



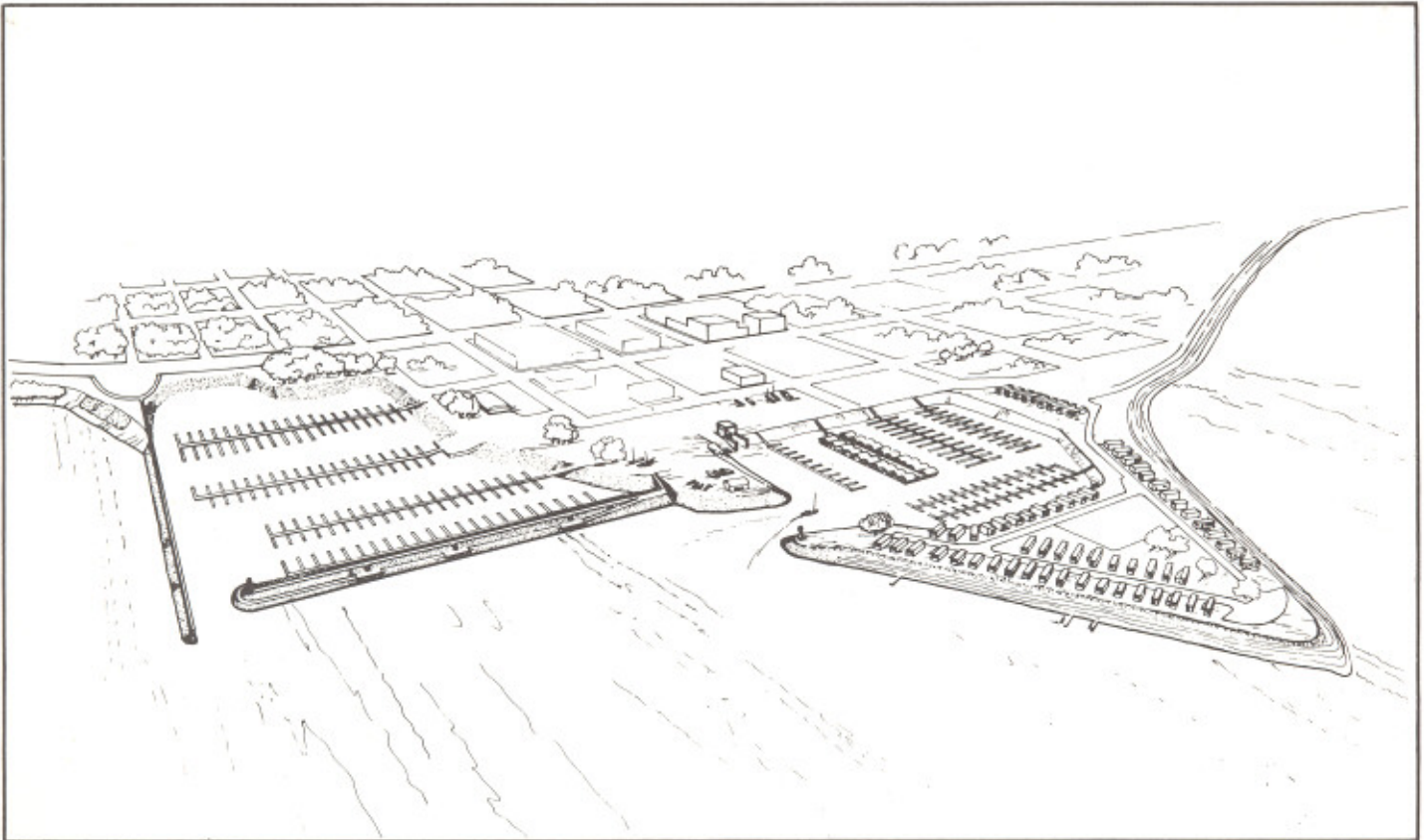
US Army Corps
of Engineers
St. Paul District

Crosscurrents

Vol. 7

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An artist's perception of the proposed small-boat harbor at Lake City, Minnesota.

