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PROGRAMS AND PROJECTS

The changes in the management and organization of the engineer resources that led to the creation of the Europe Division (EUD) in 1974 did not halt work on projects begun under the Engineer Command. EUD continued to execute the Modernization of United States Facilities (MOUSF), funded by the Federal Republic of Germany; the aircraft shelter program begun as TAB VEE (Theater Air Base Vulnerability Evaluation Exercise); and work for the U.S. Navy in Sigonella, Sicily, inherited from the Mediterranean Division. During EUD's early years these holdover programs constituted a substantial part of the division's workload. Late in the decade new programs began to emerge to improve the security of stored ammunition (the Long Range Security Program, or LRSP) and to position materiel to support rapid deployment and combat readiness (Pre-positioned Organizational Materiel Configured to Unit Sets, or POMCUS).

Holdover Projects

Just as the engineering mission remained constant through the transition in 1974 from the Engineer Command (ENGCOM) to the Europe Division, so too did the execution of programs and projects. Programs and contracts initiated under ENGCOM or transferred from the Mediterranean Division continued under the Europe Division. Only later in the decade did new programs begin to dominate EUD's work.

Modernizing U.S. Facilities

The transition from the Engineer Command to the Europe Division slowed progress on the MOUSF program, which the Federal Republic of Germany had first funded in December 1971. In April 1974, in ENGCOM's last weeks of existence, the United States and West Germany signed a second MOUSF agreement. To supervise and administer the 1971 MOUSF projects, ENGCOM had depended on Military Construction, Army (MCA), funds appropriated by Congress in 1972. The Engineer

Command had no similar appropriation for the projects envisioned under the 1974 MOUSF agreement. Moreover, the projects in the first phase had advanced quickly because ENGCOM had a backlog of projects already designed under its Stem to Stern program for the rehabilitation of barracks. With the reshuffling of personnel and resources that accompanied the transition from ENGCOM to EUD, the funds that had supported both design and supervision for the MOUSF program, taken from USAREUR's Operations and Maintenance, Army (OMA), budget, either ran out or remained tied up in ENGCOM accounts. These factors threw the administration of work under MOUSF into question.[1]

In the summer of 1974 the administrative home of MOUSF remained undecided. Renovation of barracks and mess halls was closely akin to the maintenance and repair work discharged by the facilities engineers whose chain of command shifted in mid-1974 from ENGCOM to USAREUR community commanders. EUD's first commander, Brig. Gen. James C. Donovan, and his successor, Brig. Gen. Louis Prentiss, Jr., both argued forcefully that the Europe Division should supervise the MOUSF work. Only EUD had the personnel and structure to perform construction agency services, including estimates, technical review, and engineering assistance. The facilities engineers and USAREUR had little capacity in these areas.[2]

When ENGCOM began its work on MOUSF in the summer of 1972, it received authority to requisition forty engineer officers assigned to the 24th Engineer Group to serve as MOUSF project officers. By late 1974, because the work had slowed down so substantially, only twenty-six MOUSF officers remained active on the projects. To support the MOUSF projects, EUD needed about forty clerical and technical personnel in resident offices and at least twenty more in area offices and headquarters, but the division had very few people at its disposal.[3] The tight staffing situation limited the division's ability to initiate work on the projects scheduled for the second MOUSF program, and just five new MOUSF design contracts were awarded in its first months.[4]

In October 1974 EUD's situation improved when the Federal Republic agreed to pay for secondary services that the division provided on other construction projects. The division could then use these monies to pay for design for MOUSF projects. EUD's principal negotiator in this, as in all discussions of MOUSF with the Germans, was the assistant division engineer for intergovernmental affairs, William E. Camblor. The deal that Camblor negotiated was so delicate that it "cannot be put in writing because of the political aspect, i.e., the FRG [Federal Republic of Germany] will not pay any direct cost for the forces because it smells of occupation." Indeed, the agreement was so politically sensitive that Prentiss chose to eliminate the detailed description of it, including the phrase just quoted, from his report to the chief of engineers, Lt. Gen. William C. Gribble, Jr., in October 1974.[5]

The extent of USAREUR's support for MOUSF remained unclear throughout 1974. Prentiss did not learn until December that the project

officers previously assigned would continue to be available to EUD, "subject to Department of Army personnel policies."[6] In March 1975, under pressure to "free" officer spaces, USAREUR began to reduce by attrition the number of engineer officers assigned to MOUSF. Instead of providing personnel to supervise this construction, USAREUR proposed to pay EUD, and in July 1975 the command signed an agreement with EUD governing MOUSF work.[7] Progressively, as USAREUR removed engineer officers from MOUSF, the division hired civilian engineers to take their places. It was not until January 1976 that General Prentiss deemed that the MOUSF program had recovered the momentum it had lost during the transition.[8]

Whether civilian or military, the MOUSF project officer was the key to effective coordination with the German construction agencies and contractors who, through indirect contracting, renovated the U.S. facilities. The MOUSF agreements provided that the Federal Republic would perform all the program's supervision and administration functions.[9] Project officers served as the link between the construction agencies and the user in the U.S. military community. They worked with the contractors to ensure compliance with the criteria and monitored requests from the users for additional work, verifying whether the work qualified under MOUSF regulations.[10]

Experience in executing the 1971 MOUSF agreement demonstrated that German construction agencies did not always hold contractors to the required contract standards. The agencies sometimes approved major deviations from the plans and specifications as stipulated in the design, accepting what the project officers considered substandard equipment and materials. The American side of the operation was no easier for the MOUSF project officer to handle. Users initiated numerous requests for change, typically four or five small changes per week, and an average of four changes per project, which exceeded the 10 percent limitation on cost overruns. The German agencies frequently accepted user requests for changes uncritically; they had no particular interest in distinguishing between "nice to have" items and permissible inclusions. The MOUSF project officer monitored requests for changes and negotiated reasonable charges. Contractors often levied excessive charges. The German agencies had little incentive to limit overall costs; the contractors had great incentive to raise them, because their profit margins increased along with costs.[11]

The MOUSF project officer influenced the final quality of the work by inspecting the construction as it progressed. On 70 percent of the construction undertaken, German authorities exercised little or no inspection. When they did inspect, officials at times sided with the contractors in disputes over whether the quality of materials or of the construction itself met the required standards.[12] In general, EUD judged the level of technical staffing maintained by the agencies of the Federal Republic inadequate to the task of monitoring MOUSF construction and saw no indication that government inspection services would improve or expand under the second agreement.[13]

Regulations to buy American products complicated the process further. For instance, government-procured mechanical kitchen equipment had to be installed in the renovated dining facilities, but the equipment delivered often did not meet the specifications listed on the orders. EUD might order equipment that burned liquid petroleum but receive equipment engineered for natural gas. Despite specifying the standard for European electrical equipment at 220 volts and 50 cycles, the division often received standard American materials at 110 volts and 60 cycles. In several instances such equipment was shipped with 220V/50 cycle specification plates simply attached in place of the accurate description, a fact discovered "unfortunately only after energizing the equipment."

