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SOUTHEASTERN MICHIGAN WASTI.WATER MANAGEMENT SURVEY SCOPE STUDY.--ETC(U)
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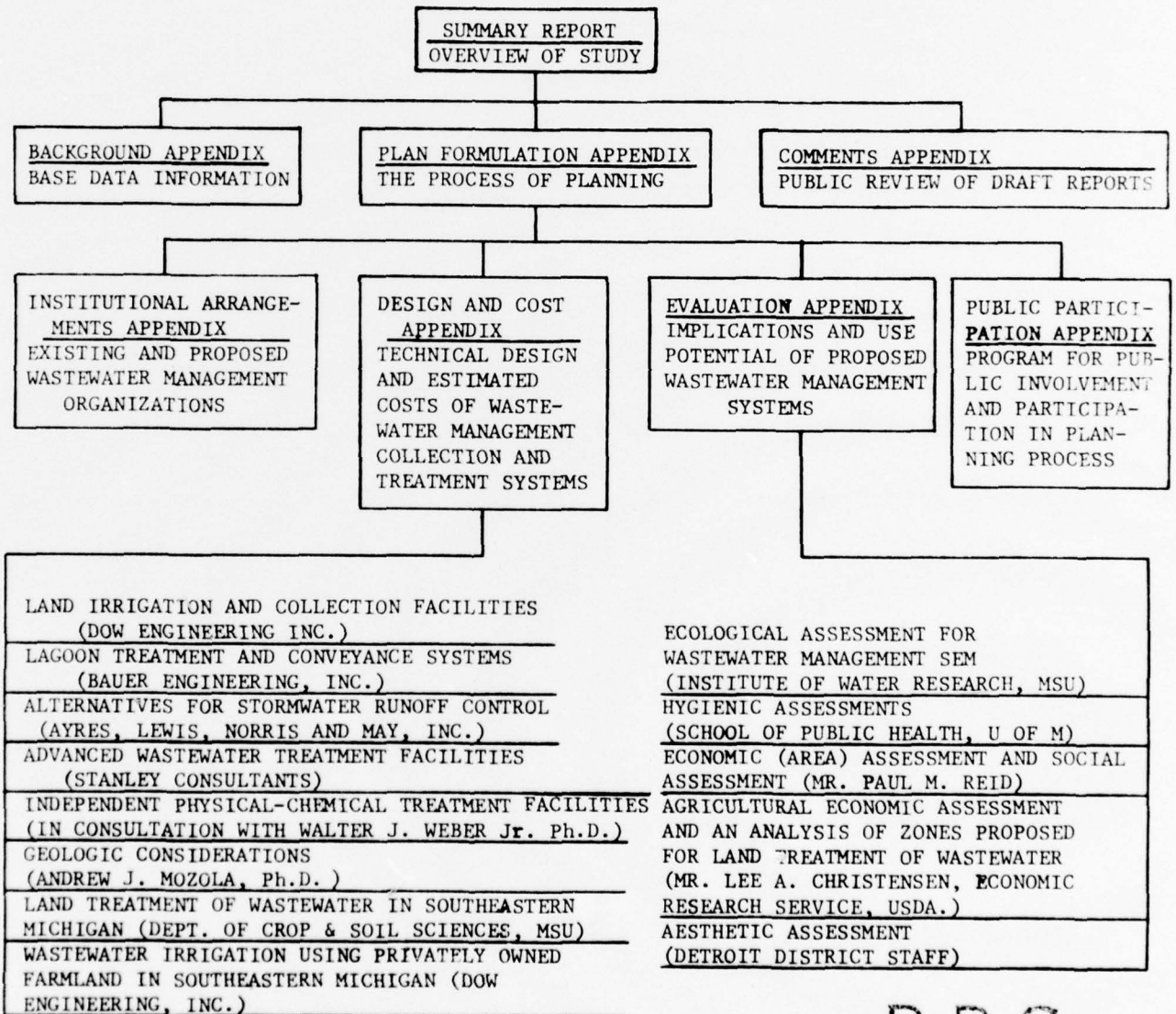
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SOUTHEASTERN MICHIGAN
WASTEWATER MANAGEMENT
SURVEY SCOPE STUDY

REPORT COMPOSITION



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DISC.	APP.	GENERAL
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I. PURPOSE

In line with the directives concerning public participation in Corps water resource projects and especially in regard to those applying to wastewater management studies, the purpose of the Detroit District has been twofold: (1) To inform the public of the objectives, the process and the progress of the Southeastern Michigan Wastewater Management study, and (2) To seek public response in terms of the concerns of citizens, their reactions and suggestions.

At the outset, the District Staff was at least partially alert to the fact that public awareness of the problems of wastewater management was imperative to public participation in the process of resolving these problems. There was also a feeling that public awareness and attitudes influence-or make an impact-on decision-makers, that is, those elected officials and administrators that are involved in wastewater management. And finally, there was some recognition within the District Staff that public involvement in the planning process stimulates and furthers a concern for implementation by authorities of the plans that result.

Though the emphasis varied during the three series of public meetings during 1972, and the final series of meetings in December 1973, the general purpose as expressed above dominated these meetings. At times, the information content of the meetings ranked high, at other times public reaction and comment was the major characteristic.

The Detroit District has had a long and rich experience in relations with governmental and other organizations and with the public in Southeastern Michigan. These relationships included flood plain information studies, feasibility of flood prevention projects, the Southeastern Michigan Water Resources Study, and other construction projects. In the course of such concerns, the District Staff had close contracts with the county drain commissioners, the county planning commissions, the county departments of public works, the Southeast Michigan Council of Governments (and its predecessors) and the Detroit Metropolitan Water Department.

Due to these contacts and relationships, i.e., it was felt that informal, face-to-face contacts in the field with operational administrators and elected officials as well as representative citizens would provide a productive approach to their participation in the study. Some of the materials produced by the Southeastern Michigan Water Resources Study have received considerable circulation throughout the region, and this study was in a sense a functional companion to the Wastewater Management Study. It was felt that the Water Resources Study had provided firm relationships, both formal and informal, with other Federal, State, and local agencies concerned with water quality. Local officials and people involved in the earlier study would in many cases be deeply concerned in the purpose and progress of the Wastewater Management study.

II. PUBLIC INVOLVEMENT PROGRAM - PARTICIPANTS

The public involvement program, in time, consisted of six major elements, as follows:

1. Coordinating Committee.
2. Environmental Workshops.
3. Public Meetings.
4. Informal meetings with local officials and citizens.
5. Talks before interested groups.
6. Relationships with other agencies.

Each element was anticipated in advance, but the intensity of some of these steps was dictated by events rather than by forethought. For example, after the December 1972 public meeting series, the impact of the land treatment alternative on the "Thumb Area" - Huron and Tuscola Counties - set the stage for a series of informal meetings with local officials and citizens. Other elements, like talks before interested groups, developed naturally out of the total public participation process.

A. COORDINATING COMMITTEE

In March 1972, a Coordinating Committee for the Southeastern Michigan Wastewater Management Study was established. The purpose of this body, as expressed by the District Engineer in his letter of invitation to agencies, was: "To coordinate the survey scope study effort which will develop alternatives for managing wastewater in Southeastern Michigan." Further, the objectives of the Committee were stated as: (1) To provide prospective alternative plans, (2) To serve as a forum for varying technical and public views to insure full consideration, and (3) To provide insight and review on alternative proposals, as spokesmen for various sectors of Federal, State, Municipal, and public groups concerned with wastewater management plans.

Membership on the Coordinating Committee consisted of representatives of the following agencies:

- Environmental Protection Agency-Region V
- Soil Conservation Service, US Dept. of Agriculture

Bureau of Sport Fisheries and Wildlife, Dept. of Interior
Michigan Water Resources Commission
Institute of Water Research, Michigan State University
Southeast Michigan Council of Governments
Metropolitan League of Women Voters
Detroit Metropolitan Water Department
Staff, Detroit District, Corps of Engineers

A total of seven Coordinating Committee meetings were conducted at the Detroit District Office. At the final meeting, held prior to the last series of public participation meetings, the Committee previewed the District's presentation to the public of the representative wastewater management. The District Engineer, or his representative, conducted the meetings of the Committee, all of which were held in the Detroit District offices.

B. PUBLIC MEETINGS

Four series of public meetings were held during 1972 in Southeastern Michigan including an Environmental Workshop intervening between Series I and III; one series was held during 1973.

Series I. - In April at Detroit, Monroe, Utica and Northville

Series II. - Environmental Workshop in June at Flat Rock, Detroit and Rochester

Series III. - In July at Wyandotte, Ypsilanti, Mt. Clemens and Detroit

Series IV. - In December at Bad Axe, Richmond, Monroe, and Detroit

Series V. - In December at Ann Arbor, Detroit, Port Huron and Monroe.

The purpose of the first series was to present the results of the feasibility study and to introduce the follow-up, detailed survey scope study.

The purpose of the third series of public meetings was to outline the first cut approach to the survey scope study, outlining the four basic alternative systems, and to stimulate community reactions. The fourth series had as its major purpose the presentation of some of the study findings of the contractor consultants in regard to the various treatment systems, and to elicit reactions of community members.

Participation in the public meetings was as follows:

Series I.

Detroit: 6 Corps Staff; 35 local citizens and officials
Monroe: 6 Corps Staff; 15 local citizens and officials
Utica: 8 Corps Staff; 27 local officials and citizens
Northville: 8 Corps Staff; 30 local citizens and officials
Total: 107 citizens and officials

Series III.

Ypsilanti: 10 Corps Staff; 23 local citizens and officials
Mt. Clemens: 10 Corps Staff; 18 local citizens and officials
Wyandotte: 12 Corps Staff; 11 local citizens and officials
Detroit: 10 Corps Staff; 25 local citizens and officials.
Total: 77 citizens and officials

Series IV.

Bad Axe: 6 Corps Staff; 730 citizens and local officials
Richmond: 7 Corps Staff; 85 citizens and local officials
Monroe: 4 Corps Staff; 241 citizens and local officials
Detroit: 7 Corps Staff; 65 citizens and local officials
Total: 1,121 citizens and officials

Series V.

Ann Arbor: 8 Corps Staff; 43 citizens and officials
Detroit: 5 Corps Staff; 41 citizens and officials
Port Huron: 5 Corps Staff; 148 citizens and officials
Monroe: 4 Corps Staff; 74 citizens and officials
Total: 306 citizens and officials

C. SERIES II - ENVIRONMENTAL WORKSHOPS

In June 1972, a series of three environmental workshops was held in Flat Rock, Detroit and Rochester under the stated purposes of: (1) Bringing together Corps environmental planners with local people who have an active interest in or could be influential in resolving major environmental issues related to wastewater management, and (2) Providing a channel through which the public can strongly influence the formation of wastewater planning and management alternatives. It was the feeling of the District Staff that, by working together with the public, a plan could be developed to satisfy the water quality problems and needs, a plan that would be acceptable socially, politically and environmentally.

Participation in the workshops was as follows:

Flat Rock: 8 Corps Staff; 27 citizens and officials

Detroit: 8 Corps Staff; 32 citizens and officials

Rochester: 7 Corps Staff; 14 citizens and officials

Total: 73 citizens and officials

D. INFORMAL CONTACTS WITH LOCAL OFFICIALS AND CITIZENS

Such meetings were held throughout the study, with the greater number coming after the release of the Wastewater Management brochure, The Search for Clean Water, and the 3rd series of public meetings. The purposes of these sessions varied but the major aims were to provide information on the nature and progress of the study, and to seek constructive suggestions regarding the alternative wastewater management systems being considered by the Corps Staff. In addition, a number of informal interviews was conducted by a member of the Corps Staff. The objective was to obtain information for the institutional arrangements appendix of the survey scope report.

