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DEPARTMENT OF THE ARMY
BALLISTIC MISSILE DEFENSE SYSTEMS COMMAND
P. O. BOX 1500
HUNTSVILE, ALABAMA 35807

416

ANNUAL HISTORICAL REVIEW

KWAJALEIN MISSILE RANGE

1 OCTOBER 1980 THROUGH 30 SEPTEMBER 1981

11-15-17 MISSING

APPROVED BY:

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Range Directorate

ANNUAL HISTORICAL REVIEW
KWAJALEIN MISSILE RANGE
OCTOBER 1980 - SEPTEMBER 1981

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Chapter I

MISSION AND ORGANIZATION

Mission and Organization

The mission of the Kwajalein Missile Range Directorate (KMRD), located in Huntsville, Alabama, is to plan, manage, direct, control and coordinate the overall activities of the Kwajalein Missile Range, a Department of Defense (DOD) National Range, in accordance with DOD National Range policies and procedures and under the guidance and direction of the National Range Commander.

The Directorate also serves as the principal advisor and staff to the National Range Commander for all matters pertaining to the KMR ~~to~~ include matters pertaining to the Trust Territory of the Pacific Islands (TTPI).

The mission of the Kwajalein Missile Range ~~(KMR)~~, located on the Kwajalein Atoll, Marshall Islands, is to direct, maintain and operate a National Range, and provide associated services and materiel to support range users and tenants at the KMR. The KMR is government owned and contractor operated. Logistics support is provided by Global Associates under Contract DASG60-80-C-0001. Technical facilities, with the exception of the Kiernan Reentry Measurements Site (KREMS), are operated by Kentron, International, Inc, under Contract DASG60-76-C-0002. The KREMS is operated by RCA and GTE Sylvania under the technical direction of Massachusetts Institute of Technology Lincoln Laboratory. A map of the Range showing equipment location is shown in Figure 1, page 3.

The ~~Kwajalein Missile Range Directorate~~ organization is shown on Figure 2, page 4. Office symbols for the Directorate are listed in Table 1, page 5.

Staffing

Personnel strengths for the KMRD are reflected on Table 2, page 6. Key personnel of the Directorate are listed in Table 3, page 7.

Funding

The approved funding program to accomplish the mission for (FY) 81 ~~was~~ totalled $125,475,000. Table 4, page 9, reflects a summary breakout of the FY 81 approved funding program.

In addition to the above funding guidance, the KMR was provided funding by range customers in the amount of $18,564,000 in FY 81. Table 5, page 10, reflects the range users and amount of reimbursement funding provided them.

Range Commanders Council

The Range Commanders Council, founded in August 1951, and discussed at length in the FY 72 Historical Summary, continued to function; and the Commanders convened their semi-annual sessions (Fall and Spring) during FY 81 for technical interchange of matters affecting the National and Service Ranges.

