (H.R.S. 269-96) The PUC shall establish energy-efficiency portfolio standards that shall ... achieve four thousand three hundred gigawatt hours of electricity use reductions statewide by 2030; shall establish interim goals for electricity use reduction by 2015, 2020, and 2025.

2015 (H.R.S. 269-92) Each electric utility company that sells electricity for consumption in the State shall establish a renewable portfolio standard of:
(1) 10% of its net electricity sales by December 31, 2010;
(2) 15% of its net electricity sales by December 31, 2015;
(3) 30% of its net electricity sales by December 31, 2020;
(4) 40% of its net electricity sales by December 31, 2030;
(5) 70% of its net electricity sales by December 31, 2040; and
(6) 100% of its net electricity sales by December 31, 2045.

2018 (H.R.S. 225P-5) A statewide target is hereby established to sequester more atmospheric carbon and greenhouse gases than emitted within the State as quickly as practicable, but no later than 2045.
Hawaii State Energy Office Duties
H.R.S. 196-71 & 72

**Promote:**
1. Energy Resiliency – Delivery of energy and fuel (normal, emergencies)
2. Energy Efficiency – Require and enable energy conservation
3. Renewable Energy – 100% indigenous power by 2045
4. Alternative Transportation – EVs, fuels, vehicles, infrastructure

**Act:**
1. Analysis and planning to develop and inform policies
2. Incorporate and reduce costs across all public facilities
3. Provide project deployment facilitation to assist private sector project completion when aligned with State energy goals
4. Engage the private sector to help lead efforts to achieve energy and transportation goals through the Hawaii Clean Energy Initiative
Oil Import/Transport is a Marine Risk

Oil Import/Transport is a Marine Risk
Percent Provided by Renewable Energy by Electric Utility in 2019

Statewide in 2019: 29.8%
60 Utility-Scale (500 kW) Renewable Energy Projects Provided 16% of Hawaii’s Electricity

In 2019, of the 29.8% ...
• 46.7% came from residential and commercial PV installations
• 53.3% came from approximately 60 projects over 500 kilowatts
Why Used Land (Brownfields) Can be Good for Renewable Energy Projects

- Can be more development-ready
  - On-site or nearby infrastructure (roads, water, gas, electrical)
  - Flatter, graded, grubbed, typically closer to power needs
  - Site may have been studied or permitted
  - Zoning is generally compatible with PV based on previous uses

- Site remediation may not be required for PV development
- Offers revenue potential for sites with limited other uses
- Can power the necessary on-site facilities and equipment
  - Normal operations: agriculture, commercial, municipal, industrial
  - Site remediation: pumping, monitoring, filtering

- Reuse of land for renewable energy is encouraged by the State and Federal governments
Hawaii Brightfields Initiative

https://histategis.maps.arcgis.com/apps/webappviewer/index.html?id=98d287050aa8497d9e5779506ad816e9

• Launched in 2019
• HSEO, DOH HEER, US EPA, National Renewable Energy Laboratory
• Searchable database of previously developed or disturbed sites in Hawaii with information relevant to renewable energy development.
• Compilation of public databases:
  • EPA RE-Powering Mapper Database
  • DOH Brownfields Database
  • DOH Inactive Landfills Database
  • DOH Sites of Interest Database
  • DOH Disadvantaged Sites Database
• Contains 3,289 sites (parcels)
Hawaii Brightfields Initiative

https://histategis.maps.arcgis.com/apps/webappviewer/index.html?id=98d287050aa8497d9e5779506ad816e9
Hawaii Brightfields Initiative

https://histategis.maps.arcgis.com/apps/webappviewer/index.html?id=98d287050aa8497d9e5779506ad816e9
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<td>Prohibit Any Activity That May Disturb the Integrity of the Capping System</td>
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<td>SDAR Institutional Controls</td>
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<td>2007-739.MS</td>
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<td>SDAR Document Subject</td>
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</tbody>
</table>
Thank You

Visit the Hawaii State Energy Office
at http://energy.hawaii.gov/

energyoffice@dbedt.hawaii.gov
808-587-3807
AERIAL MAGNETOMETER SURVEY
AT WEST LOCH, HAWAII