Involved in these informal contact meetings were officials and citizens from the following types of agencies and people:

- County Drain Commissions
- County Planning Commissions
- County and Municipal Departments of Public Works
- Municipal Engineers
- Municipal Sewer Plant Operators
- Newspaper Reporters
- State Senators and Representatives
- County Commissioners
- State and Federal Soils Conservation Service Staffs
- County Extension Service Staffs
- Farm Bureau Members
- Land Owners and Farmers

III. RECORD OF EVENTS

A. COORDINATING COMMITTEE MEETINGS

The Coordinating Committee, with 9 members plus Corps Staff present, held its first meeting on March 23, 1972. This was primarily an information meeting. The Corps Staff made a presentation of the various elements of the survey scope phase of the Wastewater Management Study and provided the Committee members with certain study materials. The three pure alternatives were examined in the context of the feasibility study. In addition, the Committee was informed as to (a) the makeup and expertise of the Wastewater Study staff, and (b) what appropriate contracts were let with an examination of the work effort of each.

The June 12th and July 6th meetings were devoted to a more detailed consideration of the various alternative systems to be included in the study. Committee members actively participated in this phase of plan formulation. Seven and 5 members, respectively, in addition to Corps Staff were present at these two meetings.

The meeting on July 20th was involved with suggestions and discussion regarding site selection for wastewater treatment plants and included criteria for such selection. Ten Committee members plus Corps Staff were present.

On December 8th the Committee was brought up-to-date on consultant contractor studies and Corps Staff work toward completion of the study. Six members plus the Corps Staff were present. Some minor suggestions on the value and use of the consultant reports were made, plus a strong suggestion for a pilot project on land treatment.

The fifth meeting was held on May 31st, with 8 members present in addition to Corps Staff. Immediately after this meeting, the members were sent copies of 5 contractor reports covering: land irrigation facilities; transmission facilities and lagoons; stormwater facilities; advanced wastewater treatment facilities, and ecological evaluation. Later the members were sent three other reports: Land Disposal of Wastewater, An Assessment of Its Impact on the Agricultural Economy I; Economic Assessment (Area), and Hygienic Assessments of Alternative Systems.

The sixth meeting was held on September 27th, with 18 participants present. The objective was to consider matters of concern to all from the MSU and Dow studies. Discussion centered on the concept of land irrigation on privately owned property. The reports of MSU and Dow were summarized and costs and technical features were discussed. A brochure based on the Draft Survey Report is to be made and sent to all on the mailing list.

The seventh meeting was held on November 28, 1973, with 12 participants present. The objective was to discuss study findings and to have a period of review of the study. Each member was presented with a copy of the Summary Report. Discussion centered on study report distribution, review period for report stormwater treatment, collection system design and the Districts public presentation of the representative wastewater management.

B. PUBLIC MEETINGS

The first series of meetings held during April 1972, was characterized by small attendance and a wide variety of questions about the Wastewater Management Study. The questions covered the following types of subject matter:

- Metropolitan approach to system
- County future land use plans
- Soil conditions for land treatment
- Opportunity for farmers to have a say in plans
- Treatment of sludge as solid waste
- Who will receive final plans for action
- Extent of stormwater runoff
- What can be done immediately to resolve some problems
- Effect of plans on levels of inland lakes
- Control of silt in streams
- Conflict or likeness with SEMCOG plan
- Amount of land needed for land treatment
- Effectiveness of recycling of land treatment
- Date of completion of study
- Opportunity for more formal Advisory Group.

A formal paper evaluating the Feasibility Study was read into the public meeting in Detroit by a Staff member of the Public Works Division of the Wayne County Road Commission. This was the most critical -pro and con - of any presentation made in all three of the series of public meetings. At the time of the presentation, this paper was a Staff product; it was later officially endorsed by the Road Commission.

The third series of public meetings took place during July of 1972. Some additional questions and suggestions raised at these meetings concerned the following:

- Duplication of Corps work with that of SEMCOG
- Elimination of small treatment plants
- Challenge to high population projections
- Need for stormwater drains in rural areas
- Need for huge Huron River interceptor
- Perspective and design for year 2020 interceptors
- Effectiveness in cleaning up Lake Erie
- Proposal for a 9-member Technical Advisory Committee
- Value of Stanford Watershed Model in regard to maximum urbanization
- Responsibility for building and operating the system
- Relationship to atomic power generators.

The third series of meetings was better attended than the April series, but resulted in little in-put for the study as a whole.

The fourth series of public meetings occurred during December 1972 and drew the largest attendance. A more complete presentation of all alternative systems was presented at these meetings. At the Bad Axe, Monroe and Richmond meetings the major attention of the meeting attenders was focused on the land treatment alternative. The press announcements for these meetings and the circulation of the brochure outlining all the alternatives to date evidently generated the large attendance and interest in these public meetings.

Questions and topics raised included the following:

- Land treatment success in Australia
- Use of septic tanks in land treatment areas
- Use of chlorine as a disinfectant
- Saturation of land used as a filter for wastewater
- Land treatment effect on ground water and lake levels
- Odor of lagoons
- Total acquisition of land for land treatment
- Costs of each alternative
- Necessity of treating all stormwater

Effectiveness of removing toxic metals in land treatment
Size of equalization lagoons
Consideration of institutional arrangements
Disposal of sludge
Basis of Corps soils information
Inclusion of economic and social impacts of system
Effect of polluted alfalfa on taste of milk
Soil's ability to take 2 inches of water a week
How to handle mercury and cyanide
Location of final power to select an alternative.

Preceding the series of meetings in December, 4 press articles and one people's column letter appeared in four newspapers in the region. Following the December meetings, at least 10 articles appeared in 6 papers, plus one more letter to the editor. These articles were printed in December 1972, and in February and March 1973. Reference was made after February 9th to the meeting held on that date at the request of State Senator Alvin DeGrow in the District Corps offices. (See V-D for further information on this meeting.)

Following the Monroe public meeting, the Chairman of the Monroe County Soil Conservation District, on 21 December 1972, wrote to the District Engineer, commending him for his even temper at the public meeting, and extending to the Corps the use of all materials and knowledge on soils in possession of the district organization.

The fifth series of meetings was held during December 1973 and drew the second largest attendance. The Land Treatment Plan had been revised in crops, unit irrigation water amounts and management, incorporating private ownership of the irrigated land. Four Representative Plans, more favored of the thirteen alternative plans developed, were presented. A clearer understanding of the Corps' effort and motivation was apparent in the majority of the participants' attitude and resulted in improved relations. Statements and resulting questions pursued the same subjects catalogued above in the fourth series of meetings. A more conciliatory attitude toward

the Corps' motives by the participants emerged, but hostility to the alternatives persists with the possible exception of the Interim Water Quality Plan.

C. ENVIRONMENTAL WORKSHOPS

The three environmental workshops held during June of 1972 drew rather small groups of officials and citizens and did not contribute significantly to the progress of the Wastewater Management Study. The format for the meetings was the same and consisted of a review of the feasibility report, presentations (brief) of the AWT technical study, the land disposal study, the physical-chemical technical study, the stormwater technical study and the environmental studies. These presentations were followed by discussions and an effort on the part of the Corps Staff to solicit participant's views on ways to resolve the wastewater management problems.

D. INFORMAL CONTRACTS WITH CITIZENS AND LOCAL OFFICIALS

The following are meetings of District Staff members with local officials and citizens:

<u>Date</u>	<u>Place</u>	<u>Participants</u>
20 Jan 1972	Southfield	4 Corps Staff met with members of the "Rescue the Rouge" citizens' organization.
27 Jan 1972	Monroe	Executive Director, Monroe County Planning Commission and 2 Corps Staff
28 Jan 1972	Port Huron	Executive Director St. Clair County Planning Commission and 2 Corps Staff
31 Jan 1972	Monroe	Monroe County Drain Commissioner and 5 Corps Staff
11 Feb 1972	Adrian	County Drain Commissioner and other officials with 2 Corps Staff
23 Feb 1972	Port Huron	Cty DPW Engineer and 2 Corps Staff
3 Mar 1972	Marysville	City Engineer and Consultant with 4 Corps Staff
3 Mar 1972	Port Huron	City Engineer and Consultant with 4 Corps Staff
10 Mar 1972	Warren	3 Detroit Edison Company officials with 3 Corps Staff
26 Mar 1972	Detroit	SEMCOG Planning Director with a member of Corps Staff
28 Mar 1972	Detroit	SEMCOG Environmental Coordinator with a member of Corps Staff
29 Mar 1972	Monroe	Director Monroe County Planning Commission with a member of Corps Staff
4 Apr 1972	Monroe	Monroe County Drain Commissioner with a member of Corps Staff
5 Apr 1972	Pontiac	Director Oakland County DPW with a member of Corps Staff

<u>Date</u>	<u>Place</u>	<u>Participants</u>
12 Apr 1972	Adrian	Treatment plant operator with a member of Corps Staff
22 May 1972	Detroit	3 DMWD Staff, 4 Corps Staff and 3 Consultants
23 May 1972	Monroe	2 Staff members Wastewater Treatment Plant, 2 Corps Staff and 2 Consultants
23 May 1972	Algonac	Treatment Plant Operator, 2 Corps Staff and 1 Consultant
23 May 1972	Port Huron	City Engineer, Plant Supervisor, 2 Corps Staff and 1 Consultant
17 May 1972	Lansing	Director State Planning Division with a member of Corps Staff
26 May 1972	Detroit	2 members Public Works Division County Road Commission with 3 Corps Staff
1 Jun 1972	Detroit	Public Works Division, Wayne County Road Commission and a member of Corps Staff
2 Aug 1972	Traverse City	District Engineer spoke at one day state conference on industrial water pollution, put on by Institute of Science & Technology of University of Michigan and Michigan State Chamber of Commerce
15 Aug 1972	Wixom and Walled Lake	Oakland County DPW officials with 2 Corps Staff
18 Nov 1972	Detroit	Corps Staff man addressed annual meeting of state Audubon Society
20 Dec 1972	Detroit	Representative of Huron County with Member of Corps Staff
4 Jan 1973	Bad Axe	Huron County Commissioners and soils scientist with a member of Corps Staff
11 Jan 1973	Detroit	Leading Huron County citizen visited Corps office and discussed land treatment with members of Corps Staff

<u>Date</u>	<u>Place</u>	<u>Participants</u>
23 Jan 1973	Saginaw	Meeting of Corps Staff members with U.S. Congressman Harvey (8th Cong. Dist.) and press reporter.
9 Feb 1973	Detroit	Meeting called by Corps at request of State Sen. DeGrow to discuss land treatment alternative. Attended by State Legislators, county commissioners, and press representatives, with Corps Staff.
10 Feb 1973	Holland	Corps Staff member addressed annual meeting of Michigan United Conservation Clubs, on invitation
5 Mar 1973	East Lansing	Corps Staff member met with 20 soils Conservation Service Staff
8 Mar 1973	East Lansing	3 Corps Staff members met with 31 SCS, MSU Staff and other State people to consider new approach to land treatment
8 Mar 1973	Lapeer	Corps Staff met with Farm Bureau representatives from 5 counties: Huron, Tuscola, St. Clair, Lapeer and Sanilac
30 Mar 1973	Ida	Corps Staff met with Farm Bureau representatives from 3 counties: Lenawee, Monroe and Washtenaw
30 Apr 1973	Flint	Corps Staff met with the SCS and Extension Service agents of 7 counties to bring them up-to-date on the Wastewater Management Study.

IV. MATERIALS FURNISHED THE PUBLIC

A. PUBLIC MEETING NOTICES

In advance of each series of public meetings and the three environmental workshops, notices were sent to daily and weekly newspapers in the geographic areas covered by each meeting. In addition, invitations to attend and take part in these meetings were issued to governmental and citizens agencies and organizations deemed to be involved or interested in wastewater management programs, and to individuals whose names appeared on the mailing list compiled from the previous feasibility study. Approximately 3,000 names were compiled on the Wastewater Management Study mailing list.

B. WASTEWATER MANAGEMENT BROCHURES

Prior to the third series of public meetings in December 1972, a brochure entitled "The Search for Clean Water", describing the work to date on the Wastewater Management Study, was released and given wide circulation. The pamphlet presented 8 alternative Wastewater Treatment Systems, both by textual description and by maps. Before the final series of public meetings in December 1973, a second information brochure also entitled "The Search for Clean Water", An Information Brochure (No. 2), was issued. Basically, this brochure highlighted the Wastewater Management Study authority, several factors relating to wastewater in the southeastern Michigan study areas, the three treatment technologies considered, the evaluations performed and a few key assessment parameters, and a presentation of the three Representative Plans, and the Interim Water Quality Plan -- all of which would be presented to the State of Michigan for further dispensation. This document was also given wide circulation. Both brochures can be found in Enclosure A, Section VIII, of this Appendix.

