

**DOCKETED
USNRC**

November 19, 2009 (3:00 p.m.)

PO Box 10265
Hilo, Occupied Hawai'i 96721
October 30, 2009

**OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF**

Docket No. 40-9083

U.S. Nuclear Regulatory Commission (NRC)
Office of the Secretary of the Commission
Rulemakings & Adjudications Staff
Mail Stop O-16C1
Washington, DC 20555-0001

Dear NRC staff,

This letter concerns the U.S. Army Installation Command license application (ADAMS Accession No. ML090070095) requesting authorization to possess depleted uranium at two sites in Hawaii, Schofield Barracks on Oahu and Pohakuloa Training Area on the Big Island of Hawai'i.

I previously submitted an October 9, 2009 REQUEST FOR EXTENSION OF TIME TO FILE A REQUEST FOR HEARING AND PETITION FOR INTERVENTION.

As I discussed with Emile Julian by phone October 26, please consider the October 9 submission for the original purpose and also as a PETITION FOR INTERVENTION.

Please also consider the enclosed ADDENDUM, dated October 30, 2009, as part of the October 9 document.

To John Hayes: please consider the October 9 and 30 documents as comments on the license application.

Thank you,

Cory Harden
mh@interpac.net 808-968-8965

enclosure
ADDENDUM October 30, 2009

cc
NRC Office of Commission Appellate Adjudication
NRC Office of the General Counsel
Kent Herring, US Army Installation Command, Environmental Law Division
John Hayes, NRC Project Manager for DU in Hawai'i
OGCMailCenter@nrc.gov (e-mail materials only)
Jim Albertini, Malu Aina
Isaac Harp
Angela Rosa

*This letter, and addendum, sent earlier by e-mail
this mailing is paper attachments*

CHARACTERIZATION REPORT ATTACHMENT

Dr. Brown's research [first 3 pages only; all 31 pages available on request]

RESUME

July, 2001

Name H. Marshall Blann

Address: 77 426 Kalamauka St
Hoiulua, H. 96725 USA

Professional Assignments:

1996-present, Consultant, Los Alamos National Laboratory

1997-2000, Consultant, Lawrence Livermore National Laboratory

1996, retired, Physics Directorate, Lawrence Livermore National Laboratory

1978-1996, Physicist, Lawrence Livermore National Laboratory

1970-78 - Professor, University of Rochester

1965-70 - Associate Professor, University of Rochester

1963-65 - Assistant Professor, University of Rochester

1960-63 - Instructor, University of Rochester

Education:

D. Nat. Ph., h.c., 1996, Univ. Frankfurt, Frankfurt, Germany

Ph.D., University of California, Berkeley (1960); Research Director, G. T. Seaborg

B.S. in Chemistry UCLA, 1957 with honors, (Phi Eta Sigma, Phi Lambda Upsilon, Phi Beta Kappa)

Activities:

Member and Fellow of the American Physical Society

Chairman, Symposium on Heavy Ion Reactions, American Chemical Society, Sept. (1969)

Guest Professor, Institute of Theoretical Physics, Frankfurt University (1970)

Vice Chairman, Gordon Research Conference on Nuclear Chemistry, (1971)

Chairman, Gordon Research Conference on Nuclear Chemistry (1972)

Recipient Alexander von Humboldt Fellowship for Senior American Scientists (1974, 1975, 1976); von Humboldt return fellowship (1986, 1987)

Guest Professor, Bonn University 1974, 1975

Elected member Executive Committee, Brookhaven National Lab, Nuclear Structure Laboratory users Group (1973); Re-elected 1976

Member Post-Accelerator Study Committee, Brookhaven National Laboratory, Nuclear Structure Laboratory

Member International Program Advisory Committee, International Conference on Reactions of Heavy Ions, Nashville, TN (1974)

Elected Member/Chairman/Uses Organization, Hollifield Laboratory, ORNL, (1975)

Member International Program Advisory Committee, Symposium on "Tightly Bound States in Nuclei," Jülich, W. Germany (Sept. 1975)

Member Program Committee, Hollifield Heavy Ion Lab., ORNL, (1977-1980)

Member Superhilia, Executive Committee, 1981-83

Guest Physicist, ENEA, Bologna, Italy (1986) June.

Member International Advisory Committee, IAEA Advisory Group Meeting Nuclear Theory for Fast Neutron Reactions, Beijing (1987).

Guest Professor, Univ. Frankfurt, 1988.

Member Program Advisory Committee, 88 Cyclotron 1987-90

Visiting Fellow, Australian National University, December 1989.

Organizer, "Theory of Medium Energy Charged Particle Reactions," Session, American Nuclear Society Convention, San Francisco, CA November 1989

International Program Committee, First Ukrainian Summer School in Nuclear Physics (Kiev, May-June, 1990)

Guest Professor, Univ. Frankfurt, 1990.

Local Organizing Committee, 7th ISGRS-art Conference, Asilomar, 1990

International Advisory Committee, Beijing International Symposium of Fast Neutron Physics (Sept. 1991)

Committee to Assess Future Nuclear Data Needs, Nuclear Chemistry Division LLNL, (1989).

Member International Advisory Group on Intermediate Energy Nuclear Data, IAEA, Vienna (1990).

Member Coordinated Research Project on Fast and Fusion Reactor Neutron Data, IAEA, 1986-1990 (Vienna, Bologna).

Member International Atomic Energy Agency Consultants Meeting on "Data Requirements for Medical Radioisotope Production," Tokyo (1987).

Lecturer, Workshop on Computer Codes for Nuclear Reactor Physics ICTP, Trieste (1988).

Lecturer, Workshop on Computation, and Analysis of Nuclear Data Relevant to Nuclear Energy and Safety, Trieste, (1992).

Scientific Committee, Int. Advanced courses on Hot and Dense Nuclear Matter, Bodrum, Turkey, Sept. - Oct. 1993.

Representative IAEA Advisory Group Meeting on Charged Particle Data, Smolenice, Slovakia, April 1994.

Member NEA/NSC Working Party on International Evaluation Cooperation Subgroup 12, Nuclear Model Validation (1994-)

Member NEA/NSC Working Party on International Evaluation Cooperation Subgroup 13, Intermediate Energy Data (1994-)

Organizer/Planner NEA/NSC International Code-Comparison for Intermediate Energy Nuclear Data (1992-1994)

Organizer NEA/NSC Specialists Meeting on Intermediate Energy Code Intercomparison

International Advisory Committee "International Symposium on Pre-equilibrium Reactions," Smolenice, Slovakia (Oct. 1995)

Appointed Consultant, IAEA meeting on selection of individual evaluations for the FENDL/A-2 activation cross section data library, St. Petersburg, 25-27 June, 1995

Appointed Consultant, IAEA coordinated Research Project on "Activation Cross Sections for the Generation of Long Lived Radionuclides of Importance in Fusion Reactor Technology," St. Petersburg, 19-23, June 1995.

Chairman, NEA/NSC Working Group on Nuclear Data: Subgroup 12, Code Benchmarking

Member, NEA/NSC Working Group on Nuclear Data: Precompound Reaction Models.

Int'l Organizing Committee, Int'l Conference on Nuclear Data for Applied Needs, Trieste, 1997

IAEA Coordinated Research Project on Isotopes for Medical Applications (1995-6)

Publications: Over 230 papers in Phys. Rev., Nucl. Physics, Phys. Lett, and International Conferences, Nuclear Structure and Reactions, Nuclear Modeling.

M. Blann, H. Gruppelaar, P. Nagel and J. Rodens, "International Code Comparison for Intermediate Energy Nuclear Data," NEA/NSC OECD/NEA (March 1994), Book, 206pages, Paris.

Listing of Publications

V. E. Viola, M. Blann and T. D. Thomas, "Fission in Gold Induced with Carbon Ions, in Reactions Between Complex Nuclei," ed. by A. Zucker, F. T. Howard and E. C. Hulbert, John Wiley and Sons, Inc., N.Y. 224, (1960).

M. Blann, "Fission of Gold with 112 MeV C^{12} Ions: A Yield-Mass and Charge Distribution Study," Phys. Rev. 133, 1356 (1961)

M. Blann and G. Merkel, "Reactions Induced in Ni^{58} with 0-24 MeV Deuterons: Statistical Model Analysis," Phys. Rev. 131, 764 (1963).

M. Blann, "Statistical Analysis of Reactions Induced with 21-63 MeV Li^6 Ions on Fe^{56} : Effects of Angular Momentum and Closed Shells on Nuclear Level Densities," Phys. Rev. 133, B707 (1964).

M. Blann, F. Lanzafame and A. Piscitelli, "Reactions Induced in Fe^{56} with 21-63 MeV Li^6 Ions," Phys. Rev. 133, B700 (1964).

FORGOTTEN HAZARDS ATTACHMENT DU Discovery

9-19-05 e-mail from Plyler McManus, Army Engineering and Support Center, to Ron Borne, Army Transformation

Graves, Brandon H CPT DIV L 25 G3

From: Webb, Michael LTC DIV L 25 G7
Sent: Wednesday, December 14, 2005 9:53 AM
To: Graves, Brandon H CPT DIV L 25 G3
Subject: FW: SB BAX UXO Clearance
Attachments: progress_map 9-02-05.pdf

From: Morikawa, Herbert A DIV L 25 G8
Sent: Tuesday, September 20, 2005 11:33 AM
To: Borne, Ronald USAG HI TRANSFORMATION; Webb, Michael LTC DIV L 25 G7
Subject: FW: SB BAX UXO Clearance

Ron/Mike – change to PTA excess funds. We have to provide approx. \$450K to COE for labor costs, so excess funds are now down to \$2.8 M.

From: Iwamuro, Jill Y DIV L 25 G8
Sent: Tuesday, September 20, 2005 11:18 AM
To: Morikawa, Herbert A DIV L 25 G8
Cc: Toma, Edward K DIV 25 ID L G8; Parks, Paul DIV L 25 G8
Subject: FW: SB BAX UXO Clearance

Mr. Morikawa,

Reference this morning's phonecon with Mr. McManus, the Army Training Support Center validated that only Priority 1 and Priority 2 need to be completed in order to meet training ranges standards. I asked Mr. McManus to provide a timeline depicting at what point he will run out of funds and the criticality of the additional \$1.4M for FY05.

The PTA UXO Contract award came in at \$3.7M, and the S&A portion (labor for COE) is around \$450K, therefore according to Mr. Berthelson excess funds in the amount of \$2.8M will be returned.

I will go back to Mr. McManus and verify that Priority 2 is or is not new in scope.

R,
 Jill

From: McManus, Samuel P HNC [mailto:Samuel.P.McManus@hnd01.usace.army.mil]
Sent: Tuesday, September 20, 2005 10:29 AM
To: Iwamuro, Jill Y DIV L 25 G8; Borne, Ronald USAG HI TRANSFORMATION
Subject: FW:

Jill. The optimal funding level necessary to complete construction is \$1,413,490.

Range Division would like priority three to be funded at an additional cost of \$2,266,508.

Plyier McManus
 US Army Engineering and Support Center, Huntsville
 Ordnance and Explosives Design Center
 256-895-1709

12/15/2005

From: McManus, Samuel P HNC
Sent: Monday, September 19, 2005 4:59 PM
To: (ronald.borne@us.army.mil)
Cc: (dudley.mciver@us.army.mil); Jill Iwamuro; Patti Wilmer; Frank Raby; Vic Garo; Kawasaki, Lawrence T POH; Ueda, Craig S POH; Catherine Skalda
Subject:

Ron

We have completed negotiations with Zapata. Let me start by saying I have no illusions about these numbers, they are estimates based upon conditions we have experienced to date. We have found much that we did not expect, including recent find of depleted uranium. We are pulling tons of frag and scrap out of the craters in the western area to the point where it has basically turned into a manual sifting operation. Had this not been a CWM site, we would have moved mechanical sifters in about 5 weeks ago but the danger is just too high. In my opinion, it is best to capture as much funding as is possible to cover the unexpected. Funds may not be available next year.

With that disclaimer, I have broken the Schofield BAX site down into four priority areas. Please refer to the attached map.

Priority 1. Subsurface clearance of the construction footprint and surface clearance of the area in front of the targets. On the attached map these areas are shown in red and purple.

Priority 2a. Surface clearance of the maneuver corridors that cross the ravines. On the attached map these areas are shown in tan (butterscotch). ATSC indicates this is a valid training requirement and that it should be completed prior to opening the range.

Priority 2b. Sub-surface clearance of the northern mover. On the attached map these areas are shown in tan (butterscotch). Funding for clearance of this area will only be needed if the northern mover is included in the final project. We will need to begin clearance of this area by November 15th so any decision must be made prior to that date and funding provided.

Priority 3. Surface clearance in the ravines beyond the targets. On the attached map these areas are shown in pink.

I have sufficient funds to cover the estimated cost to complete Priority 1 and part of priority 2A. Additional funding for the other priorities are as follows.

- Priority 2a - \$331,779
- Priority 2b - \$306,962
- Priority 3 - \$2,266,508

There are two other issues that have dropped to the back burner but that should be kept in mind as we decide what to do with the PTA money. The first is the clearance of the UAC site. This site adjoins the BAX site. The site juts into the impact area and is a former 3.5" rocket range and practice grenade range. We recommended that the site be cleared so as not to slow down construction. The cost to clear the site is \$301,994, assuming we can do it in conjunction with the ongoing work at the BAX.

The second issue is construction support for the BAX site. We funded a years worth of construction support for the QTR and the BAX. A couple of things have impacted this effort. We had intended to provide on-call support at the QTR while the BAX clearance was underway and do this with the same teams, basically covering this requirement at no cost. Given we found CWM, we had to beef this up and we had construction support teams at the BAX more than we expected. Another impact will be the slippage in the project construction schedule as we await TEU assessment of all the CWM rounds in December and January. We had planned on an overlap between the QTR construction and the BAX construction allowing us to cover both requirements with the same team. Also a new project has popped up that will need construction support, the UAC/Shoothouse site. If it is possible, I think it is reasonable to try to capture any available funds to cover the growing construction support requirement if possible. These funds will also be a buffer to cover cost growth if this becomes necessary. I estimate the construction support cost at \$799,717.

I recommend that as a minimum we fund Priority 2a for \$331,779. If we have funding available, we should go ahead and fund the UAC site at an additional cost of \$301,994. Finally I recommend we fund construction

12/15/2005

support at an additional \$799,717. Total of the three items is \$1,413,490.

If you believe that the northern mover will be funded as part of the MCA project, I recommend we go ahead and clear the site at a cost of an additional \$300,962. If the Section 106 consultation results an elimination of mover 2 and a redesign to put the mover and associated targets on the northern plateau, then we are talking a major project change that I can not estimate at this time.

I recommend that you consult with Range Division concerning priority 3. This one is their call. The cost is estimated at \$2,266,508. DA will not fund clearance of this area but some of the area may need to be cleared for maintenance. I don't think the deep ravines need to be cleared for either training or maintenance so as a minimum we should refine this figure if we chose to go this route.

Please advise on how you would like to proceed. We are awaiting word on the disposition of the PTA money and will take action to return it or otherwise as instructed. This is a year end action and must be accomplished ASAP.

Thanks

Plyier McManus

US Army Engineering and Support Center, Huntsville

Ordnance and Explosives Design Center

256-895-1709

If you believe certain comments included herein constitute a change to your contract, do not proceed with performance. Contact me and inform me of the basis of your position and await instructions.

12/15/2005

FORGOTTEN HAZARDS ATTACHMENT DU Discovery

Schofield uranium find prompts calls for probe, Honolulu Advertiser, 1-6-06

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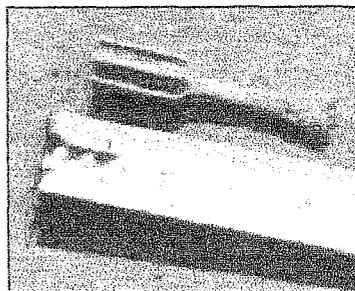
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Schofield uranium find prompts call for probe

By Rod Chize
Advertiser Staff Writer

A coalition of environmental and Native Hawaiian rights groups are calling for an independent investigation and disclosure by the Army of depleted uranium munitions use in Hawai'i based on recently obtained information confirming its presence at Schofield.



The Army confirmed yesterday that this tail remnant and 14 like it from training munitions made of depleted uranium were found at Schofield.

The Army said yesterday that the depleted uranium in question poses no threat.

The coalition DMZ Hawai'i/ Aloha 'Aina cited a Sept. 19 e-mail message from Samuel P. McManus of the U.S. Army Engineering and Support Center in Huntsville, Ala., to Ronald Borne, an Army employee involved with preparations for the Stryker brigade at Schofield Barracks. The e-mail involved the high cost of unexploded ordnance removal in preparation for the construction of a new Stryker brigade battle area complex at Schofield. In the e-mail, McManus noted, "We have found much that we did not expect, including the recent find of depleted uranium."

DMZ Hawai'i/Aloha 'Aina believes the e-mail obtained with a Freedom of

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A coalition of environmental and Native Hawaiian rights groups are calling for an independent investigation and disclosure by the Army of depleted uranium munitions use in Hawaii based on recently obtained information confirming its presence at Schofield.

The Army said yesterday that the depleted uranium in question poses no threat.