Dave Martin, Hawaiian Electric
Hawaii Brownfields Virtual Workshop
Honolulu, Hawaii – July 28, 2020
Figure 1: The approximate location of the proposed PV solar photovoltaic system at JBPHH-West Loch.
SITE LOCATION MAP

102-acre West Loch Solar Project Location

Figure 18 - Site Layout (Figure 2 from Environmental Condition of Property Report, Environmental Science International, May 2012)
CONCEPTUAL LAYOUT OF PHOTOVOLTAIC (PV) SYSTEM

HECO WEST LOCH, HI
20,001.4 KW DC, 20,000.05 KW AC

NOTES:
1. RACKING TO BE (2) MODULE IN PORTRAIT
2. PROVIDE 15 MIN BETWEEN MODULE TABLES
3. ACCESS ROAD TO BE 20 MIN WIDTH

SYSTEM EQUIPMENT
Ranking: PERP-TILT
Module Type: REC SOLAR REC SPRINTER 72; REC SPRINTER 72A
Module Qty: (92,990 & 37,744)

Power
Inverter: FUSION50K

Array: (7)
Module/Shingles: (1,744 & 329)

SYSTEM INFORMATION
DC Output: 28,001.4 KW
AC Output: 20,000.05 KW

Location: HECO WEST LOCH, HI

SCALE: 1" = 50'
PROJECT OBJECTIVES

- Investigate pre-existing environmental conditions identified during Phase I Environmental Site Assessment (ESA) prior to executing a long-term lease with the Navy:
  - Pesticides related to former agricultural use
  - Inactive JP-5 fuel pipeline
  - UXOs associated with 1944 munitions explosion at Waipio Peninsula ~1 mile northeast of site
  - Other waste disposed/discarded at site

- Conduct Phase II ESA to document baseline conditions prior to start of lease from Navy and construction of 28 megawatt (DC) PV system in April 2018

- System dedicated and brought online in Nov 2019
UNEXPLODED ORDNANCE (UXO)

- Munitions accident occurred in 1944 on Landing Ship Tanks (LSTs) moored at Waipio Peninsula at north end of West Loch
- Two dozen ammunition ships moored there were preparing for an attack on Saipan.
- Sudden explosion at one of the LSTs caused a chain reaction in other vessels moored there.
- The total casualties from the incident were 163 dead and 396 injured and six LSTs sank.
- Munitions-related projectiles scattered throughout West Loch area
MUNITIONS ACCIDENT AT WAIPIO PENINSULA
May 21, 1944

Location of May 21, 1944
LST Explosion

Approx. 7,000 feet

102-acre West Loch Solar Project Location

Figure 16 - Site Layout (Figure 2 from Environmental Condition of Property Report, Environmental Science International, May 2012)
AFTERMATH OF EXPLOSIONS AT WAIPIO PENINSULA
May 22, 1944
AFTERMATH OF EXPLOSIONS AT WAIPIO PENINSULA
May 22, 1944
Magnetometer Survey Equipment

- Survey platform
  - DJI M 600 Drone System
  - GEM Systems GSMP-35U potassium vapor magnetometer sensor
  - GEM Systems GSM-19W Overhauser Base Station
  - Micro-laser altimeter – 10Hz, with accuracy of 0.03 foot
  - VN-200 integrated IMU and Novatel GPS
  - Digital data acquisition and power distribution system

- Survey conducted by Aerovision under subcontract to Dudek
Magnetometer Survey Equipment

Link to UAS-MAG video
MAGNETOMETER SURVEY RESULTS

Abandoned Underground JP-5 Pipeline

Anomalies in west portion of site representing the road and/or infrastructure in the subsurface.
MAGNETOMETER SURVEY RESULTS

The intersection of two linear features in the grid.
Large non-linear anomalies in the western side of the grid
Figure 5  Large non-linear anomalies in the east side of the grid
MAGNETOMETER SURVEY RESULTS

Figure 6   Small, non-linear anomaly types. A total of 37 anomalies were identified for follow up.
### Survey Results