KWAJALEIN MISSILE RANGE

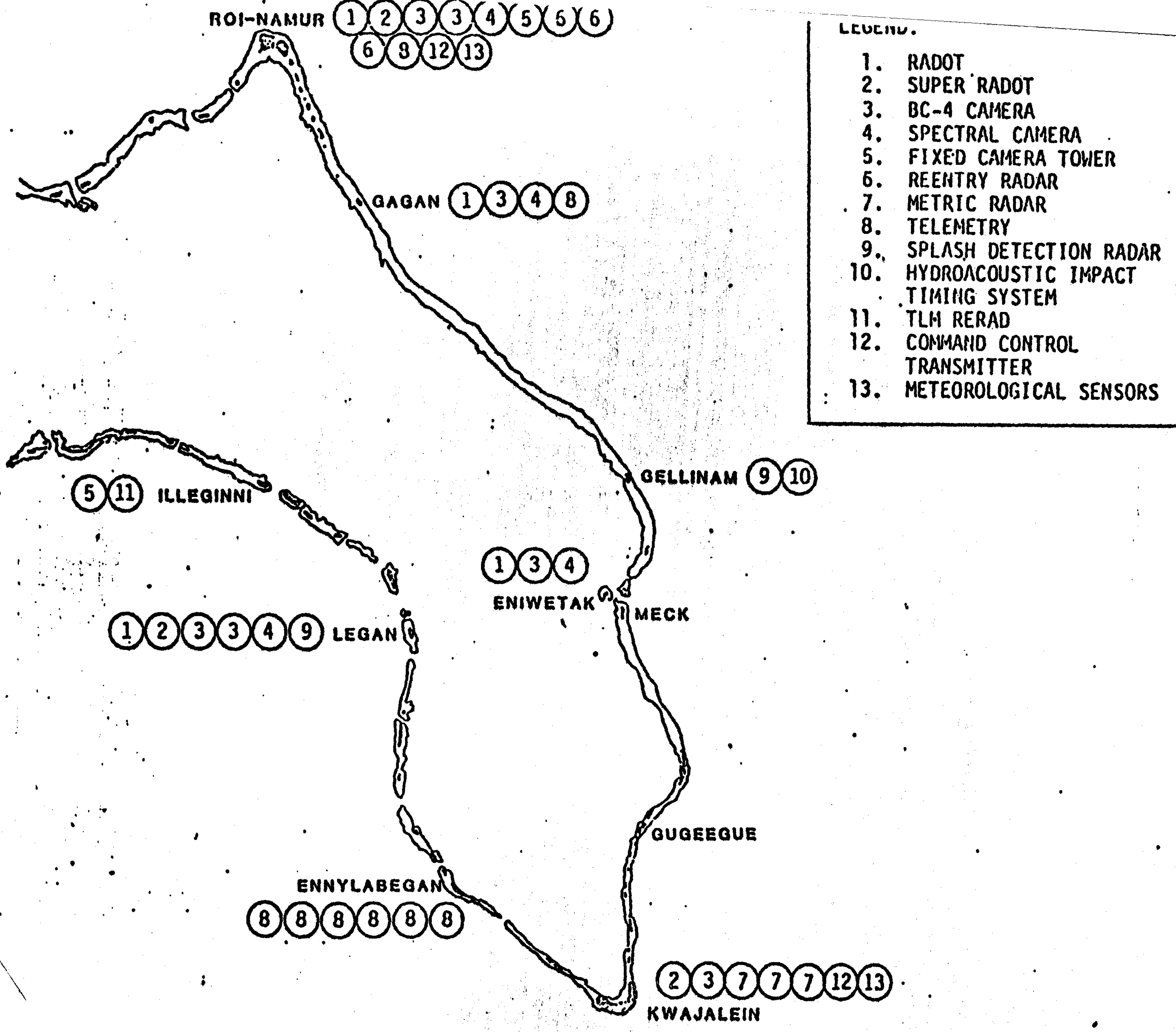

Figure 1 - Kwajalein Missile Range

KWAJALEIN MISSILE RANGE DIRECTORATE

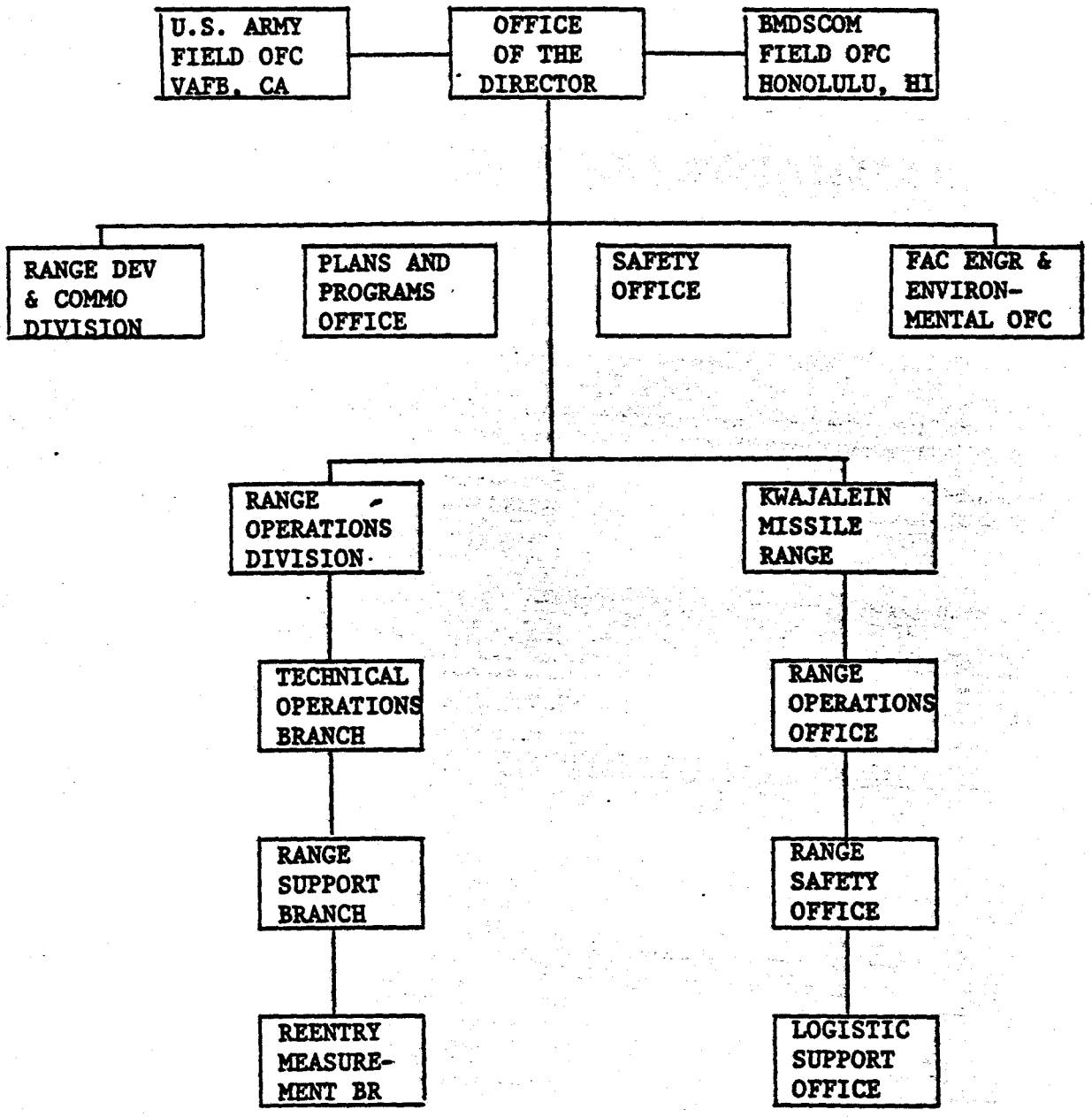

Figure 2 - Kwajalein Missile Range Directorate Organization

OFFICE SYMBOLS
BALLISTIC MISSILE DEFENSE SYSTEMS COMMAND
P.O. BOX 1500
HUNTSVILLE, ALABAMA 35807

SYMBOL	ORGANIZATIONS
BMDSC-R	Office of the Director, Kwajalein Missile Range Directorate.
BMDSC-RA	Administrative Office
BMDSC-RP	Plans and Programs Office
BMDSC-RS	Safety Office
BMDSC-RE	Facilities Engineering and Environmental Office
BMDSC-RO	Range Operations Division
BMDSC-ROO	Technical Operations Branch
BMDSC-ROS	Range Support Branch
BMDSC-ROM	Reentry Measurements Branch
BMDSC-RD	Range Development and Communications Division
BMDSC-RK	Kwajalein Missile Range
BMDSC-RV	U.S. Army Field Office, Vandenberg AFB, CA
BMDSC-RH	BMDSCOM Field Office, Honolulu, Hawaii

Table 1 - Office Symbols

PERSONNEL STRENGTH

	KMRD & FLD OFCS		KMR	TOTALS
30 Sep 78	MIL	7	20	27
	CIV	72	32	104
				131
30 Sep 79	MIL	7	20	27
	CIV	71	32	103
				130
30 Sep 80	MIL	7	20	27
	CIV	71	32	103
				130
30 Sep 81	MIL	7	20	27
	CIV	71	32	103
				130

Table 2 - Personnel Strength

KEY PERSONNEL

POSITION		
KWAJALEIN MISSILE RANGE DIRECTORATE OFFICE OF THE DIRECTOR		
DIRECTOR	COL ROBERT A PARSONS COL ROBERT J. FEIST	Jun 78 - Mar 81 Mar 81 -
DEPUTY DIRECTOR	MR. O.E. OVA	Jun 64 -
EXECUTIVE OFFICER	LTC JOHN J. KOISCH MAJ GORDON CARSON LTC ANDY GILEWICZ	Jun 79 - Mar 80 Mar 80 - Nov 80 Mar 81 -
CHIEF, U.S. ARMY FIELD OFFICE, VAFB	LTC JOHN S. MACK	Jul 80 -
CHIEF, FIELD OFFICE, HONOLULU	LTC WALLACE R. NAPIER	Jul 80 -
CHIEF, PLANS AND PROGRAMS OFFICE	MR. JOHN H. COTTEN	Feb 80 -
CHIEF, SAFETY OFFICE	DR. C.D. SMITH	Dec 78 -
CHIEF, FACILITIES ENGINEERING AND ENVIRONMENTAL OFFICE	MR. JOHN E. ROGERS	Feb 69 -
RANGE OPERATIONS DIVISION		
CHIEF	MR. H. R. BRASWELL	Sep 76 -
CHIEF, REENTRY MEASUREMENTS BRANCH	MR. MICHAEL HOLTCAMP MR. WALTER L. HOLMAN, JR.	Sep 76 - Jul 81 Jul 81 -

Table 3 - Key Personnel

CHIEF, TECHNICAL OPERATIONS BRANCH	MR. ALVARO AMADOR MR. LEROY KEARBY	Jul 77 - Aug 81 Aug 81 -
CHIEF, RANGE SUPPORT BRANCH	MR. REINHART LEO	Feb 71 -
CHIEF, RANGE DEVELOPMENT AND COMMUNICATIONS DIVISION	MR. HARRISON MAXEY	Jul 76 -
KWAJALEIN MISSILE RANGE		
OFFICE OF THE COMMANDER		
COMMANDER	COL PETER F. WITTERIED	Mar 80 -
DEPUTY COMMANDER	LTC JAMES C. COOPER	Jun 80 -
CHIEF, RANGE OPERATIONS OFFICE	LTC JAMES ALLRED	Jun 78 -
CHIEF, RANGE SAFETY OFFICE	LTC ALVA SHRONTZ	Jun 80 -
CHIEF, LOGISTIC SUPPORT OFFICE	LTC ALBERT CAMPBELL, JR. LTC HOWARD REED	Jun 78 - Jun 81 Jul 81 -

PROGRAM STATUS

FY 81

PROGRAM MANAGEMENT	$ 5.440
GOVERNMENT SUPPORT (SVCS)	18.110
MATERIALS AND SUPPLIES	20.545
MODERNIZATION	8.000
CONTRACT SUPPORT	73.380
TOTAL	$125.475

Spell out Services

(Figures are in millions of dollars.)

Table 4 - Program Status

KMR DIRECT SUPPORT REIMBURSEMENT

FY 81

Army	
BMD Advanced Technology Center	$ 2.046
BMD Systems Technology Program	6.088
TSARCOM	.277
Civilian Personnel Center	.047
Air Force	
Strategic Air Command	2.794
Electronic Systems Division (AFSC)	3.277
Western Space and Missile Center	3.634
Eastern Space and Missile Center	.014
Wright Patterson AFB	.062
Other	
OUSDR&E	.275
Defense Nuclear Agency	.010
NASA	.040
TOTAL	$18.564

(Figures are in millions of dollars)

Table 5 - KMRD Customer Funding

Chapter II

RANGE USERS

The ~~Kwajalein Missile Range (KMR), was~~ established as a national range in 1968, ~~and has the mission of~~ providing support facilities and technical services for DOD components responsible for RDT&E of weapon systems and materials. KMR also supports other federal agencies ~~having a need for its support~~ as well as domestic and foreign government agencies under certain conditions. A summary of the range user programs in planning or in progress at KMR in FY 81 is given below:

Army Programs

a. Ballistic Missile Defense Advanced Technology ~~Center~~ Programs

The Army Optical Station (AOS) on Roi-Namur is an optical scanning and tracking facility designed to obtain infrared signatures and other characteristics from targets of opportunity. A Laser Radar (LITE) augments the optical system for collection of other experimental data. This program continually gathers and builds a data base of optical measurements and signatures from the multi-variety of reentry vehicles.