These problems with the kitchen equipment led to extensive delays for which EUD was blamed, although the division had no control over the mandate to buy American. In frustration, Brig. Gen. Norman G. Delbridge, Jr., commander of the Europe Division, appealed to the commander in chief of USAREUR in 1977 to convene "a meeting of all concerned and responsible personnel to establish a corrective action program that will assure timely delivering of operationally correct MKE [mechanical kitchen equipment]."[14]

Despite all of the administrative reshuffling and the difficulties of supervision, EUD did make progress in renovating and improving the living conditions of U.S. military personnel. During 1975 EUD supervised twenty-two projects completed under the first MOUSF program, bringing the total of completed projects to fifty. Of the Deutschmark (DM) 576.4 million allocated to USAREUR in 1971 (roughly $176.8 million), ENGCOM and EUD obligated 99 percent by the end of 1975; and the value of in-place construction financed by the 1971 agreement amounted to DM 538 million ($165 million). By the end of 1976 the division had essentially finished work under the first MOUSF agreement. Renovation had taken place at 54 casernes, accounting for about 590 barracks buildings and 136 dining facilities serving 55,000 troops.[15] In spite of inadequate management and monitoring, the results were satisfactory. An Office of the Chief of Engineers (OCE) command inspection team that visited EUD in August 1975 singled out the quality of the MOUSF work for special mention.[16]

The second MOUSF agreement of 1974 yielded less spectacular statistics because it involved smaller jobs at more remote facilities. By the end of 1975 German construction agencies had awarded contracts for renovation at only 16 casernes under this agreement; another 3 projects awaited contract and 19 remained in design.[17] By the end of 1976 contractors had completed work on only 12 of the 38 casernes programmed for renovation. The program completed improvements at 12 remote sites during the same year, and the remaining sites included in the plans were under contract. Thirty percent of the 1974 allocation remained to be dispensed. Inflation and exchange rate fluctuations had cut into the buying power of the money allocated. The scope of work had increased at individual sites, particularly for utilities such as electrical and water systems; many of the

MOUSF projects included renovating military housing, such as the enlisted men's barracks in Bremerhaven, Germany.

barracks involved higher outlays than originally programmed.[18] Such factors translated into fewer projects for the money expended.

By the end of 1978 the MOUSF program had nearly run its course. Funds from the Federal Republic had financed the renovation of nearly 800 barracks buildings housing about 90,000 U.S. troops and the reconditioning of about 200 dining facilities. The program had also renovated or enhanced facilities at 35 remote sites in West Germany, ranging from 8-person border posts to company-size air defense sites. By late 1979 only about 5 percent of the original DM 1.1 billion ($482.2 million) allocation for MOUSF remained unspent. Over the next several years that money went into new facilities. By the end of 1984 only about 1 percent of the total funding remained to cover costs associated with projects still under way.[19]

The MOUSF program won consistent praise for its tangible and visible improvements to the facilities for U.S. troops in West Germany. It took several more years before the U.S. government began to fund similar improvements in the living facilities used by the troops on a daily basis.[20]

Air Force Aircraft Shelters

Just before the establishment of the Europe Division, the U.S. Air Forces in Europe engaged the Engineer Command to build atomic-resistant shelters to protect fighter aircraft at three North Atlantic Treaty Organization (NATO) airfields in Germany and at two airfields in the

Netherlands. Like the MOUSF program, the Air Force's program suffered during the transition. The Air Force was impatient to proceed and asked for a special meeting in late June 1974, several days before EUD's official activation, with representatives of EUD and the German construction agencies that would be involved.[21]

To accommodate the Air Force's sense of urgency, Camblor set up a meeting on 21 June. He persuaded representatives from the German Ministry of Defense to meet in Mainz rather than in Bonn, where protocol dictated that such meetings take place. The meeting included representatives from the *Bautechnische Arbeitsgruppe* (Technical Working Group for Construction) and the state financial and construction offices that would be involved in the project from the German side. Two lieutenant colonels represented the Air Force, while Camblor and two staff members represented EUD.[22]

The Air Force spokesman outlined the program for three sites in Germany: Lahr, in Baden-Württemberg, just north of Freiburg; Spangdahlem, near the Luxembourg border in the west; and a third site undetermined at the time of the meeting (eventually Jever in the north between Wilhelmshaven and the Dutch border). The Air Force planned two sites in the Netherlands: Soesterberg and Gilze-Rijen. The facilities at all the sites would be the same: aircraft shelters and the paved aprons surrounding them; storage for conventional ammunition and liquid oxygen; and petroleum, oil, and lubricant (POL) storage facilities. Only the number of shelters or ammunition storage igloos would differ from site to site.

The shelters, third-generation modifications of aircraft shelters already in use, would protect the aircraft in the event of very severe external explosions and allow the pilots to start the engines in the shelter itself to speed takeoff. A design existed for a shelter seventy-one feet wide and forty-eight feet high. Concrete was to be poured to a uniform thickness around double corrugated metal liners. The shelter needed doors that could withstand the kind of attack envisioned and open even if debris were strewn around. The doors had to close quickly in the event of an attack and reopen quickly to allow the plane to taxi out and take off. At the time of the meeting in June 1974, the door-operating mechanisms and the doors themselves had not been designed. The Air Force anticipated that design drawings scheduled for delivery by 1 October would bring the project to 80 percent design completion; the final 20 percent of the design work would be left to the contractor to complete with his site adaptation. The Air Force planned to use an existing design for the ammunition storage structures.[23]

At the meeting in Mainz, Camblor negotiated a streamlined procedure with the German construction agencies and the West German Ministry of Defense to expedite handling of the initial bid solicitations. He also pointed out that although this was a NATO project, the United States was prefinancing the design. In general, the Germans responded well to the appeal for urgent treatment of the project; but they were concerned about coordi-

nation with the German military, with local German construction agencies, with the Canadians who also used Lahr Air Base, and with NATO.[24]

When General Prentiss took command of EUD three months after the June meeting in Mainz, he identified the aircraft shelter project as "our most pressing mission."[25] Because Ralph Wheeler had arrived in Frankfurt before EUD's incumbent chief of engineering, John Tambornino, retired, Prentiss assigned Wheeler to spearhead the project from October 1974 until he took over as chief of engineering on 1 December. Wheeler recognized that one overwhelmed project manager could not monitor the program. He chose to form a team of three men—Gary Sturman, John Tsingos, and Tom Nissen—to work under his direct supervision, saying, "You have nothing else to do except execute this program, and you have six months to do it!"[26] Camblor continued to be involved in all negotiations with the German and Dutch officials.[27]

Wheeler and his team arranged weekly meetings with the Air Force's point man for the project, the base civil engineer at Ramstein Air Base, Col. (later Maj. Gen.) Clifton D. "Duke" Wright. In late December 1974 EUD issued a notice to proceed on a contract that called for design of the standard aircraft shelter with closure. The contract also included the fabrication and erection in Ramstein of a prototype to test the closure. As finally constructed, two doors, each weighing about eighty tons, were installed at each shelter. About the same time the Dutch authorities, under contract with EUD, began design on the two projects for Gilze-Rijen and Soesterberg. The Dutch proved very cooperative and allowed the work on design to begin even though they did not yet have a signed agreement to station both U.S. and Dutch forces on the air bases in question. By March 1975 EUD received for review the final design for the facilities in Spangdahlem in West Germany.[28]

Pesky little problems kept cropping up for the aircraft shelter program. Much of the work on the shelters would take place in northern Germany, Belgium, and Holland, so Prentiss wanted to establish a Northern Area Office to monitor activities in the region; OCE had no extra personnel it could assign him. The program started so quickly and with such indefinite criteria that as late as September 1975 EUD had no current working estimates for individual projects. Comptroller Randolph S. Washington reported to Prentiss that he could not release funds for the work under these conditions without violating funding guidelines.[29]

To complicate matters, NATO refused to fund the storm-drainage system designed for the aircraft shelters. When NATO officials indicated that they would support only a small oil separator and a dry well, EUD sent a letter requesting that the German agency handling the project seek the necessary changes from the contractor. Congress reduced the appropriation for the program in fiscal year 1975 from $62 million to $54.5 million, an action that disrupted EUD's planning. The funding program included no provisions for increases in wages, although the Dutch contracts explicitly included as a standard feature an escalation clause for wages. Because wages represented a third of the costs in those contracts, this was a serious omis-

sion. Furthermore, the Air Force did not always respect Army Engineer procedures. Through a German project manager on one project, Air Force personnel directed a contractor to begin a project, over the EUD resident engineer's protests, for which a contract had not yet been awarded.[30]