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Commander's View

by Col. Ed Rapp,
District Engineer

A major thrust of this District is to maintain the Mississippi River navigation system in a high state of repair. Every District employee needs to keep current on this most important mission.

Historically, the upper Mississippi River has played a key role in the development of both this region and the Nation. Today, the river serves as a water highway providing an economical means of shipping raw materials and finished goods to where they are needed. Wheat and other grains grown by local farmers go downstream to world-wide markets. Refined petroleum and chemical products come upstream to agri-businesses and private users.

A key factor affecting the river is the age of our locks and dams. Most were built in the mid-1930's and are nearing 50 years old, their original design life-span. It is apparent now that we can extend their useful life for another 50 years or more by rehabilitating each structure. The successful rehab of Lock and Dam No. 1 was the first step and a shining example of this process.

Reconnaissance reports on rehabilitating Locks and Dams No. 2 and 10 have been completed. According to these reports, the projected work includes modernizing the electrical and mechanical systems, flood proofing the electrical facilities, repairing scouring damage where water turbulence has eroded the river bottom under the dams, and upgrading dikes and banks to better handle high water. Engineer-

ing is now studying alternative ways of correcting these problems. We expect to go to construction in FY 1985 with some aspects of the needed work on these two structures.

Maintaining the nine-foot navigation channel is of equal importance. Without a usable and reliable channel, the locks and dams would be of little use. Dredging, repair of spot dikes, wing dams and other appurtenances are continuing activities along the river, to keep the channel open and safe. This work is ongoing and will continue.

Completion of the Nine-Foot Channel Project not only improved navigation, it created wetlands ideal for wildlife. Today, the Upper Mississippi River supports one of the most diverse ecological communities, in terms of habitat, species abundance and variety, on the North American continent. It is the richest wetland area in the Upper Midwest, but it is threatened.

We are losing some of the key fish and wildlife habitat to the natural process of sedimentation. Backwaters and side channels are being slowly, but steadily, filled in by sand and topsoil washed from the basin's uplands. Loss of these essential wetlands will affect the quantity and variety of fish and wildlife species found along the river in years to come. Bills before Congress would allow us to implement corrective measures beyond the limits of the navigation channel.

Recreation is the third important use of the Upper Mississippi River. Camping, hunting, fishing, boating, and other outdoor opportunities abound. While making these lands and waters available for use, we must do what we can to provide safety to all users. These safety measures invariably will be unpopular with some segments of the recreating public but are necessary and must be reasonably enforced. We will continue our efforts to provide a variety of outdoor recreation opportunities and make them more accessible and safe to greater numbers of users.

Finally, there are opportunities at our existing locks and dams to add on hydropower. There are a number of proposals to make use of the run of the river to generate clean energy with no impact on navigation, fish and wildlife, or recreation. We intend to take advantage of these proposals, provided that the benefits versus costs remain in the public interest.

The Upper Mississippi River and the Nine-Foot Channel Project are key factors in the continuing economic and social development of this region. Our role as project managers and as "Keeper of the Waters" is not always evident to the public in this region. I urge each employee to do what you can to enhance the multi-use, the multi-potential of this most important physiographic feature of the United States. The Upper Mississippi River is vital to the health and welfare of many future generations of Americans. Spread the word.

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Address: Editor, Crosscurrents, U.S. Army Corps of Engineers, 1135 U.S. Post Office & Custom House, St. Paul, MN 55101.

District Engineer Col. Edward Rapp
Chief, Public Affairs Kennon Gardner
Editor Pamela McFaden

Corps Golf

The Corps of Engineers Golf League met recently for their annual team selection. This year's steering committee includes: Glenn Engstrom (Coordinator); Dave Haumersen; and Joel Face. Individuals interested in being substitutes should call Wayne Koerner (Statistician) at 725-7565. The league plays at Phalen Park Golf Course beginning on May 1, 1984 and on alternate Tuesdays through September 18, 1984.