The Designating Optical Tracker (DOT) program experiments are designed to determine the ability of missile borne optical sensors to designate and track incoming reentry vehicles. During FY 81, KMR successfully supported missile launches associated with this program.

~~Multi-static Measurements~~ System (MMS), a program jointly funded by BMDATC and BMDSTP, has as its objective the increased accuracy and reliability of metric measurement of RV trajectories. Remotely located radars provide different views of the same target in real time. Considerable design and installation progress was achieved during FY 81 and engineering test data will be gathered during FY 82.

b. Ballistic Missile Defense Systems Technology Program

The Systems Technology Test Facility located on Meck Island is operating and exercising against various targets. This facility consists of the systems technology radar subsystem and a data processing subsystem. It will be used as a test bed for future BMD applications.

Air Force Programs

Advanced Maneuvering Reentry Vehicle (AMARV) is a sub-program of the Advanced Ballistic Reentry Systems (ABRES) for the purpose of obtaining maneuvering reentry technology. The AMARV missions used Minuteman I launch vehicles modified and refurbished to the configuration required under the Reentry System Launch Program (RSLP).

Advanced Ballistic Reentry Vehicle (ABRV) is also a sub-program of the ~~Advanced Ballistic Reentry System (ABRES).~~ The ABRV program is intended to provide accurate reentry system options for MX and TRIDENT II (D5) application and to validate these options by ground and flight tests. The purpose of the flight program is to assess reentry vehicle performance in the areas of accuracy, survival and subsystem(s) operation, dispersion contributors and model verification. The test program includes three flights in clear air and one flight in adverse weather.

The Reentry Environment Measurements Program (REMP), an ABRES program, obtains target area data on ABRES flights into KMR. Weather measurements are made with the objective of obtaining quantitative hydrometeor characteristics as a function of altitude. A variety of sensors are used to make these measurements in a time correlated fashion, so that comparisons and correlations can be made with the data obtained from the instrumented reentry vehicles carried by ABRES missiles. REMP supports the AMARV and ABRV missions. KMR successfully supported one ABRV flight and one AMARV flight in FY 81.

The HAVE JEEP program is a continuing program for testing payloads utilizing low-cost sounding rockets, launched locally, to simulate ICBM reentry. Launches are made from Roi-Namur Island. The HAVE JEEP V program for FY 81 consisted of two Sergeant/Hydac flights for testing MK 500 Penetration Aids.

Spell out since this is first usage + put ICBM in parens

The MINUTEMAN III Flight Test Program involves flight tests Production Verification Missiles (PVM). Reentry vehicles are targeted into KMR and require a full range of reentry measurements, scoring, telemetry, optical, and meteorological support.

Spell out then abbreviate

The SAC MM II Operational Tests (OT) are designed to define the operational capability of the MM II weapon system. Test objectives include miss distance, reentry accuracy, fusing accuracy, chaff geometry, and signature. This requires metric, signature data, telemetry and impact scoring by KMR.

The ~~SAC~~ MM III Operational Test Program has the same general objectives as discussed for the MM II OT above and requires the same KMR support. Vehicles targeted for land areas continued in FY 81.

The TITAN IIC supports diversified DOD and NASA payloads. Support requirements are identified with the particular payload program. Present planning predicts an average of three launches per year from Patrick AFB. KMR support is required for telemetry and metric data acquisition for orbital missions.

In the Space Object Identification (SOI) Program, the KREMS radars, (TRADEX, ALCOR, and ALTAIR), respond to the operational requirements of the USAF spacetrack system during normal duty hours on a non-interference basis with other range requirements. Approximately 60 identifications per year are made.

A test of ALTAIR capabilities to support the Air Force's Space Detection and Tracking System (SPADATS) was successfully concluded in Feb 81.

National Aeronautical and Space Administration Programs

NASA is establishing a Mobile Laser Station (MOBLAS) on Roi-Namur to provide tracking and ranging data in support of the SEASAT-A Project which is part of the Earth and Ocean Dynamics Applications Program (EODAP). This is the first major step in developing and demonstrating a system capable of providing, from space, global monitoring of wave height and directional spectra, surface winds, ocean temperature, mapping of global ocean geoid, measuring precise sea surface topography, detecting currents, tides, storm surges, tsunamis, and charting ice fields and leads.

Defense Nuclear Agency Programs

The Wide Band Equatorial Program was conducted with simultaneous measurements of the effects of ionospheric and transionospheric scintillation on satellite communications. Data were obtained for this program during August 1981.

Support is also provided DNA during their annual radiological surveys of areas formerly utilized as nuclear testing sites.

Missions

During FY 81, KMR participated in approximately 170 missions including 156 Earth Resources Support System (ERSS) and Defense Meteorological Satellite Program (DMSP) Meteorological rockets launched from KMR. KMR continued to support the System Technology Program/Homing Overlay Experiment (STP/HOE) operations and provided on orbit support data to NASA for the first Space Transportation System (STS-1). Major missions were:

8 Oct 80	WSMC 4959, a BMO/ABRES MINUTEMAN MMI, Advance Maneuvering Reentry Vehicle (AMARV-2), a research and development mission.

10 Dec 80	WSMC 4493, a SAC MINUTEMAN MMIII, a SAC operational test designated GT-75-1-GM.
16 Dec 80	WSMC 4555, a BMO/ABRES MMI, Advance Ballistic Reentry Vehicle (ABRV-4), a research and development mission.
9 Feb 81	WSMC 2763/WSMC 0855, SAC MMIII's operational test designated GT-79GM/GT-80GM, launched seven minutes apart and designated Short Time Internal Launch (STIL).
19 Feb 81	WSMC 8178, a BMO/ABRES MMI, Interim Recovery System (IRS-1), a research and development mission.
21 Feb 81	WSMC 3697, a SAC MMIII operational test designated GT-81GB.
15 Mar 81	WSMC 0511, a BMO/ABRES MMI Technology Development Vehicle (TDV-4), a research and development mission.
16 Mar 81	ETR 3754, an Air Force TITAN III-C, a space probe mission.
1 Apr 81	WSMC 5544, a SAC MMIII operational test designated GT-75-2.
4 Apr 81	WSMC 1406, a BMO/ABRES MMI, a MK 500 PENAIDS designated PAS-1 PENAIDS system, a research and development mission.
12 Apr 81	ETR 9100, a NASA Space Transportation System (STS-1), NASA's first STS mission.
13 Jun 81	WSMC 4444, a SAC MMIII operational test designated GT-82, the target for DOT.
13 Jun 81	WSMC 1690, an Army CASTOR missile vehicle for a BMD/ATC Designating Optical Tracker (DOT-4), an advance research and development mission.
26 Jun 81	WSMC 9139, a SAC MMIII operational test.
12 Sep 81	WSMC 4654, a BMO/ABRES MI, the second MK 500 PENAIDS, designated PAS-2, a research and development mission.

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Chapter III

RANGE PLANNING

During FY 81, the BMD Systems Command operated Kwajalein Missile Range (KMR) and provided support to numerous range user agencies. A major portion of this support was for U.S. Air Force sponsored development and operational test of intercontinental ballistic missiles and payloads launched from Vandenburg Air Force Base. The operational tests were comprised of various MMIII operational configurations. The development tests included nose tip evaluation, various decoy configurations, a maneuvering vehicle, a vehicle that was tracked and then recovered from the lagoon, and two experiments involving a novel masking design. In addition, the Army launched the fourth in a series of Designating Optical Tracker missions. The Army Optical Station on Roi-Namur was shut down at the end of the fiscal year.

