



VIETNAM REPORT

Prime BEEF in Action

EDITOR'S NOTE: Because of the many reports, articles, letters, and other inputs concerning the Prime BEEF teams deployed to the Republic of Vietnam, we condensed this information into the "VIETNAM REPORT" which follows. Credit for the material used must be shared equally and contributors are identified elsewhere on these pages.

Any rapid buildup of large numbers of forces creates many problems that must be resolved literally as they occur. Housing, messing facilities, storage of equipment and materiel, power, water, sanitation, and so on are demanding items that can't wait. Delays only make bigger problems because troops keep coming in.

When you must perform these tasks under the ever-present danger of an enemy attack, your problems grow monumental.

That's how it is now in the Republic of Vietnam (RVN). To assist the Vietnamese people in their struggle with Communist forces, large numbers of U.S. Air Force strike aircraft were deployed to Southeast Asia where pavement for aircraft parking was at a premium. Operational requirements made deployments necessary before a vigorous construction program could provide enough new aircraft pavement. The result: aircraft were parked so close together they compromised safety as well as being vulnerable to enemy attack. These conditions demanded an urgent program for the erection of protective aircraft revetments.

Tragically, as if to prove the desperate need for aircraft revetments, more than a dozen aircraft were destroyed in a series of accidental explosions on the flight line ramp at Bien Hoa, and later at this same base, enemy mortar attacks damaged some 45 additional aircraft.

Despite the extreme urgency of an aircraft revetment program, the existing construction resources in Southeast Asia, already overtaxed, could not contribute enough effort to do the job. Under these conditions, Hq PACAF requested the deployment of three 25-man "Prime BEEF" teams to aid in this construction in critical areas. In July 1965, Hq USAF called on three ZI major commands (ADC, ATC and SAC) to provide the necessary teams. Hq ADC and ATC hand-picked their 25-man teams from their several Base Civil Engineer squadrons to fill the commitment while Hq SAC selected a 25-man construction team from the squadron at Biggs AFB, Texas. Additionally, Hq SAC provided one Construction Engineer and two Site Development Technicians from March AFB, California to act as the Advance Party for the operation.

It was determined that the revetments would be constructed using steel bins filled with compacted earth. Each bin or "kit" would make 240 lineal feet of revetment 5½ feet thick and 12 feet high and would require 8420 tons of compacted fill material. It would be erected in 10-foot sections, each section being composed of 16-gauge steel panels bolted to steel columns to form the bin.

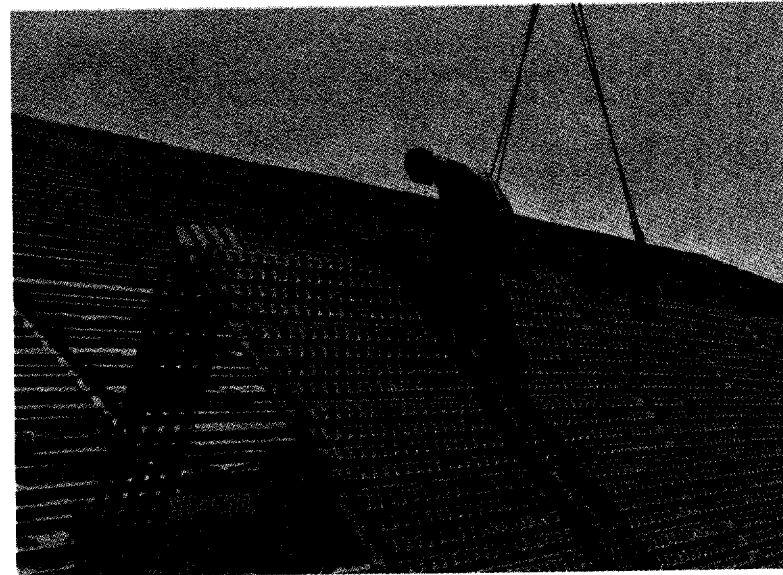
A revetment was erected and tested at Eglin AFB. Tests consisted of attacks from 50-caliber machine guns, 20-mm cannons, mortars, and 750-lb. general purpose bombs. The revetments passed all tests. Stability of the revetment was proven when a 750-lb. bomb detonated on the surface 18 feet from the revetment wall. At Eglin AFB, officers and key NCOs were briefed on their mission in the RVN. The briefing outlined the theory and concept of Prime BEEF and the mission of the deployment to Southeast Asia. The importance of Prime BEEF efforts to the future of Air Force Civil Engineering was strongly emphasized. It was pointed out that the results of the deployment could have a significant impact on the development