Despite the snags, the aircraft shelter program progressed. EUD approved advertising construction contracts for Lahr and Spangdahlem in April 1975 and advertised contracts for Jever, Soesterberg, and Gilze-Rijen in May. Because bidding was lower than expected, EUD programmed five additional shelters in both Soesterberg and Spangdahlem. Prentiss committed the Engineering Division to work on project management for the additional aircraft shelters, although he recognized that Congress might cancel the program or reduce its scope.[31]

During construction, problems arose regarding the liners used in all of the initial aircraft shelters. The liners came as U.S.-government-furnished property from stocks left over from Vietnam. EUD took special steps to inform the German government that government-furnished materials were being used. EUD kept unusually strict inventory on the equipment and all its parts, and both the Engineering and Construction Divisions maintained careful records and segregate expenditures on these items.[32]

When the materials arrived in Bremerhaven, the major issue became how to get the liners to the five sites. Rail lines ran directly to Lahr and Spangdahlem in southwestern Germany and to the two Dutch sites in Gilze-Rijen and Soesterberg, but no rail line ran to the Jever base in north-

A helicopter squadron transported metal liners needed in remote Jever, Germany, to construct atomic-resistant aircraft shelters equipped with doors weighing eighty tons.

Aircraft shelters resistant to atomic attacks were constructed in 1976 and 1977 in Gilze-Rijen in the Netherlands.

ern Germany. The area engineer for the Northern Area Office, Lt. Col. Roy A. Brown, heard that a Chinook helicopter squadron was looking for flying time. He contacted the squadron, and the commander agreed to ferry his liners from Bremerhaven to Jever in slings under the Chinooks. The operation was a success: The helicopter crews got their training and Brown got the liners delivered to the site.

Brown might have been happier had the Chinooks actually lost the liners in transit, because they proved a headache to install. Each liner had to be reshaped to fit the design of the new shelters. Because reshaping left all the existing bolt holes misaligned, new holes had to be bored to bolt sections of the liner together. Years later Hasso Damm, who had long service with EUD as a cost estimator, observed that the division had "paid more for reboring the holes than the whole sheet metal would have cost new!"[33]

Eight months after the construction contract was awarded, Colonel Brown's team in the Northern Area Office took the final steps to complete the first shelters. On 14 January 1976, working from 5:00 A.M. to 12:00 P.M. in 45-degree weather with occasional showers, crews poured concrete around the liners in Gilze-Rijen. About a week later they placed concrete in Jever.[34] The first placement went in Spangdahlem on 21 April, and from that point completions proceeded rapidly. Contractors transferred completed facilities—the shelters, taxiways and aprons, ammunition storage igloos, and the POL storage and pumping facilities—to the Air

Force in Gilze-Rijen and Jever in January and February 1977, respectively. Construction in Soesterberg continued throughout 1977, although the Air Force used the base while construction progressed. By the end of the year the Northern Area Office had supervised construction of fifty-one aircraft shelters. In aggregate, the construction placed by the Northern Area Office between 1975 and 1977 totaled $40 million.[35]

All in all, the program to build aircraft shelters and the attendant ammunition storage facilities succeeded. Wheeler and Prentiss established good working relations with the Air Force. Even though funds had been erratic and personnel short, they delivered the shelters and supporting facilities in a reasonable time. Camblor maintained effective communication and cooperation with the governments involved. Planning and design for the Air Force project had started in 1974, in the midst of the changeover from the Engineer Command to the Europe Division, and all five air bases had the new facilities in place by 1977. Those who worked on the projects felt their share of frustration but also felt satisfaction because they had delivered on a short fuse, high-profile project.[36]

Naval Facilities in Sigonella, Sicily

Construction at the Naval Air Facility in Sigonella, Sicily, became one of EUD's most sensitive projects in the early months of the division's existence. In April 1971, three years before EUD's activation, the Mediterranean Division had begun work in Sigonella on a multimillion-dollar project. Construction encompassed a naval airfield, runway lighting, POL storage facilities, dormitories, warehouses, terminals, photographic-processing laboratories, a gymnasium, and roads.[37] The work did not progress satisfactorily. Two contractors failed to perform adequately, and their contracts were terminated. For fiscal year 1975 Congress authorized an increase in funds to complete the construction. In June 1975 the Mediterranean Division readvertised the work and awarded new contracts amounting to $1.1 million.[38] Less than a year later the Europe Division inherited the seven contracts for Sigonella, worth about $4.624 million in construction placement.[39]

In May 1976 the commander at the Sigonella Naval Base prepared a forty-page report detailing the deficiencies of construction at the facility and had it hand-delivered to the Naval Command in Norfolk to protest what he considered inferior and unsatisfactory work. EUD dispatched the deputy chief of construction, Jacques Bouchereau, to Sigonella to examine the work on site and to cooperate with the Navy's engineers. Fortunately, the naval officer in charge of construction in Spain, whose area of responsibility included the work in Sigonella, was more interested in resolving the problems and securing adequate construction than in an interservice fight.[40]

In early June the Engineering Division at EUD examined the foundations of fuel tanks and the photographic laboratory in Sigonella. The EUD commander, General Delbridge, requested a complete analysis of problems related to the lighting system for the taxiways at the Sigonella

airfield. He also scheduled a trip to Sicily in July with OCE's chief of military construction, Maj. Gen. Bates C. Burnell, "to demonstrate to the Navy that we want this problem resolved."[41] Delbridge was prepared to replace the entire lighting system if that was what it would take to satisfy the Navy. As a further sign of his resolve to "get it right," he called on OCE in Washington for help. OCE dispatched engineers from the Waterways Experiment Station in Vicksburg, Mississippi, who specialized in soil analysis and other matters under investigation in Sigonella.[42]

Delbridge's attention to the Navy's needs in Sigonella paid off, and the Navy awarded EUD a contract to correct deficiencies. EUD also won a contract to manage construction for the Navy of a satellite communications terminal in Naples. Between 1976 and 1978 EUD placed over $7 million in construction in Sigonella. In that time the division completed an air passenger terminal, taxiways, POL storage and fueling facilities, maintenance hangars, storage buildings, a base exchange, barracks, gymnasiums, officers' clubs, and several water treatment plants.[43]

Construction in Sigonella continued into the 1980s on new bachelor officers' quarters, a mess hall, and modernization of the bachelors' enlisted quarters. The fuel tanks that had been programmed in 1971 and had run into foundation problems were completed and put into operation on 24 May 1979. This was the last of the projects from the ill-fated construction contracts of fiscal years 1971–1974.[44] By correcting inferior work, EUD redeemed the Corps' reputation with the Navy.

New Programs

MOUSF, the aircraft shelter program, and the facilities in Sigonella dominated EUD's workload in design and construction during 1974–1977. In 1977 the division's focus began to change as prospects improved for increases in appropriated funding for military construction in Europe.

ENGCOM's annual placement rate for design had been about $100 to $150 million a year. By comparison, EUD's design placement went from $430 million in July 1975 to $1.3 billion by late 1977, a 300 percent increase in a little over two years and roughly a tenfold increase over the ENGCOM annual average. During fiscal years 1977–1978, the amount of MCA money coming to USAREUR more than tripled, from just under $60 million to over $185.6 million. In 1979, 1980, and 1981, MCA funds alone averaged more than $170 million each year. In 1982 MCA funding reached $294 million and continued at that level through fiscal year 1986.[45] This dramatic increase in funds available for military construction in Europe began in the latter half of the administration of President Jimmy Carter and continued under President Ronald Reagan. The new funds made possible two complementary developments in military construction in Europe: the intensification of work on projects already under way and the introduction of several new weapons systems.