Most of the modifications to the high power UHF/VHF ALTAIR radar to make it a participating sensor in the ~~Air Force Space Detection and Tracking System (SPADATS)~~ were completed during FY 81. The interim system which performs the functions of satellite catalog maintenance (SCM) and the detection of new foreign launches (NFL's) is operational. The functions of ~~space object identification (SOI)~~ and deep space surveillance (DSS) are expected to come on line during FY 82. In addition to its new role in the SPADATS net, ALTAIR will continue to provide its present support to the WSMC for evaluation of defensive and offensive weapons systems. ALTAIR will spend approximately one quarter of its time supporting WSMC operations and three quarters supporting SPADATS.

A second major modification effort at KMR has been to implement a ~~multistatic measurement system (MMS)~~ at the ~~Kiernan Reentry Measurements Site (KREMS)~~ on Roi-Namur. This system consists of the TRADEX L-band and ALTAIR UHF radars as illuminators and bistatic receiving sites on two remote islands. The system will provide very accurate metric measurements during ICBM reentry vehicle testing and also bistatic signature data at UHF and L-bands. The metric measurement capability will provide a means of separating launch errors from reentry phenomenon errors for missile performance evaluation when no on-board sensors are available. This system is nearly complete and is expected to be fully operational early in FY 82.

During FY 81, work was initiated to construct a millimeter wave radar (MMW) at KREMS. This radar will be an adjunct to the ALCOR G-band radar system and will provide 35 GHz and 95 GHz radar capability along with a 95 GHz radiometer capability. The development phase for this system was initiated during FY 79.

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Chapter IV

REENTRY MEASUREMENTS RADARS

Several modifications were made to the Kiernan Reentry Measurements Site (KREMS) radars this fiscal year. These modifications increase the capabilities of the radars and thus enable Kwajalein Missile Range (KMR) to provide better support of the user community.

KREMS Radar Control Center (KRCC)

The High Speed Data Link, designed to transmit data by satellite to Lexington immediately after a mission, underwent considerable testing. Operation through the Roi Communication Center has been checked.

The KRCC has implemented an impact prediction program that will extrapolate in real time an impact point and time from a limited set of exoatmospheric data. This prediction can be given to off-island sensors engaged in the same mission as KREMS but having poor acquisition capability.

The Timing and Data Collection Unit (TADCO) associated with the old Designation and Discrimination Engineering (D&DE) system was dismantled and removed.

ARPA Lincoln C-Band Observables Radar (ALCOR)

The NOVA computer was deactivated when the new Eclipse computers became operational.

The new modulator, based upon the Varian L-5097 tube, was permanently installed.

The 12-inch RTI's were replaced by 6-inch RTI's and the A-scope cameras were replaced by video cassettes.

The Rapid Imaging capability from KREMS to ADCOM became operational.

Checkout began on the Xylogics disk controller.

ARPA Long Range Tracking and Instrumentation Radar (ALTAIR)

Aside from mission support, most of ALTAIR's activity was directed toward the ALTAIR SPADATS Modification. The ALTAIR Communication Center was completed and the fiber optics cable laid in place. Both VAX computers were installed. An interim SPADATS operation involving one shift dedicated to SPADATS was begun.

~~Multistatic Measurements System (MMS)~~ bistatic UHF data was collected on two missions.

Army Optical Station (AOS)

All AOS activity ceased and the site was mothballed.

Millimeter Wave Radar (MMW)

Work was begun on MMW. The Antenna Support Pedestal Installation (ASPI) was built. All ALCOR building installation tasks were completed. The transmitter high voltage unit was operated successfully at 48 KV.

Target Resolution and Discrimination Experiment (TRADEX)

A significant amount of effort was put into the various parts of TRADEX MMS: The Coherent Signal Processor, the Star Correlator (used with GPS as a pseudo-random noise source), and the Test Calibration Pulse. The remote sites at Gellinam and Illeginni were operated, and the entire system collected metric and signature data.

A-scope film recording was discontinued in favor of video cassettes.

Chapter V

RANGE TECHNICAL FACILITIES

Photo Optics

A contract was awarded to Photosonics, Inc. for Super RADOT number 6 during the first quarter of FY 81.

TPQ-18 Radar

The TPQ-18 is a high-accuracy, long-range, C-Band instrumentation radar, built by RCA. The system at Kwajalein Missile Range (KMR) is Serial Number One and was acquired from SAMTEC's Canton Operating Location, in 1975. Disassembly of the radar at Canton Island began 18 Oct 75. The radar arrived at KMR 6 Dec 75. Site construction was completed atop Launch Hill on Kwajalein Island and system installation began 26 Apr 75. Installation and checkout phases required two months; initial calibration and operator training took another month; and the radar was declared operational on an engineering test basis 16 Aug 76. The first instrumented RV mission (5688) was supported that date. The radar was declared operational Mar 77.

The contract to develop, design, and manufacture the upgrade equipment was awarded to RCA in Feb 81. The contract will be completed in May 83.

Meteorological Radar System (WSR-74S)

A contract was awarded on 20 Jan 81 to Enterprise Electronics Corporation, Enterprise, Alabama, for a weather radar replacement for the WSR-57 at KMR. The new WSR-74S radar system satisfactorily completed factory acceptance testing at the contractor's facility and is currently at KMR awaiting installation during the fall range down period (4 Oct 81 - 15 Nov 81).

In addition to being a solid state radar, the WSR-74S has many features not found in the WSR-57. These are digital video integration processor, color scan converter, remote color display, and time-lapse video data recording capabilities. The new system will be easier and less expensive to maintain due to having reliable state-of-the-art electronic technology incorporated.

Meteorological Sounding System

In FY 81 requirements were developed for three Meteorological Sounding Systems (MSS) to replace the antiquated Ground Meteorological Device (GMD) systems at KMR. These requirements will be formulated into a procurement package and released to the BMDSCOM Contracts Office for award of a competitive contract in FY 82.

Communications

Digital Microwave System (DMS) - During FY 81, the KMR ~~Digital Microwave System~~ DMS was installed to all current instrumentation sites within the Kwajalein Atoll. The DMS utilized Rockwell/Collins MDR-8-5N and MDR-8-5 radios operating in the 8 GHz band, Rockwell/Collins DMX-13C high level muldems, and WESTCOM 360-D4 PCM channel banks in the "backbone" route between Kwajalein and Roi Namur in the three spur paths from Meck to Omelek, Meck to Eniwetak, and Gagan to Illeginni Islands. All DMS paths are fully protected by techniques such as hot standby, space diversity and frequency diversity. Communications users are currently being converted from the underwater cable carrier system to the DMS.

Roi Namur Telecommunications Center - On 6 Aug 81, the Roi Namur Telecommunications Center (TCC) was successfully tested and certified operational by a representative of the Defense Communications Agency. This TCC was installed to support the operation of ALTAIR and ALCOR radars in the ~~Space Detection Tracking System (SPADATS)~~ sensor role in conjunction with the NORAD Cheyenne Mountain Complex (NCMC). The communications circuit requirements included a dedicated secure 9.6 KBPS data link to NCMC, a non-dedicated secure AUTODIN 4.8 KBPS backup data link to Hawaii AUTODIN Switching Center, a secure common user AUTODIN Teletype circuit, a dedicated secure teletype "chatter" circuit, two AUTODIN clear voice circuits, an AUTOEVOCOM secure voice circuit, and two local KMR voice telephone circuits. The equipment installed included a Data General Eclipse S-130 communications processor, an Analytics' Telecommunications Line Controller TLC-100, a Teletype Corporation Model 40 teletype, and KG34 COMSEC equipment. The data route from Roi Namur to NCMC also utilized the KMR Digital Microwave System and the Defense Communications System's AN/FSC-79 Satellite Ground Terminal on Kwajalein Island.

Telemetry Systems

A 1-meter diameter antenna was installed on the 3-meter telemetry tower in a fixed position. The 1-meter antenna is directed toward predicted RV impact points and is used to gather RV telemetry data prior to and after RV impact.