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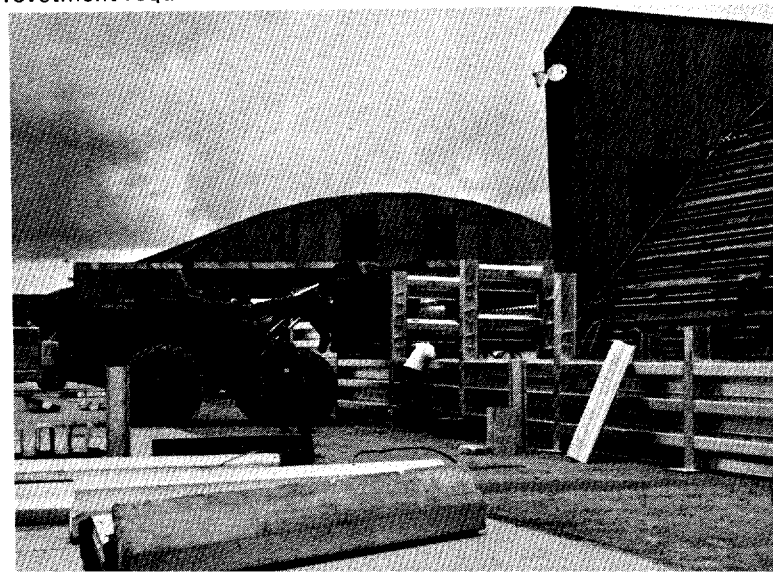


Tan Son Nhut: Aircraft were exposed before revetments came

Tan Son Nhut: Old PSP blast deflectors had to be removed to clear the area for construction of revetments.



Backfilling with a front end loader. Each 10-ft length of revetment required 35 tons of compacted earth.

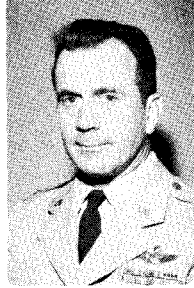


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THE CONTRIBUTORS

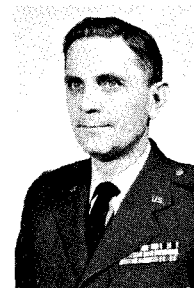
Col Kaufman, Chief, Engineering Directorate, Deputy for Civil Engineering BSD, received a BS degree from the University of California in 1941. He is a Registered Professional Engineer in California, and a fellow in ASCE. He was in charge of MMRBM and BMRS Design Division, Facilities Design Directorate, BSD. He is currently in Hq PACAF as Chief, Engineering Operating Division.



Lt Col Torr, now Base Civil Engineer at Hamilton AFB, Calif., was Director of Civil Engineering, 2nd Air Division, Saigon, South Viet Nam during the period covered by this article. He flew B-24's in the ETO during WW II and spent 13 months in a German POW camp after being shot down by flak. Col Torr's post-war assignments have been in Civil Engineering at base, major command and Hq USAF levels.



Maj Fearn, an Instructor in the Department of Advanced Engineering at the AFIT Civil Engineering Center at Wright-Patterson AFB, Ohio, received his BSCE degree from the University of Idaho in 1950. He is a Registered Professional Engineer in Idaho and has served in the Civil Engineer career area at Elmendorf AFB, Alaska; Mountain Home AFB, Idaho; and Kimpo AB, Korea. His report resulted from a TDY trip.