#### Table 2
Selected “Small non-linear” Type Anomalies

<table>
<thead>
<tr>
<th>Anomaly</th>
<th>Priority</th>
<th>Easting</th>
<th>Northing</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Low</td>
<td>82236.00 m E</td>
<td>2360255.00 m N</td>
<td>Broad, large</td>
</tr>
<tr>
<td>2</td>
<td>Low</td>
<td>82284.00 m E</td>
<td>2360213.00 m N</td>
<td>Broad, large</td>
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<td>3</td>
<td>Moderate</td>
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<td>2360386.00 m N</td>
<td>Small, weak, spatially related to road disturbance</td>
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<td>4</td>
<td>Moderate</td>
<td>232362.00 m E</td>
<td>2360101.00 m N</td>
<td>Small, weak, spatially related to road disturbance</td>
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<tr>
<td>5</td>
<td>Moderate</td>
<td>232627.00 m E</td>
<td>2360105.00 m N</td>
<td>Small, weak, spatially related to road disturbance</td>
</tr>
<tr>
<td>6</td>
<td>Low</td>
<td>23659.00 m E</td>
<td>235070.00 m N</td>
<td>Small, weak, elongate</td>
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<tr>
<td>7</td>
<td>High</td>
<td>235591.00 m E</td>
<td>2359819.00 m N</td>
<td>Sharp, small, spatially next to road</td>
</tr>
<tr>
<td>8</td>
<td>Low</td>
<td>232320.00 m E</td>
<td>2350863.00 m N</td>
<td>Broad, large, adjacent to road disturbance</td>
</tr>
<tr>
<td>9</td>
<td>Moderate</td>
<td>232426.00 m E</td>
<td>2350303.00 m N</td>
<td>Mid sized, broad feature adjacent to linear anomaly</td>
</tr>
<tr>
<td>10</td>
<td>High</td>
<td>23444.00 m E</td>
<td>2360506.00 m N</td>
<td>Sharp, small, along linear trend with 9, 6, 11 &amp; 12</td>
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<tr>
<td>11</td>
<td>Moderate</td>
<td>232475.00 m E</td>
<td>2350087.00 m N</td>
<td>Small, elongate anomaly adjacent to 6 and 12</td>
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<tr>
<td>12</td>
<td>Moderate</td>
<td>232475.00 m E</td>
<td>2350126.00 m N</td>
<td>Distinct dipole-type anomaly</td>
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<tr>
<td>13</td>
<td>High</td>
<td>23512.00 m E</td>
<td>235055.00 m N</td>
<td>Small, sharp distinct anomaly</td>
</tr>
<tr>
<td>14</td>
<td>High</td>
<td>23446.00 m E</td>
<td>235014.00 m N</td>
<td>Small, sharp distinct anomaly</td>
</tr>
<tr>
<td>15</td>
<td>Moderate</td>
<td>23547.00 m E</td>
<td>2350558.00 m N</td>
<td>Small, weak anomaly near large linear type</td>
</tr>
<tr>
<td>16</td>
<td>Moderate</td>
<td>235391.00 m E</td>
<td>235865.00 m N</td>
<td>Small, isolated anomaly near road cut</td>
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<tr>
<td>17</td>
<td>Moderate</td>
<td>235514.00 m E</td>
<td>2356889.00 m N</td>
<td>Small, weak anomaly near large linear type</td>
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<tr>
<td>18</td>
<td>Low</td>
<td>232470.00 m E</td>
<td>2350565.00 m N</td>
<td>Small, weak anomaly near large linear type</td>
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<tr>
<td>19</td>
<td>Moderate</td>
<td>23642.00 m E</td>
<td>2350096.00 m N</td>
<td>Small, weak isolated anomaly, shallow surface type</td>
</tr>
<tr>
<td>20</td>
<td>Low</td>
<td>232455.00 m E</td>
<td>235671.00 m N</td>
<td>Broad, elongate, along linear anomaly</td>
</tr>
<tr>
<td>21</td>
<td>Low</td>
<td>232675.00 m E</td>
<td>2358732.00 m N</td>
<td>Broad, large dipole</td>
</tr>
<tr>
<td>22</td>
<td>Low</td>
<td>232677.00 m E</td>
<td>2358801.00 m N</td>
<td>Broad, large dipole</td>
</tr>
<tr>
<td>23</td>
<td>High</td>
<td>232505.00 m E</td>
<td>2358604.00 m N</td>
<td>Small, distinct sharp isolated anomaly</td>
</tr>
<tr>
<td>24</td>
<td>Low</td>
<td>232743.00 m E</td>
<td>2358567.00 m N</td>
<td>Small, sharp anomaly along large linear trend</td>
</tr>
<tr>
<td>25</td>
<td>Moderate</td>
<td>232850.00 m E</td>
<td>2358586.00 m N</td>
<td>Small, irregular anomaly</td>
</tr>
<tr>
<td>26</td>
<td>Low</td>
<td>232942.00 m E</td>
<td>2358629.00 m N</td>
<td>Large, broad dipole</td>
</tr>
<tr>
<td>27</td>
<td>Low</td>
<td>232946.00 m E</td>
<td>2358875.00 m N</td>
<td>Large, broad anomaly</td>
</tr>
<tr>
<td>28</td>
<td>Moderate</td>
<td>232973.00 m E</td>
<td>2358787.00 m N</td>
<td>Sharp, small feature anomaly</td>
</tr>
<tr>
<td>29</td>
<td>Low</td>
<td>232877.00 m E</td>
<td>2358989.00 m N</td>
<td>Large dipole feature</td>
</tr>
<tr>
<td>30</td>
<td>Moderate</td>
<td>235862.00 m E</td>
<td>2358638.00 m N</td>
<td>Medium, irregular anomaly near large linear feature</td>
</tr>
<tr>
<td>31</td>
<td>Moderate</td>
<td>235732.00 m E</td>
<td>2358565.00 m N</td>
<td>Medium dipole and irregular anomaly feature</td>
</tr>
<tr>
<td>32</td>
<td>Moderate</td>
<td>232414.00 m E</td>
<td>2358710.00 m N</td>
<td>Small, isolated magnetic high</td>
</tr>
<tr>
<td>33</td>
<td>Moderate</td>
<td>232869.00 m E</td>
<td>2358617.00 m N</td>
<td>Small, irregular shaped magnetic, high feature</td>
</tr>
<tr>
<td>34</td>
<td>High</td>
<td>232174.00 m E</td>
<td>2350148.00 m N</td>
<td>Small sharp magnetic low</td>
</tr>
<tr>
<td>35</td>
<td>Moderate</td>
<td>232740.00 m E</td>
<td>2356708.00 m N</td>
<td>Weak magnetic high feature, isolated</td>
</tr>
<tr>
<td>36</td>
<td>High</td>
<td>230628.00 m E</td>
<td>2358182.00 m N</td>
<td>Small, isolated, sharp magnetic high</td>
</tr>
<tr>
<td>37</td>
<td>High</td>
<td>230801.00 m E</td>
<td>2300197.00 m N</td>
<td>Small, isolated, sharp magnetic high</td>
</tr>
</tbody>
</table>
Ground Penetrating Radar Survey