Data Handling Systems

The development of an improved and modernized Status Display Console (SDC) was completed by Science Applications, Inc. (SAI). This unit will replace the existing SDC in the Instrumentation Control Center at KMR.

Range Instrumentation Systems Analysis (RISA)

The Kwajalein Missile Range assures the performance and data accuracy of the range instrumentation sensors through a continuing test and analysis program. This effort is performed by the ~~Range Instrumentation Systems Analysis (RISA)~~ RISA group under the direction of the Range Development and Communications Division. KMR instrumentation performance and data accuracy were monitored on a continuing basis resulting in consistently high KMR data quality for FY 81. Semiannual reports documenting this data quality were published for trajectory, and impact instrumentation. In addition to these reports which are distributed to the KMR range user community, KMR performance and accuracy presentations were made to the Joint Range Instrumentation Accuracy Improvement Group and inputs to Program Support Plans were provided for direct response to Users.

To assure that high quality instrumentation is developed in the most efficient manner, the RISA group participates in all instrumentation development efforts as appropriate. Efforts of this type during FY 80 included: C-TASA, Super RADOT, HOE and the Multiple-Target Instrumentation Radar.

The analysis of raw data continued to be a source of insight into instrumentation characteristics. Raw data from the TPQ-18, MPS-36 and the range ICC system were analyzed to study monopulse data characteristics, data trending, tracking filter and real-time designation capabilities.

The RISA effort was expanded to include an on site position, that of RISA Site Representative. His function is to provide close support to instrumentation and performance assurance personnel in dealing with routine instrumentation performance problems requiring high quality data analysis.

Analytical studies were performed by RISA in many diverse instrumentation areas:

a. A study of the filtering techniques employed within the KMR ICC was performed. The results of this effort are being employed to improve data integrity and remote system designation quality.

b. A technique for integrating Radar Error Detection System (REDS) hardware into the MSP-36 autotrack system was developed and implemented.

c. A study leading to an interim solution to MPS-36 radar angle crosstalk was performed.

d. The Super RADOT was declaimed a developed instrument. This conclusion was based upon an analysis of performance improvements and data quality over a one year period.

e. Geometric dilution of precision studies were performed for various MX scenarios, Multi-Target Instrumentation Radar applications to KMR requirements and proposed optical system upgrades.

f. Other MX-related studies included horizon and expected altitude coverage.

g. Based on Super RADOT experience, a standard Category III test for this instrument was developed.

h. Additional studies of a theoretical nature were also performed. Those included are examinations of the fundamental nature of the inferences that can be drawn from the actual vs. assumed distribution of errors found at KMR. The value of the reverse fourier transform in the determination of error causes was discussed in another study.

Chapter VI

RANGE SAFETY

The Range Safety mission is to insure that all reasonable precautions consistent with operational requirements will be taken during the preparation and conduct of missile and other hazardous operations to prevent injury or damage. Range Safety for all such operations at the ~~Kwajalein Missile Range (KMR)~~ is the responsibility of the National Range Commander, who discharges this responsibility through the Director, ~~Kwajalein Missile Range Directorate (KMRD).~~ This responsibility is carried out by the KMRD Safety Office located in Huntsville, Alabama, and the KMR Range Safety Office located at Kwajalein, Marshall Islands. The KMRD Safety Office develops all Range Safety policy and criteria that apply to hazardous operations at KMR and is responsible for long-range planning and negotiations with potential Range Users. The KMR Range Safety Office is responsible for insuring that all established criteria are followed and for providing operational Range Safety support during missile operations.

During FY 81, the following events occurred in the Range Safety area:

Strategic Systems Test Support Study (SSTSS) - The tri-service study to define and recommend long-term strategic testing support approaches to offensive and defensive requirement for testing begun in 1979 continued. A major addition to the study scope was directed by DDT&E on 23 March, to define a long-term Universal Range Instrumentation Aircraft (URIA). A second effort to evaluate the potential of sharing broad ocean areas (BOA) by M-X and TRIDENT for cost savings through consolidation was tasked. A Supplemental Land Terminal Area (SLTA) analysis was undertaken to evaluate the cost effectiveness of a Northern Marianas land site in lieu of BOA 1. Long-term emplacement and maintenance of the deep ocean transponders arrays engendered the formation of a M-X/TRIDENT Joint Test Target Working Group, which also undertook the long-term analysis of ship requirements and workloads. DDT&E also tasked the SSTS group to evaluate the proposal of allowing the repopulation of Bigej Island in the Kwajalein Atoll. KMR members to the SSTSS began extensive design and development of KMR North support capabilities: C-7A Terminal Area Support Aircraft (TASA), Kwajalein Broad Ocean Area Tugboat (K-BOAT), and Transportable Telemetry System (TTS). An 11 March interim briefing was made to DDT&E and the Major Range Test Facilities Committee, and the final SSTSS and URIA briefings were presented 22-24 July. Subsequent guidance requested additional study effort.

Range Flight Safety Analyses - During the FY 81 period, a significant number of studies, exercises and analyses was performed. An extensive analytic effort to allow testing of a potential Navy (classified) program was performed. While novel, innovative and low

cost support was proposed, the program did not test at KMR because of potential "Brand X" compromise. An Alternate Delivery Systems Study using Air Force, contractor and KMR personnel evaluated alternatives for providing BMD targets that the current expensive ICBMs from VAFB. Launches from Johnston Island, Hawaii, Wake, etc. proved not to be cost-effective. The Air Launched Probe System (ALPS) for delivering sub-scale targets was pursued and a test program was planned. The DOT program proposed a follow-on program using a new (ARIES) booster, which requires range safety system augmentation. Alternative solutions were proposed and continue to be evaluated. The LoAD (now SENTRY) program began test planning and systems safety and flight safety support began. The signature measurements radar began data gathering against closely-targeted RV's, and both sheltering and operational evacuation measures were developed for the AMARV-3/PAS-2 missions. A long range integrated plan for safety support of anticipated testing requirements was developed.

Range Safety Group Activities - KMRD Safety personnel participated in two range safety group tasks. RS-11, "Standardization of Range Safety Philosophies and Criteria," was written in an attempt to avoid single program, multi-range compatibility difficulties, and an unnumbered task (on unguided rocket safety) to develop a compendium of range safety test approaches was assembled and provided to the RCC Secretariat.

Kwajalein Range Safety System (KRSS) - The KRSS configuration change to incorporate redundant VAXII/780 computers and displays in lieu of the single, less capable PDP-11 was continued during FY 81. Major software development activities (Flight Safety Routine at Ford and Executive/Real Time/Display Programs at Kentron) progressed for the HOE and DOT program support requirement. Installation of the first VAX unit at KMR and the second at Kentron/Huntsville (for interim integration testing) was completed. An operations and maintenance agreement was reached between BMDSC-RS, BMDSC-RKS, and BMDSC-RKT. The concept for using the PDP-11 for a Ship and Aircraft Navigation Control System at KMR was defined.

Homing Overlay Experiment Safety Issues - Memoranda of Agreement were finalized between BMDSCOM and WSMC for safety responsibility of HOE target debris, and between BMDSCOM and the Wake Island Air Force Group for take cover during mission. A HOE TM plume attenuation study was performed indicating acceptable link margin, marginal MPS-36 beacon margin, and acceptable command destruct link margin. Major ground safety issues were resolved in the handling, storage and use of hypergolic fuel. Procedures and requirements for self contained pressure suits, egress, and other emergency support were defined.

Incompatibilities between flight hardware and ground equipment of the flight termination system were resolved. Initial flight safety analyses of mission trajectories were completed.

Sampling Program - During 1981, a sampling and analysis program to evaluate uranium concentrations in the Kwajalein lagoon was completed. Fish, water, and sediment samples were collected at several locations at Kwajalein and Majuro. These samples were analyzed by a private laboratory (Environmental Analysis Laboratories in Richmond, CA) under a contract with the Air Force. The results of the analysis program indicate that depleted uranium introduced into the Kwajalein lagoon on Air Force reentry vehicles has not detectably altered the natural concentration of uranium in the Kwajalein environment. A report of this program is available, if it is required, to respond to questions by the Marshallese leadership.