The tempo of work at EUD picked up as more money became available. Projects related to the military infrastructure of the U.S. and NATO

forces in Europe (for example, ammunition storage and the improvement of warehousing facilities for pre-positioned equipment) received $160 million between 1976 and 1980. This translated into a dramatic increase in construction.[46]

Ammunition Storage Facilities

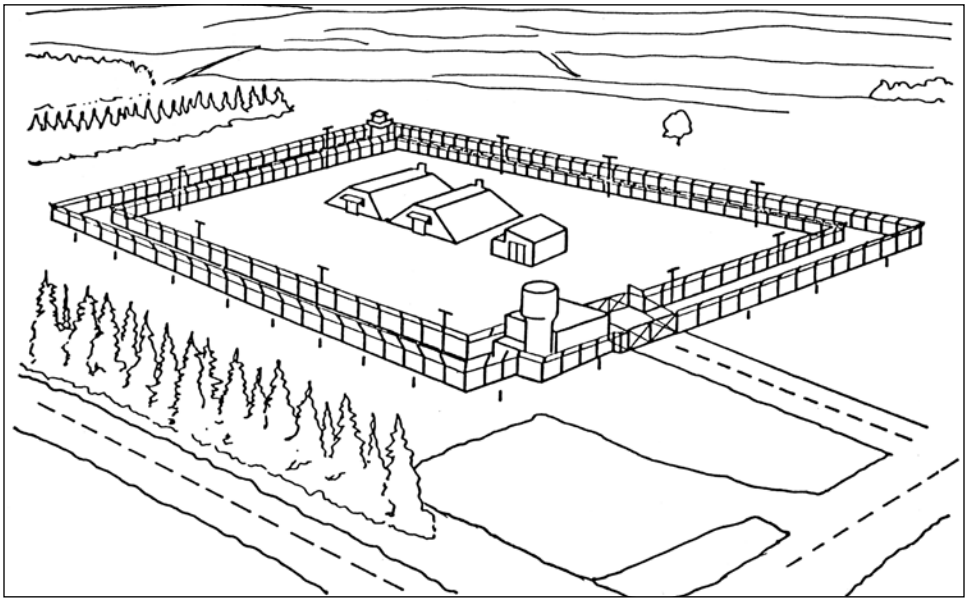
In the late 1970s EUD initiated new projects directly related to the infrastructure that supported the combat mission of U.S. troops—ammunition storage and the Long Range Security Program. Work on ammunition storage was hardly new. During the 1950s in France and the 1960s in Germany, Army engineers had managed construction programs to improve storage facilities for ammunition.[47] In the 1970s, however, terrorist organizations, such as the Baader-Meinhof Gang, began to direct hostility in particular against the United States and its military presence in Europe. The imperative to increase security for U.S. nuclear weapons and missiles intensified with this growth of terrorism in Germany and in Europe.[48]

At the beginning of the decade, the 59th Ordnance Brigade, commanded by Maj. Daniel Waldo, Jr. (later a deputy commander and then commander of EUD), conducted a survey of ammunition storage sites that the Engineer Command used to formulate plans for improving facilities. ENGCOM's planning and design, designated as the Special Ammunition Storage (SAS) program, initially dealt with fifty-one sites and projected a number of measures to delay terrorists long enough to permit additional security forces to respond. The construction program, scheduled to begin in 1974, called for special fencing, a clear zone both beyond and inside the security fence, guard towers, special lighting, and an intrusion-detection alarm that would alert the security force on site to any attempted penetration of the secure area. Within the area, the security measures called for special bunkers or reinforcement of existing bunkers to store the munitions. The basic design for the bunker used the Stradley igloo that had been used in relocating munitions from France in 1966–1967. The bunker was a fully reinforced concrete structure, normally built above ground and covered with two feet of dirt and grass. The earthen cover was designed for camouflage, to limit the damage from any accidental internal explosion, and to lessen the impact of any external explosion.

ENGCOM initiated limited construction early, using OMA funds available in 1973, to correct security deficiencies at existing ammunition storage sites. Work on design for the larger part of the program funded by the MCA budget ran through late 1973 and early 1974, with the award of construction contracts scheduled for May 1974. Attention to the program intensified when, during 1973, the Department of Defense's Explosives Safety Board called upon the Corps of Engineers to furnish drawings and specifications to improve magazines for the storage of explosives.[49] (*Figure 4*)

The schedule that ENGCOM had projected in 1973 could not be maintained through the early months of the transition to the Europe Division. Only in October 1974 did EUD receive the directive from OCE

Figure 4: Drawing of a Proposed Ammunition Storage Site, 1981



in Washington authorizing final design for special ammunition storage. The authorization expanded the list by about a dozen from the earlier total of sites included in the ENGCOM special program. OCE designers also added a new building to the project that incorporated entry-control facilities, a site security control and alarm center, and quarters for a combined response force of thirty-five soldiers. EUD adjusted its design and site adaptations for the new building. Design specifications also mandated a new intrusion-detection alarm system for the storage igloos and the perimeter fencing, improvements in perimeter lighting and fencing, standby power and communications systems, and improvements in utilities.[50] Some rudimentary construction began in late 1974 when the 24th Engineer Group (later the 18th Engineer Brigade) received an assignment to improve the security of an ammunition dump near Kaiserslautern. The group repaired fences and secured bunkers, but without the benefit of newly designed systems.[51]

EUD's revised schedule for the new ammunition-storage program targeted spring 1975 for the award of initial design contracts, with construction anticipated in fiscal year 1976. In a public debate in the spring of 1975, Senator John Pastore raised the need for enhanced security for U.S. weapons. He revealed a hitherto secret two-year-old report that detailed deficiencies in the system to secure atomic weapons in Europe. The report indicated that during 1972 more than 200 security-force soldiers had been relieved of duty for a variety of infractions, eighty-three of them for drug abuse. Discussions of the report in the press evoked general concern about

the security of U.S. weapons and ammunition, as well as about the combat readiness of equipment stored in depots throughout Europe. The U.S. Army faced further embarrassment when in June 1976 a weapons depot in Wildflecken was robbed of fifteen light antitank weapons that had a range of over 300 yards. The thieves got in and out without a trace, and experts concluded that they had detailed knowledge of both the location and the security procedures of the storage site.[52]

Even before Pastore's revelations, USAREUR had urged that the United States promote secure storage by prefinancing increased security measures for NATO ammunition-storage sites where the United States was the sole user. The increasing public scrutiny turned the work at ammunition-storage sites into high-priority projects.[53]

During 1976 OCE contributed the support of its engineering staff to EUD's work. The OCE engineers prepared plans and specifications to upgrade ammunition-storage facilities and evaluated proposals for procuring and installing intrusion-detection alarm systems at forty-six storage sites in West Germany. The United States had about 7,000 nuclear weapons in West Germany distributed among 100 sites.[54]

As often occurred with high-pressure projects, the program to enhance secure storage of ammunition began with no more than draft criteria. As criteria evolved, they were not always consistent, and correcting the inconsistencies caused delays. As previously noted, OCE's concept design had introduced a new building at each site to house the entry control facilities and to provide living space for the alert force. This clashed with the Secretary of Defense's directive that EUD use to the extent possible existing structures at or adjacent to the sites. Another problem arose because the design specified a minimum of thirty feet of separation between the perimeter fence and any interior structure to accommodate a specific intrusion-detection alarm system. Because the fences at all the existing sites had only about twenty feet of clearance, the requirement would have forced construction crews to move every fence.[55]