Corps Sets New Record

Lieutenant General J.K. Bratton, Chief of Engineers, announced that the nationwide flood control projects established a new record in 1983, by preventing an estimated \$23.2 billion in flood damages. The St. Paul District prevented \$9.2 million in flood damages in 1983.

According to the Chief's Annual Flood Damage Report, the previous record was set in 1979, when \$19.4 billion in flood damages were prevented by Corps dams, levees and local protection projects.

Lake City Small-boat Harbor Project

With the construction of a new breakwater, the under-used commercial harbor on Lake Pepin at Lake City, Minnesota is being transformed into a recreational boat harbor.

In 1887, the Federal Government constructed a timber crib breakwater just downstream from Lake City Point. Lake City Point and the breakwater (Government Pier) formed a harbor intended primarily to provide a harbor of refuge for lumber rafts. In 1935, a concrete cap was added to the breakwater to raise it as part of the 9-foot channel project. Additional improvements were made in 1948 when barge slips near shore were deepened and the small-boat harbor basin in Lake City Point was enlarged to 6-acres. The north marina access channel was also closed and a new channel from the commercial harbor area was constructed. An old railroad floating bridge (barge) was brought in and anchored in the commercial harbor area to provide shelter for more slips, and was also used for fishing purposes.

By 1974, the harbor was again at capacity and the barge was deteriorating. The city asked the Corps to study the feasibility of constructing a breakwater to provide additional harbor area and fishing facilities. The St. Paul District prepared a reconnaissance study, under the authority of Section 107 of the 1960 River and Harbor Act, and found that a project was potentially feasible.

In February 1982, detailed studies were completed, recommending that a rock rubble breakwater be constructed to enclose the existing commercial harbor area.

Construction of the new breakwater began last fall. The 900-foot-long

breakwater is attached to Lake City Point, just inland from the entrance to the existing marina. A 100-foot-wide entrance to the new harbor will be located between the end of the new breakwater and the Government Pier, allowing an enclosure of 10-acres for the harbor. The city is developing plans for a marina with about 200 slips for sailboats.

The breakwater will also provide fishing and observation opportunities. A six-foot-wide concrete walk will be constructed on top of the length of the breakwater. Three 50-foot long, seven-foot wide fishing platforms about six feet above normal pool elevation, will be constructed. The platforms will be about 225, 450 and 650 feet from land. All the platforms will be linked to the top walkway by steps. The platform closest to land will have a ramp designed for use by the handicapped.

The breakwater is being constructed of about 180,000 tons of rock fill, ranging in size from four to 30 inches. The lake side of the breakwater will be protected from large waves and ice by about 7,000 tons of large rock riprap. About 48,000 cubic yards of soft, muck material is being dredged in order to expose a firm, sand foundation. A method of dredging, a shielded clam shell bucket, was developed in coordination with the Minnesota Pollution Control Agency and Department of Natural Resources. This method prevents fine dredged material from re-entering the water. This method is also a significant cost savings, because it allows the material to be placed on both sides of the breakwater, rather than having it trucked to an upland disposal site.

The construction contract was

awarded in late September 1983, but work did not begin in earnest until early December. The severe weather proved to be a challenge, but one which was met with determination by the contractor. By dredging and hauling rock 24 hours a day, seven days a week the contractor was able to keep the ice from becoming the victor. Mother nature did win some of the battles, however. During one cold period, the dumped rock was building up on the ice instead of the lake bottom and the weight of the bulldozer leveling the rock caused the ice to break and led to a frantic scramble on the part of the operator. Fortunately, no one was hurt, and the bulldozer was recovered. The breakwater will provide some wave protection this spring and will be completed by fall.