Capt Bratton, Programming and Planning Officer, March AFB, was Chief of the Advance Party for the first deployment of Prime BEEF to Southeast Asia. A 1959 graduate of Rensselaer Polytechnic Institute, with a Bachelor of Architecture Degree, he was with the Office of the New York State Architect before entering the Air Force. Capt Bratton has been stationed at Lowry Air Force Base and Osan Air Base, Korea.



of the Prime BEEF concept, Civil Engineer career development, manning and equipment authorizations, and an increased Air Force Civil Engineering capability. The deployment would give the Air Force the chance to demonstrate its capability in a combat zone to satisfy an urgent operational requirement that could not be effectively met by other construction resources. Expeditionary construction methods were also discussed. The equipment utilized would be from Bomb Damage Repair Kits which were prepositioned at the operational bases in Vietnam.

The project was "made to order" for Prime BEEF. It is an expeditionary construction job in its truest sense. The major conditions which made Prime BEEF the only practical means for accomplishment were:

- Construction crews were subjected to hostile small arms fire when traveling to the borrow pits which were outside the secure perimeters of the base.
- Working adjacent to loaded aircraft required special security and safety precautions in the construction areas.
- Availability of construction areas had to be scheduled daily with operations and aircraft maintenance officers.
- Construction crews had to be disciplined and especially careful to prevent foreign object damage by loose construction material.
- The avoidance of collisions between taxiing aircraft and construction equipment was imperative.
- There were no qualified contractors available.

The Advance Party, led by an Officer, and composed of NCOs from each "Prime BEEF" team, departed Travis AFB, Calif. on 28 July. They made a short stop at Hickam AFB, Hawaii, for a briefing by the PACAF Director of Civil Engineering, and his staff, on the status of project materials, and equipment, and on the theory of aircraft revetment design. At this time the Advance Party was given the task of developing a design for the final revetment configuration after having made site surveys at each of the bases.

Upon arrival at Tan Son Nhut Airfield, Saigon, Vietnam on 2 August, the Advance Party spent two weeks surveying the aprons at the three operational bases and developing and designing the final configurations. After coordinating with other responsible agencies of the operational command, 2nd Air Division, the design selected was for a revetment 105 feet wide by 90 feet long. This configuration would allow maximum flexibility in parking aircraft.

The three composite "Prime BEEF" construction teams, who had been trained and armed with M-16 automatic rifles, arrived at Tan Son Nhut, Vietnam, on 8 August 1965. The ADC team remained at Tan Son Nhut Airfield. The ATC team deployed to Bien Hoa Airfield, while the SAC team was deployed to Da Nang Airfield.

Once in place each team began organizing for the primary program of constructing revetments. Since the necessary revetment kits, shipped by sea, had not yet arrived, the team drew available heavy equipment from Bomb Damage Repair kits. This consisted of 15 five-ton dump trucks, 2 two-and-one-half-yard payloaders and 3 compactors for each team. To augment equipment earmarked for Prime BEEF use, the teams were able to negotiate for and


borrow additional equipment from cooperative base personnel at all three sites. With this equipment they went to work hauling and stockpiling backfill material, stabilizing apron shoulders, removing debris, replacing PSP surfaces with M9-M1 aluminum matting, and fabricating and installing blast deflectors. Ten to 20 Vietnamese laborers were assigned to the teams at Tan Son Nhut and Bien Hoa. The native laborers were unskilled and required step-by-step instruction. No indigenous labor could be provided the Da Nang (SAC) team because of security restrictions.