Changing criteria also disrupted design work at OCE. When General Prentiss asked the chief of engineers, General Gribble, about the definitive designs for ammunition storage facilities in early 1975, Gribble replied that the designs were being held up because OCE had "not yet been provided with an anticipated change to the criteria manual."[56] All this translated into repeated deferral of the deadline for awarding contracts. Nonetheless, by late May 1975 EUD had awarded design contracts for all sixty-four sites. With the money available, Prentiss estimated that EUD could count on construction at twenty-eight sites during fiscal year 1976.[57]

In July 1975 Prentiss asked his staff to differentiate between security programs for storing conventional and nuclear ammunition. By the autumn of 1975 the Engineering Division began to use the designation Long Range Security Program in place of the earlier project title, Special Ammunition Storage. The records do not make clear whether this new label applied to enhanced security for conventional or for nuclear weap-

ons in storage, the ammunition storage shelters (igloos) or the security devices surrounding them, or any or all of the above.[58]

In fiscal year 1976 EUD's Engineering Division completed its design for projects with a construction value of $34 million on seventeen sites labeled LRSP. In the following fiscal year the division completed design for another twenty-six sites at an estimated construction value of $38.6 million and awarded construction contracts on eleven of these. In fiscal year 1978 EUD finished design on six more sites, but only one went to construction contract. Adding to this work, EUD awarded a contract late in the year worth $13.9 million for intrusion-detection alarms.

The vocabulary used at EUD in describing the projects remained internally inconsistent, with the Construction Division and the Engineering Division using different terms. The Construction Division described three different activities. First, storage facilities worth $34 million were completed under the "ammunition program" (in Italy at Camp Darby and in West Germany in Bernbach, Bad Hersfeld, Fulda, Hohenfels, Bindlach, Schwabach, Schweinfurt, Wildflecken, Bad Kissingen, Miesau, and Weilerbach). Second, construction was under way for what the Construction Division labeled the Long Range Security Project at twenty-eight sites. Third, the project for conventional "Ammunition Storage Facilities" in Koeppern had a listing separate from that for the work on LRSP.[59] The labels make it difficult to assess which construction activities belonged to which programs.

It is nonetheless clear that by late 1978 construction had begun under EUD supervision on new ammunition storage igloos and on improvements in security for ammunition storage facilities in five different European countries, with work concentrated in the Federal Republic of Germany. During that year EUD reached the final stages of design for seventy other NATO sites, so that it had work continuing on more than 100 ammunition storage projects.[60] The LRSP, prefinanced with MCA funds, was supplemented beginning in 1979 by NATO funding, as shown in *Table 11*. The original program for 132 sites had been consolidated to 103 sites, of which one was not eligible for NATO financing.[61]

Managing the construction for ammunition storage projects involved unusual annoyances. Security at the sites was tight, and everyone had to have an armed escort inside the secure area, including all personnel employed by the contractor and even EUD representatives from the area or resident offices. Concerns for security imposed limits on how many people could be admitted to the area at a time, thus affecting the size of work crews. Security also dictated that pertinent information, such as the location of the utility lines, could not be given to the host-nation contractors directly. This led to delays in construction and occasionally to damage to existing utilities. Projects prefinanced by the United States for NATO had to conform to NATO criteria to be eligible for full recoupment of costs, but many of the change orders issued on these projects either overlooked or ignored NATO criteria. Additional complications arose because no one at EUD

Table 11

Long Range Security Program, 1976–1982

Year	Military Construction, Army ($ thousand)	Other[a] ($ thousand)	NATO ($ thousand)	Total	Number of Sites
Fiscal year 1976	$340	--	--	$340	17
Fiscal year 1977	419	7,500	--	7,919	26
Fiscal year 1978	68	3,200	--	3,268	5
Slice 28[b]	--	--	1,800	1,800	1
Slice 29	--	--	57,400	57,400	27
Slice 30	--	--	5,700	5,700	3
Slice 31	--	--	40,500	40,500	24
TOTAL	$827	$10,700	$105,400	$116,927	103

Source: Briefing Book, Europe Trip, Maj. Gen. Ames S. Albro, Jr.

[a]Congress specified funds to purchase intrusion detection system (IDS) components.

[b]North Atlantic Treaty Organization allocations (Slice 28 and following) overlap with U.S. fiscal years 1977 and following.

had the responsibility to keep the project managers current on NATO requirements. EUD provided no clearinghouse for sharing experiences with change orders or other lessons learned so that any project manager could draw on the information.[62]

Jose Cruz, who had become EUD's chief of construction in late 1977, recalled the difficulties associated with the ill-defined and shifting criteria typical of the LRSP projects. When criteria were issued in 1977, EUD came up with "what we thought were pretty elaborate plans"; but these measures never quite satisfied the Army's planners. "They'd come back and say, 'Well, that's not going to do. This control tower has to have bullet-proof windows,' and then they'd say, 'Well, those are bullet-proof but they scratch—you can't have anything that scratches.' … They kept changing the criteria."[63]

General Wilson had similar memories of the work on LRSP: "We could never get that right.… There were too many cooks … [too many] experts from USAREUR" who urged EUD to "upgrade the sensor system, change from the design we'd already approved, and go on to the next generation." Fence sensors were so delicate that the wind could set them off; and despite EUD's rodent fences, small animals occasionally set off the motion

sensors inside the ammunition storage igloos. Wilson termed the program "frustrating"; Cruz called it "a nightmare."[64]

It was frustrating for other personnel associated with the projects, too. The Dutch complained that EUD assigned different project managers to every little project.[65] Within the division the volume of LRSP paperwork and the frequent claim that it was a high-priority endeavor generated a complaint from the Office of Administrative Services. The paperwork for LRSP began to interfere with the timely completion of other work. The director of the office asked that those requesting office support for LRSP use the "urgent" designation with greater discretion.[66]

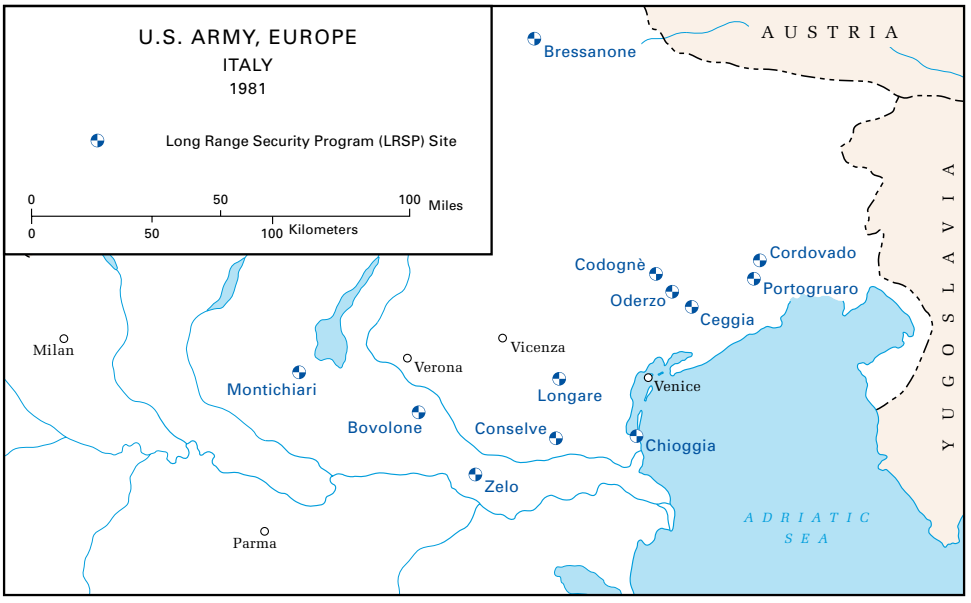
Because of the scope and complexity of the LRSP, USAREUR established a task force in June 1979 to coordinate the program's development and progress. The deputy commander in chief, Lt. Gen. Pat W. Crizer, took charge. Under Crizer's personal supervision, the deputy chief of staff for operations established a "master milestone chart" to track progress on LRSP projects. Also in 1979, NATO finally approved criteria for the program. In September 1980 Brig. Gen. George Kenyon "Ken" Withers, Jr., successor to General Wilson as commander of the Europe Division, recognized that responsibilities were becoming more clearly delegated and that systems existed to correct deficiencies. Withers attributed the improvements in management of the LRSP to "the fact that someone finally took charge of this program."[67]