The total estimated cost of the breakwater is \$1,870,000. Since it is largely a recreation project, the city has had to make a substantial upfront investment in the breakwater—over \$900,000. The planning, design and construction of all the slips, parking areas and other items needed to convert 10-acres of open water to a marina, are the complete responsibility of the city. It will be the Corp's responsibility to maintain the breakwater, the city's responsibility to maintain and operate everything else.

The project will provide an improved wave protection for an unused commercial harbor and allow the harbor to meet a recreational boating need. It will be of economic benefit to the area by encouraging greater use of Lake City's private and public facilities. It is expected that the project will be heavily used soon after completion and will be a project we can be proud to have participated in!



BARGES that were stuck in the ice at Pool 7, were forced to shore by the J.F. Brennan Company, February 26, 1984, and were tied to trees to secure them from floating away. After the ice cleared, the Brennan Company took the barges to La Crosse, Wis. This operation was completed March 3, 1984.



Second Row, left to right: BG Jerome B. Hilmes; Peter A. Fischer; Louis E. Kowalski; Robert B. Fletcher; John H. Plump, Jr.; and Col. Edward G. Rapp. Front row, left to right: William L. Goetz; James N. Holleran; Michael O. Schwalbe; Bruce A. Tamte; and Marlin A. Munter.

CHIEF OF ENGINEERS AWARDS

The Chief of Engineers Awards were presented by BG Jerome B. Hilmes to the St. Paul District, March 6, 1984 at the District office.

Three awards were given to Lock & Dam No. 1. The Award of Excellence, the highest Corps award granted annually, was accepted by John Plump and Marlin Munter; and the Merit Award in Architecture was accepted by Bruce Tamte. BG Hilmes also presented Michael Schwalbe with an Award of Recognition for Lock & Dam No. 1.

Lake Rebecca and Natural Area in Hastings, Minn., received the Award of Merit for Landscape Architecture. It was accepted by David Loss, James Holleran, Bruce Tamte, and Mark Koenig.

Lock and Dam No. 1, in Minneapolis, is the northern anchor to the Mississippi River navigation system. The \$45-million rehabilitation project began in 1979 with dewatering of the lock chambers each winter when navigation was closed down. It is the first on such a large scale for any of the 29 navigation structures on the Upper Mississippi River.

The major rehabilitation was divided into stages, so that construction could begin before the design was complete. Major construction items were designed to be built off-site, to allow better use of the small on-site storage area and reduce over-all construction time.

The number of tows and recorded tonnages locking through to the Minneapolis harbor have increased 30 percent over 1982. Since the re-dedication, June 30, 1983, more than 40,000 people have visited.

A \$1-million project, Lake Rebecca created a needed wildlife and recreation resource for the Hastings area. It includes: a dike to prevent a storm sewer from discharging into the lake; a control structure to provide an outlet for the lake; raising the lake by 2½ feet; day use areas; trails; and a boat launch.

Lake Rebecca, at one time, was used heavily for fishing and water recreation. It began deteriorating in the 1940's. The project helped to turn the clocks back and provide the city with an important recreation asset.

Health Seminar

The "Feds for Fitness" program is resuming its health and fitness seminars for this year. On Wednesday, 25 April 1984, a seminar on "Diabetes" will be given by Ms. Moraine Bryne, of the Diabetes Association of the Twin Cities at 2:00 p.m. in the 16th Floor Exercise Room. The information you gain from these presentations may enable you to help someone afflicted with these diseases. If you have any question, please contact Charles J. Foye at 725-7500.



Specification and Estimating Section

by William Slocum

The Specification and Estimating Section prepares documents for construction and supply contracts; and prepares cost estimates to be used for negotiations and solicitation of bids from private industry. The Section also provides cost information for Planning Division reports and Engineering Division design memorandums.

Preparation of specifications for contractual documents requires the blending of: criteria and procedures set forth in Government regulations and manuals; engineering design principles and practices; construction and manufacturing standards and practices; industry standards; District experience with previous contracts; and common sense.