The coalition DMZ Hawaii/ Aloha 'Aina cited a Sept. 19 e-mail message from Samuel P. McManus of the U.S. Army Engineering and Support Center in Huntsville, Ala., to Ronald Borne, an Army employee involved with preparations for the Stryker brigade at Schofield Barracks. The e-mail involved the high cost of unexploded ordnance removal in preparation for the construction of a new Stryker brigade battle area complex at Schofield. In the e-mail, McManus noted, "We have found much that we did not expect, including the recent find of depleted uranium."

DMZ Hawaii/Aloha 'Aina believes the e-mail obtained with a Freedom of Information Act request is reason for concern since "it means either the records are inaccurate or the U.S. Army's representatives misled the public" in repeatedly denying depleted uranium use here, most recently in the March 2005 draft environmental impact statement for Makua and at a public hearing for the Stryker brigade EIS in 2004. The Army confirmed yesterday that in August, 15 tail assemblies from spotting rounds made of D-38 uranium alloy, also called depleted uranium, were found by Zapata Engineering while the contractor was clearing a range area of unexploded ordnance and scrap metal. The tail assemblies are remnants from training rounds associated with an obsolete weapon system that was on O'ahu in the 1960s, and their low-level radioactivity represents no danger, the Army said.

The Army also stated that other than the armor-piercing rounds for the Abrams tank and Bradley fighting vehicle, there are no other weapons in its current stockpile that use depleted uranium. "There is no record of the Abrams and Bradley DU rounds ever being stockpiled in Hawaii or being fired on Army ranges in Hawaii," the statement said.

The 15 tail assemblies recovered have been triple-bagged, stored in metal containers and secured pending disposition instructions, the Army said.

The Army statement was issued several hours after a DMZ Hawaii/Aloha 'Aina news conference announcing the e-mail findings, which was attended by representatives of six groups and concerned residents.

(Depleted uranium munitions have raised concerns because they generate aerosolized particles on impact that can lead to lung cancer, kidney damage and other health problems.

Ann Wright, a retired diplomat and retired Army colonel, said she supports passage of a bill before the Legislature that calls for helping Hawaii National Guard troops returning from Iraq and the Persian Gulf in obtaining federal treatment services that include health screenings capable of detecting low levels of depleted uranium.

Gail Hunter, a registered nurse, cancer survivor and Makaha resident for more than 20 years, wants more proof that there's no depleted uranium at training sites in Makua, Kahuku, Schofield and Pohakuloa that could be threatening drinking water, land and air.

"We're downwind of the (brush) fires in Wai'anae so I want to know if we're breathing it in," Hunter said.

Kyle Kajihiro, program director for American Friends Service Committee, called on the state Health Department to begin investigating and testing for military toxins. He said the revelation about depleted uranium being found in Hawaii "is very disturbing because it may just be the tip of the iceberg. This is a smoking gun in a sense that there has been depleted uranium expended in our environment. We don't know how much, we don't know where and we don't know what its effects are."

Of the Health Department, he said: "We are asking them to be more aggressive in protecting public health. There are methods of testing but they require resources and some commitment. There should be testing of the environment and health screenings in the community (for military toxins) to determine if people have been exposed."

Reach Rod Ohira at rohira@honoluluadvertiser.com.

<http://www.honoluluadvertiser.com/apps/pbcs.dll/article>

FORGOTTEN HEROES ATTACHED FILE
1944 First Engineering Depot Command, May 1944, p. 1-50

The range facility management support system (RFMSS) keeps a consumption report in the Range Scheduling Office, updated daily with data on all ammunition expended at each range, on what date, and by which unit the ammunition was expended (Borja 2002a). The Directorate of Plans, Training, Mobilization, and Security Range Division, Hawai'i Scheduling Office conducts long-term scheduling of range facilities. Units can access the RFMSS to check the schedule of specific ranges and to request facilities at PTA (Sato 1996, 5-7).

Materials Not Used in Training

Due to public concern, certain hazardous chemicals, specifically Agent Orange and depleted uranium, are being addressed. Various Air Force studies document that in 1971, chemical agents stored in Okinawa were transported to Johnston Island for storage at the Chemical Storage Facility. Public Law 91-672, passed in 1972, prohibited the transport of chemical agents from Okinawa to the United States and authorized destruction of Agent Orange outside these areas. In 1972, the 1.4-million gallon (5.3-million-liter) stockpile of Agent Orange amassed during the Vietnam War was transported directly to Johnston Island and also placed in storage there. In 1977, Agent Orange stored at Johnston Island, as well as in Mississippi, were destroyed by high-temperature incineration at sea in the South Pacific (Onyx 2001, 137). There is no record of Agent Orange used, stored, or disposed of on the islands of O'ahu or Hawai'i.

Military installations hosting training with depleted uranium rounds must apply for and be granted a license from the Nuclear Regulatory Commission for possession of depleted uranium cartridge penetrators. To date, of the three installations in the United States that have such licenses, none are in Hawai'i. A memorandum from the Deputy Chief of Staff, Logistics, Munitions (2000) states that a records search for depleted uranium rounds was conducted and determined that these types of munitions were never a part of the Army's inventory in Hawai'i and that the Army did not and does not have any plans to introduce depleted uranium to the State of Hawai'i (Onyx 2001, 127-128).

Range Sampling

Surface soil and water sampling was conducted on SBMR and PTA firing ranges from November 8 through 14, 2002, in order to obtain information about surface soils on these two installations. Sampling focused on where existing ranges overlapped with proposed ranges.

Secondary explosives compounds, primarily trinitrotoluene (TNT) and cyclotrimethylene-trinitramine (RDX), which are the major ingredients in nearly all munitions formulations, were the focus of these investigations. Other organic chemical explosives used in specific munitions formulations were also tested for, including those that are no longer used in munitions but whose residues potentially remain on contaminated sites. Additionally, full characterization for metals was conducted in parallel with explosives at all of the site ranges.

The results of this sampling revealed that metals (aluminum, iron, lead, and antimony), explosives (RDX, TNT, and nitroglycerin), and semivolatile organic compounds (PAHs) were found at levels exceeding EPA Region IX PRGs on both SBMR and PTA. The PRG

FORGOTTEN HAZARDS ATTACHMENT Denial

8-12-05 letter from Colonel James Boisselle, Army Chief of Staff, Schofield, to U.S. Senator Inouye of Hawaii



DEPARTMENT OF THE ARMY
HEADQUARTER, 25TH INFANTRY DIVISION (LIGHT and US ARMY, HAWAII
SCHOFIELD BARRACKS, HAWAII 96857-6000

REPLY TO
ATTENTION OF

August 12, 2005

2005 AUG 31 AM 9:34

Office of the Chief of Staff

Honorable Daniel K. Inouye
United States Senate
Hart Senate Office Building, Suite 722
Washington, DC 20510-1102

Dear Senator Inouye:

This letter is in response to your July 8, 2005 inquiry on behalf of Ms. Cory Harden and her (Sierra Club) group's environmental concerns. Ms. Harden addressed the issue of the Army's plan to monitor dust as outlined in the May 2004 *Environmental Impact Statement for the Transformation of the 2d Brigade, 25th Infantry Division (Light) to a Stryker Brigade*. Ms. Harden has also requested that a representative from her group be part of the monitoring for environmental concerns, and cleanup of old military sites. We value the environmental concerns raised by Ms. Harden and her group, and I can assure you the US Army is working to reduce training related dust emissions.

In July 2004, in the Record of Decision for the Stryker Environmental Impact Statement, the Army committed to mitigating the impacts of training activities on air quality through the development and implementation of a Dust and Soils Management and Monitoring Plan. This plan is in the final stages of development. The plan will remain a "living" document, for the purpose of making improvements based on evolving management practices, public input, and new technologies. Because Ms. Harden expressed interest in this plan, upon completion of our internal review, a copy will be forwarded to her. The Army will welcome any comments Ms. Harden or her consultant may provide; however, we do not intend to delay implementation of the plan, pending her review.

Our initial step is to review modeling completed as part of the Environmental Impact Statement and conduct any additional computer modeling at Pohakuloa Training Area as needed, followed by an actual air sampling to establish a baseline and to verify the computer model. This baseline will be done without any training activities and then sampling will be repeated during training periods. Army land will be utilized, to include areas along the boundaries of our property, for our initial sampling efforts. This will include sampling for both PM10 and Total Suspended Particles. Should sampling results show that significant levels of dust have drifted out of the installation during training exercises, we will re-evaluate the monitoring plan and consider expanding sampling locations.

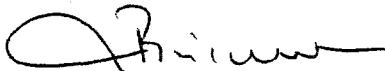
In regards to Ms. Harden's concerns regarding metal fumes released during training exercises, there is no significant source of metal fumes when munitions are used. Although a small amount of metal fumes may be released in some propellants and explosives, the amount is insignificant. Further, metals are not vaporized by the detonation of projectiles and the friction between a projectile, and a gun tube or barrel does not generate metal fumes.

Regarding Ms. Harden's concerns about depleted uranium rounds, we substantiate that the Army has not used, and does not plan to use, these uranium rounds in Hawaii. As such, we do not intend to monitor for depleted uranium. We have no information to Ms. Harden's reference of the accidental firing of uranium rounds by the Navy in May 1994.

The Army shares and understands Ms. Harden's concerns regarding old military sites. These sites are listed under the Formerly Used Defense Sites program, which is part of the Defense Environmental Restoration Program. As such, this federal program is under the administration of the Army Corps of Engineers, whereby its budget is contingent upon annual budget reviews.

I can assure you the Army is committed to accomplishing our ongoing transformation of the Stryker Brigade in a manner that will be protective of human health and the environment. Thank you for sharing the concerns of your constituent and I trust this is helpful in your response.

Sincerely,

A handwritten signature in black ink, appearing to read "Boisselle", with a long horizontal flourish extending to the right.

James C. Boisselle
Colonel, US Army
Chief of Staff

FORGOTTEN HAZARDS ATTACHMENT Denial

10-4-06 letter from Army Lt. Col. Michael Webb to U.S. Representative Case of Hawaii



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS, 25TH INFANTRY DIVISION (REAR) (PROVISIONAL)
SCHOFIELD BARRACKS, HAWAII 96857-6000

October 4, 2006

Office of the Chief of Staff

Honorable Ed Case
Representative in Congress
5104 Prince Kuhio Federal Building
Honolulu, Hawaii 96850-4974

Dear Mr. Case:

This letter is in response to your August 10, 2006 inquiry regarding your constituent's concern about depleted uranium and chemical weapons at Pohakuloa Training Area, on the Island of Hawaii.

The Army has no plan to monitor for depleted uranium or chemical munitions at Pohakuloa Training Area. The Army has no information which would indicate that chemical or depleted uranium munitions have ever been used in the Pohakuloa Training Area.

Additionally, based on knowledge and experience gained from prior air, water, and soil samplings for chemical agents and depleted uranium at other Army installations, we have learned that the likelihood of either chemical agents or depleted uranium being absorbed into these environmental sources and posing any risks to the health and safety of the surrounding communities, or to military and civilian personnel working or residing on or near our installation, is minimal. The Army, therefore, does not believe that monitoring is warranted at this time.

We assure you that the US Army stands committed to ensuring the health and safety of our service members, civilian workforce, and public communities receive the highest priority.

Your sharing the concerns of your constituents is appreciated and I trust this information will help in your response.

Sincerely,

Michael J. Webb
Lieutenant Colonel, US Army
Chief of Staff

RECEIVED
HONOLULU OFFICE
06 OCT 12 PM 2:26

FORGOTTEN HAZARDS ATTACHMENT Little evidence...

"DU Inventory in Hawaii" page from Colonel Killian's handout to Hawai'i County Council. 2-3-09

DU Inventory in Hawaii



- **Navy response:** "I have not found any evidence that the Navy ever had torpedoes with DU. We did accidentally fire less than 5 rounds of 25mm CIWS ammunition to a forested area in Hawaii (Oahu). The incident occurred during maintenance of the phalanx. This incident was reported to the USNRC."
- **Marine response:** I have also reviewed the Ordnance Technical Data Sheets in the back of the RIPRA to see if there is any mention of DU as a component of any of the munitions expended on MCB Hawaii ranges. Again there were no findings of DU as a component of the same. These documents reflect known range and munitions use of Marine Corps installations up to 1999.

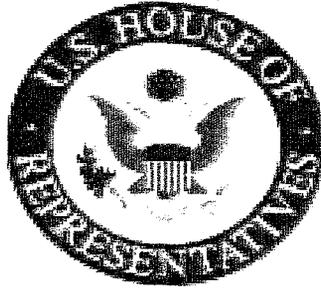
TECOM Ammunition Section which manages training ammunition for all ground training throughout the Marine Corps has checked their records and they state that there has been no allocation of DU munitions for ground training. They also checked with aviation training and they said there is no allocation for DU used in aviation training as well.

- **Air Force response:** Awaiting Response.

*M. Killian's
checked?*

FORGOTTEN HAZARDS ATTACHMENT Little evidence

5-20-09 [approximate date] letter from Army to U.S. Rep. Mazie Hirono



In response to your
recent inquiry.

Office of Congresswoman Mazie K. Hirono

*Hirono tried to mail it twice - asked for Hirono # at the airport
she mailed it now July 20, 2009*

5-20-09

Cory

"An environmental consultant [Peter Strauss, hired by Sierra Club] estimated there may be as many as 2,000 depleted uranium rounds at Pohakuloa Training Area. The consultant's analysis was based on an Army report estimating that between 120 and 400 firing pistons are scattered around impact ranges at PTA. Each piston would have fired up to five of the DU rounds, for a total of between 600 and 2,000 rounds fired, Strauss said. "[Sierra Club consultant disputes Army's DU tally, Hawai'i Tribune-Herald, 8-26-08]

Army Response. The Army agrees it is theoretically possible to have fired up to 2,520 rounds on training ranges in Hawaii. This includes both Schofield and Pohakuloa ranges. However, shipping records have accounted for all, but 20 of the rounds. Therefore, it is reasonable to assume that only a total of 714 rounds were fired in Hawaii. (Note: The below extract from the Archives Search Report includes a plausible explanation for the reason that fewer rounds may have been fired in Hawaii.)

*Response from U.S. Army
Re: Cory Harder*

On February 20, 2009, the Sierra Club, Moku Loa Group requested Congressional assistance to address concerns with the Nuclear Regulatory Commission's (NRC) plans to issue the Army a license for depleted uranium (DU) for the Pohakuloa Training Area. The Sierra Club expressed the below concerns and requested Congressional support of its recommendations. The Army's responses to each concern and recommendation are provided below.

Sierra Club's concerns:

1 - There may be 2,000 DU spotting rounds at Pohakuloa alone--many times the original estimate of 700 statewide. Both the Army and a Sierra Club consultant, using different data sets, came up with the same figure.

"U.S. Army Colonel Killian...said the types of exercises conducted at PTA (Pohakuloa Training Area) would require the firing of at least 2,050...spotting rounds." [Depleted Uranium at Pohakuloa, West Hawai'i Today, 2-4-09]

The 2,050 figure was based on old training manuals, which specify how many rounds soldiers had to shoot to be qualified on the weapon system. from my notes on Col. Killian's presentation to Hawai'i County Council 2-3-09, and conversations with him that day

"An environmental consultant [Peter Strauss, hired by Sierra Club] estimated there may be as many as 2,000 depleted uranium rounds at Pohakuloa Training Area. The consultant's analysis was based on an Army report estimating that between 120 and 400 firing pistons are scattered around impact ranges at PTA. Each piston would have fired up to five of the DU rounds, for a total of between 600 and 2,000 rounds fired, Strauss said. "[Sierra Club consultant disputes Army's DU tally, Hawai'i Tribune-Herald, 8-26-08]

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*Response from U.S. Army
re: Corey Harder*

Total rounds verified shipped to Oahu from Lake City Ordnance Plant were 714 rounds on 27 April 1962. Notice this date coincides with the first weapons arriving at Oahu in the spring of 1962. As discussed in Section 8.1, this original shipping quantity is not close to the "worst case scenario" estimate of usage for six years with 14 weapons (2,520 rounds). This shipping quantity averages only 8.5 rounds fired per year per weapon. It is highly probable that additional stocks of the Cartridge, 20mm Spotting M101 were order from one of the Ordnance Depots (Letterkenny or Pueblo) during the six active years of the Davy Crockett Weapon System in Hawaii.⁵⁰

2 - DU may be dispersed from spotting rounds lying in the open. They may be hit by one-ton inert bombs dropping from three miles up, and by live-fire explosions. Some are fragmented. All are weathering.

Army Response. The process the Army used identified potential ranges where the M28 Davy Crockett could have been fired. These areas are outside both the bomb target and high explosives impact areas.

3 - No one knows exactly where all the spotting rounds are. Surveys for current studies covered fewer than 1000 acres of the 50,000-acre impact area. Decisions on where to survey were based on old and perhaps incomplete records. DU fallen into lava fissures is hidden from sight and from radiation detectors. So little data is available that the design of the risk assessment study had to be changed.

Army Response. The Army has conducted extensive research into Davy Crockett-related training and the use of the M101 Spotting Round in Hawaii. In addition, the Army has conducted both on-ground and an aerial survey of Pohakuloa impact area to identify and characterize areas where DU is present. The entire impact area was assessed, and the Army continues to look for ways to identify areas within the entire Pohakuloa Training Area at which the M101 may have been used. Army's current effort is to attempt to use satellite based imagery. The Army's characterization report will be published in the near future.

The terrain at Pohakuloa is rough with fissures. Given the low level radiation associated with DU from M101, this terrain feature is viewed as passively reducing the potential risk of both migration and exposure.