102-acre West Loch Solar Project Location
GPR SURVEY AND FIELD VERIFICATION OF MAGNETIC ANOMALIES

Anomaly 34
GPR SURVEY AND FIELD VERIFICATION OF MAGNETIC ANOMALIES

Anomaly 31 Area

Anomaly 16 Area
GPR SURVEY AND FIELD VERIFICATION OF MAGNETIC ANOMALIES

Panorama of Anomaly 31 Area
GPR SURVEY AND FIELD VERIFICATION OF MAGNETIC ANOMALIES

Anomaly No. 7 Location
SUMMARY

- Application of the aerial magnetometer survey technology did not require costly/disruptive clearing of the site vegetation.
- The UAS survey was completed in 3 days, which is approximately 30 days faster than a similar ground level survey would have required, and at ~1/3 the cost.
- Several large linear and non-linear anomalies and 37 small non-linear anomalies of potential near-surface objects were identified and subsequently investigated.
- The alignment of the underground JP-5 pipeline was identified and staked in the field so it could be avoided during installation of piles for the PV rack system.
- Although several of the anomalies were associated with solid waste such as tires and metal debris, none of the onsite anomalies appeared to correspond with UXOs.
- Phase II ESA with soil and groundwater sampling was conducted first quarter 2018.
- PV System dedicated and brought online in November 2019.
UXO Procedures Followed During Construction Activities

Recognize - when you may have encountered a munition and that munitions are dangerous.
Retreat - do not approach, touch, move or disturb it, but carefully leave the area.
Report - call 911 and advise the police of what you saw and where you saw it.