Storing ammunition involved more than providing sufficient storage space. It also meant putting the ammunition in the right place to support the troops in the initial phase of an all-out attack. In the late 1970s USAREUR began a program called Ammunition Upload to furnish its tanks, armored personnel carriers, and artillery pieces with the initial basic load needed to operate in an emergency. To accomplish this, USAREUR requested construction of additional paved parking areas and storage surfaces and more fencing for forward ammunition storage sites. This added another dimension to EUD's work on ammunition storage and security. The United States financed projects to upgrade storage and to secure parking for the basic load and construction connected with the forward storage of ammunition, whereas NATO financed similar construction for reinforcement forces.[68]

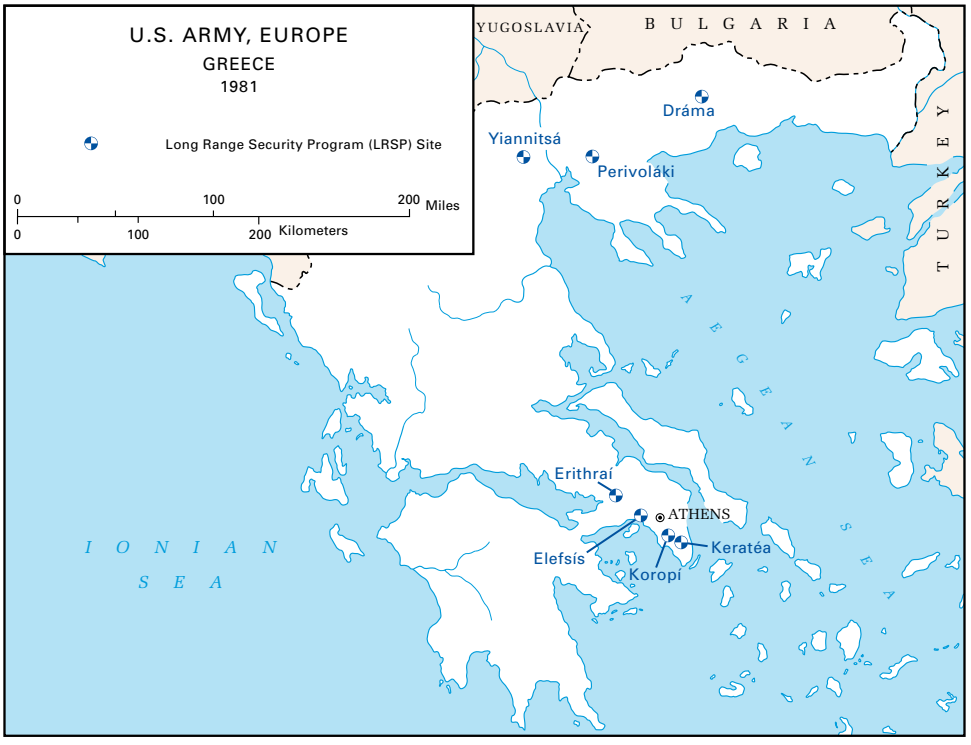
In March 1981 Withers reported on the progress of LRSP to the chief of engineers, Lt. Gen. Joseph K. Bratton, who was visiting EUD. The United States had prefinanced forty-eight LRSP sites and had drawn up designs for thirty-eight others to be funded by NATO. Host nations had designed another twenty-one sites, also for NATO funding. Thus, EUD supervised work in progress at a total of 107 sites ranging across West Germany, Italy, Greece, Turkey, and the Netherlands. (*See Maps 22–26.*) Eight different NATO nations (the Federal Republic of Germany, the United States, Italy, Belgium, Greece, Turkey, the Netherlands, and Britain) operated these 107 sites as user nations. Construction had progressed in two phases. First, the civil works package consisted of the site security control center or the entry-control building with living quarters, one or more guard and observation

U.S. ARMY, EUROPE
WEST GERMANY
1981
Long Range Security Program (LRSP) Site
0 50 100 150 Miles
0 50 100 150 Kilometers
DENMARK
NORTH SEA
Meyn
Kellinghusen
Höhenkirchen
Dornum
Wiesmoor
Rodenkirchen
Schönemoor
Westerscheps
Syke
Varrelbusch
Barme
Lahn
Duesen
Barnstorf
Vechta
Liebenau
Vörden
Wagenfeld-Hasslingen
NETHERLANDS
Schöppingen
Borgholzhausen
Hamminkeln
Dülmen
Münster-Nord
Westkirchen
Buchhagen
Datteln
Werl
Sennelager
Sonsbeck
Unna
Büren
Kapellen
Soest
Hinsbeck
Hemer
Arsbeck
Marienheide
Pütz
Geilenkirchen
Wahnerheide
Nutscheid
Treysa
Herborn
Düren
Lipper Höhe
Giessen
Billiger Wald
Alten Buseck
Montabaur
Obersayn
Steinbach
BELGIUM
Dichtelbach
Kemel
Hanau am Main
Finthen
Hontheim
Aschaffenburg
Wüschheim
LUXEMBOURG
Wackernheim
Münster-Dieburg
Lehmgrube
Dexheim
Kriegsfeld
Kitzingen
Baumholder
Miesau
Quirnheim
Hardheim
Philippsburg
Clausen
Dallau
Feucht
Oberauerbach
Siegelsbach
Landau
Heilbronn
Hemau
Salzwoog
Fischbach
Gross-Sachsenheim
Wurmberg
Danube R
Gross-Engstingen
Günzburg
FRANCE
Rhine R
Inneringen
Lechfeld
Landsberg
Pfullendorf
Leeder
SWITZERLAND
LIECHTENSTEIN
AUSTRIA
POLAND
BERLIN
Elbe R
EAST GERMANY
CZECHOSLOVAKIA

Map 22


U.S. ARMY, EUROPE
ITALY
1981
Long Range Security Program (LRSP) Site
0 50 100 Miles
0 50 100 Kilometers
AUSTRIA
YUGOSLAVIA
Bressanone
Cordovado
Portogruaro
Codognè
Oderzo
Ceggia
Milan
Vicenza
Verona
Venice
Montichiari
Longare
Bovolone
Conselve
Chioggia
Zelo
Parma
ADRIATIC SEA

Map 23


U.S. ARMY, EUROPE
GREECE
1981
Long Range Security Program (LRSP) Site
0 100 200 Miles
0 100 200 Kilometers
YUGOSLAVIA
BULGARIA
TURKEY
Dráma
Yiannitsá
Perivoláki
AEGEAN SEA
Erithraí
ATHENS
Keratéa
Elefsís
Koropí
IONIAN SEA