4 - Air sampling may be the wrong type, according to Dr. Lorrin Pang of Maui, a former Army doctor and advisor to the World Health Organization, and Mike Reimer, a Kona geologist.

Army Response. The Army considered the suggestions made by Dr. Reimer and Dr. Pang. In many cases, their suggestions were based on the fact they did not possess a full set of the reports being developed by the Army. These documents answer many of the questions they raised. In other cases, the Army has worked with the State to determine how best to address those areas not under the Army's jurisdiction.

FORGOTTEN HAZARDS ATTACHMENT License

Source Material License SUB-459, issued to Department of the Army, Washington, D.C., by U.S.
Atomic Energy Commission, 11-1-61

UNITED STATES
ATOMIC ENERGY COMMISSION

SOURCE MATERIAL LICENSE

Pursuant to the Atomic Energy Act of 1954, and Title 10, Code of Federal Regulations, Chapter 1, Part 40, "Licensing of Source Material," and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, possess and import the source material designated below; to use such material for the purpose(s) and at the place(s) designated below; and to deliver or transfer such material to persons authorized to receive it in accordance with the regulations in said Part. This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954 and is subject to all applicable rules, regulations, and orders of the Atomic Energy Commission, now or hereafter in effect, including Title 10, Code of Federal Regulations, Chapter 1, Part 20, "Standards for Protection Against Radiation," and to any conditions specified below.

| | | |
|--------------------|--|--------------------|
| Licensee | | 3. License No. |
| 1. Name | Department of the Army | SUB-459 |
| 2. Address | Washington, D. C. | 4. Expiration Date |
| | | October 31, 1964 |
| | | 5. Docket No. |
| | | 46-6639 |
| 6. Source Material | 7. Maximum quantity of source material which licensee may possess at any one time under this license | |
| Uranium | No quantity limitations. | |

CONDITIONS

8. Authorized use (Unless otherwise specified, the authorized place of use is the licensee's address stated in Item 2 above.)

For fabrication of spotting rounds at Lake City Arsenal, Independence, Missouri, and Frankfort Arsenal, Philadelphia, Pennsylvania, and for the testing of spotting rounds in accordance with the procedures described in applications for license submitted by the Ordnance Corps dated May 1, June 2, and September 26, 1961. The licensee is further authorized to distribute spotting rounds to field units of the Army and to use such rounds for military purposes in accordance with the procedures described in the licensee's September 19, 1961, application. This license authorizes the export of spotting rounds containing uranium for military purposes.

DICTATED _____
APPROVED *DW 10/20/61* _____

For the U. S. ATOMIC ENERGY COMMISSION

Date of issuance NOV 1 1961

FORGOTTEN HAZARDS ATTACHMENT License

Application for Source Material License from Department of Army, Washington, D.C., docketed

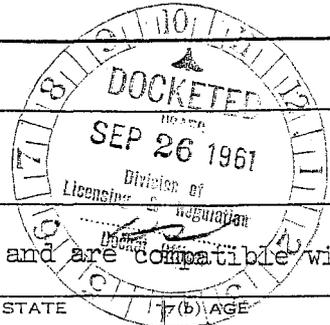
9-26-61

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

| | | | |
|---|-----------------------------|--|--|
| 1. (Check one) <input checked="" type="checkbox"/> (a) New license <input type="checkbox"/> (b) Amendment to License No. _____ <input type="checkbox"/> (c) Renewal of License No. _____ <input type="checkbox"/> (d) Previous License No. _____ | | 2. NAME OF APPLICANT Department of Army | |
| 4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED At such sites as are in the best interest of national defense and are compatible with the need to protect public health and safety. | | 3. PRINCIPAL BUSINESS ADDRESS Washington 25, D. C. | |
| 5. BUSINESS OR OCCUPATION Defense of the United States | | 6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP (b) AGE | |
| 7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED Depleted uranium will be used in projectile casings for ammunition and in other military applications where its physical and chemical properties will provide unique capabilities for national defense. Depleted uranium will not be used as a source of U-235 or Pu-239. | | | |
| 8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE | | | |
| (a) TYPE | (b) CHEMICAL FORM | (c) PHYSICAL FORM (Including % U or Th.) | (d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds) |
| NORMAL URANIUM | - | - | - |
| URANIUM DEPLETED IN THE U-235 ISOTOPE | Green salt or uranium metal | As required by specific military application | Unlimited |
| THORIUM | - | - | - |
| (e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (in pounds) Unlimited | | | |
| 9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL HAZARDS ASSOCIATED WITH EACH STEP OF THOSE OPERATIONS. Depleted uranium will be fabricated into military supply items, and these items will then be stored, distributed to subordinate military units, and utilized or expended in training or combat. | | | |
| 10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL). (For sources of data on specific procedures, controls and safety precautions covered by items 9 through 13, see attached supplemental sheets.) | | | |
| 11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE: (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air-monitoring and other survey equipment as appropriate. The description of radiation detection instruments should include the type of radiation detected and the range(s) of each instrument.) | | | |
| (b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE (for film badges, specify method of calibrating and processing, or name supplier.) | | | |



11(c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, GASES, ETC.

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE:
 (a) PROCEDURES FOR USE OF NUCLEAR MATERIALS AND SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.

13. WASTE PRODUCTS: *If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here and explain on a supplemental sheet:*
 (a) Quantity and type of radioactive waste that will be generated.
 (b) Detailed procedures for waste disposal.

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:
 (a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.
 (b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.
 (c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (*Specify instrument used, date of calibration and calibration technique used*) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.
 (d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

CERTIFICATE
(This item must be completed by applicant)

15. *The applicant, and any official executing this certificate on behalf of the applicant named in Item 1, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.*

Department of Army
(Applicant named in Item 2)

Dated SEP 19 1961


 BY PAUL E. IGNATIUS
 Assistant Secretary of the Army for
 Installations and Logistics

(Title of certifying official authorized to act on behalf of the applicant)

SEP 25 1961

WARNING: 18 U.S.C. Section 1001; Act of June 25, 1948; 62 Stat. 749; makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

FORGOTTEN HAZARDS ATTACHMENT License

*Letter from Tyler Port, Acting Assistant Secretary of the Army, to U.S. Atomic Energy
Commission, 9-19-61*

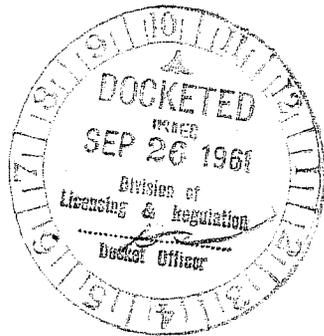
SECRET

NO. 40-6639
filed



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, D. C.

SEP 19 1961



Mr. Harold L. Price
Director of Regulation
United States Atomic Energy Commission
Washington 25, D. C.

Dear Mr. Price:

The purpose of this letter is to request a comprehensive source material license for the Department of Army.

As you know, depleted uranium is officially classified as a source material because it retains limited value as a source of U-235 and Pu-239, and is therefore subject to special regulation under the Atomic Energy Act of 1954. The Army is planning to use depleted uranium in applications unrelated to its potential as a source material and has encountered administrative difficulties in complying with the special regulations governing its use.

Of most immediate concern are depleted uranium projectiles for spotting rounds for the DAVY CROCKETT weapons system. Depleted uranium is ideal for this application because its great density permits unique ballistic characteristics. In developing these rounds the Chief of Ordnance, Lieutenant General Hinrichs, has found it necessary to seek and obtain a license from the Commission authorizing him to possess depleted uranium and to fabricate and test these projectiles. However, since Lieutenant General Hinrichs commands only the Ordnance Corps of the Army, the present license does not permit transfer of projectiles to the field units which will employ them, nor does it permit expenditure of rounds in practice or combat. In addition, it does not provide for other uses of depleted uranium foreseen by the Army.

I understand that the administrative problems of providing depleted uranium to the Army were discussed by the Commissioners and the members of the Military Liaison Committee at a joint meeting on 10 August 1961, and that Dr. Seaborg stated the difficulties could readily be overcome by issuing a more comprehensive license. While licensing may not be the best long-term solution, I recognize that in view of the present wording and interpretation of the Atomic Energy Act it offers the most expeditious solution to this urgent problem.

No copy sent to PDR or Compliance instructions as withholding was never cleared up

AB

Mr. Harold L. Price

Therefore, request that the existing license to the Chief of Ordnance be withdrawn, and that a new license be issued to the Department of Army. This license should authorize possession of depleted uranium without quantity limitation and should permit fabrication, testing, export, issue to subordinate organizations, and expenditure of this material in uses other than production of U-235 or Pu-239. Appropriate Commission application forms are forwarded with this letter.

The Army staff is of course available to provide any assistance or additional information you may desire in resolving this matter.

Sincerely yours,



A. Tyler Port

Acting Assistant Secretary of the Army
(Installations and Logistics)

1 Incl (In quad)
License Application

Copy furnished
Chairman, AEC

FORGOTTEN HAZAROS ATTACHMENT License

Letter from Lt. Col. Kraul to Atomic Energy Commission, 5-1-61



IN REPLY REFER TO
MEDPS-PO

HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
WASHINGTON 25, D. C.

DOCKET NO. 40-6476

file

1 May 1961

Licensing Branch
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.



40-6639
copy only

Gentlemen:

Transmitted herewith, approved, is a request from the Ordnance Corps for an Atomic Energy Commission license to obtain depleted uranium. It should be noted that the proposed use of the material includes not only machining of barstock alloy at Lake City Arsenal but distribution of the assembled item to the Army Field Forces. We request that your reply include, in addition to the license if it is feasible to issue such a license, guidance on controls required for the proposed end use of the item.

Sincerely,

Charles W. Kraul

1 Incl
Application for
License (in trip)

CHARLES W. KRAUL
Lt Colonel, MC
Preventive Medicine Division

A/1

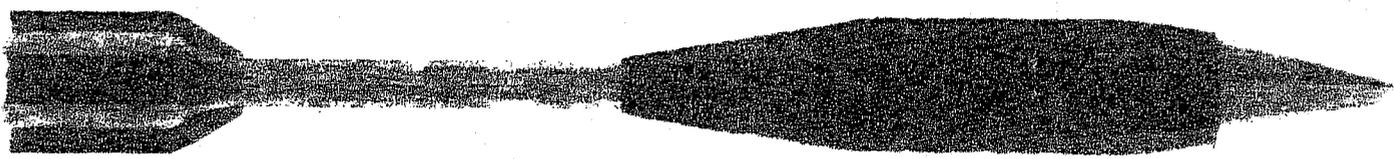
40. 6000

Jul 20

Ordnance Corps Application for AEC General License

Man

- A. Material for which license is requested: Depleted uranium.
- B. Scope of license: It is required that the Ordnance Corps be permitted to procure, possess, fabricate, use, transfer and export depleted uranium or items fabricated from this material.
- C. Quantity of material to be covered by license: 216,157 pounds.
- D. Utilization of material: Production of XM101 20mm spotting round for Navy Crockett weapon system.



- E. Production procedure: The green salt is shipped from Oak Ridge to Mallinckrodt Chemical, St. Louis, Mo., where it is reduced to the metal under AEC contract with funds provided by the Ordnance Corps. The dingo is shipped to National Lead, Albany, N. Y., where it is alloyed with 8% molybdenum and fabricated into barstock. The barstock is shipped to Lake City Arsenal, Independence, Mo., where it is machined to final configuration. There also, various components of the spotting round are assembled and subsequently issued to The Army Field Forces through the Ordnance supply channels. The industrial contracts may change depending upon subsequent bids received, however, the procedure will be as outlined:
- F. Health hazards: During all of the handling operations within Ordnance Corps facilities the pertinent Army regulations are adhered to. Wipe tests of the final item show negligible rub-off. The hazard from ionizing radiation also appears negligible.

100-100000-100000
 No
 105
 100000

Incl 1

TRAINING AND EXPERIENCE AT LAKE CITY ARSENAL

- A. Before commencing operation of D38 and prior to receipt of the material a considerable number of key employees, contractor and Ordnance, both in safety, technical and operating departments, made visits to appropriate locations for ~~consultation~~ and training in various phases of safety and health.
- (1) Instructions given at Lake City by J. Murphy Watertown Arsenal Health Physicist on safety and health aspects pertaining to D38.
 - (2) Contractor operator medical supervisor, safety supervisor, production engineer, control superintendent and others, including Ordnance representative, visited Fernald Plant JXAEC-National Lead (to consult on safety and health measures).
 - (3) Safety Engineers, contractors and Ordnance, visited Bendix-AEC plant for consultation.
 - (4) Chief Chemist, contractor operator, and numerous Ordnance Engineers (ICA-IED) visited Watertown Arsenal on consultation on air pollution and radiological controls. One member of Ordnance was a Physicist (Masters) whose background and education include knowledge and experience in basic course of atomic and nuclear physics and principles of ionizing radiation.
 - (5) Safety Engineer, Contractor Operation, took two weeks course in radiological monitoring (Radiological School, OCEM).
 - (6) Chief Process Engineer, Contractor Operation, visited Fernald Plant, Argonne National Laboratory, AEC-Albuquerque and Watertown Arsenal.
 - (7) Chief Supervisor in equipment and Chief Supervisor, Production Contractor, made visit to Watertown Arsenal to consult and study preparations prior to startup at ICA.

FORGOTTEN HAZARDS ATTACHMENT Other discoveries

Waiiaka

"Big Island Leaders Strongly Protest Nerve Gas Tests Here" Hawaii Tribune-Herald, 9-17-69

"Army Mum On Testing" Hawaii Tribune-Herald, 9-17-69

"Future Tests Uncertain" Hawaii Tribune-Herald, 9-18-69

"Pentagon Admits Four Isle Tests" Hawaii Tribune-Herald, 9-18-69

"Community Entitled To Full Explanation" Hawaii Tribune-Herald, 9-18-69

"Defoliants Tested, Too" Hawaii Tribune-Herald 9-19-69

"Army Now Admits Gas Weapon Tests" Hawaii Tribune-Herald 9-21-69

"An Apology Not Enough" Hawaii Tribune-Herald 9-21-69

"No More Tests, Army Sec Says" Hawaii Tribune-Herald 9-21-69

Hapuna

"Ordnance found at Hapuna" West Hawaii Today, 7-31-97

"More ordnance found at Hapuna" Hawaii Tribune-Herald, 10-14-98

Waimea/ Waikoioa

"Hunt is on for military ordnance" Hawaii Tribune-Herald, 9-15-97

"Students dig up grenade" Hawaii Tribune-Herald, 2-6-02

Hilo Bay

"Ordnance disposal falls short" Honolulu Advertiser, 9-17-00

"Navy blasts hundreds of shells in bay; scores remain" Hawaii Tribune-Herald, 9-19-00

Keaukaha

"Man finds WW II mortar round at Keaukaha beach" Hawaii Tribune-Herald, 1-31-09

Multiple sites

"War artifacts pose danger to islands" Honolulu Advertiser 7-13-97

"A lesson in ordnance: Look, but don't touch" Hawaii Tribune-Herald, 9-15-97

"Another mortar round found" West Hawaii Today, 6-30-98

"Blasts from the past lie 'on Parker Ranch" Hawaii Tribune-Herald, 5-25-03

"Military ordnance creating hazard" Hawaii Tribune-Herald, 7-30-09

Nerve Gas

By JOE SWEENEY

Nerve gases which can kill a man in 30 seconds were tested on the Big Island in 1966 and 1967. Similar tests are planned for next year.

Disclosure of the testing was made in a letter from the Army to U. S. Rep. Patsy Mink. The Hawaii Democrat disclosed the contents of the letter Tuesday afternoon in Wash., D.C.

At least two types of gas were tested, B-Z and G-B. The first was described by the Army as a disabling agent but it is not fatal. The second kills by attacking nerves and muscles. The victim goes into a massive convulsion before death.

The tests were conducted under intense security precautions in the Upper Waialeale Forest Reserve on the slopes of Mauna Loa. The site is less than 20 miles from downtown Hilo.

No details of the testing have been revealed. It is not known if live animals such as rats or birds were used.