C. PUBLIC MEETING MATERIALS

In addition to these aforementioned items, the following material was made available to the public at each public meeting:

- Copies of the Feasibility Report.

The Summary Report and the Attendant Appendices were usually available in limited amounts. The public was informed at the start of each meeting that copies could be obtained by contacting the District Office.

- Information Sheet.

This one-page document contained, on one side, a map of the Southeastern Michigan Study Area; on the other side was a comments sheet for use by participants.

- Attendance Cards.

In order to maintain an exact record of attendance and signify whether an individual wished to pose a question or make a statement, the audience was requested to fill out attendance cards.

The following two items while not made available to the public prior to any of the preceding public meetings are herein presented in the final report.

D. DIGESTS OF PUBLIC MEETINGS

As required by regulations, digests were prepared from transcripts of the public meetings. These digests contain summaries of these transcripts, and will be included as Enclosure C, Section VIII of the Appendix.

E. MINUTES OF COORDINATING COMMITTEE MEETINGS

Seven Coordinating Committee Meetings were conducted during the Wastewater Management Study and these minutes recorded. These will appear as Enclosure D, Section VIII of the Appendix.

V. RELATIONSHIP TO PLANNING PROCESS

A. IMPACT OF THE COORDINATING COMMITTEE

This Committee in its 6 meetings to date has not made a measurable impact on the planning process. Members in one meeting were of some help in developing criteria for treatment plant location and in reviewing suggested sites for such plants. Suggestions were also put forth for the mounting of a pilot project of the land treatment system in order to better evaluate this alternative; to date this suggestion has not been acted upon.

The Committee did serve helpfully as a means by which the Corps kept various agencies abreast of the steps and progress of the Wastewater Management Study. It also had a useful function as a forum to receive and discuss Corps Staff and consultants' reports as the study moved along.

B. IMPACT OF ENVIRONMENTAL WORKSHOPS

The three environmental workshops did not make a major contribution to the planning process. The Staff developed 3 matrix tables to represent the 3 pure wastewater treatment alternatives - AWT, IPCT and Land. The Staff attempted to utilize this chart by inviting comments from workshop participants. However, due to a number of considerations, the desired objective was not realized, and the charts were laid aside.

On the other hand, it was felt that the workshops were of value to people with technical knowledge. They provided opportunity for direct communication between the planning people and the agency people in the field. The environmentalist consultant from Michigan State University, who served with the Corps Staff in two of the workshops, proved most helpful on technical questions.

C. IMPACT OF PUBLIC MEETINGS

The first two series of public meetings seemed to have only minor impacts on the planning process. Participants urged the Corps Staff to continue the meetings in order to continue to provide an opportunity for the public to participate. Other participants were strongly critical of the Corps for not working in closer harmony and cooperation with local (township and municipal) planning agencies. Proposal by one participant, supported by another, for the Corps to establish a 9-man Technical Advisory

Committee was received by the Corps, but not acted upon due to the existence of the Coordinating Committee.

The third series of public meetings - especially those held at Bad Axe and Monroe - had a definite impact on the land treatment alternative. Serious questions were raised about the accuracy and soundness of Corps data in regard to soil composition, ability of soils to accept 2 inches of water a week for 35 weeks a year, and necessity for government ownership of farmland utilized for wastewater treatment. Later events impelled the Corps to undertake further land treatment studies, but the basis for such additional considerations was laid in these public meetings.

D. IMPACT OF INFORMAL CONTRACTS

The 9 February 1973 meeting at the Corps District Office, requested by State Senator DeGrow, and the 8 March 1973 at East Lansing of representatives of the Corps, Soil Conservation Service, State people and MSU faculty together set the stage and the direction for additional land treatment study. The wisdom of this step was in a sense confirmed by the 8 March and 30 March meetings of Corps Staff with Farm Bureau representatives and the 30 April Corps meeting with Extension Service people.

E. IMPACT OF RELATIONSHIP WITH OTHER AGENCIES

There is no doubt that the extensive informal sessions that Corps Staff set up with local officials and citizens during 1972 and 1973 were of benefit to the planning process, but more from the information-procedures-reaction standpoint than from actual technical contributions.

VI. PARTICIPANTS' VIEWS OF PROGRAM

The following statements are presented as a cross-section of participants' views of the Wastewater Management program, as it was in the process of developing.

24 April 1972 Public Meeting in Detroit

"We are concerned that land disposal has been designated as a major alternative in the face of overwhelming evidence that it will result in the devastation of one of man's more precious resources, the soil, which many experts even now warn is becoming critically scarce, and that the hygienic risks of the land disposal methodology could conceivably be very high, compared to water disposal methods . . .

"No consideration has been given to the effect of combined sewer separation programs or to the possibility of utilizing a lower degree of treatment of stormwater, which is radically different in composition from sanitary wastewater. Nor was the strategy of controlling stormwater contamination at the source through such measures as erosion control, chloride, pesticide, insecticide and fertilizer restrictions, and comprehensive streetcleaning programs, mentioned."

Duane R. Egeland, Chief Engineer of the Department of Public Works, Wayne County Road Commission (A Staff statement, later confirmed by the Wayne County Road Commission, the policy body)

27 July 1972, Public Meeting in Detroit

"We Southeast Michigan Leagues of Women Voters drew up six objectives for an effective and efficient wastewater treatment system . . . They are:

1. Active dissemination of information to the public for understanding needs and programs.
2. Approval of regional approach by underlying local municipalities when required.

3. Installation of improved treatment, over and above plant secondary treatment, to constantly improve the quality of wastewater - both sanitary and stormwater. Engineering for these improvements to be built in to encourage speedy and economical installation at a possible later date.
4. Investigation and application of new techniques which might minimize the discharge of effluent into Lake Erie.
5. Construction of interceptors and other sewers to be accomplished and supervised in a manner which will provide the best safeguards for the surrounding environment.
6. Establishment of a responsible and responsive governing body for the new sewage treatment area."

Shirley Wall, Environmental Quality Committee,
League of Women Voters of Michigan

11 December 1972, Public Meeting in Bad Axe

"The system would require about half of the total land in Huron County . . . much of this is highly productive land, it is not waste land, it is not land which really would be benefitted by the nutrients that would come from this process . . . the economic and social impact in Huron County would be in the proportions of a disaster . . .

"There is no offsetting benefit to the air and the land and the water of Huron County . . . The engineering, construction and operation difficulties are seriously obviated by a lack of uniformity of the soil and sub-soil and this is one of the points that I feel has not been adequately understood or determined by the Engineers . . .

"It is impossible for me to see why this alternative should be given further consideration by the Corps or submitted to the State of Michigan as the viable alternative, as one of the seven. In any case, adverse economic and social impacts of major proportions to the county when the whole corrupt situation is changing

half of the area . . .

"The system is incompatible with existing treatment modes. The system requires almost complete abandonment of existing plants, in contrast with other alternatives which may use and make full use of the existing facilities."

LTG(ret) Lawrence Lincoln of family of long-standing land owners in Huron County.

13 December 1972, Public Meeting in Monroe

"These sewage farms would not be the problem of the communities which caused the mess. Detroit does not, of course, have space for sewage farms. They have to be somewhere else. In other words, we alleviate the problem for Detroit by taking it somewhere else. We are merely shifting the burden. The problem continues to exist. I feel that it is an injustice to shift a problem which starts in metropolitan Detroit to somewhere else. What should be done instead is to correct the problem at its source . . .

"With the construction of the sewage farms in Monroe and the various townships involved, this will affect the tax base in both school district government and the township government. This will become a financial burden and could effectively remove the entire township off the face of the map."

State Representative Edward F. Mahalak,
of Romulus

The gist of additional participants' views of the Wastewater Management Study are presented in the following:

"We recognize the merits of the land treatment system. It may have some adaptability to some areas of Monroe County of marginal character. Hope that the land use will stay within the pattern of the overall TALUS plan that is now being modified more realistically.

John Knox, Executive Director, Monroe County
Public Planning Commission, at 24 April 1972
public meeting

Deep concern expressed as to what can be done now on some wastewater
problems, such as, septic tanks, recognizing that the study will take
several years to be put into effect.

Leonard Drick, Novi, at 27 April 1972 public
meeting.

Repeated question raised regarding Corps program on wastewater manage-
ment duplicating work being done by SEMCOG.

Mayor Levin at Mt. Clemens, local official of
Armada, and women citizen, at 26 July 1972
Mt. Clemens meeting.

Possible Huron River interceptor - need for seriously questioned and
strong opposition expressed.

Washtenaw County official and private citizen, at
25 July 1972 Ypsilanti public meeting

Expression of interest and concern that residents be able to tie into
land treatment system.

Citizen at 12 December 1972 Richmond public
hearing.

Problem raised concerning the amount of sludge that would be produced
by wastewater treatment systems and how it would be disposed of.

Citizen at 14 December 1972 public meeting.

VII. EVALUATION OF PROGRAM TO DATE

A. MAJOR ELEMENTS OF PROGRAM

As noted in the first part of this report, there were six major elements in the public participation program. Each of these deserves a critical assessment at this stage of the total study.

1. Coordinating Committee

This body was unable to make major contributions to the study, primarily for two reasons: (1) It was not sufficiently representative of the county and local agencies that are engaged in wastewater collection, treatment and disposal in southeast Michigan. It was heavily weighted with representatives of Federal and State agencies. Directors of County DPW's, County Drain Commissioners, and several city engineers from larger cities might well have been included. (2) It was never afforded a significant participative part of the conception, structuring, and monitoring of the study. Obviously, the members could not serve as policymakers, but their technical expertise and their knowledge of the character, needs and operations of the wastewater treatment facilities in the region could have been utilized to a much greater extent.

In spite of these handicaps, it will be important to the study to challenge the Coordinating Committee members to make critical appraisals of the next-to-the-final draft reports of the study as they are reproduced.

2. Environmental Workshops

Successful workshop techniques probably depend on several factors. Common concerns on the part of the organizers and participants must be elevated to the "want to do something about it" level. A working level of technical ability and understanding must be early achieved. The strategy of the agenda of the workshop meetings must be worked out on a progressive involvement basis.

The three June 1972 workshops on wastewater management were something more than "going through the motions", but a good deal less than pleasing in their productivity. Certainly, a more earnest and widespread job of recruiting participants might well have been attempted. Other alternatives

than the matrix charts might have been attempted as a mechanism of workshop input. A second series of workshops - 2 and 3 months later - with homework assignments could have built on the shakedown experience of the first series and led to some real production for the study.

3. Public Meetings^{1.}

Size of attendance, degree of participation, and quality of comments and suggestions might serve as criteria for the value of public meetings. Attendance at the 4-meeting series jumped from 107 in April 1972 to over 1,100 in December 1972. Participation increased from a handful of questioners to a broad cross section of the meeting. The quality of the last series was concentrated on the consideration of one alternative system - land treatment - but at that point it made a decided impression. To insure both attendance and quality, more effort could have been expended the first 2 sets of meetings in face-to-face contacts with officials and key citizens in the field well in advance of the meetings. (The post-meetings follow-up of this procedure proved of great value - to the Corps Staff and to the officials contacted in the field.)

In addition to more press announcements of forth-coming public meetings, the issuance of some informational material, in brief form, to organizations and agencies in the field might well have stimulated more and better prepared attendance for the first two series of public meetings.

The format of the public meetings in some cases did not seem to fit the needs and opportunities of the situation. In all but 2 of the meetings, there was scarcely any response in terms of statements from attendees. Most participants wanted to ask questions and to discuss items. The pattern of one introductory and information talk was adequate, and the use of graphic materials proved helpful. Likewise, the use of Corps Staff experts to answer technical questions from the floor helped create a participative and collective mood.

1. Mr. Reid did not comment upon the final series of public meetings.

4. Informal Meetings

There were 26 such informal meetings in 1972 and 10 during the six

months of 1973. In general the 1972 meetings of this kind were informational on the part of the Corps Staff and exchange-informational with some of the operating agencies in the field. Both functions were valuable. The 1973 informal meetings were dominated by the tempestuous December 1972 public meetings and the storm of protest therein generated in regard to the land treatment system. It is significant that no 1972 meetings were held with Farm Bureau people or soil conservationists, but chiefly with county and city sewage treatment people. The insights and value of the Corps Staff members, who took part in and often set up these informal meetings, were enhanced by these experiences. Likewise, the Corps' credibility in the field was advanced.