Suspected UXO discoveries reported to HPD via 911 and the Navy.
UXOs Encountered During Project Development

50 Caliber round found at West Loch Solar Project – September 14, 2018
UXOs Encountered During Project Development

Mk1 3-inch projectile encountered in November 2018 in vicinity of proposed substation
UXOs Encountered During Project Development
UXOs Encountered During Project Development

Figure 6  Small, non-linear anomaly types. A total of 37 anomalies were identified for follow up.
BROWNFIELD GRANTS

- Targeted Brownfields Assessments
- Revolving Loan Fund
- EWDJT
- Multi-purpose
- Clean up
- Assessment
• City of Tucson’s Central Business District – adjacent to the downtown revitalization area
Questions to consider:

• Who will oversee your grant?
• Is the community vision shared by partners?
• How and when will you engage the community?
• Do you have political support?
• Can you obtain access to properties that need assessments?
• Have you engaged a certified local regulatory agency to oversee cleanup?
<table>
<thead>
<tr>
<th><strong>Review</strong></th>
<th>previous successful applications on TABEZ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tell</strong></td>
<td>a story</td>
</tr>
<tr>
<td><strong>Keep</strong></td>
<td>story detailed and consistent</td>
</tr>
<tr>
<td><strong>Seek</strong></td>
<td>EPA assistance for threshold criteria and site eligibility</td>
</tr>
</tbody>
</table>
**Key Ideas**

**Proposal Preparation**

- **Project Development:** Prepare proposal as if you are selling it to someone
- **Catalyst:** What is the catalyst for revitalization and who is going to help
- **Meaningful Community Engagement:** Involve stakeholders early and use creative outreach methods
- **What is the Big Picture:** Provide details on the reuse and how it will create change
National City, CA
National City, CA: Affordable Housing
• Assessment Grant
• Revolving Loan Fund
• Technical Assistance
**PROPOSAL PREPARATION**

- Read entire Guidelines
- Review Frequently Asked Questions
  - Address **ALL** of the information requested in the criteria
  - It is not sufficient to simply respond to a criterion, the **quality** of the response is important
  - Use the Proposal Check Lists
Proposal Preparation

Ranking Criteria

• Project Area Description & Plans for Revitalization
• Community Need & Community Engagement
• Task Descriptions, Cost Estimates & Measuring Progress
• Programmatic Capability & Past Performance
PROPOSAL PREPARATION

• Free tool to prepare proposals
• User friendly
• Access anytime
• Access Successful Proposals
• Password protected
• Export proposals to Word or PDF

Go to www.tabez.org and click on Online Tools and “TAB EZ”
PROPOSAL PREPARATION

• Participate in EPA webinars
• Be ready to submit one week before the deadline
• **Seek review from CCLR**
• Identify roles and responsibilities
  • Economic or Community Development, Planning, Public Works, Accounting, Legal,
  • Consultants? Editors? Reviewers?
## Community Need

<table>
<thead>
<tr>
<th>Sensitive Populations</th>
<th>Brownfield Impacts</th>
<th>Social Impacts</th>
</tr>
</thead>
</table>
| Identify the sensitive populations in the targeted community  
  • children, pregnant women, elderly, minority or low income | Make a connection to brownfield impacts w/data  
  • cancer rates, obesity, blood lead levels, asthma, substandard housing | Emphasize the social impacts  
  • blight, crime, vandalism, illegal dumping, people moving out, lack of neighborhood upkeep |
Pyramid Lake Paiute Reservation, NV

• Former “informal” auto maintenance site
• Open space - community gathering
• Trenching and soil sample collection and cultural monitoring conducted by the tribe
PARTNERSHIPS

• Relevant roles for all partners and stakeholders
  • Other agencies
    • State or local health departments
    • Community Development agencies
    • Strategic Growth Council
  • Neighborhood and Cultural organizations
  • Private Developers, local businesses
  • Churches
  • Non profits and Associations
• Calculate returns
• Every $1 spent on brownfields yields $18 of private or government investment
• Identify all sources of local, public, private and in-kind assistance
PROPOSAL PREPARATION