Testing of what are believed to be similar

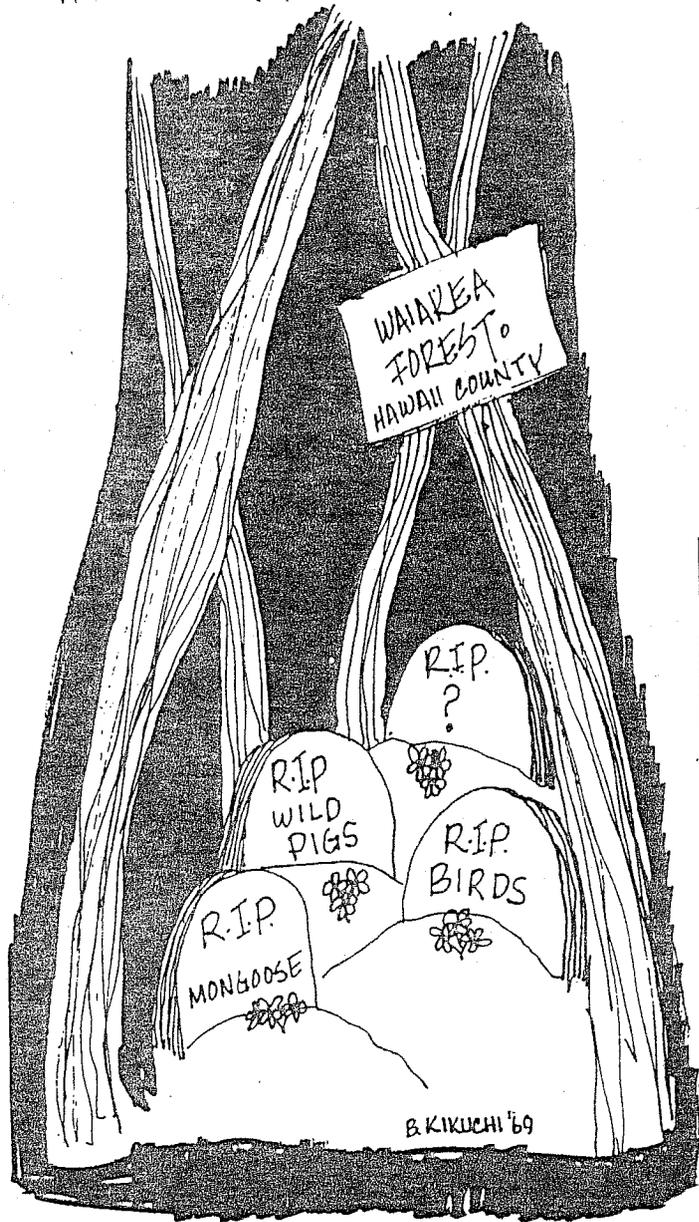
nerve gases go to Proving Ground 1 of 6,000 sheep in the Army official the sheep killed military later responsible.

The Army still land in the Wa agreement runs

Although the A-Honolulu Star-Bu to test similar de. 1970.

State officers s know the military. The land. The leas-

Sunao Kido, d: Land and Natur agreement was. Testing of deadly lease agreement,



THE "NERVE GAS" OF THEM!

An Editorial:

Community Entitled To Full Explanation

Disclosure Tuesday afternoon the U. S. Army had conducted tests of nerve gas in the upper Waiakea Forest in 1966 and 1967 shocked the Big Island community.

In the words of Mayor Kimura, "They (the Army) showed a complete disregard for the people of the Island of Hawaii."

Contradictory statements have appeared in news stories. The Big Island community is entitled to a full explanation.

A State official said no mention of plans to conduct tests on lethal nerve gases was made

in the lease agreement (for use of the state land) by the Army.

An Army letter to U. S. Rep. Patsy Mink said State officials had been notified of the intent to use chemical agents and had given their approval.

Whoever was responsible should be called to task.

Our Congressional team should demand a full explanation from Army officials in Washington.

And our officials—County, State and Congressional—should demand that no further tests be conducted in Hawaii such as those the Army plans next year.

Future Tests Uncertain

Opposition Mounts To Nerve Gas Use

(Compiled By T-H Staff, Wire Reports)

Will there be future tests of nerve gas, or perhaps of other chemical agents on the Big Island next year?

The answer to the question is uncertain today, but there is rapidly mounting opposition to continued testing in the Upper Waialeale Forest Reserve, where two gases were tested in 1966 and 1967 by the U. S. Army.

There is a question as to whether the terms of a five-year lease of 1,145 acres of State land have been violated.

And even if it is determined the lease has not been violated, opposition to further testing is certain to be stiff.

When the Army confirmed Tuesday, in a letter to Rep. Patsy Mink, open air testing had been carried out four times in a 1.5 square mile fenced area, a newspaper report said testing was again planned for 1970.

This immediately drew strong protests from residents and government officials.

County Mayor Shunichi Kimura is sending letters of protest, which seek to have further testing banned to Federal and State officials, including Melvin Laird, Secretary of Defense.

Gov. John Burns is asking Stanley Resor, Secretary of the Army, for confirmation and an explanation of the testing in an effort to find out if the lease has been violated.

Two Hawaii daily newspapers—one of them the Hawaii Tribune-Herald—have taken strong editorial stands in opposition to such testing.

Sen. Daniel K. Inouye said Wednesday he has and will continue to oppose chemical agent testing in Hawaii.

The Army has perjured itself by denying any testing was done earlier this year and then confirming Tuesday gas experiments were performed.

Mayor Kimura, who called the Army's testing and handling of the matter "arrogant" has written Gov. John Burns, Hawaii's four Congressional members and Laird.

He asked them to support his objection to any resumption of testing and expressed his indignation earlier tests had taken place.

Gov. Burns said he would await an explanation from Resor before recommending possible action by the State Land Board on the Army's lease, which runs through Jan. 2, 1971.

Sen. Inouye denied Wednesday a report he had ever discussed the matter of testing with former President Lyndon

See OPPOSITION MOUNTS, Page 12

★★★

Pentagon Admits Four Isle Tests

WASHINGTON (AP) — The Pentagon admitted today that the Army tested nerve gases in Hawaii on four occasions between 1966 and 1967.

The acknowledgement came after the Army had told a Honolulu newspaper it had not tested chemical or biological weapons in Hawaii.

Pentagon spokesmen said the response to the newspaper was correct since the poisonous agents GB and BZ gases were not tested in weapon form.

GB is the deadly nerve gas, capable of killing in minutes, which the United States recently was forced to withdraw from depots in Okinawa. BZ is an incapacitant.

Jerry Friedheim, defense spokesman, said one BZ test was conducted in 1966, one GB test in 1966 and two GB tests in 1967 at Mauna Loa, Hawaii.

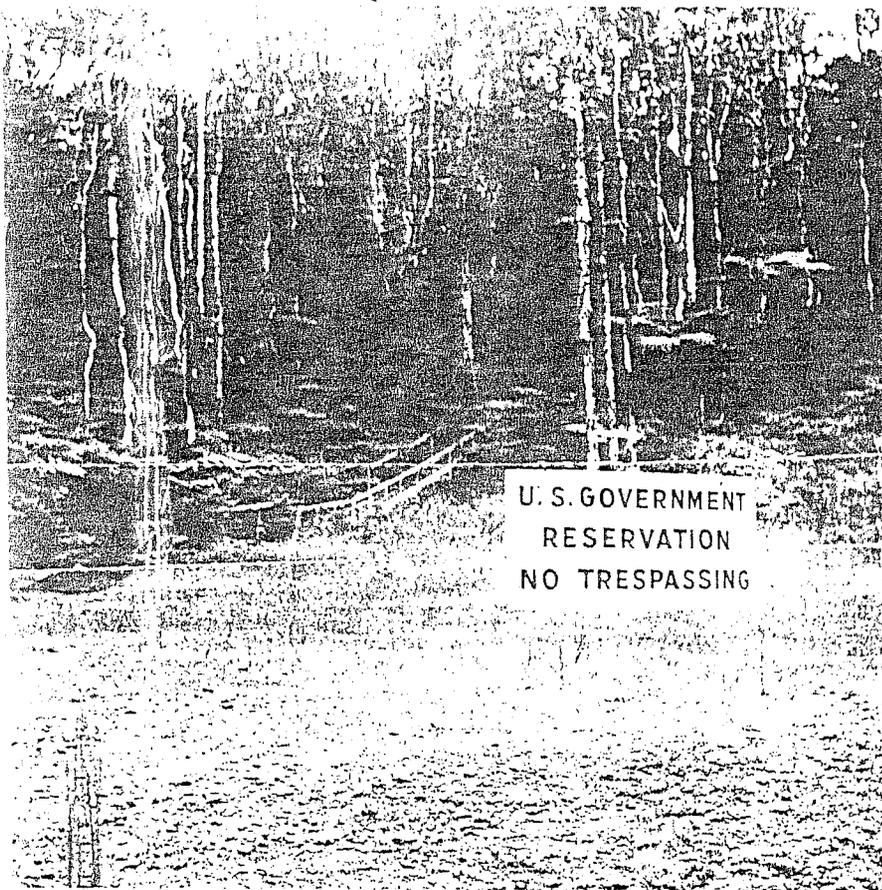
Friedheim said he wasn't certain but believed that the tests did not involve animal life but were trials of the gases' effectiveness in a jungle environment. He described them as efforts to obtain information of a defensive nature.

Friedheim said the tests took place within a fenced and patrolled area seven miles from inhabited areas. Sampling devices, he said, showed that the toxic materials remained inside the test area on each occasion.

Nerve agents no longer are being tested in Hawaii nor does the Army plan any tests in the future, he said.

Hawaii Gov. John Burns in a cable to Army Secretary Stanley R. Resor raised the possibility that Hawaii might cancel the Army's lease on a test site at Mauna Loa.

Friedheim said he had no information on whether the Army would seek to continue that lease.



Y'S GAS TESTING SITE—This barbed wire fence and kapu mark one boundary of a 1.5 square mile area used by the U. S. to test two different nerve gases in 1966 and 1967. The area is Upper Waialeale Forest Reserve about seven miles from Hilo Honor Camp. The land was leased at no cost to the U. S. by the State Department of Land and Natural Resources

Jan. 3, 1966, for what was then termed "meteorological" studies, but was confirmed Tuesday to be nerve gas experiments. Testing is planned again in 1970, according to one report. The State presently is attempting to find out if terms of the Army's five-year lease have been violated. — T-H Photo by Larry Kadooka.

Hawaiian TRIBUNE-HERALD



47TH YEAR -- NO. 220

HILO, HAWAII, FRIDAY, SEPTEMBER 19, 1969

10 CENTS

Defoliant Tested, Too

State To Deny Future Testing

By JAKE WILLIAMS

A defoliation project was carried out in the Upper Waianaka Forest Reserve in an area near where the Army conducted four tests on two nerve gases during 1966-67, it was learned Thursday.

Future testing of defoliant on the Big Island, however, is not expected to take place by anyone, a State official said this morning.

Dow Chemical Co. conducted the tests on a six-acre site between the Stainback Highway and Saddle Road about three miles from the area used by the Army for its nerve gas testing.

The tests were conducted late in 1966 and early in 1967, district forester Libert Landgraf said this morning.

Landgraf said further tests will not be conducted. He said he was instructed in May, 1967, to refuse all herbicide testing requests from the military or otherwise by State Forester Tom Tagawa.

The Big Island forester said three of four applications of "tordon," a brand name herbicide manufactured by Dow, were made at different concentrations to demonstration to the Defense Department how the material would work in a jungle environment.

He also said, from his standpoint, the tests were not too successful. He said a person driving by this area would not be able to tell herbicide testing had been conducted, except for a few dead trees still standing.

He said the area has reforested itself with ohia and tree ferns. "There are no residual effects," he said.

Landgraf also pointed out the tordon is a common commercial preparation that was on the market even in 1966 when the tests were conducted.

While the State was informed, the County apparently was not. Akira Fujimoto, manager of the Department of Water Supply, noted the area is a watershed and said his department had no knowledge such tests were ever conducted there.

He noted there apparently were no problems as far as water was concerned.

County Mayor Shunichi Kimura could not be reached for his reaction to the testing this morning.

Tagawa, who heads the Division of Forestry, said this morning the State was kept fully informed of the tests and the tests caused no known damage to soils.

He also said the defoliant posed no hazard to animal life or to residents in the area.

Landgraf said the Dow tests were the only herbicide tests on the Division of Forestry land on the Big Island since he became district forester five years ago.

William Stearns, chief pilot of Murrayair, which operates a fleet of crop dusters, refused to comment when asked if his firm flew the defoliation missions. He referred all inquires to the State.

However, Murrayair reportedly carried out the contract and Stearns flew some of the missions.

The dangers of defoliation have been discussed many times. Scientists point out it upsets the ecological balance of the area and it may take the area a long time to recover.

The issue has been a hot one and Seymour M. Hersh, author of "Chemical and Biological Warfare: America's Hidden Arsenal," lectured at the University of Hawaii several months ago, calling the school stupid for accepting herbicide research contracts.

An Editorial:

HTH
9-21-69

An Apology Not Enough

News stories Friday said the Pentagon was preparing an apology in connection with the open-air tests of nerve gas conducted by the U.S. Army on the Big Island.

An apology is not enough.

The situation demands a full and candid explanation.

And there must be a definite commitment from the Army that it would not allow further testing and the storage of chemical and biological agents on the Big Island.

Nothing less will be acceptable.

Further testing of chemical and biological agents could jeopardize the health and safety of the people and upset ecological balance.

Mishaps do occur.

A dramatic example of a mishap was the death in 1968 of 6,000 sheep in Utah from the effects of nerve gas after tests 50 miles away at the Dugway Proving Ground.

It is a frightening thought when one learns that the Big Island tests, conducted in 1966-67, were only 7 miles from Kulani Honor Camp and about 15 miles from Hilo, where some 27,000 of us live.

And mishaps do occur even when the gas is in storage. An example of this was the case earlier this year on Okinawa, where about 25 persons were hospitalized, but suffered no ill effect, after the accidental leakage of "CB," a type of gas used in the Big Island tests.

The Big Island community cannot take any chances. Our officials should declare the Big Island officially "Off Limits" to the Army and to any other agency planning chemical or biological tests that could threaten the health and safety of the people.

As the saying goes, it is better to be safe than sorry.

No More Tests, Army Sec Says

Army Secretary Stanley Resor has given assurances the Army will not continue testing of lethal gases on the Big Island, Mayor Shunichi Kimura said Friday afternoon.

Resor's assurance was given to U.S. Sen. Daniel Inouye in Washington Friday, Kimura said. Inouye informed Kimura by telephone Friday afternoon.

According to Inouye, the Army will issue an official apology for conducting nerve gas tests in the Upper Waiakea Forest Reserve in 1966 and 1967.

Last week, the Pentagon admitted the Army tested on four occasions the GB and BZ gases in the forest reserve.

GB is a poisonous gas capable of killing in 30 seconds. It is the same gas the United States recently was forced to withdraw from depots in Okinawa.

BZ is a disabling gas but not deadly, according to the Army.

The Army has a five-year lease of 1,145 acres of State land in the Waiakea Forest. The lease will not expire until early 1971.

A newspaper report said last week testing was again planned for 1970.

Since the Army admitted conducting the tests in a letter to Congressman Patsy Mink, protests from the Big Island residents and state officials have been mounting.

Mayor Kimura has sent letters of protest to the State and Federal officials, seeking a ban on any further test on the Island.

The County Council is preparing a resolution, also protesting the testing.

Army Now Admits Gas Weapon Tests

HTH 9-21-69

The Army used gas weapons in its tests on the Big Island, U. S. Sen. Daniel Inouye said Saturday.

Inouye said Stanley Resor, Secretary of the Army, admitted the use of gas weapons in a discussion Friday. The senator met with Resor at the Pentagon in Washington D.C.

The admission by Resor flies in the face of previous military statements. One said flatly "The Army has not tested either chemical or biological munitions in Hawaii."

The munitions revelation came at the end of a week of contradictions and "no-comment" stances by various military officers in connection with testing of nerve gases in 1966 and 1967 in the Upper Waiakea Forest Reserve.

Inouye also said he expressed to Resor his concern over the development of a "credibility gap" between the Pentagon and members of Congress.

The senator pressed Resor on whether or not such testing

See ARMY ADMITS WEAPONS TEST, Page 8

• Army Admits Weapons Test

HNT 9-21-69

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had occurred in other parts of Hawaii.

Resor said to the best of all information available, tests were not conducted elsewhere, according to Inouye.

The senator, pointing to a continual flow of "misinformation" in the past week in connection with tests, asked the secretary to double-check the matter.

Many Hawaii officials also have expressed concern over unconfirmed reports the military plans to test gas in Waiakea Forest again in 1970.

Inouye and U. S. Reps. Mrs. Patsy Mink and Spark Matsunaga are pressing the secretaries of the Army and Defense for a guarantee, in writing, that no testing of deadly gases in any form will be conducted again in Hawaii.

A further contradiction in the testing hassle is a military statement that testing is not carried out with informing high state officials such as the governor.

Gov. John A. Burns has denied any knowledge of the testing as have all other State and County officials on all levels.

Resor did say Friday the Army was drafting a letter which would be an apology for conducting the secret tests.

The testing of nerve gases was conducted once in 1966 and three times in 1967, according to military statements. A deadly gas was used three times and a lesser agent, termed an "incapacitant," was tested once, according to military statements.

It also was disclosed the Dow Chemical Co., makers of napalm, tested a defoliant at about the same time, according to military statements.

A defoliant destroys vegetation.

All of the tests were conducted on a 1,145 acre parcel in Upper Waiakea Forest Reserve. The 1.5-mile square parcel was leased from the State Department of Land and Natural Resources.

The lease went into effect Jan. 3, 1966. It is still held by the U. S. Army with an expiration date of Jan. 2, 1971.

More ordnance found at Hapuna

HON 10-14-98

A U.S. Navy team will join with state personnel today and Thursday to locate and dispose of military ordnance found offshore of Hapuna Beach State Park.

Department of Land and Natural Resource officials said the ordnance was located in 12 different sites on the north end of Hapuna Beach.

Conservation officers from the DLNR surveyed the area for munitions — believed to be left over from World War II training exercises — in August after receiving a report from a recreational diver.

A Navy Explosive Ordnance Disposal team today will confirm the position of ordnance found in August and will survey the ocean off the southern end of the beach.

On Thursday the Navy divers will dispose of the located ordnance either by removal or detonating it where it is found.

Aquatic biologists from the DLNR will accompany the diver to oversee protection of the marine life in the area, state officials said.

This is the second time in 15 months that ordnance has been found off Hapuna.

WEST HAWAII TODAY 7-31-97

Ordnance found at Hapuna

HILO (AP) — Divers have found 51 artillery shells, rockets and mortars in waters off Hapuna Beach, according to a state official.