5. Talks Before Groups

According to the record, on only 3 occasions did Corps Staff appear before groups and organizations to make public presentations on the Wastewater Management Study. These three organizations were: the Michigan United Conservation Clubs at the State level; the annual meeting of the state Audubon Society, and a state industrial wastewater conference. A more concerted effort might have been made in Southeastern Michigan to get out information to the public and to governmental agencies through meetings on the Wastewater Study. Instead, the Corps seemed to respond only when asked; it did not seek to be asked!

6. Relationship to Other agencies

As noted in the body of the report, the Detroit District of the Corps has a significant history of good working relations with a number of Federal, State and local agencies. Corps Staff has worked in committees and councils with the Michigan Water Resources Commission and the Southeast Michigan Council of Governments. This study plunged the Corps Staff into more intimate relationships with the Farm Bureau, Soils Conservation Services people, and Extension Services staff of MSU. While contacts were made with County Drain Commissioners and officials of County DPW's during the course of the study, these contacts and relationships were not put on a continuing or an organizational basis. Thus some of these relationships were not conserved. Likewise contacts with some citizen's groups have not been conserved, such as, the League(s) of Women Voters, the "Rescue of Rouge" organization and the Sierra Club.

B. OVERALL SUMMARY

The urgency, the quality and the value of public participation in governmental programs tend to vary according to the nature of the program and the diversity of public interests and concerns. Due to a combination of earnest efforts on the part of the Corps Staff and mounting pressure from the field, the Detroit District attained a significant amount of public participation during the major part of the Wastewater Management Program. Inadequacies in approach and execution have already been pointed out.

The Corps Staff had little experience and less training for this study kind of a public participation program. Collectively, it now has some valuable experience and insights under its belt. Stimulating public participation is not only conditioned by the character of the public issue presented for consideration, but is also dependent on social senses and participative attitudes. The Corps Staff has learned what needs to be done, as well as some things to avoid, in seeking public participation.

VIII. ENCLOSURES

- A. Wastewater Management Brochures.
- B. Public Meeting Materials.
- C. Digests of Public Meetings.
- D. Minutes of Coordinating Committee Meetings.

The Search For Clean Water

Alternatives For Managing Wastewater In Southeastern Michigan

An Information Brochure

(No. 2)

November 1973



U.S. Army Corps of Engineers
Detroit District

THE SEARCH FOR CLEAN WATER

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Dear Fellow Citizen:

In 1971 Congress authorized the Detroit District of the Corps of Engineers to develop and evaluate various alternatives on how best to manage wastewater in southeastern Michigan, taking into consideration just how the area would be developed in 1985 and as far into the future as 2020. Our evaluation was based on current and proposed urban development patterns in southeastern Michigan and a knowledge of the requirements for planning connected with a federally financed wastewater management program.

As the study progressed, it became clear that the solution to environmental problems was considered to be of great importance by you the residents of the area. I would like to emphasize that your concern for the quality of life and the environmental aspects related to living in southeastern Michigan is also our concern. The management of wastewater in this area, as practiced in the past, has not always been completely successful.

As a result of the Congressional Authorization the Corps developed three proposed methods for the treatment of wastewater in the southeastern Michigan study area. They are:

- 1. Advanced wastewater (Biological) Treatment (AWT)*
- 2. Independent Physical-Chemical Treatment (IPCT)*
- 3. Land Irrigation Treatment of Wastewater*

These three proposals were paired down from a larger number of alternatives. They were the results of studies and consultations with engineer firms, specialists from the academic community, soil scientists, planners and economists as well as our own technical staff. Additional assistance was obtained from meetings with the interested public, and Federal, State, regional and local agencies, along with the close examination of proposals and plans on file with other agencies; and assessments of environmental, economic, social, institutional and engineering factors. The design of these wastewater management alternatives was aimed at meeting the ultimate water quality goal as established by the Federal Water Pollution Control Act Amendments of 1972 - Public Law 92-500, eliminating the discharge of pollutants by 1985.

This brochure is a digest of the Survey Scope Study and an introduction to wastewater management in southeastern Michigan. It is provided strictly as a service to help you, the people of the region, in the complex tasks of selecting your future wastewater management systems.

The results and recommendations of the Study, after review by local, regional, State and Federal interests will be forwarded to the Governor of Michigan for his use in further decisions on wastewater management in the area.

As you read through this brochure, you may have certain questions and comments concerning the Study. At the back of the brochure you will find several blank pages where you can record these.

Your involvement and interest in sound wastewater management practices will be of great help to the agencies involved, as well as yourself, in how we can best balance the environmental aspects with the works of man.

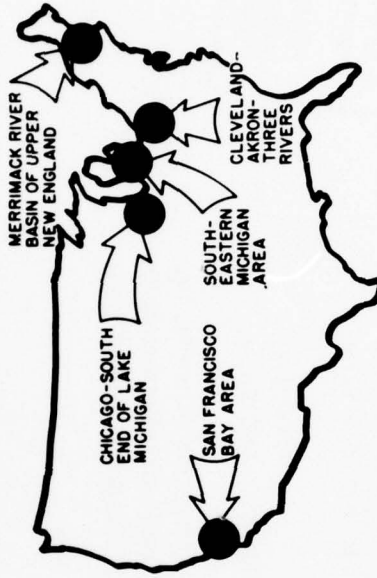
Sincerely yours,

James E. Hays

JAMES E. HAYS
Colonel, Corps of Engineers
District Engineer

In 1970, Congress directed the Secretary of the Army, thru the Office of the Chief of Engineers, to undertake pilot wastewater management programs in five major urban areas of the United States; The San Francisco Bay Area, the Chicago-South End of Lake Michigan Area, the Cleveland-Akron Area, the Boston Merrimack Area, and the Detroit Southeastern Michigan Area.

AUTHORIZED WASTEWATER MANAGEMENT STUDY AREAS



The responsibility to develop and evaluate alternative management systems to aid in the solutions of wastewater problems in Southeastern Michigan was subsequently assigned to the Detroit District Corps of Engineers.

The Detroit District completed a feasibility study in 1971 which addressed the problems of wastewater management in southeastern Michigan.

That study identified treatment technologies, and presented broad water quality management alternatives.

In the feasibility report the District concluded that a more detailed survey scope study be undertaken to develop total regional management plans.

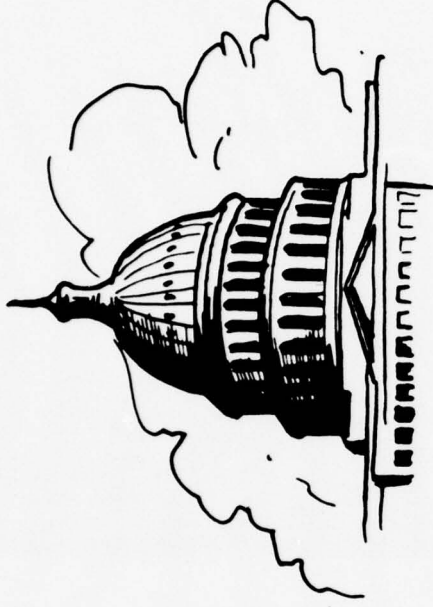


The proposed survey scope study would require the full participation of concerned governmental organizations and interest groups, and would include the following activities:

- Further investigations of combinations of regional treatment techniques;
- Investigation of a full range of treatment technologies, including independent physical-chemical treatment, advanced wastewater (biological) treatment, and land treatment;
- Consideration of a large collection system for southeastern Michigan's storm runoff; and
- Investigation of a full range of environmental, social, and institutional effects of large-scale treatment operations.



After reviewing the feasibility report the Congress directed the Corps of Engineers to undertake a more detailed survey scope study of alternatives for wastewater management in southeastern Michigan.

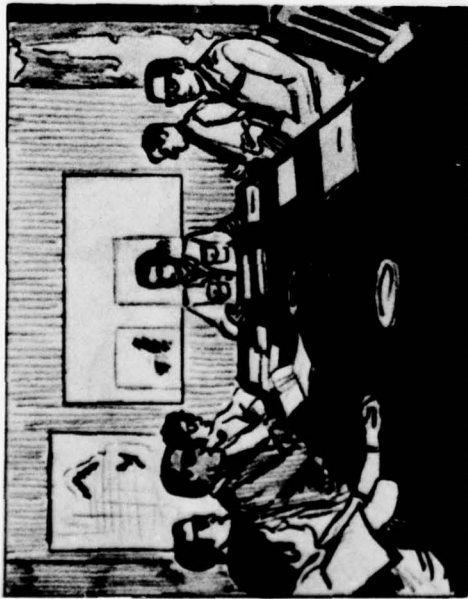


Study objectives include:

- Development and examination of long-range management plans to meet anticipated Federal and international water quality legislation; and
- Evaluation of these plans in terms of environmental, social, economic and institutional considerations.

Management alternatives developed in the survey scope study should meet these goals:

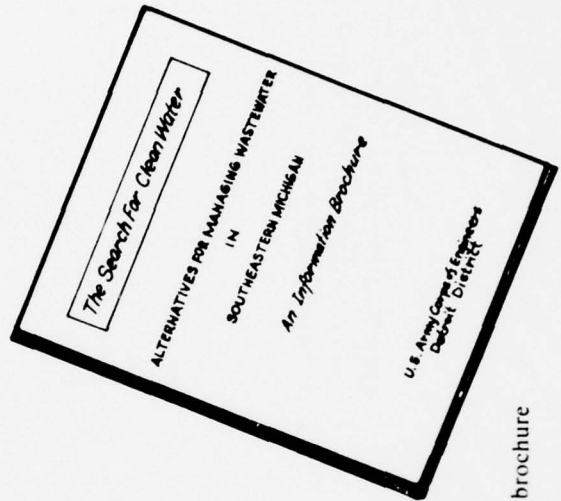
- Fulfillment of Needs
- Technical Feasibility
- Flexibility
- Institutional Realism
- Completeness



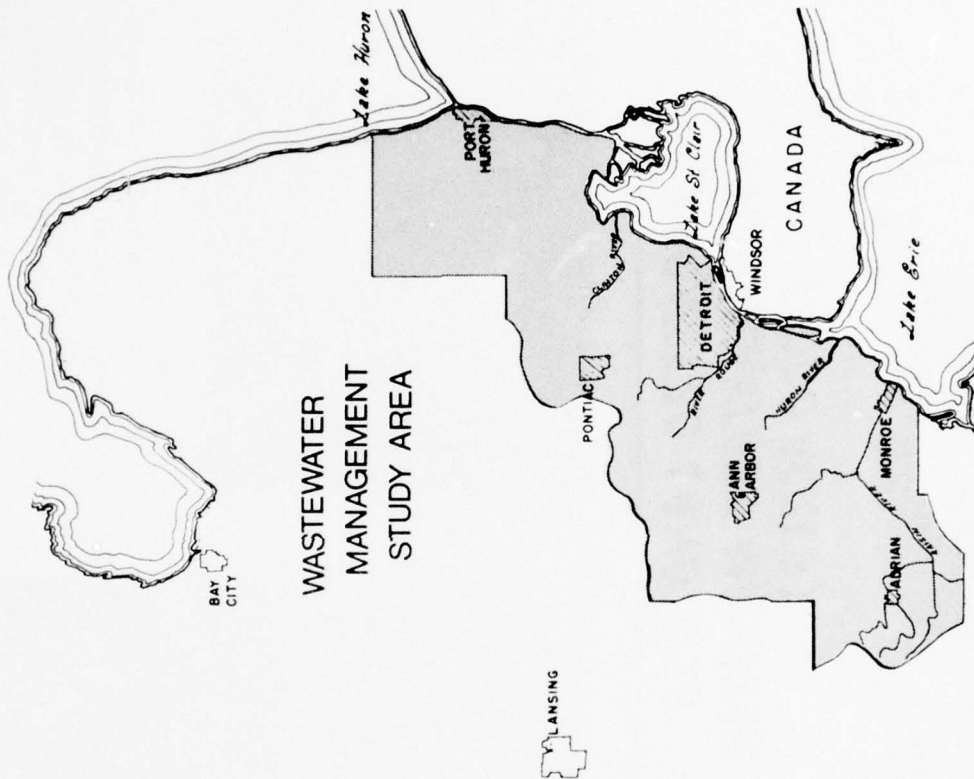
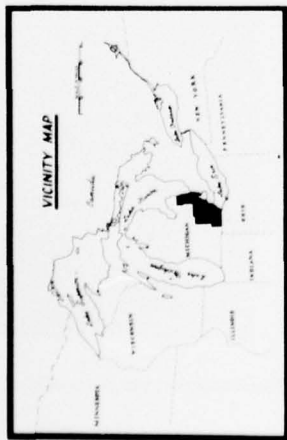
To identify public and agency wastewater management concerns and interests the District has conducted several public meetings and numerous agency briefings.