• Identify specific site(s)/area(s) in need of assessment
• Have relevant participation and commitments from stakeholders
• Have property owners that are on-board
• Have identified significant redevelopment potential
**Proposal Preparation (Cleanup)**

- Own at least one property before the deadline (and are not a Responsible Party)
- Have a Phase II that fully characterizes the site
- Completed an Analysis of Brownfields Cleanup Alternatives (ABCA) and complete cost estimates
- Have commitments for leveraged funds for cleanup and redevelopment
- Have established Redevelopment Plan(s)
Crescent Mills, CA

- The Sierra Institute for Community and Environment received cleanup grants
- Former lumber mill site in Northern California
FORMATTING TIPS

• Use active tone
• Avoid: *is considering, may be, intends to*
• Short, direct sentences or organize into bullet points
• Be direct – don’t make the reader guess
• Minimize/explain acronyms and vernacular
• Use Tables, with light shading and/or different font
• Use visual variety – *italics, underline, bold*
PROPOSAL CONTENT & FORMAT

**Narrative Information Sheet** (2 pages, single-spaced)
- Place information on your organization’s letterhead.
- State Acknowledgement Letter (does not count toward page limit.)

**Narrative** (10 pages for Assessment/Cleanup and 12 pages for Multipurpose, single-spaced)
- Excess pages will be removed and not reviewed.

**Required Attachments**
- Limit attachments to required/relevant documents (i.e., threshold criteria, documentation of leveraged resources, etc.).
APPLICATION SUBMISSION MATERIALS

Your www.grants.gov Application Package FAQ Grants.gov Tip Sheet

Brownfield Program Requirements

APPLICATION SUBMISSION

• Use the correct DUNS number for your organization

• Register in www.sam.gov now

• Even if already registered in www.sam.gov, make sure the account is active & stays active by the deadline
  ❑ The account must be renewed annually by the E-Business Point of Contact (E-Biz POC).

• Ensure the correct Authorized Organization Representative (AOR) submits the proposal.
  ❑ The AOR must be designated by the E-Biz POC.
Noemi Emeric-Ford
213-244-1821
emeric-ford.noemi@epa.gov
Money Anyone?
## Why do brownfields redevelopment?

### 3 broad benefits

<table>
<thead>
<tr>
<th>Economy</th>
<th>Environment</th>
<th>Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Construction jobs</td>
<td>● Preserves open space</td>
<td>● Expands opportunities</td>
</tr>
<tr>
<td>● New industry</td>
<td>● Removes environmental and safety hazards</td>
<td>● Provides public amenities</td>
</tr>
<tr>
<td>● Direct/indirect employment</td>
<td>● Enhances Quality of Life</td>
<td>● Improves public safety</td>
</tr>
<tr>
<td>● Property values</td>
<td>● Promotes sustainable practices</td>
<td>● Creates housing and services</td>
</tr>
<tr>
<td>● Investment</td>
<td></td>
<td>● Improves public health</td>
</tr>
<tr>
<td>● Increased tax base</td>
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</tbody>
</table>

- Construction jobs
- New industry
- Direct/indirect employment
- Property values
- Investment
- Increased tax base

- Preserves open space
- Removes environmental and safety hazards
- Enhances Quality of Life
- Promotes sustainable practices

- Expands opportunities
- Provides public amenities
- Improves public safety
- Creates housing and services
- Improves public health
Redevelopment Barriers from local government, developer or prospective purchased viewpoint

<table>
<thead>
<tr>
<th>Issue</th>
<th>Implication</th>
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</thead>
<tbody>
<tr>
<td>Cleanup costs and liability surpass market value, no starter</td>
<td>Requires significant public investment or market change</td>
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<tr>
<td>Poor earnings for developer after cleanup</td>
<td>Targeted public investment can make project feasible</td>
</tr>
</tbody>
</table>

Uncertainty of Cost and Time / Fear of Liability
Brownfield Value over Time and (Un)Certainty

Perceived Property Value

- >> $0
- ~~ $0
- << $0

Site Identification / Planning / Community Involvement
Access / Acquisition & Environmental Investigation
Environmental Remediation
Site Preparation
Redevelopment
Be strategic: Think about the **what, who, when, & how much?**