When the designs and drawings for a project are essentially complete, the engineer assigned to prepare the specifications determines the technical sections that are needed in the contract documents. A discussion with the design engineer determines the most appropriate method of measuring the finished contract work, after which a bidding schedule is developed.

In some instances, an OCE guide specification is not available. In this situation, the specification engineer must depend on other sources for guidance or must prepare the entire section from scratch. The content of each technical section must be coordinated to assure that all interrelated

material is consistent and all subject matter and pay items are covered.

The specification engineer gathers information that affects construction from the project manager and project engineer. All material appearing in the construction specifications except the General Provisions (legal requirements only) is prepared in the Specifications and Estimating Section and presented to Procurement and Supply Division in final form for incorporation into the Invitation for Bid and Contract.

The Section prepares cost estimates at several levels, with the Government estimate for a bid opening requiring much greater detail than an estimate at the survey report stage. Estimates for construction are required by an Act of Congress, (PL 95-269), which provides: that no work of river and harbor improvement shall be done by private contract, if the contract price is more than 25 percent in excess of the estimated comparable cost of doing the work by a Government plant or more than 25 percent in excess of a fair and reasonable estimated cost of a well-equipped contractor doing the work.

When estimates are prepared for work by a Government plant; labor, equipment and production rates are obtained from the Maintenance Branch. Production rates are determined from; handbooks, reviewing of

bids received for similar work, and interviews with resident engineers in the field. Labor costs are determined by; labor unions, field record and wage rates from the Department of Labor. Equipment costs are taken from handbooks of current ownership rates for construction equipment and quotations from equipment rental companies. Material costs are obtained from suppliers in the area. Direct costs are estimated for the various items on the bid form and to each item is added a proportional part of mobilization and demobilization cost and contract overhead costs. The total for all items on the bid form is the Government fair and reasonable estimated cost.

The Section performs a role in negotiations with the Small Business Administration (SBA) for construction of a project by a small minority contractor, under authority of Section 8(a) of the Small Business Act.

The level of detail and accuracy in the estimate of cost, during the progressive stages of a study or project development, lies in the scope of refinement of the design, and details from which cost information is accumulated and presented. In earlier stages, it is necessary to allow for quantities of material not yet definitely determined by detailed design and to include larger contingencies for items yet unknown, because of lack of detailed investigations.

Headwaters Centennial

Three of the Headwater projects, Leech, Pokegama, and Winnibigoshish, will be having their centennial celebrations July 21-22, 1984.

At each site there will be an open house with speakers, project and dam tours, a project slide show and a District film. Also, local communities have been contacted about these celebrations and indicate they would like to participate.

The celebrations will begin on Saturday morning, July 21, 1984, at Lake Winnibigoshish, and will continue Saturday afternoon at the Federal Dam, (Leech Lake). On Sunday celebrations will be held at Pokegama Lake.

Please mark these dates on your calendar. All retirees and employees are welcomed to attend the centennial celebrations.

More information will be made available in the following months of Crosscurrents.

TOASTMASTERS

by John Blackstone

Heritage Toastmasters is made up of women and men who come together weekly to have fun and learn. Membership is open to anyone in the District office. We encourage anyone to join. We feel that we can build strength in our club through diversity. If you would like to know what we do, or are interested in becoming a member, then make a note on your calendar and visit us next Thursday noon, on the sixth floor PEDC rooms. If you have questions, please call Joel Face at 725-5940.

S.A.M.E. Annual National Meeting

The Minneapolis-St. Paul Post of the Great Lakes Region is hosting the 1984 National Meeting of the Society of American Military Engineers (S.A.M.E.). The 64th Annual Meeting will be held April 25 through April 28, 1984, at the downtown Radisson St. Paul Hotel.

We have planned an outstanding program of technical presentations based on the theme, "The Nation's Construction Program and National Defense."

WEDNESDAY-25 April

To kick off the conference in style, a welcoming reception will be held at the historic Landmark Center. A social hour will be followed by dinner, dancing, and entertainment. The buffet dinner will feature Minnesota regional specialties and SAME salad (we are sure that all members will enjoy it).