To effectively formulate and communicate the survey scope study a Coordinating Committee has been formed. It is composed of various Federal, State, regional and local agencies and interest groups concerned with wastewater management.

The purpose of this second brochure, like the first, is to inform the public of the study and to solicit your comments.



Cover of first District brochure

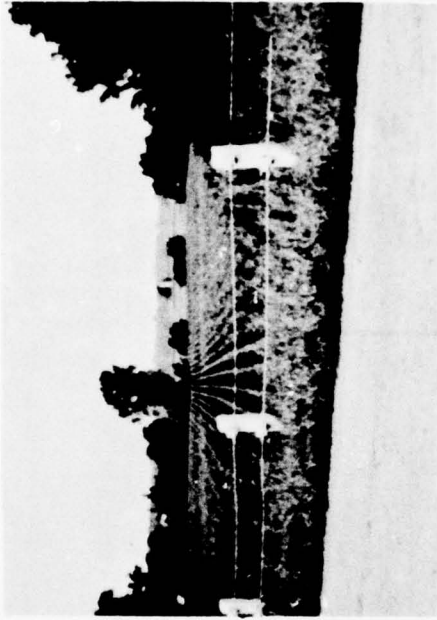


The southeastern Michigan area, consisting of 5,372 square miles, includes seven major River Basin drainage systems: Black River, Pine River, Belle River, Clinton River, Rouge River, Huron River and the Raisin River.

The major cities in the study area are: Metropolitan Detroit, Port Huron, Mount Clemens, Pontiac, Ann Arbor, Ypsilanti, Adrian, and Monroe. The total drainage area is about 145 miles long with an average width of approximately 37 miles.

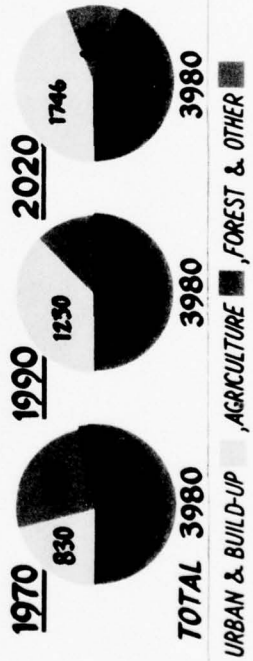
THE
STUDY
AREA

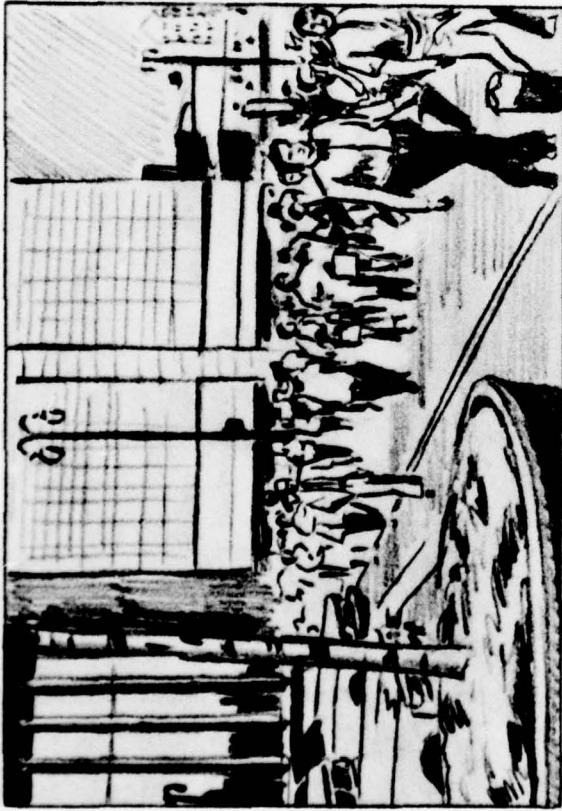
Current land use patterns, as developed by the Southeastern Michigan Council of Governments in 1965, depict agricultural lands as comprising the major portion of the southeastern Michigan area.



Future land use development plans indicate that by the year 2020 the total urban and developed area will nearly double. During the next 20 years, new urban developments in the region will require approximately 1100 square miles, with the major portion of this acquisition coming from agricultural land.

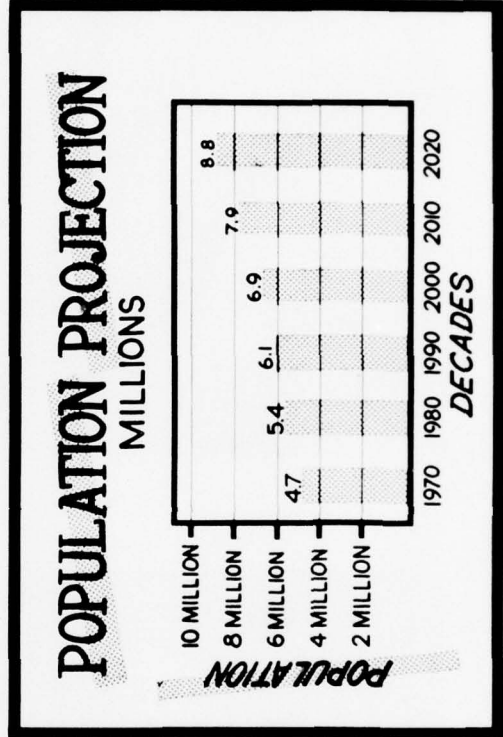
PROJECTED LAND USE SOUTHEASTERN MICHIGAN (1000 ACRES)





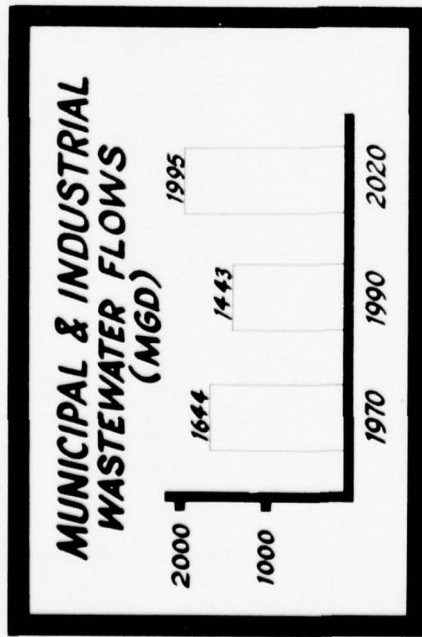
During the decade of the 1960's the population of the southeastern Michigan area grew from 4 million to 4.5 million.

THE
PEOPLE



The population for 1990 is expected to reach 6.1 million, and then upwards to 8.4 million by the year 2020.

The major sources of water pollution in the southeastern Michigan study area are, municipal wastewater, industrial wastewater, and urban storm runoff.



Municipal and industrial wastewater (M&I) account for a major portion of the total pollution load from the area. The projected flows are shown on the chart below. The decreased 1990 flow projection is caused by an expected increase in recycling of industrial wastewater. Increased population growth by the year 2020 generates the upward M&I projections.



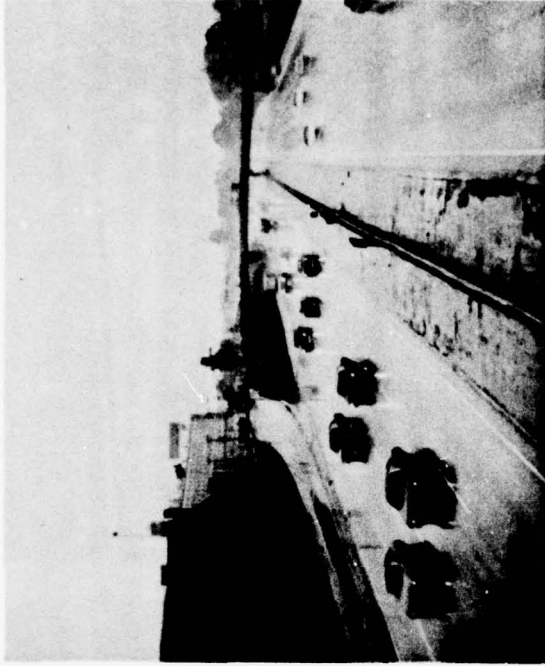
Adrian treatment plant handling both municipal and industrial wastewater

THE PROBLEM

In many instances cities have combined sewer systems which collect both municipal and industrial wastewater and urban storm runoff. Sewer capacity is often exceeded when heavy rains occur, and overflows result. Water which overflows the sewer is discharged directly to rivers and streams without treatment.

COMPARISON OF STORM-WATER & M & I FLOW

▷ ANNUAL M & I FLOW ...	530 BG
▷ ANNUAL URBAN STORM RUNOFF ...	MEAN ... 220 BG
	25 YR ... 480 BG
▷ AVERAGE DAILY M & I VOLUME ...	1.4 BG
▷ MAXIMUM DAILY URBAN STORMWATER VOLUME ...	70 BG



Runoff from freeway

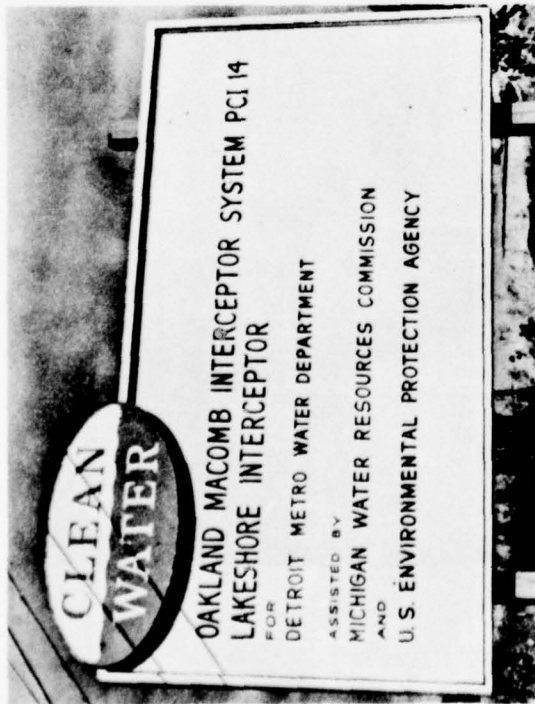
Stormwater has recently been recognized as a source of pollution, particularly in cities with separate collection facilities. The Detroit District has designed systems to effectively handle this storm runoff, in addition to municipal and industrial wastewater.

Our early studies indicate that pollution from nonurban areas is significant, both in terms of volume and pollutant load. Different solutions to its control are necessary. Proper land management techniques, for example, could help to alleviate such sources as feedlot runoff, sheet erosion, and improper use of pesticides and fertilizers.

