

**FINDING OF NO SIGNIFICANT IMPACT
KAUAI TEST FACILITY
SANDIA NATIONAL LABORATORIES
KAUAI, HAWAII**

AGENCY: DEPARTMENT OF ENERGY

ACTION: FINDING OF NO SIGNIFICANT IMPACT

SUMMARY

The Department of Energy (DOE) has prepared an environmental assessment (EA) on the proposed continued launching of rockets with experimental payloads at the Sandia National Laboratories' (SNL's) Kauai Test Facility (KTF) on the island of Kauai, Hawaii. The KTF project includes (1) continuing the existing KTF facility and program, (2) constructing new roadways, fencing, fuel handling, and launch pad facilities, and (3) launching of vertical-launch as well as rail-launch vehicles. The facilities are needed to enable SNL to continue experimental rocket launches as mandated by Safeguard C of the 1963 Nuclear Test Ban Treaty.

Vertical-launch programs to be conducted at the KTF include the U.S. Army's Strategic Target Systems (STARS) and Exoatmospheric Discrimination Experiment (EDX). Environmental assessments for each of these programs are incorporated by reference in the KTF EA. The Army has published a Finding of No Significant Impact (FONSI) for each program.

The EA examined the environmental impacts of existing and proposed KTF activities and discussed potential alternatives. Based on the analyses in the EA, the DOE has determined that the proposed action is not a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act (NEPA) of 1969. Therefore, the preparation of an Environmental Impact Statement (EIS) is not required and the Department is issuing this FONSI.

COPIES OF THE EA ARE AVAILABLE FROM:

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BACKGROUND

The KTF is located just south of Barking Sands within the U.S. Navy Pacific Missile Range Facility (PMRF) on the west coast of the island of Kauai, Hawaii. Development of the proposed KTF program will enable SNL to continue rail-type launches of rockets carrying experimental payloads which have been conducted at the complex since 1962. It will also enable the KTF to contribute to national security by making available facilities and technology to support vertical launches of rocket systems and conduct new test programs.

Proposed construction at the KTF will improve test support functions for the following weapons research and development (R&D) activities:

- Launching of rockets for observation by the Air Force Maui Optical Station located on Mount Haleakala
- Conducting suborbital coexperiments with launches from Vandenberg Air Force Base in California
- Performing ICBM-type launch simulations targeted to areas in the U.S. Army Kwajalein Atoll Region

- Conducting scientific experiments on phenomena occurring in the upper atmosphere over the mid-Pacific
- Implementing high-velocity water impact and underwater trajectory experiments in conjunction with U.S. Navy instrumentation capabilities.

PROPOSED ACTION

The three principal elements of the proposed action are: (1) the existing KTF facilities and vertical-launch programs which are proposed to be continued; (2) construction of roadways, fencing, fuel handling, and launch pad facilities; and (3) launching of vertical launch-type vehicles, including those associated with the Army's STARS and EDX programs.

There is also a KTF launching facility which occupies a two-acre area at Kokole Point, 6.5 miles south of the principal KTF complex.

The construction of roadways and a new launch pad, and fencing of a decontamination pad and fuel holding pads, are proposed to accommodate new vertical launch programs such as STARS and EDX.

ALTERNATIVES CONSIDERED

Three alternatives to the proposed action were considered:

- No action
- A new facility at an alternative location
- KTF decommissioning.

While each alternative was determined to be feasible from either a programmatic or cost standpoint, none was preferred in the context of national security. Therefore, each was dismissed from detailed analysis as summarized below.

No Action

The "no action" alternative would require that the existing functions and launch activities of the KTF be conducted within the present facilities. This alternative would seriously limit the KTF's capability to conduct new vertical-launch programs.

New Facility at An Alternative Location

Because of the KTF's unique attributes, an alternative location for a new facility is not feasible. The criteria for a rocket testing facility could be met only at the PMRF or some other location in the Hawaiian Islands.

KTF Decommissioning

This alternative would become feasible only if another facility could be found with scientific, technical, logistical, and strategic attributes equivalent to those of the KTF. Elimination of a test facility would violate Safeguard C of the Nuclear Test Ban Treaty.

ENVIRONMENTAL CONSIDERATIONS

The potential environmental impacts of the proposed action were evaluated in the EA. The effects of proposed new facilities to accommodate vertical launches were analyzed, as were cumulative effects. No significant environmental impacts associated with continued operation or proposed new activities at the KTF were indentified. This FONSI is based on the following factors which are supported by the information and analyses in the EA.