THURSDAY-26 April

The keynote address will be made by Gen. John W. Vessey, Jr., Chairman, Joint Chiefs of Staff, on "The Role of Military Facilities that Meet the Needs of the Nation."

A technical panel moderated by LTG Frederick J. Clarke, USA, Ret., will discuss the topic "Military Facilities that Meet the Needs of the Nation."

The keynote speaker for the Student/Young Members Workshop will be Dr. Dale F. Stein, President, Michigan Technological University. The topic will be "Engineering of the Future."

Technical presentations for Civil and Military Projects will be moderated by Char Hauger, U.S. Army Engineer District, St. Paul.

FRIDAY-27 April

A technical panel, chaired by RADM Donald G. Iselin, USN (Ret), will discuss the topic "How Industry Can Help Provide a Better Quality and More Economical Military Construction Product."

The Theme Luncheon speaker will be LTG Robert E. Kelley, Vice Commander, Tactical Air Command. The topic will be "Facilities in the 21st Century."

A technical trip to Energy Park, Lock and Dam #1, and to the University of

Minnesota Civil Engineering Building is planned.

To end the meetings, there will be a Formal Military Ball, which will include social hour, dinner, and dancing.

Social activities during the conference include: tennis tournaments and golf tournaments; a "Hello Minneapolis" tour on April 26, and a "St. Paul - Something Old/Something New" tour on April 27. In addition, the Twin Cities has many fine restaurants, shops, theatres, art museums, and sports facilities for the after-the conference hours entertainment.

For further information on the S.A.M.E. meetings, please telephone 725-7481.

300-Foot Zone Restricted

With the spring season coming, we must once again review the 300-foot restricted zone below locks & dams, that was put in effect in 1983. The importance to follow this rule cannot be expressed more seriously.

Fourteen deaths have been attributed to boaters getting too close to the dams and being capsized by strong turbulence or undertows.

Warning signs reflecting this have gone up at dam installations on the river, while a publicity campaign has been mounted to make the expanded restricted zones known to the public and appreciated as a means of saving lives.

But, because popular game fish, especially the walleye, tend to bunch-up below dam outflow gates, fishermen view the 300-foot restriction as a threat to the size of their catches. These fishermen tell the Corps that the burden for their safety should be on them individually. The Corps, the loser in a costly law suit involving the drowning of two fishermen near a dam in 1978, sees it differently.

There is no way that exceptions to the 300-foot rule can be made for the fishermen. Subject to momentary lapses, bad judgment and panic, the record shows that even experienced boaters have lost control of their craft in the rough waters downstream of the navigation streams.

The 300-foot restriction remains in place this fishing and boating season, despite the continuing ire of river fishermen.

District Picnic Set

The District's annual Awards Day Picnic, sponsored by the Employee Benefit Association, is scheduled for June 15, noon to 5 p.m., at Phalen Park, St. Paul. The picnic committee, this year recruited from the Construction-Operations Division, is planning a full schedule of activities and socializing. The food will be catered by the same firm which has served the picnics and Holiday parties in past years.

MATHCOUNTS Competition

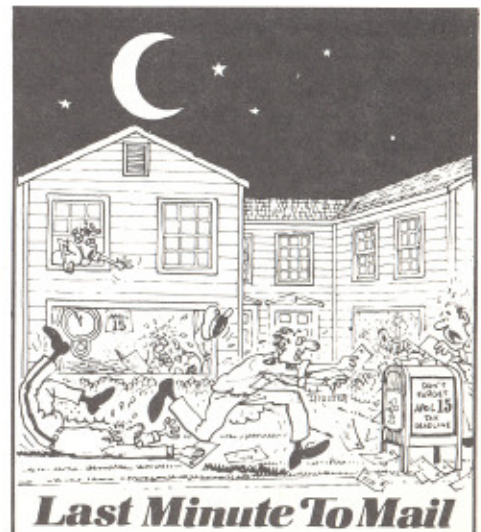
by John Blackstone

The South Capitol Center of the Minnesota Society of Professional Engineers held its first MATHCOUNTS competition on Saturday February 19, 1984.