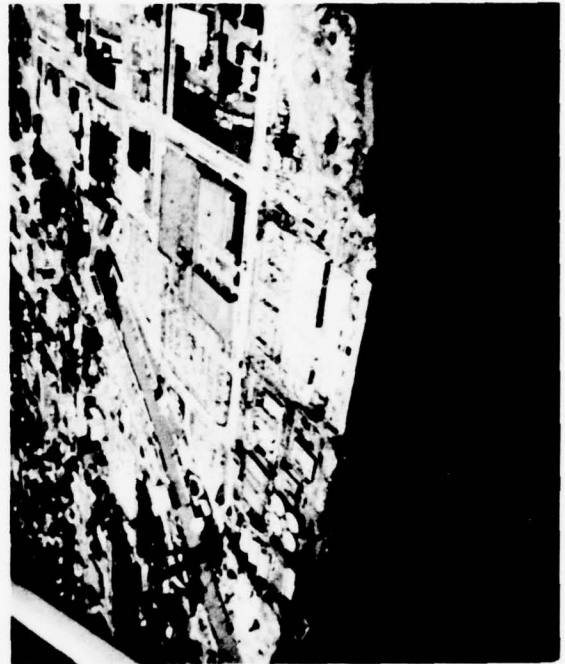
This survey scope study is concerned with urban pollution sources and does not address nonurban sources. It is judged that nonurban (unsewered areas) pollution will require entirely different approaches than those used for urban areas.

The development of alternative wastewater management systems for the southeastern Michigan study area required the recognition of existing water quality plans and programs.

The major existing plans concerned with the southeastern Michigan area are those of the State of Michigan, the Detroit Metropolitan Water Department, the Wayne County Road Commission, and the Southeastern Michigan Council of Governments. There are several other wastewater planning efforts, municipal and county in scope, which have been taken into consideration in the development of representative wastewater management alternatives.



Construction at Jefferson Avenue treatment plant in Detroit

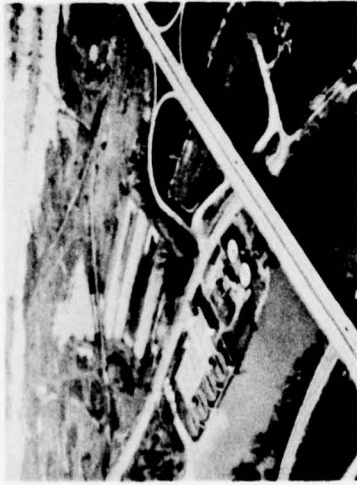


Construction at Port Huron treatment plant

CURRENT PLANS

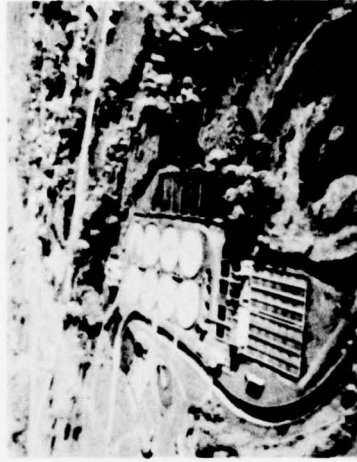
The State agency responsible for establishing the quality of treated wastewater in Michigan is the Michigan Water Resources Commission, MWRC. The MWRC has established two basic plant classifications for effluent quality:

Standards for treatment plants situated along the Great Lakes and connecting channels.

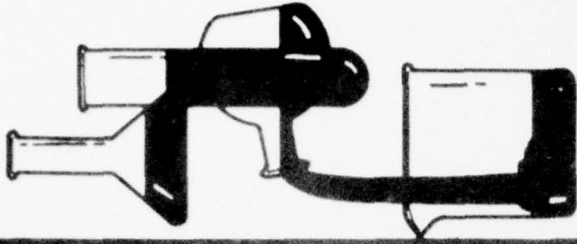


Monroe County treatment plant discharging to Huron River

Standards for treatment plants discharging to inland waterways



Pontiac treatment plant discharging to Clinton River



WATER QUALITY REQUIREMENTS

The Water Resources Commission has directed that higher effluent quality standards be established for those treatment plants discharging to inland waterways.

In October, 1972, the United States Congress approved the Federal Water Pollution Control Act Amendments - Public Law 92-500. Three key objectives in this legislation which relate to potential wastewater management proposals are:

- Wastewater management proposals will be regional in scope;
- All sources of pollution will be considered;
- Emphasis will be given to the maximum practicable levels of reuse and recycling.



The law also establishes key wastewater management schedules:

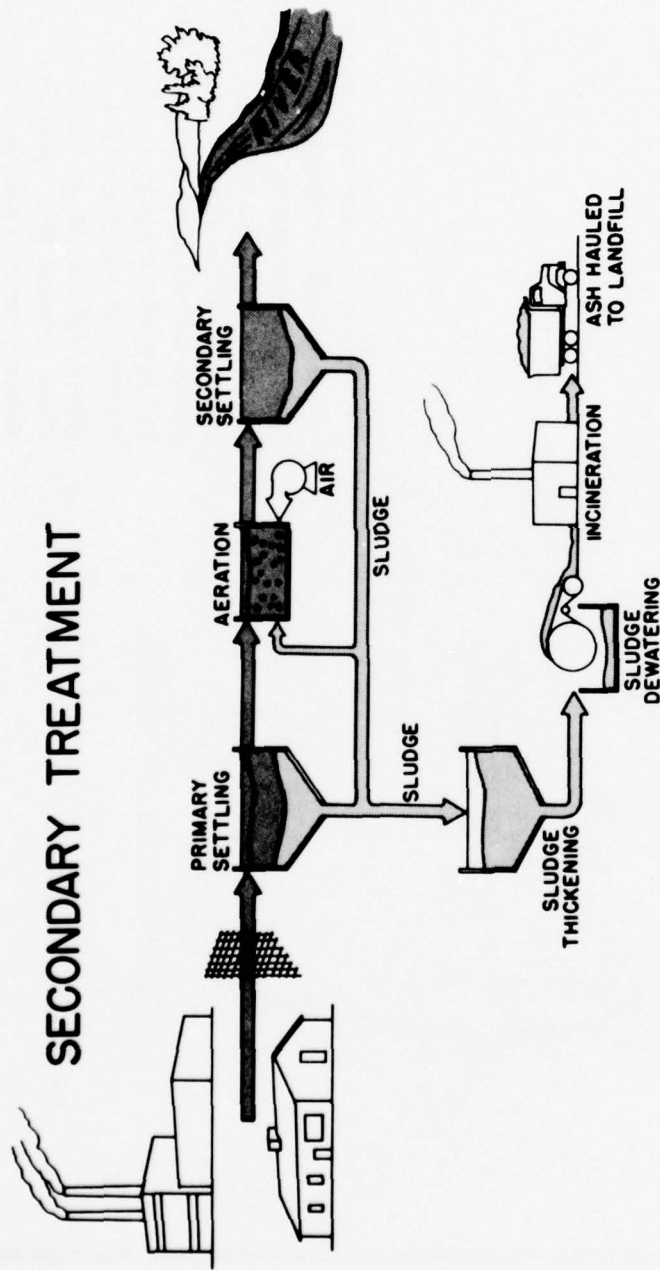
- 30 June 1974 Studies for "best practicable technology" (as defined by the Environmental Protection Agency or the State);
- 1 July 1977 Secondary treatment for publicly owned plants;
- 1 July 1983 Best practicable treatment for publicly owned plants.

Over and above these objectives and schedules the Law contains a far-reaching National goal for wastewater management,

- Elimination of the discharge of pollutants to our waterways by 1985.

All of these formed the basis for developing alternative wastewater management plans for southeastern Michigan.

The current minimum effluent quality established by the Water Resources Commission is secondary treatment with phosphate removal.



The Michigan Water Resources Commission has prepared regional wastewater management alternatives for southeastern Michigan, as part of its responsibility to administer both Federal and State water quality management programs.

Utilizing these proposals the Detroit District has developed a wastewater management plan for its study area, to meet the current water quality standards of the State of Michigan. The plan is presented as an interim water quality plan for, depending upon interpretation of Public Law 92-500, it could possibly satisfy the 1983 requirement of "best practicable technology"; but it possibly may not meet the 1985 requirements.

To achieve the "no discharge of pollutants" goal of Public Law 92-500 this survey scope study has investigated three wastewater treatment technologies for planning in the southeastern Michigan study area:

- Advanced Wastewater (Biological) Treatment (AWT)
- Independent Physical-Chemical Treatment (IPCT)
- Land Irrigation Treatment

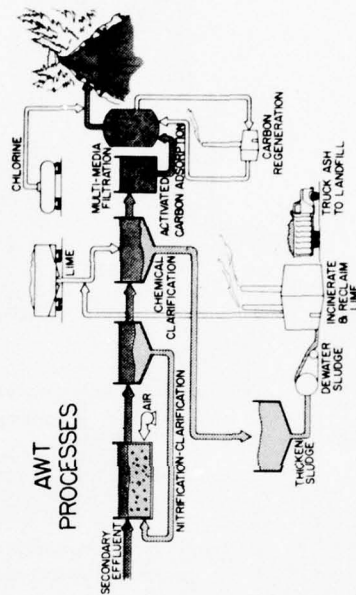
All three treatment technologies are capable of achieving high levels of pollutant removal and wastewater renovation. However, certain variations in individual treatment processes make these technologies distinctly different from each other.

Advanced wastewater (biological) treatment can be defined as a system which utilizes the conventional primary and secondary processes as a base, with additional, or tertiary, processes used to achieve higher quality treatment.

Primary processes remove, by screening and settling, a major portion of the sewage solids.

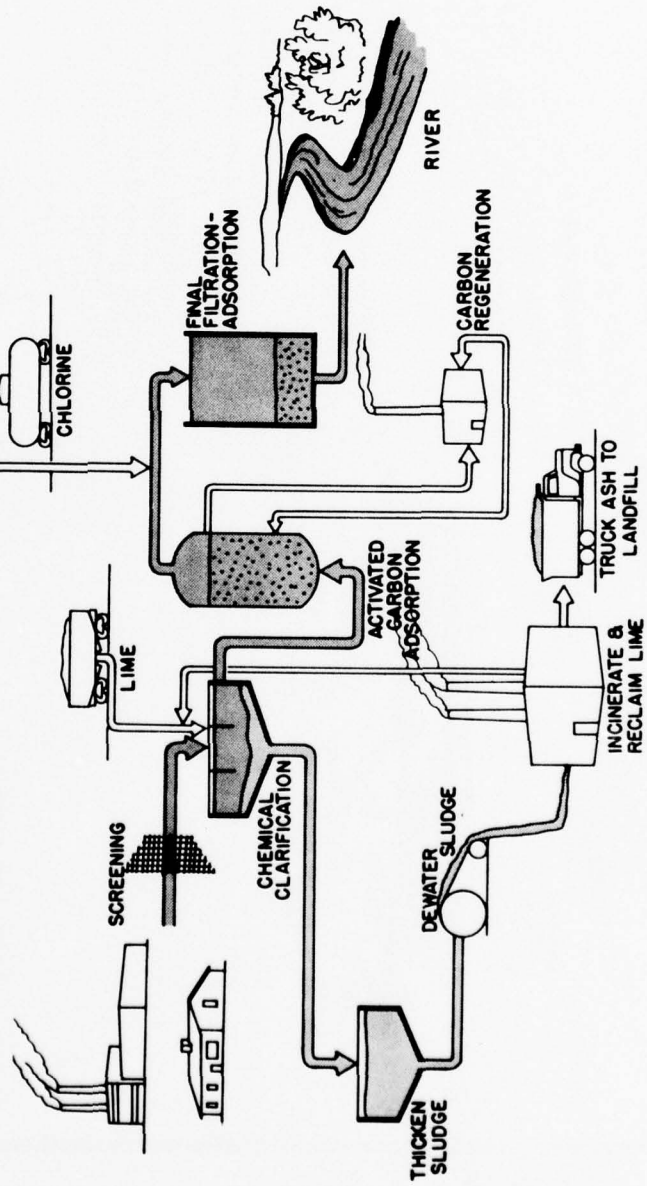
The secondary process is a biological operation whereby bacteria use the organic matter contained in wastewater as food, and convert it into carbon dioxide and water.

Tertiary, or third-stage, treatment includes a variety of physical and chemical processes employed to remove specific pollutants such as nutrients or heavy metals.