1. **What:** your reuse goals; your objectives
2. **Who:** stakeholders – who will benefit; who will get things done; who will support
3. **When:** process & approvals; timing; market
4. **How much:** Funds, financing & leveraging for planning & approvals, environmental, infra, business development & redevelopment
The Brownfields Funding Process

Be strategic: Think about **when** you need funds, and what you need to get funds

<table>
<thead>
<tr>
<th>Agency</th>
<th>Site Identification / Planning / Community Involvement</th>
<th>Access / Acquisition &amp; Environmental Investigation</th>
<th>Environmental Remediation</th>
<th>Site Preparation / Infrastructure</th>
<th>Redevelopment</th>
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</table>
Brownfield Value over Time and (Un)Certainty

- Perceived Property Value

- Redevelopment
- Site Identification / Planning / Community Involvement
- Access / Acquisition & Environmental Investigation
- Environmental Remediation
- Site Preparation
- Redevelopment
Funds, Financing & Technical Assistance

**FEDERAL**
- EPA
- DoT
- USDA
- HUD
- EDA
- USACE

**STATE**
- DoH / RLF DBEDT
- Housing & Economic Development
- Taxes, bonds, legislation

**Financing & Equity**
- New Markets Tax Credits
- Opportunity Zones

**Technical Assistance**
- Council of Development Financing Agencies
- CCLR
- DoE
- Consultants & Lobbyists

**Future Funds**
- CARES & HEROES
- Other stimulus/recovery funds
Planning for funding applications

● **Resource Roadmap**
  ○ Strategy document confirming revitalization priorities, key project components & phases, matching the costs to specific sources of funding, and defining tactics for pursuing those funding sources.

● **Funding Matrix –**
  ○ Summary version of your target resources used to explain your needs to outside stakeholders – particularly funding agencies and investors

● **Briefing Sheets**
  ○ 1-page project summary hand outs that explain the overall project to funding agencies, supporters
Partnering, Visioning & Mobilizing

1. Organize project team & leaders
   1. Elected
   2. Staff
   3. Community
   4. Investors, developers, property owners
   5. Project champions & NGOs, etc.

2. Priorities & vision
   1. Policy / general planning documents
   2. Visioning

3. Break down into projects & phases
   1. Specific planning
   2. Negotiation & Acquisition
   3. Environmental & Entitlement
   4. Site preparation & remediation
   5. Infrastructure
   6. Redevelopment
   7. Operations

4. Estimate costs of phases

- Vertical development - building
5. Identify the Best Mix of Funding Sources – Federal, state, local, other - for Components & Phases
   1. Grants, loans, financing
   2. Equity
   3. Timing
   4. Create Resource Roadmap

6. Assess Feasibility of Debt Financing
   1. Bonds, taxes, loans
   2. Tax credits

7. Create & distribute Funding Matrix

8. Request state and federal funds
   1. Host a resource roundtable
   2. Prepare grant applications
   3. Lobby

9. Consistent advocacy

10. Get seed funds/TA from EPA
    1. Assessment & Multipurpose
    2. TBA / CCLR
    3. EPA partners
Thank you for joining us!
Center for Creative Land Recycling
(CCLR or “see clear”)

What we do

• One-on-one technical assistance
• National webinars
• Workshops and conferences
• Newsletters and online resources

How we can help you

CCLR works with communities in response to their identified needs. Start with us, stay with us.

Getting you started
Giving you the tools and connections to plan a redevelopment roadmap and champion the pathway.

Helping you stay on track
Offering current information and expert advice on regulations, funding, remediation and community engagement to meet your milestones.

Getting the job done
Sharing common documents (RFPs and marketing sheets) and introducing you to peers, industry experts, and developers.

Thank you for joining us!
Center for Creative Land Recycling
(CCLR or “see clear”)
Please take a moment to evaluate the Webinar. Please see the chatbox for the link to the evaluation form. 
https://tinyurl.com/HawaiiBrownfields

Hawaii Virtual Brownfields Webinar Evaluation 28–29 July 2020

Your candid responses help us evaluate this Workshop and improve future workshops. You are free to remain anonymous, but responses are most effective if we can follow up with your contact information. Please place this in the Evaluation Box before you leave today. Thank you!