Occupational Safety and Health

Quantitative assessments were conducted to estimate potential exposures to KTF and PMRF workers of hazardous rocket motor propellants from routine and nonroutine operations. The following rocket motor exhaust constituents found in the STARS system were evaluated for routine operations: aluminum oxide (Al_2O_3); nitrogen dioxide (NO_2); hydrogen chloride (HCl); and carbon monoxide (CO). Estimated air concentrations of these constituents were compared to Threshold Limit Values (TLVs), nationally accepted

standards for occupational exposure to chemicals. Modeling of air concentrations determined that the TLVs would not be exceeded for any of these constituents.

Nonroutine operations evaluated with respect to occupational health effects included post-launch rocket failure, accidental detonation during rocket assembly, and spills of hypergolic fuel [unsymmetrical dimethyl hydrazine (UDMH), and nitrogen tetroxide]. Launch personnel would be protected by the Launch Operations Building (LOB) in the event of a post-launch rocket failure and all other personnel would be outside of a 10,000-foot (3,030-meter) ground hazard area (GHA). Accidental detonation during assembly, a highly unlikely event, would result in loss of human life in and near the Missile Assembly Building (MAB) and damage to other structures in the launching field. Other occupied facilities at the KTF would be protected from blast over pressure by revetment barriers and other structural features. If accidental spills of hypergolic fuel should occur, workers would be protected by personal protective equipment (PPE) and other SNL safety requirements. Air concentrations of spilled fuels would be well below the TLVs so that no adverse health effects would be expected.

An extensive soils sampling and analysis program at the KTF indicated that the quantities of lead and aluminum in soils do not represent any risk to workers. No beryllium was detected in KTF soils and aluminum was not found above background levels.

Health and Safety Consequences of Hazardous Chemical Releases to the General Public

No indications of potential risk to public health and safety from releases of rocket motor exhaust constituents or from post-launch rocket failure were identified during the assessment. The public is not at risk from soils contaminated by lead, aluminum, or beryllium.

Environmental Consequences of Hazardous Chemical Releases

Rocket motor exhaust emissions are concentrated at elevated levels for a very short time period during launches and are quickly dispersed. Concentrations of metallic oxides in soil are not elevated above background levels. Any spills of liquid fuels would be quickly

contained by implementation of required spill control procedures. Potential impacts of unspent rocket fuel on the marine environment would be minor and limited in area. For these reasons, no major adverse environmental consequences are anticipated.

Physiography, Geology, and Soils

Measurable changes in the physiography and soils of the KTF area are not expected as a result of the proposed action.

Surface Water and Ground Water Hydrology

Site preparation and paving associated with the launch pads and roadways may slightly increase surface water runoff. However, runoff is not expected to have a consequential environmental effect because of the rapid permeability and high infiltration rates of the sandy soils. Ground water hydrology and drawdown will not be affected because water supplies will be obtained from an off-site water well supply system.

Air Quality

Air quality will not be significantly affected by construction or operations activities associated with the KTF project. Short-term, construction-related effects will include increased levels of particulates (fugitive dust) and other air pollutants generated by construction activities including topsoil disturbance/removal and emissions from construction equipment internal combustion engines. Short-term concentrations of some regulated pollutants emitted by rocket systems during launching will be high, temporarily, but will quickly dissipate. The proposed project will comply fully with the State of Hawaii ambient air quality standards.

Biological Resources

Construction of the KTF launch pad, roadways, and parking lot will result in the permanent removal of approximately 15 acres of topsoil. Some of the open scrub vegetation species will be removed. As a result, there will be minor habitat depletions for small mammals and birds. Wildlife species, such as feral dogs or cats, that might otherwise be affected are likely to migrate away from the areas of construction activity. There is one federally

proposed Category 1 species of plant present near some construction sites: the *Ophioglossum concinnum* or adder's tongue fern. Mitigation measures, including avoidance of the plant and transplanting any colony(ies) after a wet period to a compatible habitat within the PMRF, will be implemented if the plant will be disturbed by construction activities.

The Pacific green sea turtle, a federal and State of Hawaii listed threatened species, is of concern at the KTF because of its presence in foraging, resting, and nesting areas along the coast of the PMRF. Because lights from construction or launch activities will not be directed at the beach area, any green sea turtle nesting areas will not be disrupted. Care will also be taken to report any turtle nests exposed to pedestrian or vehicle traffic. Since no wetland or riparian habitats are situated anywhere in the KTF construction area, sensitive ecological systems will not be affected.

Mitigation measures may or may not be required to protect the threatened Newell's shearwater, depending on whether its flight paths cross over the KTF. However, if mitigation is required, lights projected upward or laterally will not be used during critical October and November migration periods. Also, hoods or shields will be installed on launch pad lights when required, to the extent that human safety is not compromised.