MATHCOUNTS is a venture sponsored by the National Society of Professional Engineers. (NSPE). The purpose of this program is to foster interest in mathematics among Junior High students.

Five teams of four students each participated in an all day competition which included timed individual and team events. Trophies and awards were presented for first through fourth place. The first-place team from Woodbury Junior High will compete on April 7 against 14 other teams. The winning state team will compete in the National competition in Washington, D.C. this spring.

If you have questions about MATHCOUNTS or NSPE, please contact W. Grant Westall, President of the South Capitol Chapter, at 725-7600.



Last Minute To Mail



Delay in Opening Corps Park

A safety hazard has led to an indefinite delay in opening Blackhawk Park, located on the Mississippi River near DeSoto, Wisconsin. The decision not to open the park on March 26, 1984, was made by Colonel Edward Rapp, because of an unsafe railroad crossing and lack of maintenance of the access road from State Highway 35 to the park.

The Corps of Engineers assumed operation of the park in 1980, after Vernon County terminated its real estate lease with the Corps. In January, 1984, Vernon County officials notified the Corps that they would no longer take responsibility for the access road

to the park, which also serves adjacent residences and public utilities.

Week-end travel, during the summer, has been recorded at about 700 vehicles each day, with higher volumes on holidays. The Burlington Northern double main line railroad tracks, at the crossing, carry some 34 freight trains daily at speeds up to 65 miles per hour.

Since 1980, the Corps has spent about \$325,000 in upgrading the facilities at Blackhawk. A \$150,000 channelization project has been underway this past winter to enhance the fishing

habitat in the Mississippi River backwaters.

The cost of the road safety improvements, including a turn-off lane from Hwy. 35 and the railroad signals, is estimated at \$325,000. If local government will sponsor the project, as much as 90 percent of the funding could be shared by State and Federal agencies.

"If no sponsor comes forward to resolve these problems, it could result in the end of Blackhawk Park as a public recreation area," Col. Rapp told Vernon County officials. Col. Rapp added that he would continue to work with the parties involved.

Settlement Reached in Clean Water Act Lawsuit

by Jacqueline Petersen - CO-RF

Restrictions on the scope of nationwide (blanket-type) permits, particularly the geographic permits, would be the most important result of the settlement of a lawsuit brought against the Corps and EPA by a coalition of environmental groups. It provides for closer coordination between Governmental agencies; more precise definitions, and more emphasis on the Environmental Protection Agency (EPA) guidelines.

The settlement provides for more wetland monitoring and more case-by-case review of proposals to fill wet-

There may be a happy by-product from the lengthy litigation. At the conclusion of the long negotiations Secretary Gianelli commented, "I am convinced that the best interests of the Nation have been served today. In addition to successfully settling the lawsuit, the time spent at the bargaining table has given each of us a better appreciation of the views of the other. I believe it will lead to a feeling of greater mutual respect as we move ahead. One of our prime motivations in agreeing to the settlement was to show that we and the environmental groups

can work together to achieve mutual objectives."

lands; and it clarifies several environmental policies. These changes will be published for public comment in development of final regulations this April.

In practical terms, it means that Regulatory Branch would be required to do a full public interest review for more applications. However, many of the settlement's provisions are similar to conditions the St. Paul District was already preparing to add to its nationwide (blanket-type) permits.

People

Farewell and good luck to all employees who left the District. They are: Daniel R. Cyert; Ronald L. Krisik; Frank J. Sager; Lorna J. Wong; Dennis P. Flom; Donald C. Johnston, Jr.; Mike R. McWilliams; Carlos A. Menchaca; and Celeste M. Baines.