Fire Protection Study - During 1981, KMR suffered a disastrous fire in the telemetry recording van located on Gagan Island. In December 1981, the KMR Safety Office began a study to identify all situations at KMR where remote, high dollar value, mission essential equipment is located in order to assess the need, feasibility and ROM estimate of providing automatic fire protection systems. Target date for study completion was 1 September 1982.

Aircraft Flight Safety - During 1981, the Safety Office continued its emphasis on the safety concerns associated with the aviation operations at KMR. They are the most dangerous activities at KMR due to the dense utilization, the high personnel exposure, the potential accident severity (crowd killer event), the loss/delay of mission capability that would result from the loss of key personnel, and the fact that the Army shares liability for such an event. The Safety Office recommended that the aircraft maintenance operations be closely scrutinized. KMR and KMRD management concurred in the safety assessment and have established policies to increase aviation maintenance attention by the Logistics Support Contractor during 1982.

Chapter VII

MAJOR CONSTRUCTION ACTIVITIES

This chapter discusses the major construction activities for FY 81. This includes construction under MCA and RDT&E Appropriations, Plans & Programs.

Resize and Modernize Range Facility - FY 80 MCA

This FY 80 MCA project, funded at $2.9M, consists of a weather station addition, a new building for the TPQ-18 Radar Complex, an addition to the Launch Operations Control Building on Roi-Namur and Super RADOT facilities.

Barracks Modernization, Kwajalein Island - FY 81 MCA

This project is to upgrade the largest bachelor housing facility (Pacific Barracks) on Kwajalein Island by providing increased privacy and additional space.

Homing Overlay Experiment (HOE) - FY 73 MCA

Facility criteria for HOE construction was baselined in Nov 79 and a system established to control all future changes. All design was completed during this period and a total of four working group meetings were held to review criteria changes and design status.

a. Martin-Zachary was issued the contract to disassemble, prepare for shipment, and re-erect on Meck Island the C-3 Access Stand from Cape Canaveral, FL. This effort was completed in late CY 80 at a cost of $835,384 (RDT&E).

b. Construction was completed for the HOE Launch Complex 30 Sep 81 at a cost of $2.7M.

Digital Microwave System - FY 81 MCA

One each 10' x 20' tilt-up concrete slab structures were constructed on the islands of Ennylabegan, Legan, Gellinam and Gagan with related tower and required electrical power addition to each island if required. The total cost of project on all islands was $235,289.

SPADATS - Consol and Process Equipment Rooms - ALTAIR - Roi-Namur Island

A total of four house trailers, released from use on Kwajalein Island to be used in conjunction with the expanded ALTAIR program, was refurbished and relocated at the ALTAIR building and tied into existing structure with walkway. A portion of area in old building structure was reworked to satisfy needs of program.

Pollution Abatement Facilities - Kwajalein, Ennylabegan, and Roi-Namur Islands - FY 81 MCA

The total cost for this project was $990,000. All outfalls, which were not covered by EPA's Municipal Permit, consists of the pick-up and tie-in of piping to the Sewage Treatment Plant, Kwajalein Island. On Ennylabegan and Roi-Namur Islands all remaining outfalls were tied into leaching fields and/or septic tanks.

Millimeter Wave Radar - Roi-Namur Island

The total working estimate was $1.3M which included the construction of radar foundation and pedestal, controls area, air conditioning, and installation of radar covered with protective dome.

Chapter VIII

BASE SUPPORT ACTIVITIES

General

The ~~Kwajalein Missile Range (KMR)~~ nonindigenous population was 2,870 at the end of FY 81 and is tabulated in Table 6, this chapter. This is 65 less than the population at the end of FY 80.

Base Support

The new security contract (Contract DASG60-80-C-0102) awarded on a competitive basis to Washington Patrol Services (WPS) for a two-year period, beginning 1 October 1980, was phased-in during October 1980. Full responsibility for all security and law enforcement activity at KMR was assumed by WPS on 1 November 1980. The Phase-in generally went smoothly, however substantial turnover of personnel occurred in early CY 81 necessitating additional initiative by WPS to accelerate recruiting efforts.

Scope of Work, SW-K-1-80, which delineates the effort to be performed by the Logistics Support Contractor (LSC), Global Associates, under Contract DASG-60-80-C-0001 was formally revised three times during FY 80. The first revision, (SOW, Revision 6) which became effective on 1 November 1980, phased-out the requirement for the LSC to provide security and law enforcement at KMR (i.e., concurrent with the phase-in of WPS). The second revision (SOW, Revision 7), which became effective on 1 February 1981, removed the final L-188 aircraft from the KMR air fleet, added one C-7A aircraft (total of five) which was obtained in the prior FY, provided adjustment in flying hours, covered a phase-down in Systems Technology Program support personnel and imposed a requirement to install nonpolluting equipment on the marine fleet per compliance requirements of the Environmental Protection Agency. The third revision (SOW, Revision 8), which became effective 1 July 1981, substantially increased the facilities engineering hours to reduce the Backlog of Maintenance and Repair (BMAR), added two C-7 aircraft (total of seven) along with related adjustments in flying hours to support increased personnel movement requirements for Roi-Namur and Meck Islands. Other logistic support provisions were added by Revision 8 to support the accelerated program activities at Roi-Namur and Meck Islands.

As the present contract for logistics support at KMR would expire on 30 September 1982, action required for a competitive procurement was initiated during mid-FY 81. Required documentation (i.e., Basic Information Maps, Analysis of Existing Facilities, Building Information Schedules, applicable regulations, directives, etc.) were requested from various sources. In addition, actions to improve the LSC SOW and

related documentation were initiated through a detailed review and coordination process.

The energy conservation program which began in FY 74 made significant progress in FY 81. In terms of BTU's of energy, overall consumption was 9.9% under the DA assigned goal of 1.69 trillion BTU's. In terms of diesel fuel, the reduction equates to 1.21 million gallons. As a result of this achievement, KMR was one of twenty installations formally recognized with an energy conservation award by the Secretary of Energy. (The actual award was not received until FY 82).

Plans and preparations were made for KMR participation in the first Army Energy Awareness Week activities which would occur early in the next fiscal year. Activities included posters, radio, television and newspaper publicity, decalcomania and organized school activities focusing on conservation and efficient use of energy.

Two projects were submitted as candidates for approval and funding under the Productivity Enhancment Capital Improvement Program (PECIP). These projects would provide energy savings by double glazing housing quarters' windows to minimize air conditioning losses and the addition of hot water generators using waste heat from air conditioners. Both projects would be self-amortizing in approximately two years.

The U.S. Army Facilities Engineering Support Agency (FESA) provided KMR with an Energy Conservation Seminar with representatives of all onsite activities in attendance. In addition, a mechanical engineer performed a survey of the major air conditioning systems with recommendations to be made wherein KMR can reduce energy consumption.

Additional TDA revisions were submitted to HQDA to correct errors which had been made during final printing by DA. Copies of the corrected TDA received from HQDA revealed that 27 additional items had been deleted from the previously approved TDA. HQDA advised that these deletions resulted from other actions in process in establishing Base Level Commercial Equipment (BCE) items. Essentially, those controlled items which had been listed in Chapter 6 of SB700-20 with a unit cost of under $3,000 were moved to Chapter 8 (CTA Items). HQDA recognized this problem and advised that future action was planned to move the items back.

Administrative Use Vehicles (AUV) allocated from FY 80 procurement actions were delivered to KMR during this period. FY 82 requirements were submitted to the U.S. Army Tank-Automotive Materiel Readiness Command (TARCOM) and initial indications (based on DA severe budget

constraints) were that allocations for FY 81 would be only 10% and for FY 82 would be only 25% of actual programmed requirements. Intensive management actions by both TACOM and BMDSCOM resulted in significant improvements in these projections. The severe FY 80 budget cuts remained firm; however, allocations for FY 81 and FY 82 were increased to 29 and 57 percent, respectively. Twelve motor scooters in use to replace a like number of pickup trucks and carryall trucks at KMR were augmented by one additional scooter. Requirements for seven additional scooters were submitted for FY 82 based on results of a 6-12 month usage data study at KMR.