Lenny Terlep, Big Island chief of the conservation enforcement division of the state Department of Land and Natural Resources, said department divers spent several days in early June surveying the waters off Hapuna.

The survey was done after a tourist discovered some rounds while snorkeling.

Terlep said the find included two intact cases of 40- and 20-millimeter anti-aircraft shells. He said the munitions were found in waters as shallow as 30 feet, with some only about 100 yards from shore.

No one is sure where the ordnance came from but the belief is that it probably fell off landing crafts involved in training exercises during World War II, Terlep said.

State divers will begin checking Hapuna's offshore waters following storms to see if more munitions are revealed, he said.

Twenty-nine pieces of ordnance were found in deeper waters off Hapuna in April 1995.

-AWA- 100-1-11-11-11 1-15-47

Hunt is on for military ordnance

□ Lands in Waimea, Waikoloa to be swept for unexploded ammo

By Dave Smith
Tribune-Herald

A company hired by the Army will begin a search today of lands around Waimea and Waikoloa for unexploded munitions.

Brad Lassitor, an ordnance specialist with the Army's Corps of Engineers, said the sweep is being done to find out how many unexploded mortars, artillery shells and other military projectiles remain in the area.

The four- to six-week search, which will involve random sampling, is focusing on a 93,000-acre area formerly known as the Waikoloa Maneuver Area and later as Camp Tarawa.

The training area was used extensively for a variety of maneuvers, particularly during World War II, which left parts of the area

riddled with bullets, shells and other means of war.

The area which runs south of Waikoloa Village with boundaries at the Waimea-Kawaihae Road and the military's Pohakuloa Training Area on Saddle Road, has already been swept for munitions twice. But Lassitor said unexploded munitions keep turning up in the area — sometimes with disastrous results — despite the sweep in the 1940s and another in 1954. The latter effort was described at the

Related story/Page 8

time as the largest "dud clearance" ever undertaken by the Army.

"The technology then — and probably today — can't get all of it," he said.

According to Lassitor, the survey, which will look at a total of about 40 acres, is being done to

See **ORDNANCE,**
Page 8

A lesson in ordnance: Look, but don't touch

□ Munitions found on Big Isle have resulted in several fatalities

By Dave Smith
Tribune-Herald

A Volcano man says if you see a strange piece of metal sticking out of the ground virtually anywhere on the Big Island, don't disturb it. It might be the last thing you ever touch.

Kent Warshauer said he's glad the Army is undertaking another survey of land previously used by the military to determine how much unexploded ordnance remains in and on the soil.

By his own reckoning Warshauer has spent 20 years researching a book on the aftermath of more than five decades of 50 years of military occupation and maneuvers in Hawaii. And he says what he's found has been chilling.

According to Warshauer's studies of newspaper clippings and military documents, there is tons of unexploded military ordnance to be found on the Big Island. He said areas where the munitions have been found include off the South Kohala coast, near South Point, in the Ka'u Desert, in Waipio Valley and even in Hilo.

He said some, like shells up to

16 inches in diameter fired by Navy vessels at a Ka'u shore, could kill people hundreds of feet away if exploded.

Brad Lassitor, an ordnance specialist with the Army Corps of Engineers, said even buried munitions are a threat. Lassitor said there have been instances after heavy rains where a projectile has actually floated its way up to the surface.

Warshauer said the most intensive area for still-explosive duds, and where several deaths have occurred, is in the area on and around Parker Ranch which was used by both the Army and the Marine Corps for training during World War II.

The fatalities include a civilian employee of the precursor of today's Army Corps of Engineers who died while on a road-building project on a roadway three miles south of Waimea in 1945; two ranch hands killed by a mortar while working on a fence line at Keamuku, several miles south of the Saddle Road-Highway 190 intersection, in 1954; and a 5-year-old Pepeekeo boy killed by an exploding 50-caliber bullet in 1956.

Warshauer said in each of those cases the victim was doing what they shouldn't have: handling or playing with the piece of ordnance. He said the 1954 incident prompt-

ed the military to undertake a massive dud-clearing project billed as the biggest of its kind to date.

In addition to those there have been numerous ordnance-related injuries as well as similar incidents at the Pohakuloa Training Area on Saddle Road where soldiers on maneuvers continue to fire artillery and other weapons.

He said old newspaper articles show that unexploded munitions have been discovered — and sometimes detonated — by a variety of activities including someone tripping over them, by the heat of a bonfire, and often during excavations, such as occurred July 7 when employees of a contractor working on a new residential development in Waikoloa unearthed a live 105mm artillery projectile.

Later in July a total of 51 rounds including artillery shells, rockets and high-explosive mortars, including two intact cases of anti-aircraft shells, were found and detonated by Navy divers in waters close to Hapuna Beach. The munitions buried under the ocean bottom were believed to have been exposed by wave and current action.

Warshauer believes it's just a matter of time before more is discovered off those shores. He said his research suggests that the intact cases were among munitions tossed off vessels involved in land-

ing exercises along a number of South Kohala beaches, including Spencer Beach Park and a variety of resorts.

He said ordnance was also dumped outside of Hilo Bay, some of which has been found along the bay's breakwater.

Other areas of concern, according to Warshauer, include Makuu in Puna, where Hawaiian Home Lands homesteaders are developing homesites, and in the Shultz Siding area of Hilo, near Hawaii Electric Light Co.'s main power plant where he said cases of grenades were once dumped.

Warshauer, who has not yet been able to find a publisher for a book on ordnance, said the problem is not solely the Big Island's.

"Every single island got blasted (in military training), and every single island has had fatalities," he said.

And if that wasn't enough problems, there's also the ordnance left behind by a prior enemy. He said while none have been discovered for years, he believes sea mines planted by Japanese sailors during the war continue to be a threat. Several were found around Ka'u and Kawaihae in the 1940s, and Warshauer believes some could be stuck near the shoreline, becoming in essence coral- and seaweed-encrusted time bombs.

ORDNANCE: Hunt for munitions begins today

From Page 1

—determine whether another full-scale sweep is warranted.

"We don't know if there is enough (ordnance) left after two previous cleanings to warrant a multimillion dollar effort," he said.

The search will be carried out by the firm EARTHTECH with the subcontracted firm UXB. The latter company, whose name is short for "unexploded bomb," is also involved in removing ordnance from Kahoolawe, the island off Maui used as a target island by the military for decades.

Areas searched will be about a 100-foot square and selected at random by computer, Lassitor said.

He said the contractors will cordon off the grids to be searched using a sophisticated "frequency

domain magnetometer," sort of a "super souped-up" version of the metal detectors treasure hunters use on the beach. He said the device is capable of finding a flashlight-sized piece of metal up to three feet underground.

Any munitions found will be exploded in place unless they must be moved to designated detonation pits to protect cultural finds. The survey team will include a state archaeologist as well as a safety expert from the Corps.

Many of the areas to be searched are on Parker Ranch. Lassitor said the only residential area to be surveyed is the Lalamilo Farm Lots south of Waimea.

Other landowners in the former

range area include the state, Nansay, Allied Aggregates and West Hawaii Concrete.

But while there is little human habitation in the area now, growth in various parts of the former maneuvers zone is inevitable, which is why the latest survey is being done, Lassitor said.

"In the future we expect it to be populated," he said. "Areas of human intervention are the highest priority."

Lassitor said the current sweep was prompted by concerns that arose out of Parker Ranch's construction of a sewage treatment plant that services ranch facilities as well as part of Waimea town.

He said while another search of

the Waikoloa range was way down on the Army's list of priorities for "need to clean" — which includes 2,500 such sites across the nation — intervention by U.S. Sen. Daniel Inouye helped expedite the project.

Picking which sites to clear is "about the toughest job you can have," Lassitor added.

After all of the grids have been searched the resulting information on density and types of ordnance found will be used in a "risk assessment matrix." He said that will weigh such factors as population, intended use of the area and type of traffic expected such as foot or vehicular to determine whether a full cleaning is needed.

Hawaii

Tribune Herald

Wednesday, February 6, 2002

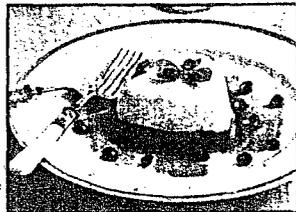
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Sports

Waiakea beats Hilo to win the BIF regular season hoops crown and a state tourney berth
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Gardening/Home

Coeur à la Crème is one of Martha Stewart's favorite treats for Valentine's Day
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Nation

John Walker Lindh is indicted on 10 charges alleging he worked with the Taliban and al-Qaida
Page 2

Students dig up grenade

Ordnance uncovered in garden near school; finding not uncommon

By Dave Smith
Tribune-Herald

Students digging in a garden at Waimea Middle School Tuesday unearthed a hand grenade, another in the long list of World War II military ordnance that has turned up in South Kohala.

Several students handled the grenade before being told by a teacher to put it down and leave it alone.

School officials called police, who notified a bomb disposal team from U.S. Army's Pohakuloa Training Area which took the grenade away.

It was not clear Tuesday if the fragmentation grenade was a live piece of ordnance. Students who found it said it was missing its release handle, which when activated triggers the explosive inside.

Waimea Middle School student Ka'u Paio was among those who touched the grenade. Ka'u, 12, said he was among a group of students digging in the garden when another boy nearby discovered the grenade. He said he took the grenade from the other boy

and was carrying it over to a teacher when the teacher told him to put it down and walk away.

"Just leave it alone," Ka'u said the teacher told him.

Another middle school student, Joseph Hufford, said he was walking by the garden when the grenade was found. When the boy who discovered it picked it up and said, "Hey, a grenade," Joseph knew to get away from the area.

"I was scared and walked to the other side (of the garden)," said Joseph.

Joseph, 12, said he knew from talks with teachers and his parents, and also

See ORDNANCE,
Page 8



Waimea Middle School students, from left, Joseph Hufford, Ka'u Paio and Nestor Daquep were among a group that found a grenade while digging in a garden behind the school.

ORDNANCE: Children unearth grenade at Waimea Middle School

From Page 1

from watching television, not to handle such things.

"I've been told not to touch them," he said.

"Very scary" was also the assessment of Nestor Daquep, another boy who was in the area.

"Just walk away and tell the teacher," Nestor said he has been told.

According to Jon Znamierowski, principal at Waimea Middle School, the one-acre garden area behind the teachers' cottages had been bulldozed and inspected for ordnance and then rototilled before students began gardening last year.

"We're aware that there was old ordnance in other places," he said. "This thing worked

itself out of the ground."

Ordnance experts say that is not uncommon in South Kohala, which was the location of extensive military training exercises during World War II.

Several people have been killed by the left-over ordnance in the area, including two Parker Ranch workers in the early 1950s.

Waimea Middle and Elementary schools are on the edge of ranchlands, parts of which have been the subject of several sweeps by the military to remove unexploded ammunition and fragments. According to a survey of the Waikoloa and Ouli areas carried out over the past several years, as many as 48,000 of the 123,000 acres of former maneuver grounds may

still contain ordnance and explosive waste such as shrapnel.

Dozens of pieces of unexploded ordnance and more than 1,000 items of munitions scrap have been found up to 20 inches deep during recent surveys in the Waikoloa area. A subsequent sweep of 300 acres in the Ouli area completed last November turned up 11 explosive items.

Ordnance has also been found periodically by civilians in the area, including in 1998 when a 13-year-old Waimea boy found two pieces of abandoned military munitions, a mortar shell and a fragmentation grenade, near his home on former pasture land that used to be part of a 93,000-acre training

area known as Camp Tarawa.

Znamierowski said he will meet with the schools' teachers and students to make sure they know how to handle such a situation.

"We'll tell them, if this ever happens again, get away from it," Znamierowski said. He said students will not be allowed back into the garden until it can be checked with metal detectors.

Helene Takemoto of the U.S. Army Corps of Engineers on Oahu said the Army would like to sweep broader areas but lacks funding.

"We recognize the danger and the last thing we want is for someone to get hurt," she said.

Takemoto said the budget for her Formerly Used Defense Site

office, which also must clean up toxic and hazardous waste, is only \$5 million annually. She said the FUDS office is also responsible for projects as far away as Saipan.

So far \$5 million has been spent on surveys and clean-ups in the South Kohala area over the past decade. According to Corps studies, the cost of sweeping the entire area for old munitions could run as high as \$800 million.

The recent efforts have been targeting residential areas in Waikoloa and Ouli, located several miles below Waimea on the Kawaihae Road.

Takemoto said several large landowners in the area have refused to give the Corps permission to enter their land for

surveys or sweeps which makes her job more difficult. State law also requires that real estate transactions disclose that ordnance may exist in the area.

Ordnance isn't found just on land. Munitions, including entire cases of anti-aircraft shells, were found on three separate occasions during the late 1990s just off Hapuna Beach, which was the scene for landing exercises during the war. Experts say more likely will continue to be exposed by waves and currents as time passes.

Hundreds of anti-aircraft shells were found in 2000 outside the Hilo Breakwater. U.S. Navy divers destroyed some but the project needs additional funding to complete.

Navy blasts hundreds of shells in bay; scores remain

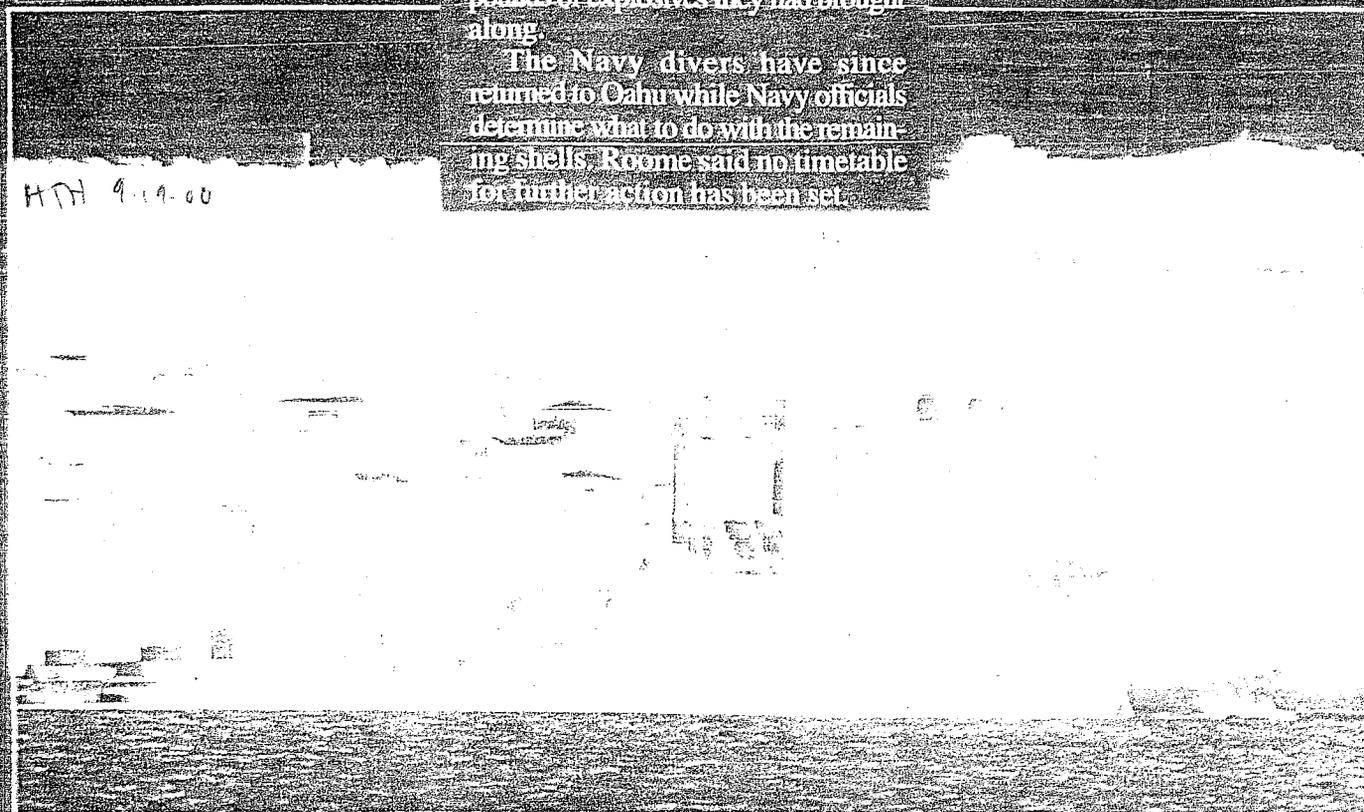
By Dave Smith
Tribune-Herald

Navy divers disposing of World War II-era ordnance discovered outside the breakwater in Hilo Bay ran out of explosives last week after finding many more munitions than they had expected.

Navy spokesman Bill Roome said 250 pieces of unexploded ordnance were destroyed during 28 dives conducted between Sept. 7 and last Friday.

Although another 65 pieces of munitions remain in waters 40-60 feet deep, Roome said the divers on Friday used up the last of the 300 pounds of explosives they had brought along.

The Navy divers have since returned to Oahu while Navy officials determine what to do with the remaining shells. Roome said no timetable for further action has been set.



T-H photo by William Ing

The Navy tug Navajo, based in San Diego, Calif., is seen anchored in Hilo Bay last week. The vessel was used by military divers who detonated about 250 pieces of ordnance in the bay.