Cultural Resources

Subsurface testing within the KTF produced evidence of subsurface cultural materials. The U.S. Navy considers the entire PMRF/KTF a culturally sensitive "major ancient burial ground" because human remains have been found at various locations along the dunes and coastline. Therefore, a monitoring program will be implemented during any ground-disturbing activities, as advised and approved by the State Historic Preservation Officer (SHPO). In addition, a Draft Burial Treatment Plan, as approved by the U.S. Navy, the SHPO, and the State of Hawaii Office of Hawaiian Affairs (OHA), will be followed should any human remains be uncovered during construction. If an archeological or historic artifact is discovered during construction, activity will be halted pending examination and

classification of the artifact by a qualified archeologist working in cooperation with the Hawaii SHPO.

Land Use

Land use and recreational access to beach areas will be adversely affected when rocket boosters are on the launch pad and during launches. Recreational access could be affected a maximum of 238 days per year. The rocket boosters are on the pad for the 10 to 12 launches per year. The size of the area restricted from recreational use will vary considerably, depending on the type of vehicle being launched. With the maximum Ground Hazard Area (GHA) of 10,000 feet or 3,030 meters in effect, approximately 5.0 acres (2.0 hectares) would be temporarily closed to the public. However, these adverse effects cannot be considered as major in view of the alternative recreational access available along the western coast of Kauai.

Socioeconomic Conditions

Construction of the new KTF facilities will not result in an influx of new construction workers. During the construction period, additional revenues will be provided for local contractors with resulting benefits to the local tax base and economy. During KTF operations, 50 to 75 temporary professional or support personnel will be added to the existing KTF work force of 14 permanent staff personnel. There will be some increase in traffic volumes associated with the construction. Traffic volume increases during operations will be small and temporary in nature. The relative isolation of the KTF from population centers will mitigate against any potential social or economic disruption.

Noise

Noise emissions from the 320 rocket motors launched from the KTF from 1962 through 1990 were not measured or monitored. However, noise emitted by the Strypi/LACE Two Experiment Rocket Campaign was monitored in February 1991. In addition, a computer model developed by the National Aeronautics Space Administration (NASA) was used to estimate noise levels during rocket launches at eight different sensitive receptor locations. Maximum short-term (15 minutes or less) noise levels predicted by the model were then

compared with Occupation Safety and Health Administration (OSHA) standards for noise exposure in the work place and with the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs) applicable to DOE contractors. Predicted noise levels at various receptor locations were also compared to noise level goals established by the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA).

Although workers at the main KTF launch complex and Kokole Point would be subjected to unacceptable short-term noise levels, these exposures will be successfully mitigated by the use of PPE such as earplugs and earmuffs. Sugar cane field workers, public spectators, and visitors to Polihale State Park would also be subjected to noise levels approaching or exceeding the 15-minute OSHA standard. (The OSHA workplace standard was used as a guide because there are no HUD, DOT, or EPA noise level goals for periods of 15 minutes or less.) These potential noise hazards would be mitigated by adequate notice to the public of planned launches and encouraging the taking of precautionary measures such as leaving the area or the use of PPE. Although only limited information exists on the effects of various noise levels on wildlife, available data indicate that mammals, birds, and marine life would not be severely affected.

Cumulative Effects

Impacts resulting from the proposed action will be direct, indirect, and cumulative. Cumulative effects result from the incremental impacts of the KTF when considered with other proposed actions which may have potentially significant effects. In the case of the KTF, negligible cumulative effects will be associated predominantly with increasing disturbance of soils and vegetation from construction activities associated with future launch pads, increased disturbances of cultural resources and wildlife habitat, and effects of temporary short-term increases in noise levels on humans and wildlife. Cumulative effects for the next 10 to 15 years can be expected to be about what they have been during the past 10 to 15 years.

Environmental Consequences of Alternatives

Three alternatives to continued operations, new construction, and new vertical-launch programs at the KTF are addressed in the EA. These are: "no action," constructing a new facility at an alternative location, and KTF decommissioning.

The "no action" alternative would preserve the status quo of continued capability of the KTF to launch rocket systems similar to those that have been launched previously. There would be minor cumulative effects, however insignificant, in terms of soils, vegetation, wildlife, noise, and cultural resources. However, unless there is a change in national defense policy, the "no action" alternative would only postpone or relocate the consequences of the proposed action to a later date or to another facility of the same type.

Since a feasible alternative location for a KTF-like facility has not been identified, an analysis of potential environmental consequences has not been conducted. However, it cannot be assumed that the environmental consequences at an alternative location would be either more or less adverse than at KTF.

KTF decommissioning would result in demolition of some buildings along with revegetation of disturbed areas. Generally, the overall environment would be enhanced.

Determination

The proposed continuation of rocket launch programs at the KTF and related new construction do not constitute a major federal action significantly affecting the quality of the human environment within the meaning of the NEPA. The environmental impacts resulting from new construction and continued operation of the KTF are deemed insignificant or minor. Therefore, based on the analyses in the EA, the preparation of an EIS is not required.