The ~~Base Level Commercial Equipment~~ (BCE) program implemented by HQDA resulted in the cancellation of MILSTRIP requisitions submitted for TDA items. These TDA items were previously OPA funded and were "free-issue" to TDA proponents. The new program was intended to provide BCE funds directly to each MACOM for local purchase of the BCE selected items. Action was taken to develop a BCE budget input for KMRD for inclusion in the command budget request to HQDA.

Frame cracks were detected in three aircraft fuel servicing vehicles at KMR which created a very serious safety hazard. Replacement vehicles had been previously requested from TACOM, however, delivery schedules indicated a 12 - 18 month lead time. Research revealed there were no assets available within the Army and other areas were explored. Three serviceable assets were located in the Marine Corps war reserve stocks at Barstow, California. Expedited action was taken to obtain loan of these assets from the Marine Corps HQ and shipment was made to KMR.

Problems encountered with the Foam Pump on the MB-1 Fire Fighting Vehicle at KMR revealed that there were no available pumps in Army inventory and the original manufacturer had gone out of business. Extensive research revealed that the Marine Corps at Barstow California had the only other existing MB-1 fire trucks in service. Arrangements were made to obtain two of the foam pumps from Marine Corps assets which were deadlined for other problems. One pump was used to repair the defective MB-1 and the other pump was put in stock at KMR as a spare.

A study was conducted to develop a replacement plan for family housing furnishings at KMR. The normal method allowed replacement authorized by regulatory repair expenditure limits during each year based on the annual monetary allowance prescribed by the Financial Requirements Manual. Funding constraints in previous years resulted in a large portion of the current inventory of appliances and furniture to exceed their life expectancy and/or repair limitation. Results of this study produced a plan whereby all furniture and appliance requirements

would be submitted on a yearly basis to take advantage of quantity buy discounts. This method was considered more advantageous to the government based on the price reductions for quantity buys and the expenditure level equates essentially to that authorized by the Financial Requirements Manual.

Two C-7A aircraft were obtained for KMR from assets assigned to the Army National Guard by the Air Force Reserve. Intensive command actions were required with DA to justify the assignment of the aircraft.

A study was made to develop a five-year support forecast for the C-7A aircraft at KMR. This support requirement was formally provided to the U.S. Army Troop Support and Aviation Materiel Readiness Command (TSARCOM) for their action in recording the Army as a user of the Air Force managed item. Previous support for the KMR aircraft was accomplished by means of a Wholesale Inter Service Support Agreement (WISSA) between this command the the Air Force, however, a new joint-service regulation (AR 700-99) cancelled all WISSA's without BMDSCOM knowledge. Arrangements were made with the Air Force to continue the support for KMR requisitions under the old WISSA until the Army support actions were completed.

Warner Robbins Air Logistic Center formally responded to a command request indicating that parts support for C-7A aircraft would be available for the indefinite future.

Hayes International Corporation of Dothan, Alabama was awarded a sole source subcontract for one C-7A aircraft and a competitive C-7A Iran subcontract for six C-7A aircraft. As a part of the C-7A subcontract effort, Hayes International Corporation also started modifications of the C-7A aircraft for the Terminal Area Support Aircraft (TASA) that included navigation, electrical and structural modifications. All seven C-7A aircraft will eventually be modified.

During FY 81, studies to determine the most suitable aircraft that would be a replacement candidate for the C-7A aircraft were conducted. These studies included consideration of a proposal by De Havilland Aircraft of Canada, Limited, for use of DASH-7 or Buffalo aircraft. Conclusions reached were that the planned use of an all C-7A (Caribou) fleet was the most attractive option for the immediate future.

Two replacement UH-1H helicopters were obtained from the depot facility at Corpus Christi, Texas in July 1981.

A formal request was received from BMDATC to provide support for the DOT Flight 4 recovery operation. Extended range tanks were inspected and purchased for use on WESTCOM helicopters assigned to support this mission. One KMR helicopter with extended range tanks was also scheduled for backup to this mission in addition to the KMR C-7A aircraft.

A waiver of military customs inspection at KMR applicable to pre-departure inspections of DOD aircraft, DOD sponsored cargo, air passengers, crew members, and accompanied baggage (originally approved in FY 80) was extended by HQDA.

The Environmental Protection Agency requirement, that waste water kits be installed on KMR tugs and LCU's prior to 1 April 1981, was completed on schedule.

A drydocking waiver request for KMR tugs was approved by TSARCOM to permit delay of tugs drydocking and overhaul from 1981 to 1983. Heavy workloads and high cost for drydocking necessitated this action.

Request to the Department of the Army for exception to policy concerning air transportation eligibility, DOD Regulation 4515.13-12, on KMR aircraft was approved. This approval provided additional authorization and flexibility needed for KMR flight operations.

A medical and dental survey, consisting of a seven-member team from Tripler Army Medical Center, was conducted of KMR's medical and dental facilities. This survey was comprehensive in nature and provided many recommendations for improving medical and dental services at KMR.

MAC increased the passenger rate for the Hickam/Kwajalein air channel 47.7% going from $218 per passenger to $322 per passenger, i.e., one-way. The Commanding General, BMDSCOM, formally expressed his concern over the rapidly rising passenger rates to the Commander, Military Traffic Management Command. Later in FY 81, it was learned that further increased rates proposed to be effective 1 October 1981 were rescinded, and that the passenger rates would actually be reduced on 1 October 1981 to $242.

MAC implemented a piece rate concept for hold-baggage on MAC flights. This concept allows passengers to check two pieces of baggage without extra charge. Anyone arriving at MAC terminals would be required to pay for the privilege of checking baggage in excess of two pieces.

MAC services from Hickam AFB to Kwajalein were reduced from three flights a week (Monday, Wednesday, and Friday) to two flights a week (Tuesday and Friday). The Tuesday flight was from Honolulu to Kwajalein to Wake Island and return to Kwajalein Wednesday and then back to Honolulu. The Friday flight to Kwajalein returned to Honolulu on the same day.

An extensive review was accomplished of a draft DOD directive proposing a new concept of consolidation of AFRTS broadcast operations. The overall concept of this plan was to consolidate all land-based radio and television outlets in a single DOD-wide system in AFRTS under the director, AFIS. Under this concept all management functions for these stations, including operating, funding, training, equipping, manning, and programming would come under the auspices of AFIS/AFRTS. HQDA (SAPA-ABS) was formally advised of the unique operations of the AFRTS outlet at KMR (GOCO) and the impact if this new concept of operations was implemented. HQDA indicated they did not intend to change the KMR operation if the new concept was implemented due to its uniqueness. (The concept was implemented in FY 82).

The U.S. Army - Air Force Exchange System (AAFES) Headquarters was contacted relative to allowing the KMR Logistic Support Contractor (LSC) to purchase selected items through AAFES. The intent was to reduce prices for these items to be more in line with the AAFES catalog prices. This request was declined due to the low volume involving only selected items and the problems involved in billing and payment methods.

The Commanding General's statutory approval was increased for repair and maintenance projects from $400,000 to within available funds. Subsequent increased delegations of authority from the Commanding General to the KMR Director and the CO, KMR for these projects, as well as construction projects and non-mission related community services type construction projects were executed. A compatible increase in delegation of authority for approval of equipment-in-place projects was also provided to the CO, KMR by the Director, KMRD.

The extensive review of KMR Backlog of Maintenance and Repair (BMAR) initiated in FY 80 was given added emphasis by the Commanding General in formal correspondence to the Vice Chief of Staff, along with normal budgeting channel emphasis. A supplemental FY 81 appropriations of $5,200,000 was obtained for BMAR. These funds were issued to Pacific Ocean Division (POD), Corps of Engineers, to accomplish Phase I of the electrical feeder system rehabilitation (2.3M), family housing and base hospital plumbing repair (1.0M), non-potable pressure pipelines (0.7M) and repair of shoreline (1.2M).