In the meantime, the Coast Guard has issued a warning to mariners to avoid diving or fishing in the area located within a half-mile outside

The 315 pieces of ordnance found were nearly 10 times the number estimated to be in the area following underwater surveys in July. Follow-

cialists said they had located less than 40 pieces of ordnance.

Old munitions periodically surface. See **ORDNANCE**, Page 16

Ordnance disposal falls short

HPL ADVERTISER 9-17-80

Hilo job bigger than anticipated

By Hugh Clark

ADVERTISER BIG ISLAND BUREAU

HILO, Hawai'i — Navy divers have found so many unexploded World War II shells in Hilo Bay that they have run out of explosives to detonate the shells embedded in the bay.

The project to clear the bay of the shells began early this month.

A state Department of Land and Natural Resource spokesman said the shells were used by the U.S. Army. An empty casing brought to shore was dated 1942.

Andrew Ford of the state Division of Conservation and Resources Enforcement, said the divers "found more, more and more" of the 27-inch shells as they surveyed the area outside of Hilo's breakwater.

Divers remained in Hilo over the weekend to do more charting and assess how many shells will be left behind, Ford said.

Later, a diving team led by state aquatic biologist Bob Nishimoto will review the situation. Separate Navy teams from San Diego and Pearl Harbor were dispatched to Hilo to help destroy the shells.

The artillery pieces were first spotted in July. Explosive experts said the bombs should not be brought on shore because they are likely to be unstable after 55 years or more in the ocean.

ORDNANCE

From Page 1

HPL 9-19-80

on various parts of the island as a result of extensive military training operations on land and off Big Island shores during World War II.

The Hilo dive shop operator who first encountered the shells had maintained that there were hundreds of shells in the area. Michael Brandon of Aquatic Perceptions found the first of the 3.5-inch shells during a recreational dive in June.

The Navy said because of the corroded and dangerous condition of the ordnance, which includes air-to-ground rockets and other munitions, it was decided that the safest approach would be to explode the shells in place.

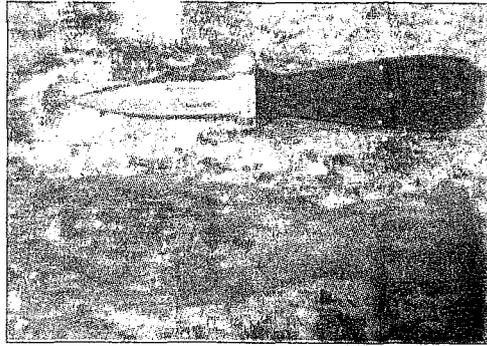
Officials said that the ordnance was moved to sandy troughs on the ocean

bottom for detonation to minimize the impact on scattered coral colonies in the area.

Bob Nishimoto, state aquatic biologist on the Big Island, said wave action limits the amount of underwater growth in the area.

Roome said divers from Navy and the state Department of Land and Natural Resources conducted surveys prior to setting off the explosions to try to ensure that no sea turtles or other marine animals were in the area. The Navy said divers aren't likely to find turtles in the area because of the lack of food sources.

The dive teams operated from the Navajo, an ocean-going Navy tug based in San Diego, Calif.



MARINE GUNNERY SGT. ANDREW YELLOPE/U.S. Navy

Man finds WWII mortar round at Keaukaha beach

HTH
1-31-
2009



WILLIAM ING/Tribune-Herald

Nautilus Dive Center owner Bill De Rooy holds a WWII-era dummy mortar shell recovered years ago from the ocean floor. De Rooy says the dummy shell is similar to the live mortar shell he recently spotted and reported to the military. However, cautions De Rooy, anyone who spots a suspicious object in the ocean should consider it dangerous and never touch it. **Top photo:** This mortar shell was photographed at the bottom of the ocean near Leleiwi Beach Park in Keaukaha.

Navy team removes explosive ordnance from floor of ocean

By JOHN BURNETT
Tribune-Herald staff writer

Most scuba divers will tell you their pastime is a blast. One local dive instructor, however, is glad he didn't have a bang-up time on a number of recent underwater adventures.

Bill De Rooy, owner-operator of the Nautilus Dive Center in Hilo, made what could have been a deadly discovery on the bottom of the ocean, about 50 yards off Leleiwi Beach Park in Keaukaha — a World War II vintage mortar round.

"I spotted it a couple of months ago, and I tried to get it removed because I know better than to mess with that. The reason we didn't spot it sooner was because during storms, sediment will shift. You'll see it and the next time you go there, it's gone. It actually took me quite a while to locate it again, but I finally did. I took a bearing on where it actually was, so I could relocate it at anytime."

De Rooy called a diver friend of his, Gunnery Sgt. Andrew Yellope, Marine liaison at the Army's Pohakuloa Training Area, to confirm what he saw.

"He positively identified it because he's into munitions," De Rooy said.

There was some discussion about what branch of service should do the recovery and demolition of the 60-millimeter shell, which despite a weathered appearance from more

See MORTAR Page A6

MORTAR From front page

than 60 years underwater, was still potentially dangerous. The task went to the Navy's Explosive Ordnance Disposal Mobile Unit 3 Detachment, Middle Pacific, at Pearl Harbor.

"They called me back and told me that first of all, I had to make a report with the Hawaii Police Department," De Rooy said. "They said with that, plus the photo, they would be able to move. Within a couple of weeks of them getting the picture and the police report, they came out here last weekend with a four-man team. They're very professional and very easy to work with."

On Sunday, the Navy sent four divers, led by Lt. Jonathan Puglia. One of them was a hospital corpsman, should anything go wrong, according to Navy spokeswoman Grace Hew Len.

"It was a successful operation," she said. "They took the ordnance ashore on a

boat provided by the (state) Department of Land and Natural Resources."

The dive team was met by a Marine EOD team, and the aged but still viable mortar shell, which was used by the Army and Marines for light infantry support, was taken to PTA and detonated.

"We've got a metal detector and we're going to survey that area and see if we can find any more," said De Rooy, who cautioned divers, snorkelers and swimmers to be careful not to touch anything in the ocean they can't identify or that looks suspicious.

"We still have unexploded ordnance all throughout the islands," he noted. "This particular 60-millimeter mortar round was in only 12 feet of water, and it was at a very popular local dive site."

E-mail John Burnett at jburnett@hawaii-tribune-herald.com.

Neighbor Islands

Honolulu Advertiser 7-13-47

War artifacts pose danger to islands

HILO, Hawaii — Leave those intriguing World War II ordnance pieces alone.

That's the advice from police who said old military training pieces found at several sites in recent months represent a definite danger.

Capt. John Vares, South Kohala police commander, said old parts have been found this year on Parker Ranch, which was used in the 1940s to train Marines

headed to the South Pacific.

They've also been found at Waikoloa and at Hapuna Beach State Park, he said.

The latest find was last week, when construction workers discovered a large unspent shell at the Pheasant Ridge development site in Waikoloa Village.

Specialists with the Army's Explosive Ordnance Detachment unit on Oahu determined the piece was a live 105 millimeter shell. They took the artillery piece to an isolated area and detonated it.

Another mortar round found

By **BOBBY COMMAND**
West Hawaii Today

In a strange coincidence, another live 81-mm mortar round was discovered in Waimea last week.

Chuck Clarke, a Republican candidate for the First Senate District, said Monday his son Kawehi, 15, and volunteer Dave Douglas were cleaning out the old Chock Inn Store Thursday in Waimea for a campaign headquarters when they came across the ordnance under the building.

West Hawaii Today reported Sunday that two days earlier a pair of Waimea teen-agers discovered an 81-mm round while hiking.

Clarke said he was told by his son they found some kind of explosive. He said Douglas told Kawehi not to fool around with the round.

"But I had just seen an empty tin of blasting caps in the store, so I thought that's what they were talking about," Clarke said.

To his surprise, when he showed up to his headquarters Monday, he saw what Kawehi had been talking about: brass, about three and a half feet tall and about five inches in diameter.

Clarke said he called the police Monday afternoon about the unspent round, and the first officer who saw it exclaimed, "Oh, gee!"

Army Explosive Ordnance Disposal

experts were expected to inspect the round Monday afternoon and probably detonate it in the back of Chock Inn Store sometime this morning.

Last Tuesday, James Holmes — a friend of Kawehi Clarke — and Jared Cook found an identical mortar round and carried it home. Jared's father, Mark, first stuck the round in the trash, but then decided against leaving it at a transfer station.

Mark then tossed it off his porch, a bad move, according to Sgt. Joe Ammon of the EOD unit. A relative later saw the shell and advised the Holmes to call the police.

Army experts took the shell about 250 yards away from the house before detonating it with a pound and a half of C-4 plastic explosives.

Military officials say the round may have been left over from the World War II era when Waimea was used as a U.S. Marine encampment and training area.

Similar mortar shells and other explosives also were discovered a year ago about 400 yards offshore Hapuna Beach State Park. Navy EOD experts disposed of those items, blowing them up in place.

Ammon said people who find old ordnance should leave the items alone and then to call the police.

While Clarke said Kawehi moved the round into the campaign headquarters, he said, "I'm not taking it anywhere."

4.
West
Hawaii
Today
6-30-98

Remnants from the past lie on Parker Ranch



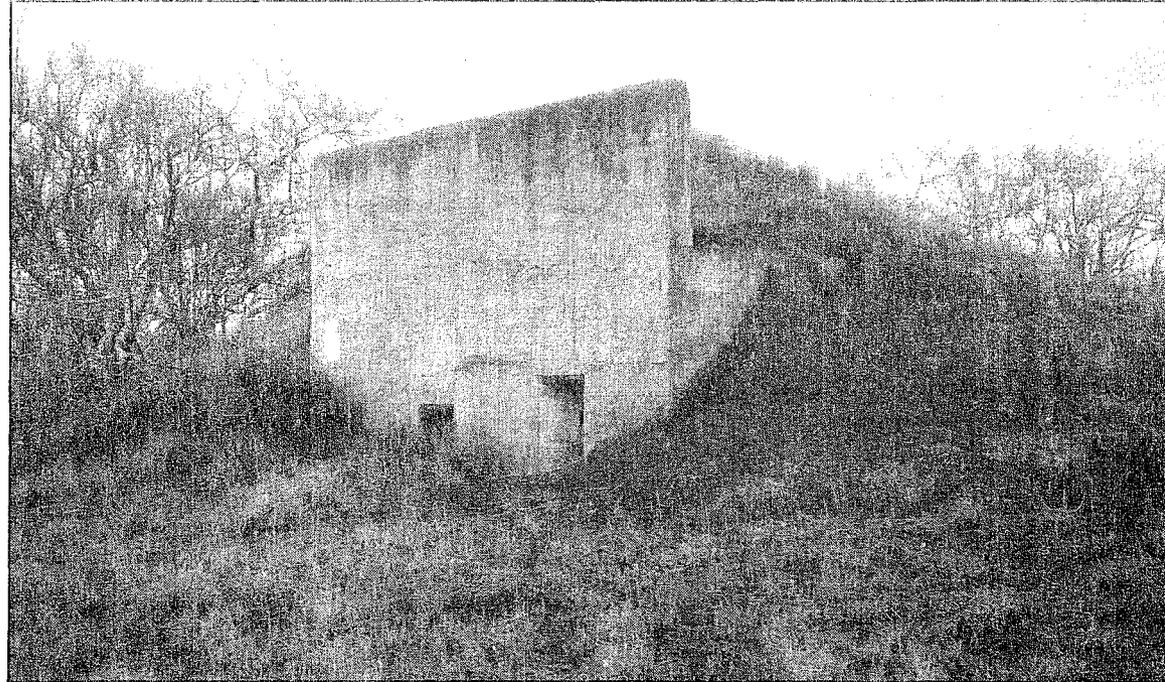
The Riddle of the Relic

Kent Warshauer
HNT 5-25-03

Editor's note: Those who travel around the Big Island can find the remnants of a bygone era nearly everywhere. This column attempts to explain the history behind them.

Tuesday's Hawaii Tribune-Herald carried a report by Chris Loos about a wildfire Sunday near Waikoloa where the ground was littered by unexploded ordnance. How and when did this ordnance get there?

On Aug. 6, 1943, the U.S. Army officials in the Hawaiian Islands were directed to form and train forces for amphibious operations against the Japanese-held islands in the Central Pacific. Plans for a 19,000-man Army



This concrete bunker is one of the few structures remaining of Camp Tarawa, created in the fall of 1943 to train combat troops destined to reclaim the Pacific islands from the Japanese. The bunker, located on Parker Ranch, had thick concrete walls, covered with earth, to guard the spotters from artillery rounds.

*T-H photo by
Kent Warshauer*

training camp at Waimea were drawn up at an approximate cost of \$800,000 and work order G-125 was issued for its construction.

This new camp, to be known as

"Camp Waimea," was designed for four regimental combat teams and a division headquarters. All structures were to be temporary in nature, and the Army Corps of Engineers arranged

for various leases of Parker Ranch for the 441.5-acre main campsite and training and artillery firing ranges.

See TARAWA,
Next page

Travel

TARAWA—

From previous page

Due to the Marine Corps requirements for a rehabilitation camp and training area, construction of the camp was transferred to the U.S. Navy. Plans were made by the 59th Conservation Battalion, then based in Hilo.

On Oct. 27, 1943, orders were received in Hilo that materials were on the way from Pearl Harbor. A detachment of 100 men arrived in Waimea on Nov. 18 to prepare the site for camp and mess facilities for the construction crew.

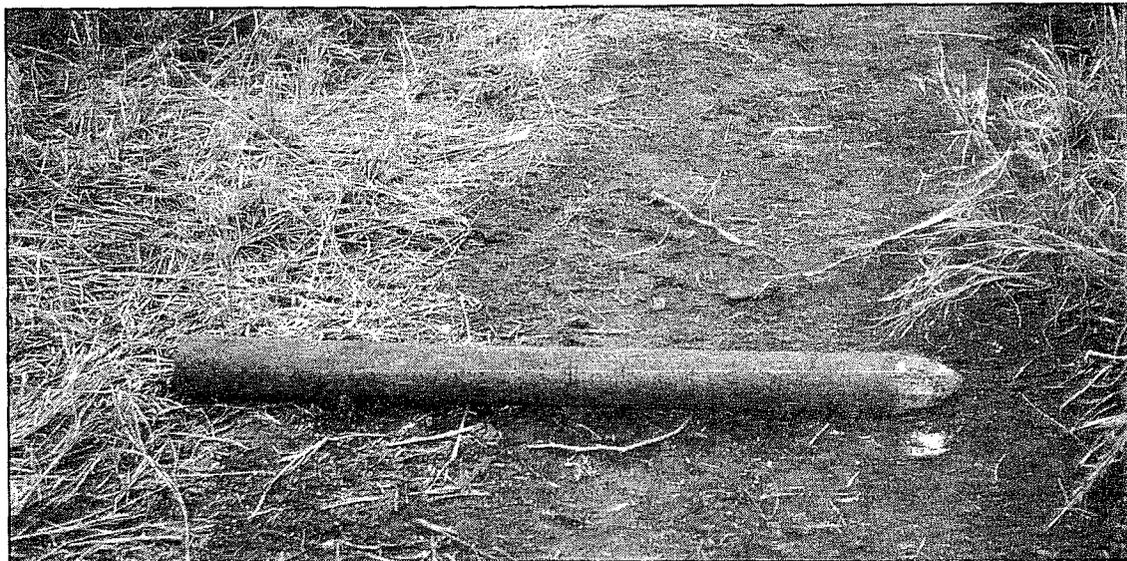
Additional personnel from the 99th Construction Battalion arrived Nov. 27 to help out. Streets were laid out and tent platforms were stacked in long rows. Concrete floors were poured for mess halls and food warehouses.

The camp was to be occupied by the combat veterans of the first island battle in the Central Pacific, the Battle of Tarawa. Following the island's occupation Nov. 24, 1943, the last Marines left by Dec. 8 and were on their way to Hilo. Upon their arrival, the weary troops were taken by truck over the newly constructed Saddle Road to the new camp at Waimea.

Now named "Camp Tarawa" in honor of the battle, the camp was a camp in name only. Tent platforms had to be placed into position and tents erected by the fatigued troops. For the next month, 2nd Division Marines, the first to arrive, worked with the Seabees to build the camp.

As other units arrived, they joined in digging latrines, erecting buildings and other house-keeping chores until the end of December. In January 1944 the Marines conducted conditioning exercises and basic training. February was spent laying out target ranges and building fortifications in preparation for training with live ordnance.

Training included participation by carrier aircraft practicing close support with live ordnance.



T-H photo by Kent Warshauer

Virtually intact is a rocket, most likely fired from fighter aircraft. The projectile's hardened tip could pierce the plating of destroyers and freighters; several such hits could cause a ship to sink.

Ranges accommodated artillery and mortar firing, tank maneuvers, grenade and target practice. The 2nd Marine Division remained in Waimea, continuously training with live munitions until April of 1944 when they left Camp Tarawa for the invasion of the Marianas. The 5th Division then replaced the departed Marines as preparations for the invasion of Iwo Jima were undertaken. The munition impact areas on Parker Ranch were expanded to better represent the new target.

The 5th Division Marines returned to Camp Tarawa to prepare for the planned invasion of Japan, bringing with them various captured Japanese weapons and ammunition for study. Their weaponry also included 25mm machine cannons with a half-pound explosive warhead and 47mm anti-tank guns with a three-pound high explosive shell.