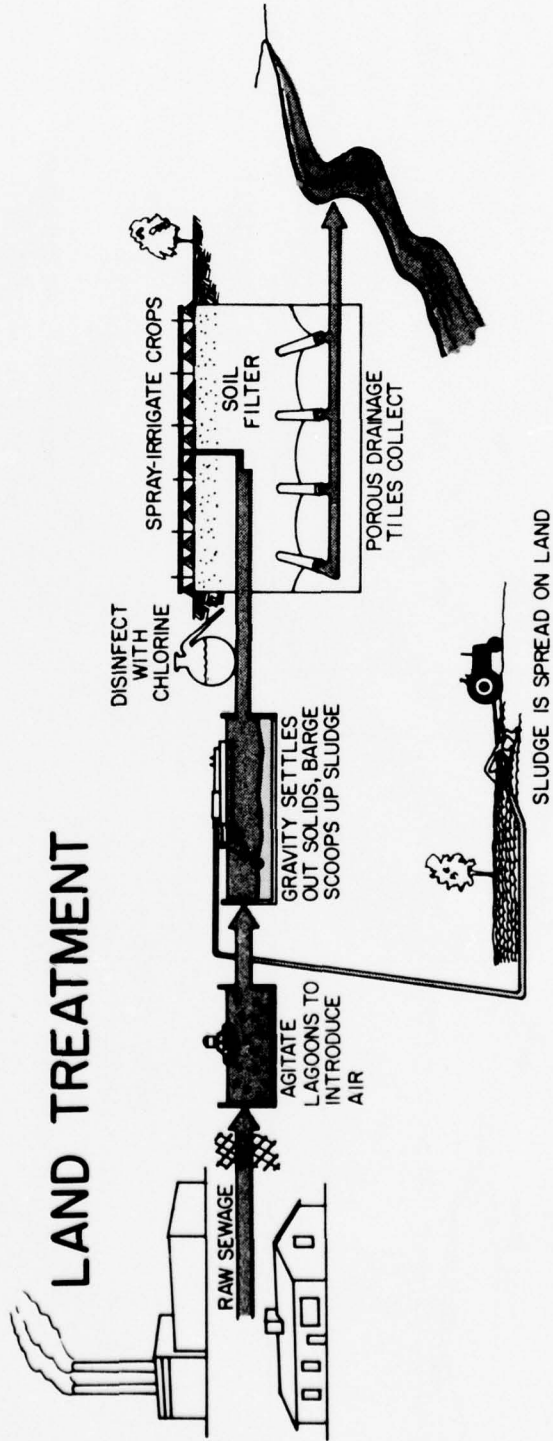


Independent Physical-Chemical Treatment (IPCT) uses no biological treatment processes. Instead, after normal primary treatment, physical and chemical processes are utilized to reduce the concentration of pollutant constituents. Due to the absence of biological processes the IPCT process is less susceptible to operational problems, and reduced effectiveness caused by shock loadings of highly concentrated wastes or toxic industrial discharges.

IPC TREATMENT



The Land Irrigation Treatment System for wastewater management employs soil and growing plants in the removal of pollutants found in wastewater. It relies on the existing soil biota, the soil filtering capacity, and the chemical exchange ability of the soil to retain the nutrients in wastewater for consumption by the crops. Land irrigation as proposed in this study would be preceded by secondary treatment in wastewater lagoons, followed by disinfection to minimize health hazards.



Two concepts of the Land Irrigation Treatment technology were examined: one that emphasizes wastewater application and one that emphasizes crop production.

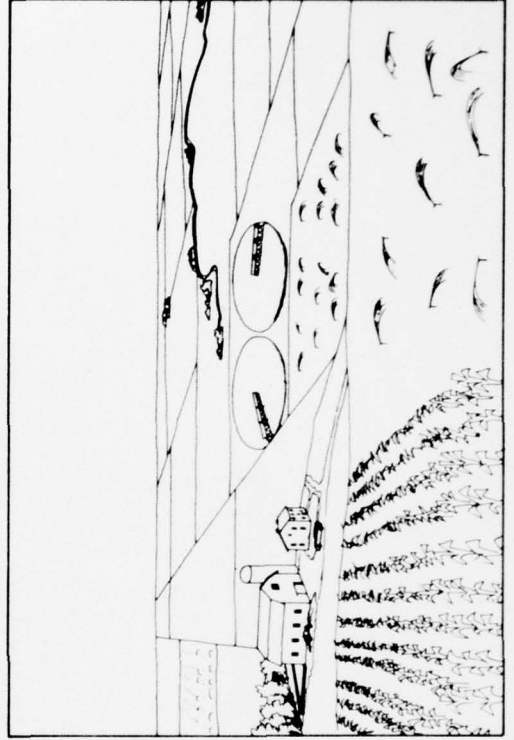
The "Emphasize Application" concept proposes:

- There will be total control of the land;
- All residences will be removed from designated land areas;
- Certain crops are specified to receive treated wastewater;
- The irrigation schedule is fixed;
- This concept utilizes the maximum amount of land.



The "Emphasize Crops" concept proposes:

- Private control of the land would be maintained;
- It is possible to retain residences with this concept;
- This concept would allow for the retention of agricultural patterns i.e. current land use and retention of crops;
- The irrigation schedule allows for flexibility;
- This concept compliments the agricultural economy, and there is flexibility in determining land for treatment.



Several wastewater management alternatives were developed for this survey scope study. To insure that the study goals were met and to eliminate undesirable effects to the highest degree possible each alternative wastewater management system was subjected to performance tests in these areas: Social Assessment, Ecological Assessment, Hygienic Assessment, Economic Assessment, Agricultural/Economic Assessment, Institutional, Technical, and Aesthetic Assessments. Various evaluation parameters were developed and utilized in these assessments.



THE
EVALUATION
PROCESS



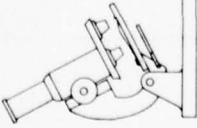
SOCIAL ASSESSMENT

- POPULATION DISPLACEMENT.
- RECREATION OPPORTUNITIES.
- LIFE STYLE AND SOCIAL STABILITY.
- INCOME AND SOCIAL MOBILITY.



ECOLOGICAL ASSESSMENT

- EFFECTS ON RIVERS AND STREAMS
- EFFECTS ON LAKE ERIE AND LAKE ST. CLAIR
- EFFECTS ON AQUATIC LIFE AND WATERFOWL
- EFFECTS ON SOIL FROM WASTEWATER APPLICATION AND SLUDGE DISPOSAL.



HYGIENIC ASSESSMENT

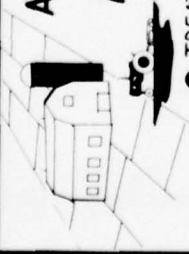
- EFFECTIVENESS OF DISINFECT-ION PROCESS.
- IMPACTS FROM SLUDGE INCINERATION.
- IMPACTS OF TREATMENT FACILITY OPERATION ON POPULACE.
- OCCUPATIONAL HEALTH CONSIDERATIONS.



ECONOMIC ASSESSMENT

- EMPLOYMENT CONSIDERATIONS
- AREA INCOME DATA
- LAND USE COMPATIBILITY.
- POPULATION TRENDS.

AGRICULTURAL ECONOMIC ASSESSMENT



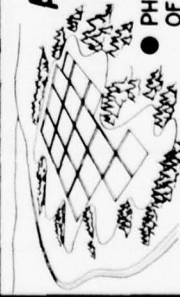
- TREATMENT SITE CHARACTERISTICS.
- FARM ORGANIZATION.
- LAND USE AND PRODUCTION CHANGES.

INSTITUTIONAL ASSESSMENT



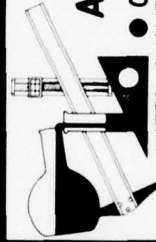
- DESIGNATION OF WASTEWATER MANAGEMENT INTERESTS.
- EXAMINATION OF AGENCY AUTHORITY.
- SELECTION OF FEASIBLE MANAGEMENT SCHEMES.
- DISCUSSION OF FINANCING COMPREHENSIVE WASTEWATER MANAGEMENT.

AESTHETIC ASSESSMENT



- PHYSICAL CHARACTERISTICS OF FACILITIES.
- LAND USE COMPATIBILITY.
- POTENTIAL FOR ADDITIONAL LAND USE.
- DESIGN CONSIDERATION.

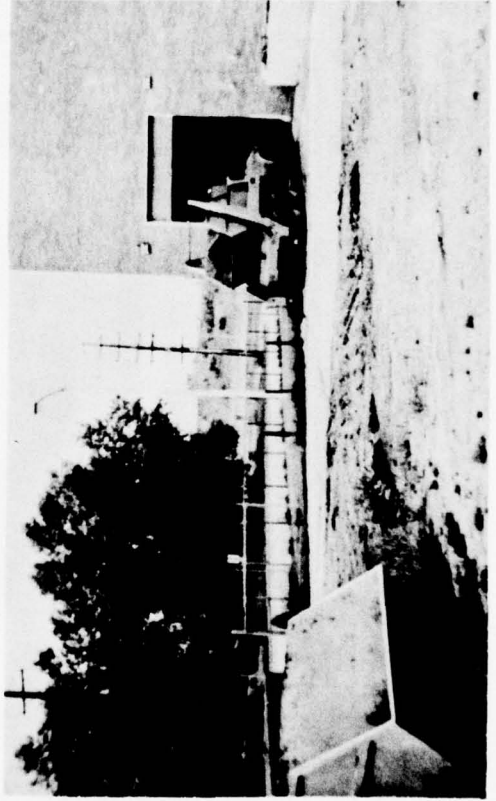
TECHNICAL ASSESSMENT



- CONSISTENTLY MEET HIGH WATER QUALITY STANDARDS.
- ENERGY AND RESOURCE DEMANDS.
- LIMIT PRODUCTION OF UNDESIRABLE BY-PRODUCT.
- COST EFFECTIVENESS.

The evaluation of these tests resulted in several significant findings from which more refined and representative plans were developed.

- Advanced Wastewater (Biological) Treatment (AWT) is the most feasible technology for improving existing treatment plant processes.
- Independent Physical-Chemical Treatment (IPCT) is the most acceptable treatment process for new treatment plants.
- An alternative management system utilizing Land Irrigation Treatment processes alone is not feasible for treating the total flows for the study area. However, the Land Irrigation Treatment process is practical to handle lower flows.
- Of the various methods of handling treatment plant sludges, incineration is the most viable.
- Storm runoff requires storage prior to treatment.



Sludge incineration at treatment plant

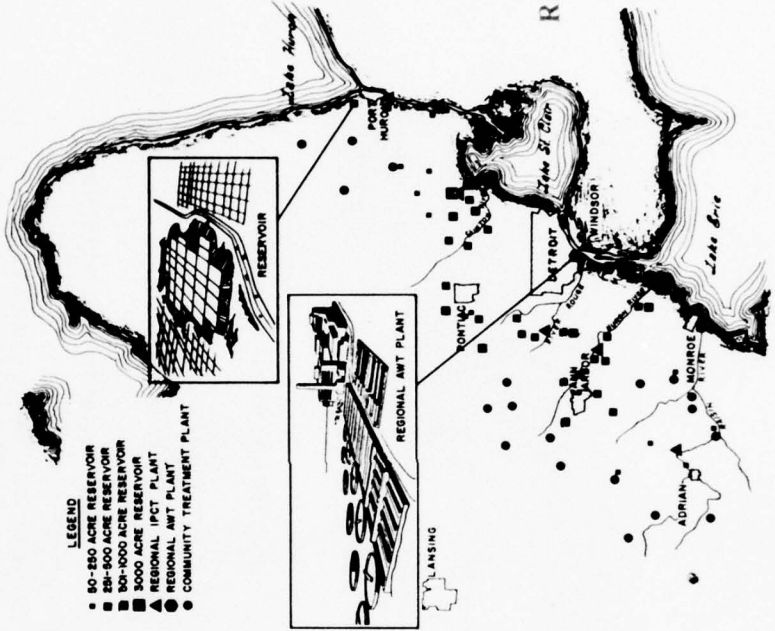
Three alternative wastewater management system proposals are provided for further consideration in meeting the 1985 goal of Public Law 92-500, for the Southeastern Michigan area. The interim requirement of this law could be met by proper sequencing of the implementation of these plans. In addition, the Interim Water Quality Plan is offered as a proposal which would achieve the 1983 goals of Public Law 92-500.

Representative Plan One emphasizes plant type treatment on a regional scale. The treatment system would utilize ten regional plants for treatment of municipal and industrial wastewater and urban storm runoff. Small communities outside of the regional service area would operate individual treatment plants until growth might warrant extension of regional interceptors.