Map 24

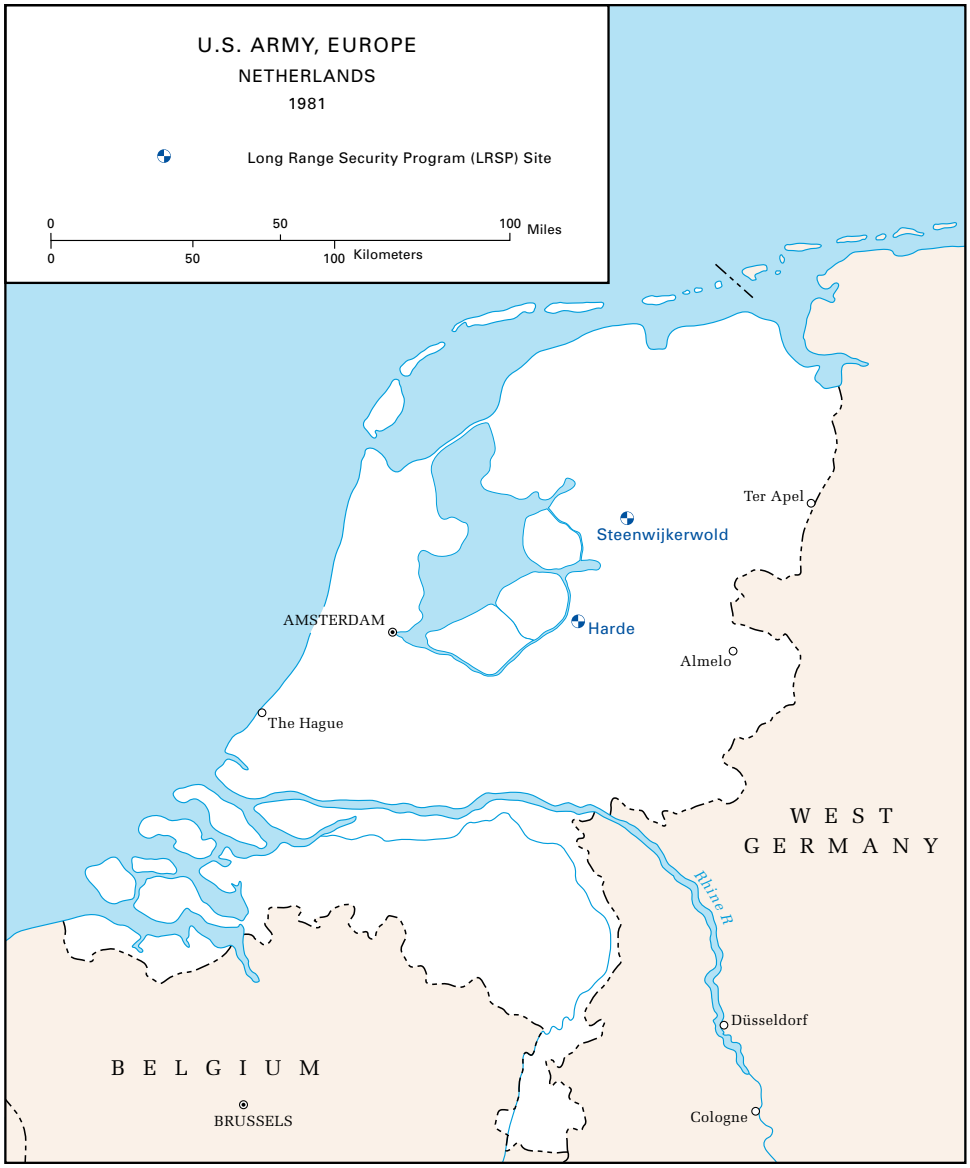
Map 25

towers, fences, and other general work. Second, the security and communications package included the intrusion-detection alarm system, lighting for the grounds, and communications facilities.

At the time of Bratton's visit to EUD, the schedule called for the original civil works part of the construction on all forty-eight of the U.S. prefinanced sites to be completed by July 1981. The supplementary towers, recently approved by NATO, were to be erected at twenty-one of the sites by June, and lighting and communications facilities were to be installed at all sites by August 1982. The intrusion-detection alarm system remained under testing in March 1981.[69]

Late in 1981 ammunition storage and weapons security again

Facilities at ammunition storage sites included guard and observation towers, such as the tower in Heilbronn, Germany.



Map 26

became the focus of intense attention. Two spectacular terrorist attacks on U.S. military personnel occurred in the autumn: one in Ramstein, which resulted in several deaths, and a second against USAREUR's commander in chief, General Frederick J. Kroesen, in Heidelberg. These attacks heightened concern about security, particularly at the ammunition-storage facilities. The incidents put increased pressure on EUD to install the intrusion-detection alarm systems at weapons storage sites.

To protect ammunition at LRSP sites, the Europe Division fitted bunkers with heavy doors, like these in Miesau, Germany.

In June 1980 the Weapons Access Denial System (WADS) had emerged as an addition to LRSP.[70] After the terrorist attacks, work on WADS intensified; construction began during the summer of 1982. The program provided special security devices at thirty sites in West Germany and one in the Netherlands. The components for WADS included exterior cages around doors, deadbolt locks for the ammunition igloo doors, concertina wire blankets over weapons as interior barriers, a smoke-generating system, sound-deterrent systems, and weapons security cages and tiedowns. The United States prefinanced much of the early work, as it had done for LRSP.[71]

To implement the WADS components as quickly as possible, EUD formed teams of engineers to work directly with designers of the alarm system in American test laboratories. One of the participants, Jim Wise, described the teams as having a range of expertise that allowed EUD to "pull [an idea] off the drawing board and come to Europe and build it," making design changes as construction progressed. Project managers from the Engineering Division and construction managers from the Construction Division worked together on a particular project as a whole—design and construction working in tandem rather than sequentially.[72] Reflecting on the urgency of the program, the EUD chief of construction, John Blake, noted that "construction agents are not supposed to do research and development, [but] it was unavoidable with LRSP."[73]

The ammunition-storage program remained a nettlesome management problem well into the 1980s. When Brig. Gen. (later Maj. Gen.) James

W. van Loben Sels commanded EUD in 1984–1985, he also wrestled with LRSP:

> Either [designs] were done very poorly or we kept changing our mind. I think both. You know, towers with blind spots. Lighting with dark spots and areas not covered.… And just about the time you got it done, then they'd have another vulnerability analysis and decide that they would get another set of barriers.… It seemed like a never-ending program.[74]

Blake called LRSP "maybe the most troublesome [program] that I ever dealt with in my whole career."[75] The LRSP went on despite the headaches that it caused. In June 1990 EUD finally completed a construction package in Kaiserslautern that it had begun in November 1986.[76]

Pre-positioned Materiel

Caring for ammunition was but one of the storage problems that the U.S. forces in Europe faced. Since the early 1960s American and NATO military strategy had depended on materiel stored in warehouses across Western and Central Europe. American military units stationed in the United States, but designated for service with NATO, trained on the same equipment at home. During the Reforger (REturn of FORces to GERmany) exercises begun in 1969 or in the event of an emergency, these units would be airlifted to West Germany and locate the necessary equipment pre-positioned for them. The official label for the stored equipment was Pre-positioned Organizational Materiel Configured to Unit Sets. One of the major construction programs of the 1970s involved the improvement of the POMCUS storage facilities.