Following World War II, the 5th Marine Division left Camp Tarawa for occupation duty in Japan. Camp Tarawa was returned to the U.S. Army Engineers control on Dec. 28, 1945. A total of 60,000 acres were used as a maneuver area and another 40,000 acres were designated impact areas.

All of these areas contained unexploded ammunition of various types, with the impact areas

containing the most concentrated number of projectiles.

Early in 1946, surplus live ammunition used by the Marine Corps was disposed of in the common method of the time: It was loaded onto landing craft and taken offshore where it was dumped into the sea. The ocean off Puako to Kawaihae is littered with small arms cartridges, mortar shells, rockets and other leftover ordnance. Much is in the original packing boxes as divers have noted some piles are rectangular in shape.

The main target ranges were searched for obvious duds in 1946, and again during 1954 following the deaths of several civilians who had disturbed a deadly round and set it off. The most deadly of the duds were the 60mm and 81mm mortar shells. These accounted for most of the fatalities on Parker Ranch, the most recent in September 1983.

Other common explosives include Mk II high explosive fragmentation grenades, mainly found near Waimea, 2.36 inch bazooka rockets, and 37mm high explosive anti-tank artillery rounds. Larger explosive projectiles included 15-pound, 75mm pack howitzer rounds, 33-pound 105mm rounds, and long range 155mm rounds weighing about 95 pounds each.

Aircraft bombs also litter the landscape of Parker Ranch, as close air support exercises had been held in conjunction with Marine maneuvers.

Wildfires pose an extreme danger as heat can and have set off explosive duds in the Parker Ranch. On July 23, 1998, firefighters pulled their bulldozers from a 1,600-acre fire near the Ouli Ekahi subdivision when at least two World War II era bombs exploded, endangering the operators.

As the Parker Ranch sells off land to developers, more duds will show up as the former pasture lands and other areas become subdivisions and golf courses.

Readers who have questions for Kent Warshauer, the Sugar Mill Spy, can write to him in care of the Tribune-Herald, P.O. Box 767, Hilo, HI 96721.

Military ordnance creating hazard

HTH
7-30-97

□ Old ammunition is turning up at various spots around island

By Dave Smith
Tribune-Herald

You're enjoying a day at the Big Island's most popular beach, doing a little snorkeling, when you encounter round after round of unexploded mortars and artillery shells.

Sound far-fetched? It already happened to one tourist earlier this year, and state officials say it could easily happen again.

Lenny Terlep, Big Island chief of the conservation enforcement division of the state Department of Land and Natural Resources, said the discovery in May was not the first time that military ordnance was found at Hapuna Beach. But it was the biggest in recent memory, he said.

After receiving the report DLNR divers spent several days in early June surveying the waters off Hapuna.

They found a total of 51 rounds including artillery shells, rockets and high-explosive mortars. The find included two intact cases of 40 and 20 millimeter anti-aircraft shells.

Terlep said no one is sure where the ordnance came from but the belief is it probably fell off landing crafts involved in training exercises during World War II.

He said the munitions were found in waters as shallow as 30 feet, with some only about 100

ORDNANCE: Live ammunition washing ashore

From Page 1

yards from shore.

He said in a previous discovery a total of 29 pieces of ordnance found in deeper waters were destroyed off Hapuna in April 1995.

Terlep said since it appears that the latest finds are the result of strong currents and wave action exposing ordnance buried in the sand, he expects more to eventually turn up. He said state divers will begin checking offshore of Hapuna following storms to see if more munitions are revealed.

Military officials say despite its apparent age ordnance being found still could explode with devastating force.

Terlep said it's even possible for munitions to be set off by being banged by currents against coral or rocks.

Unexploded munitions are being found in other places in West Hawaii besides Hapuna, likely also the result of training during wartime and since.

The most recent discovery occurred July 7 when employees of a contractor working on a new residential development in Waikoloa unearthed a live 105mm artillery projectile.

Another area where ordnance has been found includes Parker

Ranch, parts of which are located near the Pohakuloa Training Area, a sprawling military facility located in the saddle between Mauna Loa and Mauna Kea.

The discoveries have alarmed county officials who last week met with PTA officials in an attempt to determine the extent of the threat.

But part of the problem involves a lack of information about the extent and location of past military operations that could have left their deadly litter behind.

For example, no one knows how the artillery shell came to rest in Waikoloa, where other ordnance has been found in the recent past. That type of shell has been in use continuously since World War II, but Army officials say judging from its condition the projectile has probably been in place for 40 years or more.

Lee Ferguson from the Public Affairs Office at the U.S. Army base at Schofield Barracks on Oahu told the Tribune-Herald that she was having difficulties locating records about past military exercises in the area.

Past activities includes a large Marine Corps encampment in Waimea called Camp Tarawa where many GIs trained before shipping out for duty in the Pacific.

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Civil Defense Administrator Harry Kim said he has asked PTA officials to find out all they can about potential problem areas.

Kim said he is also planning to increase the public's awareness of the potential for disaster. He said towards that end representatives of the Schofield's Explosives Ordnance Disposal Team have agreed to provide training on recognizing and care around discovered munitions for communities and contractors.

Kim said the problem may be more widespread than most think.

While artillery firing now is confined to PTA in years past there were less constraints. And prior to the 1970s, he said, much of south Kohala was relatively inaccessible to the general public because here was no Waikoloa Road and no Queen Kaahumanu or Akoni Pule highways.

Kim said that meant that the military had almost free rein in deciding where to practice its shelling.

"With no people living there, if the military was looking for a place to fire, where would you go?" he said.

And with more and more parts of the area being opened up to

development, "it's important to do the research now," he said.

Police Capt. John Vares of the South Kohala station said more munitions are turning up as the number of hikers and hunters increases.

Vares said so far those making the discoveries are being wise.

"We've been very fortunate people have been smart enough to look and not touch, and to call us," he said.

The disposal of unexploded munitions is left to military experts, Vares said.

In Waikoloa the EOD team carefully carried the shell a distance from homes where it was placed in a hole, sandbagged, and detonated with explosives.

The ordnance found off Hapuna required several days of preparation by a team of Navy SEAL divers who relocated what munitions they could off reefs for underwater detonation. Items deemed too dangerous to move were blown up where they lay.

The DLNR's Terlep said a state biologist on hand to survey the June disposal reported minimal damage to the area's coral.

"None of the stuff was on major reefs," he said.

LEASE ATTACHMENT

State General Lease No. S-3849 for Pohakuloa, 8-17-64

RECORDATION REQUESTED BY:
U. S. Army Engineer Division,
Pacific Ocean

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECEIVED FOR RECORD

LIBER 4821 PAGES 425 TO 444

AFTER RECORDATION, RETURN TO:
U. S. Army Engineer Division,
Pacific Ocean
Phone: 542986

'64 AUG 20 PM 1:37

/s/ M. Adachi

INDEXED /1/ EK REGISTRAR

RETURN BY: MAIL () PICKUP (X)
SPACE ABOVE THIS LINE FOR REGISTRAR'S USE

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE GENERAL LEASE NO. S-3849
U. S. LEASE, CONTRACT NO. DA-94-626-ENG-80

1. THIS LEASE, made and entered into this 17th
day of August, in the year one thousand nine hundred
and sixty-four by and between the STATE OF HAWAII, represented
by its Board of Land and Natural Resources, whose address is
P. O. Box 621, Honolulu, Hawaii, 96809, and whose interest in
the property hereinafter described is that of fee simple
owner, for itself, its administrators, successors and assigns,
hereinafter called the "Lessor", and THE UNITED STATES OF
AMERICA, hereinafter called the "Government":

WITNESSETH: The parties hereto for the considera-
tion hereinafter mentioned covenant and agree as follows:

2. The Lessor hereby leases to the Government
three (3) parcels of land described on Exhibit "A" attached
hereto and hereby made a part hereof, all to be used for the
following purpose: Military purposes.

3. TO HAVE AND TO HOLD the said premises for a term of sixty-five (65) years beginning August 17, 1964 and ending August 16, 2029; subject, however, to the rights of the Lessor and the Government respectively to terminate this lease in accordance with provisions 6 and 21 hereof.

4. The Government shall pay the Lessor rent at the following rate: ONE DOLLAR (\$1.00) for the term of the lease, the receipt and sufficiency whereof is hereby acknowledged.

5. The Government shall have the right, during the existence of this lease, to attach fixtures, and erect structures or signs, in or upon the premises hereby leased, which fixtures and structures or signs, so placed in, upon or attached to the said premises shall be and remain the property of the Government and may be removed or otherwise disposed of by the Government. In addition, the Government shall post and maintain signs on roads and trails entering dangerous areas to provide a warning of any dangerous or hazardous activities; provided, that the information placed on the posted signs anywhere within the demised premises shall not be incompatible with the terms of this lease and, in those instances where joint use of an area is permitted, the information placed on the signs may include the permitted activities.

6. The Government may terminate this lease at any time by giving thirty (30) days notice in writing to the Lessor.

7. Except as otherwise provided herein, the Government shall have unrestricted control and use of the demised premises including the right to fire all combat weapons

therefrom into the designated Pohakuloa Impact Area.

8. The Lessor will not be responsible for any loss, liability, claim, or demand for property damage, property loss, or personal injury, including but not limited to death, arising out of any injury or damage caused by or resulting from any act or omission of the Federal Government in connection with the Federal Government's use of the premises described herein.

9. In recognition of public use of the demised premises, the Government shall make every reasonable effort to stockpile supplies and equipment in an orderly fashion and away from established roads and trails and to remove or deactivate all live or blank ammunition upon completion of a training exercise or prior to entry by the said public, whichever is sooner.

10. The Government shall obtain the written consent of the Lessor prior to constructing any road or building of the type for which design and construction plans are normally required; provided, however, that such consent shall not be arbitrarily withheld. The Government agrees that its training roads which provide primary access within or across the demised premises will be maintained to normal standards for training area roads with due regard for preventing unnecessary erosion; provided, however, that the Government shall be under no obligation to maintain roads during periods when the necessary engineer troops are absent from the island of Hawaii.

10(a). The Government hereby agrees that all Government vehicles of any type will at all times be prohibited from using that portion of the demised premises indicated by a red

cross hatch on the map attached to and made a part of this lease. In addition, the Government hereby agrees that it will maintain at all times at least a two-strand wire fence along that part of the boundary bordering Parcel "C" colored in green on the said map.

11. In the interest of safety the Government shall have the right to interrupt traffic on the Saddle Road during training activities involving firing of and/or the passage of troops across the Saddle Road; provided, however, that the Government shall minimize interference with traffic by limiting stoppages thereof to 15 minute periods.

12. With the exception of artillery simulators, atomic bomb simulators and any similar devices, and explosives used in construction work, the Government shall not fire any live ammunition into any portion of the demised premises. This restriction does not apply to any portion of Parcel "A" deemed by the Government to be safe for smallarms firing. In addition, the Government shall not fire any weapons within three-fourths (3/4) of a mile of the Pohakuloa Ranger Station.

13. The Government shall take every reasonable precaution to prevent the start of any fire in the areas herein demised and shall take immediate and continuing action to extinguish any and all fires started by or resulting from Government training activities. Further, the Government shall establish and at all times maintain a standard operating procedure for fighting fires within or adjacent to the subject leased property resulting from Government training activities during its use and occupancy of the premises; provided, further, that Government personnel actually using

the premises shall be familiar with said standard procedure including the means of implementation.

14. In recognition of the limited amount of land available for public use, of the importance of forest reserves and watersheds in Hawaii, and of the necessity for preventing or controlling erosion, the Government hereby agrees that, commensurate with training activities, it will take reasonable action during its use of the premises herein demised to prevent unnecessary damage to or destruction of vegetation, wildlife and forest cover, geological features and related natural resources and improvements constructed by the Lessor, help preserve the natural beauty of the premises, avoid pollution or contamination of all ground and surface waters and remove or bury all trash, garbage and other waste materials resulting from Government use of the said premises.

15. Except as required for defense purposes in times of national emergency, the Government shall not deliberately appropriate, damage, remove, excavate, disfigure, deface or destroy any object of antiquity, prehistoric ruin or monument.

16. The Lessor shall have the right to erect signs and construct capital improvements within the leased property at locations mutually agreed upon by the parties hereto, in connection with water conservation, public water consumption, forestry, recreational and related purposes, said capital improvements including but not limited in any way to the construction, maintenance and/or improvements of roads and trails; provided, however, that notwithstanding any other provisions of this lease to the contrary, the Government

hereby accepts the responsibility and liability for repairs of any damage which can be demonstrated to have been the direct result of military activities, to improvements constructed by the Lessor subsequent to the date of this lease.

17. To the extent permitted by training requirements the Government will cooperate with the Lessor in the game development and hunting programs of the Lessor and, in connection therewith, the Government agrees that Parcels "A", "B" and "C" hereof shall remain available for the aforesaid programs of the Lessor and, further, that Parcels "B" and "C" and all that part of Parcel "A" which lies to the north of the Saddle Road shall be made exclusively available to the Lessor for hunting during the periods 1 July through 15 July and 1 December through 15 January and on national holidays from dawn to midnight and on weekends from midnight Friday through midnight Sunday during the periods 1 November through 30 November and 16 January through 31 January. The Lessor shall also have the right to construct a road along a mutually agreeable route through the northerly portion of Parcel "C" hereof.

18. The Lessor hereby agrees that, commensurate with the public use of the premises herein demised, it will take reasonable action during the use of the said premises by the general public, to remove or bury trash, garbage and other waste materials resulting from use of the said premises by the general public.

19. Subject to obtaining advance clearance from the plans and training office of the Government's controlling agency, or any other designated Government agency, officials and employees of the Lessor shall have the right to enter

upon the demised premises at all reasonable times to conduct any operations that will not unduly interfere with activities of the Government under the terms of this lease; provided, however, that such advance clearance shall not be unreasonably withheld.

20. All persons legally entitled under the provisions of this lease to be on the said premises shall have a nonexclusive right to use all Government roads and trails except when such use will interfere with the training activities of the Government or said roads and trails have been restricted, by a duly posted sign, as security or danger areas by the Government.

21. In the event that the leased property is not used by the Government for a period of three (3) consecutive years, this lease may be terminated upon ninety (90) days written notice from the Lessor to the Government, provided, however, that if prior to the expiration of the aforesaid 90-day period the Secretary of the Army shall find and determine that the leased property is required for military purposes and shall notify the Lessor in writing of this finding and determination, this lease will continue in effect; provided, further, that periods during which a national emergency has been declared by the President or the Congress of the United States and periods during which major combat elements are temporarily deployed away from the State of Hawaii shall not be included in the said three-year period. During such period of temporary deployment the parties hereto shall discuss and give consideration to and provide for the additional public use of the demised premises compatible with then

existing military training requirements. The Government will assure that current military standards concerning adequate utilization are applied to these premises and will assure that such use is known and is a matter of record and available to the Lessor upon request.

22. The Lessor reserves unto itself all ground and surface water, ores, minerals and mineral rights of every description on, in or under the demised premises but shall exploit or permit others to exploit the said ores, minerals and mineral rights only with the consent of the Government. Notwithstanding the foregoing reservation, the Government shall have the right to develop and use for road construction projects on the demised premises sources of coral, rock and similar materials occurring naturally on the said premises and to use said ground and surface waters for purposes incident to the rights granted by this lease.

23. The Government will not be responsible for any loss, liability, claim or demand for any property damage, property loss, or personal injury, including but not limited to death, arising out of injury or damage caused by or resulting from any act or omission of the Lessor or the general public in connection with their use of the premises described herein.

24. Any notice under the terms of this lease shall be in writing signed by a duly authorized representative of the party giving such notice, and if given by the Government shall be addressed to the Lessor at P. O. Box 621, Honolulu, Hawaii, 96809, and if given by the Lessor shall be addressed to the Division Engineer, U. S. Army Engineer Division, Pacific Ocean, Building 96, Fort Armstrong, Honolulu, Hawaii,

Attention: Real Estate Division or at such location and to such other agency as may be mutually agreed upon by the parties hereto.

25. The Government hereby agrees that the use and enjoyment of the land herein demised shall not be in support of any policy which discriminates against anyone based upon race, creed or color.

26. The Government shall not grant any interest in the demised premises; provided, however, that the Government shall have the right to grant the use of portions of the premises for temporary activities of Governmental agencies or their contractors in which case any land rental derived from such use of the premises shall be covered into the Treasury of the State of Hawaii.

27. Subject to obtaining the prior approval of the Government, the Lessor reserves the right to grant rights or privileges to others not inconsistent with the terms of this lease affecting the whole or any portion of the demised premises.

28. The Government agrees to reforest areas, as expeditiously as practicable and within a period mutually agreed upon, where it can be demonstrated that substantial forest cover, including trees, has been destroyed as a direct result of Government activities; provided, however, that the Lessor shall obtain advance Government approval of all future plantings proposed by the Lessor.

29. The Government shall surrender possession of the premises upon the expiration or sooner termination of this lease and, if required by the Lessor, shall within

sixty (60) days thereafter, or within such additional time as may be mutually agreed upon, remove its signs and other structures; provided that in lieu of removal of structures the Government abandon them in place. The Government shall also remove weapons and shells used in connection with its training activities to the extent that a technical and economic capability exists and provided that expenditures for removal of shells will not exceed the fair market value of the land.