Condolences: Deepest sympathy is expressed to the William Goetz family, whose son, Daniel, passed away March 12, 1984.

Deepest sympathy is expressed to the family of Margaret Eagan, a former personnel officer, who passed away in November.

Blood Donors: The following employees of Lock & Dam No. 10 were blood donors in February 1984: Marvin L. Pedretti; Harley A. Akers; Luke W. Smith; and William R. Wolfe.

Announcements: Congratulations to Blanche Fong, a former Corps employee with the Public Affairs Office, and her husband Ed, who are the proud parents of a son, Christopher Cheuk-Mon Fong. Christopher was born March 16, 1984, weighing 7 lbs. 2 oz and was 21 inches long.

Speak Out: March 2, 1984, a presentation by William Spychalla, was given to the third grade class of Echo Park Elementary School, in the Apple Valley/Rosemount School District. The presentation emphasized flooding, commercial navigation, water resource planning and needs in general. The highlight of the presentation was the locks and dams system.

Army Readiness Improving

The question of just how ready are the Armed Forces, has been answered by our nation's top military officer. In a March 6, 1984 news briefing, Gen. John W. Vessey, Jr., Chairman of the Joint Chiefs of Staff, made it clear that Army readiness is better now than it was several years ago. "We have better people; they're armed with more and better equipment; their training has been improved and they have better support behind them," Vessey said. "That makes for a readier force."

Second Army Astronaut Scheduled

NASA officials have scheduled Lt. Col. Sherwood "Woody" Spring for a 1985 shuttle flight. It will make him the second soldier to venture into space.

Spring is scheduled to fly with the space shuttle "Challenger" during its ninth flight. He will help his crew in their mission to deploy a satellite and retrieve another that will be launched in April.

Spring follows Lt. Col. Robert L. Stewart, who became the first Army astronaut in space during the shuttle mission in February. Stewart performed the first untethered space walk in a Buck Rogers-style self-propelled space suit during the flight.

Panamanian Engineering Exercise

Several hundred U.S. soldiers will join Panamanian Forces at the invitation of Panama's government for a combined engineering exercise on that country's Azeuro Peninsula from March to May 1984.

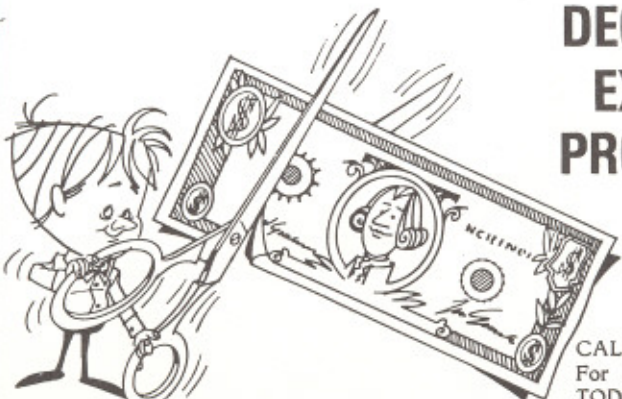
Officials say the end result of the exercise, which involves units of the active Army and of the Army National Guard, will be the upgrading of about 15 kilometers of roadway between Llano De Mariato and Arenas, plus the surveying of an additional 27 kilometers.

They expect both sides to benefit from the training in realistic engineering, logistical operations, and field medicine. Panama's tropical environment is seen as a bonus training factor, since the United States has no comparable environment for training.

For its part, the U.S. Army will draw engineer and support personnel from the National Guards of Louisiana, Florida and Puerto Rico. Out of these, some 150 soldiers will form a cadre to remain on-site for the duration of the exercise. Elements of about 140 soldiers each are scheduled to rotate to Panama in four 17-day training cycles, say officials. Those guardsmen are to be supported by the 193D Infantry Brigade, stationed in Panama.

U.S. funding for the venture, say officials, will come from allocations for Army National Guard training and exercises, while the Panamanian defense forces will absorb the costs of fuel and materials required in the road construction.

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