Pre-positioned materiel had been drawn down sharply during and immediately after the Arab-Israeli War of 1973. During that conflict the Office of the Secretary of Defense, overruling protests by the Army, ordered the most modern and battle-ready equipment withdrawn from warehouses in Europe and sent to resupply the Israeli Army. To comply, the U.S. Army shipped 400 tanks, 900 armored vehicles, and 100 howitzers to Israel from stocks in Germany. By the mid-1970s little of this equipment had been replaced.[77]

In May 1975 a General Accounting Office (GAO) report sharply criticized the condition of equipment maintained and stored in Europe. Eight arsenals in West Germany contained materiel that according to regulations was to be ready for use in six hours. The GAO concluded that the six-hour deadline was a fantasy under existing conditions. The report also acknowledged the enormity of the problem that the Army faced in caring for vast quantities of materiel. While recognizing the difficulties involved, the GAO judged that the situation had reached crisis proportions. Indicative of the problem, GAO reported that over 36 percent of the vehicles and trailers examined had missing, faulty, or improperly installed parts.[78]

The Army knew that its storage facilities needed attention, but it had no money even to pay for removal of the World War II ammunition and equipment that still clogged its warehouses. In 1976 Congress funded the POMCUS program, permitting the removal of the obsolete materials. The program also made $200 million available to expand USAREUR's controlled-humidity storage space for pre-positioned equipment. The appropriation covered improvement of existing warehouses and construction of new ones with as much as 40,000 square feet of storage space each. Humidity control, achieved by lining Quonset-type buildings with a vinyl skin, reduced rusting significantly and slowed other deterioration, such as the cracking of rubber seals, that could reduce the readiness of equipment.[79]

Congress approved an additional $33.5 million in fiscal year 1978 MCA money for eight POMCUS projects in West Germany. At the same time, the source of support for POMCUS began to shift, with less money coming from MCA and more from the NATO Common Infrastructure Program. In subsequent years the United States convinced its NATO partners that new funding categories for NATO infrastructure projects, including strategic stockpiling of equipment and ammunition, were necessary to increase the early readiness of the forces in Central Europe. By the late 1970s USAREUR obtained "significantly more construction funding from NATO than from Congress."[80] In May 1979 the NATO ministers approved funding for POMCUS; in the following year's budget POMCUS received the equivalent of $108.6 million, and more than double that figure was programmed for 1982.[81] By 1981 the Europe Division completed storage for sets of equipment for three divisions and had warehouses nearing completion for a set of equipment for a fourth division. Design had begun for a fifth set in Belgium, and plans called for a sixth set in the Netherlands.[82]

Stored equipment must be cleaned and maintained, and the program to enhance storage facilities included improvements in maintenance areas and storage space. Program managers found it necessary to upgrade utilities to take into account the new equipment and new conservation and environmental concerns. Connections with existing water-distribution and sewer-collection facilities were therefore incorporated into the new facilities for washing vehicles. Heating plants and distribution lines were augmented. Fueling stations were installed.[83]

Because vehicles and field equipment had to be thoroughly washed after use, the new construction provided facilities such as tank washracks, paved areas (hardstands) for parking vehicles out of the mud, and appropriate maintenance buildings for draining equipment of gasoline and oil.[84] In the new tank and vehicle washing facilities, nozzles sprayed water under pressure onto tanks and other vehicles to blast the mud off of the tracks, wheels, and undercarriages. Water from retaining basins could be drained off and used again, and the mud could be scooped out and trucked away. Oil separators recovered petroleum waste for proper disposal. In the late 1980s EUD began to "sandblast" using pulverized

Vehicle shelters, like this one in Mönchengladbach, Germany, were an integral part of the POMCUS and POMSS construction programs.

walnut shells as the abrasive element. The shells degraded biologically, eliminating cleanup and disposal.[85]

New maintenance equipment and facilities included battery storage shops, sandblasting rooms, spray-paint apparatuses, and work areas designed to accommodate other equipment such as radio sets, hand weapons, and helmets.[86] With the introduction of these sophisticated facilities beginning in the late 1970s, effective maintenance and proper storage of equipment became possible. Batteries could be removed from vehicles for separate storage, checked, and charged in special shops adjacent to the controlled-humidity warehouses in which the vehicles remained stored. Equipment that needed repair after a REFORGER exercise could be removed, fixed, painted, and stored. As the maintenance facilities expanded, it became possible to handle in phases the vast array of items in use during an exercise. Items went first to outdoor storage, where maintenance crews inspected each piece, taking those that needed attention through the shops and then placing them in controlled-humidity storage until the next exercise. The sites also included lubricating stations and fuel-storage areas, utilities, and roads.[87]

By the early 1980s NATO was the predominant source of funding for construction of storage facilities, and the program came to be referred to by a new name, Pre-positioned Organizational Materiel Storage Sites (POMSS). Although many of the early sites had been built in the area around Heidelberg, much of the construction during the 1980s took place in northern Germany, Belgium, and the Netherlands.[88] (*See Map 27.*)

U.S. ARMY ENGINEER DIVISION, EUROPE
POMSS LOCATIONS
1981
Pre-positioned Organizational
Materiel Storage Site (POMSS)
0
50
100 Miles
0
50
100 Kilometers
Ter Apel
Coevorden
Almelo
AMSTERDAM
The Hague
NETHERLANDS
Bremen
Hannover
WEST GERMANY
Twisteden
Herongen
Grobbendonk
Mönchen-Gladbach
Kassel
Zutendaal
Brunssum
BRUSSELS
Cologne
Meuse R
Liège
Rhine R
BELGIUM
Frankfurt
Main R
Mosel R
LUXEMBOURG
Kaiserslautern
Mannheim
Miesau
Heidelberg
FRANCE
Pirmasens
Germersheim
Metz
Heilbronn
Karlsruhe
Rhine R
Stuttgart

Map 27

In 1981 Al Opstal of EUD's Northern Area Office became involved with POMSS projects as plans took shape for construction at sites in Belgium and the Netherlands. A naturalized American citizen and Air Force veteran, Opstal had been born in the Netherlands. His fluency in the Dutch language gave him an advantage in the Flemish-speaking areas of Belgium, as well as in working with Dutch construction crews and government officials. Opstal monitored POMSS construction at more than a half-dozen sites, including Brunssum.

The POMSS site in Brunssum in the Netherlands, nicknamed Hendrik Caserne by the 350 American and Dutch personnel who served there, presented a range of problems typical of such projects. The building site was on a heap of coal slag that had to be leveled into a plateau before work could begin, and work had to respect a concrete batch plant that could not be moved. Construction began in April 1982 and was completed in December 1984 at a cost of $18.5 million. The twenty warehouses covered 116 acres and were maintained by a score of Americans and over 300 Dutch. In 1989 NATO anticipated expanding the site in Brunssum by adding five additional storage warehouses.[89]

Opstal also monitored work at other sites in the Netherlands, including Ter Apel, Almelo, and Coevorden, all completed in 1984 and 1985 at a total cost of just over $50 million. Similar POMSS construction took place in Zutendaal and Grobbendonk, Belgium. Several of the sites also incorporated "unit basic load" storage projects. Unit basic load sites consisted of earth-covered bunkers arranged to provide the various types of ammunition to supply a specific unit whose equipment was stored in the controlled-humidity warehouses on the same site.[90]

The POMCUS construction that continued throughout the 1980s improved equipment readiness dramatically. During the GAO survey of equipment in Germany in 1987, only 18 of the 8,654 wheeled and tracked vehicles brought out of the Brunssum storage site in the Netherlands for REFORGER 87—about 0.2 percent of the total—were inoperable.[91]

Throughout the 1970s EUD had steadily pursued its mission to build for the U.S. soldier. The MOUSF program addressed the living conditions for the troops in the barracks, but MOUSF funds were largely spent by 1980. In Sigonella, Sicily, work for the Navy and the Air Force under the aircraft shelter program declined. Only LRSP and POMCUS projects carried into the new decade. As the 1970s ended, the focus of EUD's work began to shift to projects involving new weapons and the facilities to support them, projects intended to enhance the U.S. military's ability to meet the combat mission of the 1980s.