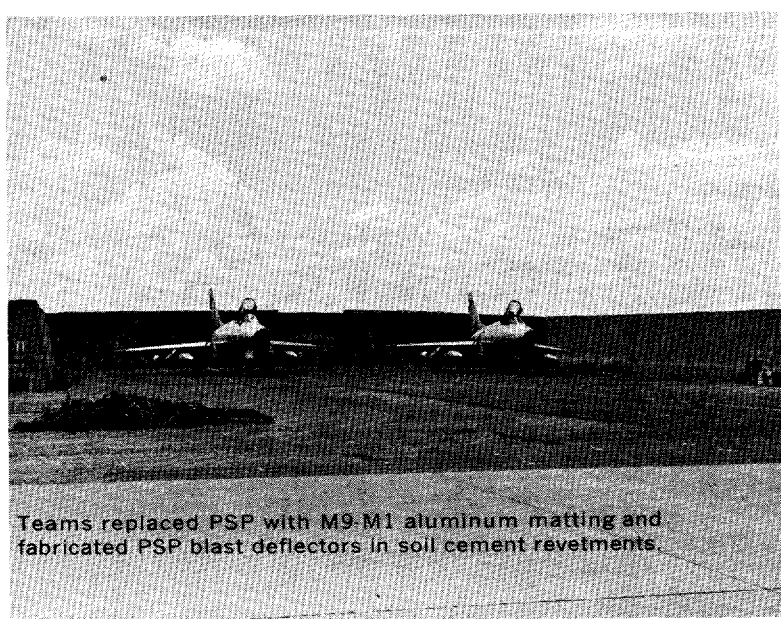
When the kits arrived, the teams assisted the transportation officers in unloading the ships and began actual revetment erection. The following summarizes their accomplishments through the end of their deployment period ending December 1965:

The ADC Team at Tan Son Nhut hauled and stockpiled 15,000 cubic yards of fill material needed for revetments. They also cut up and removed existing PSP blast deflectors and erected 22 revetments (4700LF); converted 12 existing soil cement revetments and replaced PSP with M9-M1 aluminum matting.

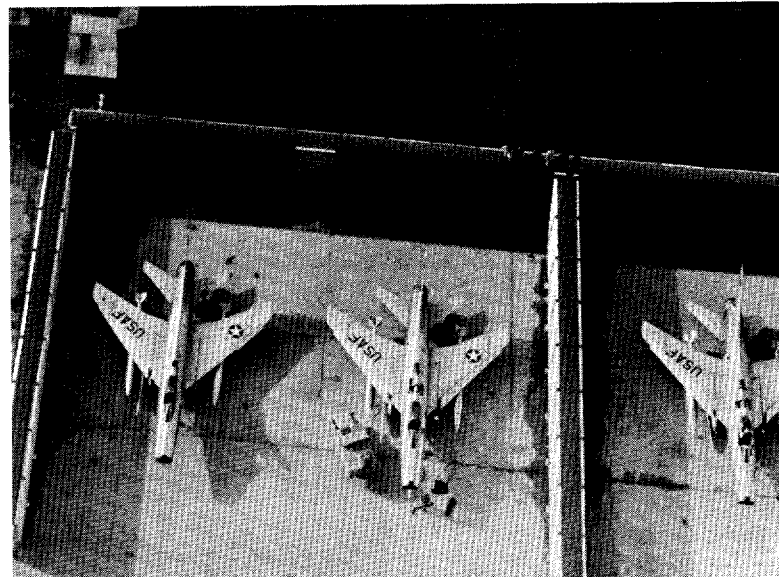
The ATC Team at Bien Hoa erected 18 revetments (3800LF); excavated and constructed forms for pouring concrete for 20-ft wide apron shoulders and revetment footings; and completed construction of a sandbag personnel shelter.

The Da Nang (SAC) Team completed 15 revetments (3190 LF); hauled 10,000 cubic yards of fill; graded, compacted, and stabilized apron shoulders with soil cement; constructed a PSP parking area for O-1 aircraft; constructed a trailer area; converted 8 soil cement revetments for jet use by laying M9-M1 matting, and installing PSP blast deflectors. They also constructed a 30' x 40' flare shack, and installed electric power in two buildings.

The above accomplishments deal with the first Prime BEEF teams deployed to SEA. The remaining 12 teams now in Vietnam or Thailand are working on critically needed facilities beyond the immediate capabilities of the local base commander. Reports on their accomplishments will also be considered for publication in future issues. 



Teams replaced PSP with M9-M1 aluminum matting and fabricated PSP blast deflectors in soil cement revetments.



Bird's eye view of new steel-bin type revetments constructed by Prime BEEF teams. Note men standing on top in rt ctr.