The LSC completed facilities engineering projects during FY 81, totaling $433,000 for construction; $631,000 for repair; $35,000 for equipment-in-place; and $11,000 for range user technical support. Facility engineering projects approved during FY 81 included the conversion of the Zeus barracks to a bachelor quarters (2-man rooms), fabrication and installation of new refractory walls in the solid waste incinerator, replacement of 13,800 volt time base between the two power plants on Kwajalein Island and the repair of the Meck Island pier as a result of storm damage.

Major overhaul of the nine diesel engines in power plant #1 at KMR, which began in FY 79 (four overhauled in FY 79 and 80), continued in FY 81 with two additional engines being overhauled.

The results of Megger testing of electrical feeder cables performed by the ~~Facility Engineering Support Agency~~ (FESDA) on Kwajalein and Roi-Namur in FY 80 were received in FY 81.

The installation of the new Signature Measurement Radar at KMR required the loan of two 60KW precise power generators from TSARCOM. A loan agreement was consummated with TSARCOM.

KWAJALEIN MISSILE RANGE NON-INDIGENOUS POPULATION - 30 SEP 81

Kwajalein Island		
Commanding Officer, Kwajalein Missile Range and Staff		132
United States Air Force		10
Ballistic Missile Defense Operations		5
U. S. Trust Territory		8
Corps of Engineers, Pacific Ocean Division		26
Defense Contract Audit Agency		5
Defense Mapping Agency Topography Center		6
Federal Aviation Administration		22
Kiernan Reentry Measurements Site (MIT/LL, RCA, Sylvania)		524
Global Associates		1099
Kentron International		429
Control Data Corporation		51
Martin Zachary Corporation & SUBS		79
Systems Technology Program Contractors		65
Department of Energy (Brookhaven National Laboratory and U. S. Oceanography)		9
Washington Patrol Services		47
Transients		41
	SUBTOTAL	2,558
Roi-Namur Island		
Kiernan Reentry Measurements Site		95
Global Associates		138
Kentron International		10
Washington Patrol Services		13
Transients		5
	SUBTOTAL	261
Ennylabegan Island		
Global Associates		8
Kentron International		12
	SUBTOTAL	20
Meck Island		
Global Associates		11
	SUBTOTAL	11
Ebeye		
Global Associates		20
	SUBTOTAL	20
	TOTAL	2,870

Table 6 - KMR Non-Indigenous Population

Chapter IX

KMR RELATIONSHIPS WITH TRUST TERRITORY AND THE MARSHALLESE

The initialing of the draft Compact of Free Association which is noted in the chronology should be included in text.

KMR Interim Use Agreement

Negotiations between the Government of the Marshall Islands (GOMI), DOD, and DOI resulted in the signing of a KMR Interim Use Agreement (IUA), 1 December 1980. This IUA provided GOMI's assurance of non-interference with KMR operations during the term (1 Oct 80 - 30 Sep 81) of the IUA. In return, DOD and DOI agreed to provide additional funding and projects to the GOMI during FY 81 totaling $9.60M. All DOD monetary obligations were met and no incidents of interference by the Marshallese with KMR operations occurred during the term of the IUA.

Future Political Status

Actions continued on the development of a Status of Forces Agreement and a Base Operating Rights Agreement (to become a part of the Compact of Free Association). The U.S. Army License and Support Agreement between the GOMI and BMDSCOM, which provides for landing rights at Kwajalein Island for GOMI aircraft was extended through 30 September 1981.

CHRONOLOGY

JAN 80 — Draft Compact of Free Association was initialed.

MAR 80 — New Commander, Col Robert J. Feitz, arrives at Kwajalein Missile Range.

JUL 80 — New sewage treatment plant placed in operation.

22-24 JUL 80 — Final Strategic Systems Test Support Study briefing given To DDT&E & the Major Range Test Facilities Committee.

AUG 80 — Three additional C-7A aircraft are received at Kwajalein Missile Range

DEC 1, 1980 — Signing of KMR Interium Use Agreement between Department of Interior and Government of Marshall Islands.

SEP 81 — — The Army Optical Station on Roi-Namur was shut down.

30 SEP 81 — Construction completed on HOE launch Complex at a cost of $2.7M.

GLOSSARY OF ABBREVIATIONS (ACRONYMS)

ABRES	Advanced Ballistic Reentry System
ABRV	Advanced Ballistic Reentry Vehicle
AFES	Air Force Exchange System
ALCOR	ARPA Lincoln C-Band Observable Radar
ALPS	Air Launched Probe System
ALTAIR	ARPA Long Range Tracking and Instrumentation Radar
AMARV	Advanced Maneuvering Reentry Vehicle
AOS	Army Optical Station
ARPA	Advanced Research Projects Agency
ASPI	Antenna Support Pedestal Installation.
AUV	Administrative Use Vehicles
BCE	Base Level Commercial Equipment
BMAR	Backlog of Maintenance and Repair
BMDATC	Ballistic Missile Defense Advanced Technology Center
BMDSCOM	Ballistic Missile Defense Systems Command
BMDOPS	Ballistic Missile Defense Operations Office (KMR)
BOA	Broad Ocean Areas
D&DE	Designation and Discrimination Engineering
DA	Department of the Army
DMS	Digital Microwave System
DMSP	Defense Meteorological Satellite Program
DNA	Defense Nuclear Agency
DOD	Department of Defense
DOT	Designating Optical Tracker
DSS	Deep Space Surveillance

EODAP	Earth and Ocean Dynamics Applications Program
ERSS	Earth Resources Support System
FESA	Facilities Engineering Support Agency
FY	Fiscal Year
GMD	Ground Meteorological Device
GOMI	Government of the Marshall Islands
GTE	
HOE	Homing Overlay Experiment
ICBM	Intercontinental Ballistic Missile
IRS	Interim Reentry System
IUA	
K-BOAT	Kwajalein Broad Ocean Area Tugboat
KMMS	Kwajalein Multistatic Measurements System
KMR	Kwajalein Missile Range
KMRD	Kwajalein Missile Range Directorate
KRCC	KREMS Radar Control Center
KREMS	Kiernan Reentry Measurements Site
KRSS	Kwajalein Range Safety System
LITE	Laser Infrared Tracking Experiment
LSC	Logistic Support Contractor
MMS	Multistatic Measurements System
MMW	Millimeter Wave Radar
MOBLAS	Mobile Laser System
MSS	Meteorological Sounding Systems
MSV	Miniature System Vehicle
NASA	National Aeronautics and Space Administration
NCMC	NORAD Cheyenne Mountain Complex
NFL	New Foreign Launches

OT	Operational Tests
PECIP	Productivity Enhancement Capital Improvement Program
POD	Pacific Ocean Division
PVM	Production Verification Missile
RADOT	Recording Automatic Digital Optical Tracker
RCA	
RDTE	Research, Development, Test, and Evaluation
REDS	Radar Error Detection System
REMP	Reentry Environment Measurements Program
RF	Radio Frequency
RISA	Range Instrumentation and Systems Analysis
RMSS	Range Meteorological Sounding System
RSC	Range Safety Center
RSLP	Reentry System Launch Program
RV	Reentry Vehicle
SAC	Strategic Air Command
SAT	
SCM	Satellite Catalog Maintenance
SDC	Status Display Console
SLTA	Supplemental Land Terminal Area
SOI	Space Object Identification
SOW	Scope of Work
SPADATS	Space Detection and Tracking System
STIL	
STM	Special Test Missile
STP	System Technology Program
STS	
SSTSS	Strategic Systems Test Support Study
TADCO	Timing and Data Collection Unit

TARCOM	Tank-Automotive Materiel Readiness Command
TASA	Terminal Area Support Aircraft
TCC	Telecommunications Center
TDV	Technology Development Vehicle
TRADEX	Target Resolution and Discrimination Experiment
TSARCOM	Troop Support and Aviation Materiel Readiness Command
TTPI	Trust Territory of the Pacific Islands
TTS	Transportable Telemetry System
USAF	United States Air Force
UHF	Ultrahigh Frequency
URIA	Universal Range Instrumentation Aircraft
VAFB	Vandenberg Air Force Base
VHF	Very High Frequency
WISSA	Wholesale Inter-Service Support Agreement
WPS	Washington Patrol Services