30. (a) That, except as otherwise provided in this lease, any dispute concerning a question of fact arising under this lease which is not disposed of by agreement shall be decided by the Division Engineer, U. S. Army Engineer Division, Pacific Ocean, Honolulu, Hawaii, hereinafter referred to as said officer, who shall within a reasonable time reduce his decision and the reasons therefor to writing and mail or otherwise furnish a copy thereof to the Lessor. The decision of the said officer shall be final and conclusive unless, within thirty (30) days from the date of receipt of such copy, the Lessor mails or otherwise furnishes to the said officer a written appeal addressed to the Secretary of the Army. The decision of the Secretary or his duly authorized representative for the determination of such appeals shall be final and conclusive unless determined by a court of competent jurisdiction to have been fraudulent, or capricious, or arbitrary, or so grossly erroneous as necessarily to imply bad faith, or not supported by substantial evidence. In connection with any appeal proceeding under this condition, the Lessor shall be afforded an opportunity to be heard and to offer evidence in support of its appeal.

(b) This Condition does not preclude consideration of law questions in connection with decisions provided for in paragraph (a) above: Provided, that nothing in this Condition shall be construed as making final the decision of any administrative official, representative, or board on a question of law.

(c) That all appeals under this provision shall be processed expeditiously.

31. The Government's compliance with all obligations placed on it by this lease shall be subject to the availability of funds.

32. The Lessor's compliance with any obligations which may be placed on it by this lease shall be subject to the availability of funds and/or personnel.

33. The Lessor warrants that no person or selling agency has been employed or retained to solicit or secure this lease upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Lessor for the purposes of securing business. For breach or violation of this warranty the Government shall have the right to annul this lease without liability or in its discretion to deduct from the lease price or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

34. No member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this lease or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this lease if

made with a corporation for its general benefit.

35. (a) The Government may, by written notice to the Lessor, terminate the right of the Lessor to proceed under this lease if it is found, after notice and hearing, by the Secretary of the Army or his duly authorized representative, that gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by the Lessor, or any agent or representative of the Lessor, to any officer or employee of the Government with a view toward securing a lease or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing of such lease; provided that the existence of facts upon which the Secretary of the Army or his duly authorized representatives makes such findings shall be in issue and may be reviewed in any competent court.

(b) In the event his lease is terminated as provided in paragraph (a) hereof, the Government shall be entitled (1) to pursue the same remedies against the Lessor as it could pursue in the event of a breach of the lease by the Lessor, and (2) as a penalty in addition to any other damages to which it may be entitled by law, to exemplary damages in an amount (as determined by the Secretary of the Army or his duly authorized representative) which shall be not less than three or more than ten times the costs incurred by the Lessor in providing any such gratuities to any such officer or employee.

(c) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or

under this lease.

36. This lease is not subject to Title 10, United States Code, Section 2662.

IN WITNESS WHEREOF, the parties hereto have hereunto subscribed their names as of the date first above written.

STATE OF HAWAII

By *John P. Lewis*
Chairman and Member
Board of Land and Natural
Resources

And By *R. L. Summers*
Member
Board of Land and Natural
Resources

THE UNITED STATES OF AMERICA

By *Eugene H. Merrill*

APPROVED AS TO FORM:

Eugene H. Merrill
Deputy Assistant Secretary of the Army (I&L)
(Installations)

Bert T. Kobayashi
Bert T. Kobayashi
Attorney General
State of Hawaii

Peter C. Lewis
Peter C. Lewis
Deputy Attorney General
State of Hawaii

EXHIBIT "A"

TRACT A-105. POHAKULOA TRAINING AREA

PARCEL "A"

Land situated at Kaohu, Hamakua and Puuanahulu, North Kona, Hawaii.

Being portions of the Government lands of Kaohu and Puuanahulu.

Beginning at the southeast corner of this piece of land, the coordinates of the said point of beginning from Government Survey Triangulation Station "Omaokouli," being 5462.74 feet North and 14,081.19 feet West, thence running by azimuths measured clockwise from True South:

1. 111° 10' 6,000.00 feet along the Pohakuloa Impact Area;
2. 28° 30' 800.00 feet along the Pohakuloa Impact Area;
3. 118° 30' 1,400.00 feet along the Pohakuloa Impact Area;
4. 208° 30' 1,100.00 feet along the Pohakuloa Impact Area;
5. 113° 50' 9,600.00 feet along the Pohakuloa Impact Area;
6. 74° 20' 3,300.00 feet along the Pohakuloa Impact Area;
7. 116° 30' 2,900.00 feet along the Pohakuloa Impact Area;
8. 90° 48' 1,670.00 feet along the Pohakuloa Impact Area;
9. 110° 00' 4,700.00 feet along the Pohakuloa Impact Area;
10. 58° 00' 3,600.00 feet along the Pohakuloa Impact Area;
11. 22° 30' 1,300.00 feet along the Pohakuloa Impact Area;
12. 79° 40' 3,700.00 feet along the Pohakuloa Impact Area;
13. 85° 10' 3,000.00 feet along the Pohakuloa Impact Area;

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| 14. | 359° 29' | 1,132.00 feet along the Pohakuloa Impact Area; |
| 15. | 89° 10' | 21,730.00 feet along the Pohakuloa Impact Area; |
| 16. | 221° 36' 51" | 5,539.10 feet along the remainder of the Government Land of Puuanahulu; |
| 17. | 183° 36' 51" | 9,400.00 feet along the remainder of the Government Land of Puuanahulu; |
| 18. | 249° 06' 51" | 11,000.00 feet along the remainder of the Government Land of Puuanahulu; |
| 19. | 306° 06' 51" | 2,500.00 feet along the land of Waikoloa; |
| 20. | 300° 23' 51" | 12,201.50 feet along the land of Waikoloa; |
| 21. | 175° 29' 01" | 8,646.00 feet along the land of Waikoloa; |
| 22. | 181° 29' 01" | 1,617.00 feet along the land of Waikoloa; |
| 23. | 191° 29' 01" | 2,046.00 feet along the land of Waikoloa; |
| 24. | 174° 29' 01" | 700.00 feet along the land of Waikoloa; |
| 25. | 237° 02' 31" | 800.61 feet along portion of Kaohi; |
| 26. | 319° 59' 01" | 9,000.00 feet along portion of Kaohi; |
| 27. | 287° 29' 01" | 11,000.00 feet along portion of Kaohi; |
| 28. | 288° 40' | 7,832.30 feet along "Parcel B" hereof; |
| 29. | 10° 53' 30" | 2,713.32 feet along Parcel A of Governor's Executive Order 1719, and across the Saddle Road; |
| 30. | 288° 13' | 2,247.05 feet along the southerly boundary of the Saddle Road; |
| 31. | 276° 47' 30" | 207.36 feet along the southerly boundary of the Saddle Road; |
| 32. | 271° 54' 30" | 4.00 feet along the southerly boundary of the Saddle Road; |
| 33. | 1° 54' 30" | 2,600.00 feet along Parcel B of Governor's Executive Order 1719; |
| 34. | 271° 54' 30" | 3,215.00 feet along Parcel B of Governor's Executive Order 1719; |

- | | | | |
|-----|--------------|---------------|--|
| 35. | 181° 54' 30" | 2,598.25 feet | along Parcel E of Governor's Executive Order 1719; |
| 36. | 271° 59' | 937.10 feet | along the southerly boundary of the Saddle Road; |
| 37. | 269° 44' 30" | 2,115.14 feet | along the southerly boundary of the Saddle Road; |
| 38. | 280° 44' | 110.88 feet | along the southerly boundary of the Saddle Road; |
| 39. | 290° 20' | 1,036.00 feet | along the southerly boundary of the Saddle Road; |
| 40. | 288° 44' | 275.15 feet | along the southerly boundary of the Saddle Road; |
| 41. | 22° 28' 45" | 5,075.66 feet | along Mauna Kea Forest Reserve and Parcel "C" hereof; |
| 42. | 354° 00' | 5,350.00 feet | along Parcel "C" to the point of beginning and containing a GROSS AREA OF 15,480 ACRES, more or less, excluding therefrom approximately 60 acres of Saddle Road, leaving a NET AREA OF 15,420 ACRES, more or less. |

PARCEL "E"

Land situated at Kaohe, Hamakua, Hawaii, Hawaii.

Being a portion of the Government Land of Kaohe and also being a portion of Mauna Kea Forest Reserve.

Beginning at a point on the southwesterly boundary of this piece of land, also being the northwest corner of Parcel A of Governor's Executive Order 1719 dated 26 January 1956, the coordinates of said point of beginning from Government Survey Triangulation Station "Omaokaili" being 19,465.73 feet North and 22,857.15 feet West, thence running by azimuths measured clockwise from True South:-

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|----|--------------|----------------|---|
| 1. | 108° 40' | 7,832.30 feet | along Parcel A to the boundary of Mauna Kea Forest Reserve; |
| 2. | 224° 59' 01" | 4,000.00 feet | along a portion of the Government Land of Kaohe; |
| 3. | 279° 30' | 16,000.00 feet | along the remainder of Mauna Kea Forest Reserve; |

4. 315° 30' 3,000.00 feet along the remainder of Mauna Kea Forest Reserve;
5. 32° 30' 1,700.00 feet along the remainder of Mauna Kea Forest Reserve;
6. 5° 25' 30" 354.25 feet along the remainder of Mauna Kea Forest Reserve;
7. 37° 00' 2,750.00 feet along the remainder of Mauna Kea Forest Reserve;
8. 85° 30' 950.00 feet along the remainder of Mauna Kea Forest Reserve to the boundary of Parcel A of Governor's Executive Order 1719;
9. 213° 45' 1,650.00 feet along Parcel A of Governor's Executive Order 1719;
10. 101° 18' 10,869.06 feet along Parcel A of Governor's Executive Order 1719 to the point of beginning and containing an AREA OF 1,944 ACRES, more or less.

PARCEL "C"

Land situated at Kaohē, Hamakua and Humuula,
North Hilo, Hawaii, Hawaii.

Beginning at the most southerly corner of this piece of land, also being on the easterly boundary of the proposed Impact Area of Pohakuloa Military Reservation, the coordinates of the said point of beginning from Government Survey Triangulation Station "Omaokoili" being 9685.30 feet South and 2632.28 feet West, thence running by azimuths measured clockwise from True South:-

1. 156° 22' 3,297.35 feet along the proposed Impact Area of Pohakuloa Military Reservation;
2. 136° 30' 14,800.00 feet along the proposed Impact Area of Pohakuloa Military Reservation;
3. 154° 39' 1,540.00 feet along the proposed Impact Area of Pohakuloa Military Reservation;
4. 174° 00' 5,350.00 feet along Tract B of Pohakuloa Military Reservation;

5. 202° 28' 45" 2,100.00 feet along Tract B of Pohakuloa Military Reservation;
6. 262° 25' 2,604.15 feet along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938);
7. 324° 00' 1,525.54 feet along fence, along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938);
8. 258° 11' 1,988.55 feet along fence, along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938);
9. 305° 21' 10" 4,014.60 feet along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938);
10. 231° 30' 4,500.00 feet along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938);
11. 315° 00' 10,000.00 feet along the remainder of Mauna Kea Forest Reserve (Governor's Proclamation dated May 2, 1938) to the boundary between Humuula and Kaehe;
12. 39° 58' 12" 1,600.00 feet along Humuula;
13. 16° 57' 40" 5,307.56 feet along the remainder of Humuula;
14. 36° 58' 30" 5,718.57 feet along the remainder of Humuula;
15. 144° 20' 30" 171.84 feet along the northeasterly boundary of the Saddle Road to the boundary between Humuula and Kaehe;
16. 15° 12' 18" 4,768.28 feet along Humuula to the point of beginning, and containing a GROSS AREA OF 5,659 ACRES, more or less, excluding therefrom the Saddle Road, 100-foot wide right-of-way (52 acres, more or less) leaving a NET AREA OF 5,607 ACRES, more or less.

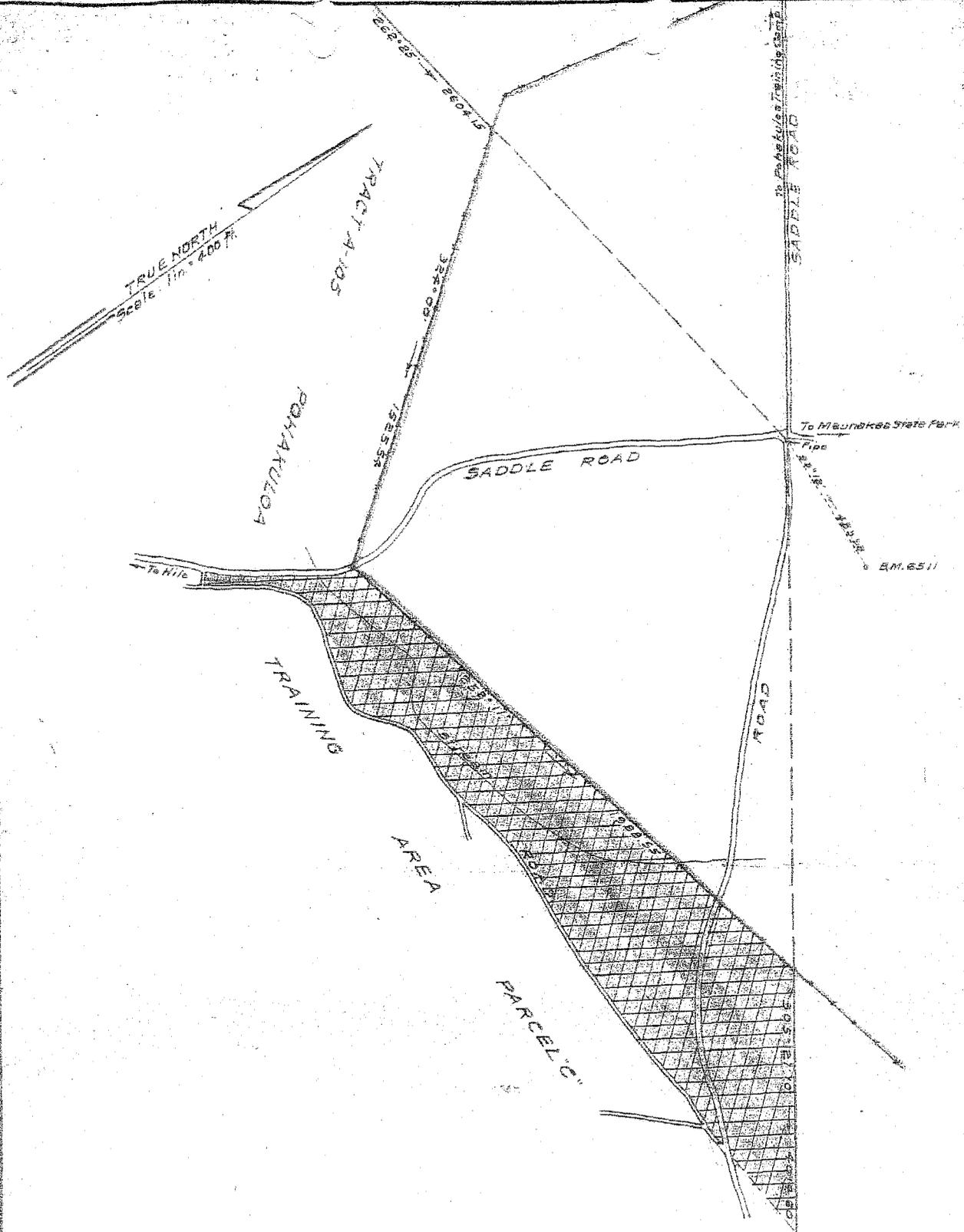


EXHIBIT "B"

*Map showing fence and roads near
Maunakea State Park*

JOB
C: BK

TAX MAP

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

C. S. F. No.

A. T. Aug. 7, 1964

LEASE ATTACHMENT
PAGE 77-39

B. LEASES OR SALES

Cross References

Civil relief for state military forces, see chapter 657D.
Disposition of state boating facility properties, see §200-2.5.

§171-35 Lease provisions; generally. Every lease issued by the board of land and natural resources shall contain:

- (1) The specific use or uses to which the land is to be employed;
- (2) The improvements required; provided that a minimum reasonable time be allowed for the completion of the improvements;
- (3) Restrictions against alienation as set forth in section 171-36;
- (4) The rent, as established by the board or at public auction, which shall be payable not more than one year in advance, in monthly, quarterly, semiannual, or annual payments;
- (5) Where applicable, adequate protection of forests, watershed areas, game management areas, wildlife sanctuaries, and public hunting areas, reservation of rights-of-way and access to other public lands, public hunting areas, game management areas, or public beaches, and prevention of nuisance and waste; and
- (6) Such other terms and conditions as the board deems advisable to more nearly effectuate the purposes of the state constitution and of this chapter. [L 1962, c 32, pt of §2; am L 1965, c 239, §17; Supp, §103A-35; HRS §171-35; am L 1981, c 116, §6; am L 1989, c 253, §1]

Attorney General Opinions

Land board may require compliance with county ordinances except planning and zoning laws. Att. Gen. Op. 86-3.

Law Journals and Reviews

Beach Access: A Public Right? 23 HBJ 65.

Case Notes

Cited: 53 H. 567, 498 P.2d 631.

Decisions under prior law.

"General leases" discussed. 23 H. 621. General lease is any lease not described by the Revised Laws. Id.

Refusal of lessee after notice of withdrawal to part with possession constitutes breach of a condition of the lease and works a forfeiture thereof. 24 H. 165.

Leases let at public auction not subject to reformation. 47 H. 28, 384 P.2d 581.

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