The system designed for handling combined sewer overflow and urban storm runoff would be essentially independent of the municipal-industrial wastewater treatment system. The stormwater system would utilize 49 community reservoirs and 2 regional reservoirs to store stormwater prior to treatment.

Sludge generated at wastewater treatment plants would be incinerated. This would reduce the amount of land required for disposal of sludge, and reduce hygienic hazards associated with sludge handling.

REPRESENTATIVE PLAN 1



REPRESENTATIVE PLAN ONE

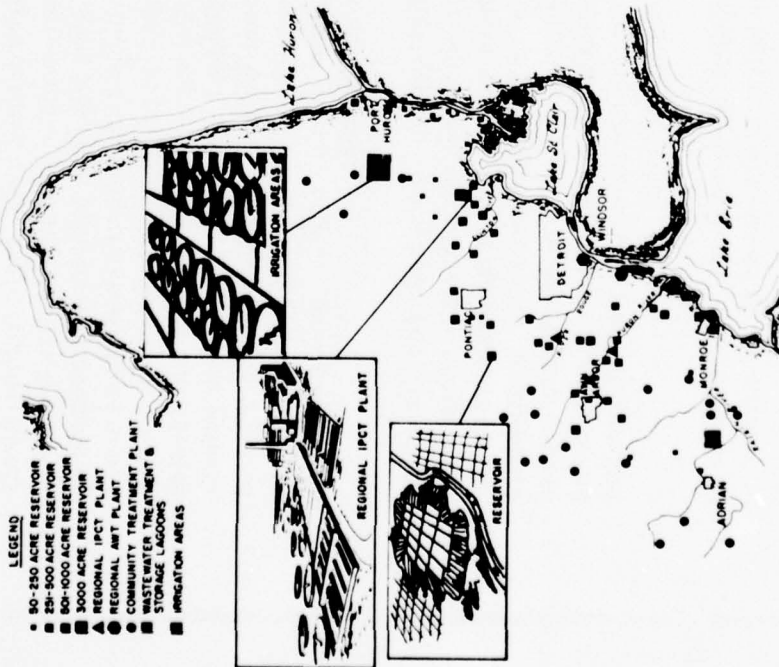
Representative Plan Two utilizes plant type treatment for a major portion of the region's wastewater. Land irrigation techniques would also be employed for treatment in less urbanized areas rather than expanding and upgrading existing plants in those areas. Eight regional plants and two regional land irrigation treatment systems would be utilized for treatment of municipal and industrial wastes and urban storm runoff. Small communities outside of the regional service area would operate individual treatment plants until growth would warrant expansion of the regional interceptor. The land irrigation treatment system would utilize the "Emphasize Application" concept.

The system designed for handling combined sewer overflow and urban storm runoff would be essentially independent of the municipal-industrial wastewater treatment system. The stormwater system would utilize 49 community reservoirs and 2 regional reservoirs to store stormwater prior to treatment.

REPRESENTATIVE
PLAN
TWO

Sludges generated at the wastewater treatment plants would be incinerated in order to reduce the amount of land required for disposal of sludge and to reduce hygienic hazards associated with sludge handling. Sludges from the land irrigation treatment system would be applied to land adjacent to the lagoons.

REPRESENTATIVE PLAN 2

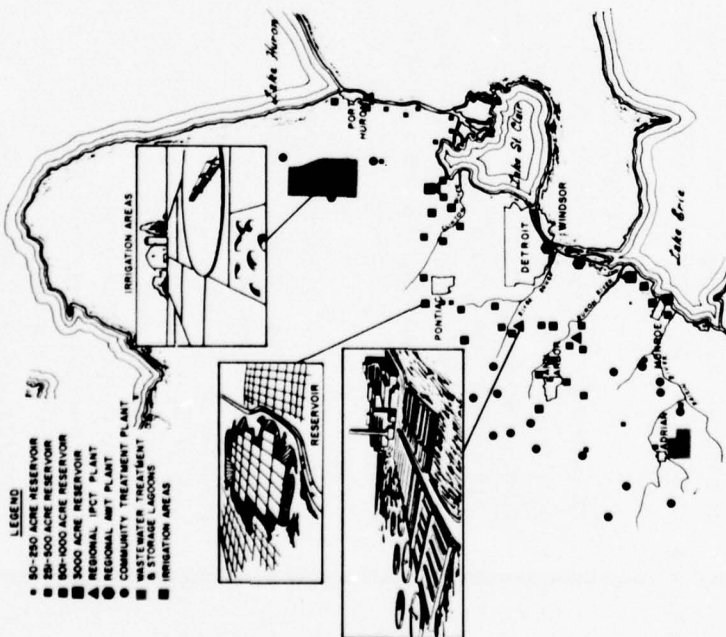


Representative Plan Three utilizes plant type treatment for a major portion of the region's wastewater. Land irrigation techniques would also be employed for treatment in less urbanized areas rather than expanding and upgrading existing plants in those areas. Eight regional plants and two regional land irrigation treatment systems would be utilized for treatment of municipal and industrial wastes and urban storm runoff. Small communities outside of the regional service area would operate individual treatment plants until growth would warrant extension of the regional interceptors. The land irrigation treatment system would utilize the "Emphasize Crops" concept.

The system designed for handling combined sewer overflow and urban storm runoff would be essentially independent of the municipal-industrial wastewater treatment system. The stormwater system would utilize 49 community reservoirs and 2 regional reservoirs to store stormwater prior to treatment.

Sludges generated at the wastewater treatment plants would be incinerated in order to reduce the amount of land required for disposal of sludge and to reduce hygienic hazards associated with sludge handling. Sludges from the land irrigation treatment system would be applied to land adjacent to the lagoons.

REPRESENTATIVE PLAN 3



REPRESENTATIVE
PLAN
THREE

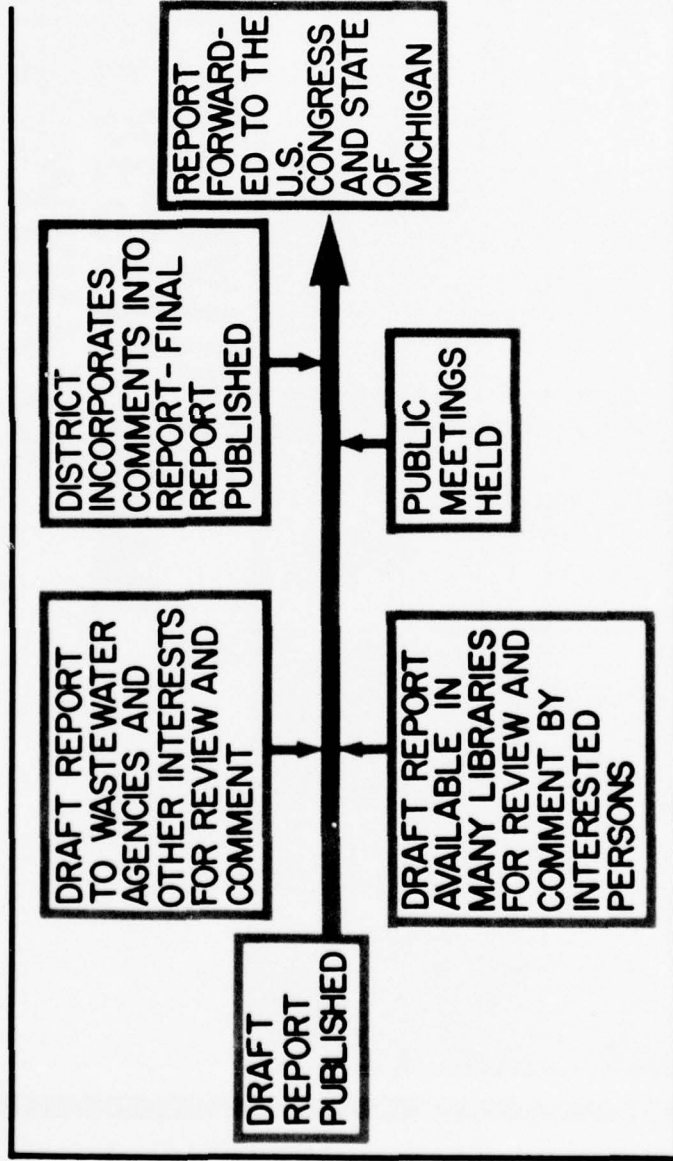
The three representative plans and the Interim Water Quality Plan are summarized in this chart.

SUMMARY OF REPRESENTATIVE ALTERNATIVES

	TREATMENT SITES		ADDITIONAL LAND REQUIREMENTS (ACRES)		ANNUAL COST (\$MM)		
	MINOR FACILITIES	REGIONAL		IRRIGATION		OTHER	
		SECT	AWT				IPCT
INTERIM PLAN	43	3	-	-	781	153	
REPRESENTATIVE PLAN 1	20	-	3	7	-	28,073	371
REPRESENTATIVE PLAN 2	20	-	3	5	2	22,500	373
REPRESENTATIVE PLAN 3	19	-	3	5	2	70,450	389

SUMMARY

Where are we now and where do we go from here? *



STUDY
FUTURE

* We are in the process of publishing the draft Summary Report.

The fight against pollution... is not a search for villains. For the most part, the damage done to our environment has not been the work of evil men, nor has it been the inevitable by-product either of advancing technology or of growing population. It results not so much from choices made, as from choices neglected: not from malign intention but from failure to take into account the full consequences of our actions.

excerpted from

President Nixon's

1970 Environmental Message

NOTES

B. INCLOSURE B--PUBLIC MEETING MATERIALS

NOTICE OF PUBLIC MEETINGS

PUBLIC PRESENTATIONS AND DISCUSSIONS
OF
THE U. S. ARMY CORPS OF ENGINEERS'
RECENTLY COMPLETED FEASIBILITY REPORT AND NEW STUDIES
ON



LOCATIONS

DETROIT	-	1:30pm	24 APRIL 1972
MONROE	-	7:30pm	24 APRIL 1972
UTICA	-	7:30pm	26 APRIL 1972
NORTHVILLE	-	7:30pm	27 APRIL 1972

(SEE MAP ON BACK PAGE)

NOTICE OF PUBLIC MEETINGS
"ALTERNATIVES FOR MANAGING WASTEWATER
IN SOUTHEASTERN MICHIGAN"

PURPOSE OF MEETINGS

The Meeting will present and provide for discussion on

- a. a feasibility report published in 1971 dealing with alternatives for managing wastewater in Southeastern Michigan which includes the counties of: St. Clair, Macomb, Oakland, Wayne, Washtenaw, Lenawee and Monroe.
- b. a more detailed study now underway to further define the alternatives for managing wastewater in Southeastern Michigan.

An initial series of public meetings are being held to review the important issues identified during the feasibility study and to provide an opportunity for all segments of the public, governmental agencies, commercial and industrial representatives, and university and environmental groups to present their views, opinions, and questions. The views of the public are sought as inputs to the detailed study underway.

DATES AND LOCATIONS OF MEETINGS

DETROIT	Veteran's Memorial Building
24 April 1972 (Monday)	(Red Arrow Room)
1:30 pm	151 W. Jefferson Avenue
	Detroit, Michigan
MONROE	Cantrick Junior High School
24 April 1972 (Monday)	1008 Riverview
7:30 pm	Monroe, Michigan
UTICA	Utica Community High School
26 April 1972 (Wednesday)	Corner of 21 Mile Road and Shelby Road
7:30 pm	Utica, Michigan
NORTHVILLE	Northville High School
27 April 1972 (Thursday)	775 N. Center Street
7:30 pm	Northville, Michigan

BACKGROUND INFORMATION ON THE FEASIBILITY STUDY

In compliance with the directives of the Congress and the Administration's Office of Management and Budget, a feasibility report was prepared in-1971 on alternative means of managing wastewater in Southeastern Michigan.

The feasibility study addressed the magnitude of the problem, developed alternatives for managing the wastewater and evaluated the environmental impacts of these alternatives.

In the conduct of the feasibility study effort, consideration was given to ecological matters, hygienic factors, aesthetic factors, social and economic implications, as well as the technical feasibility of developing regionalized wastewater treatment systems.

The feasibility report concluded as follows:

- a. Land disposal systems are a viable method for dealing with at least part of Southeastern Michigan's wastewater.
- b. The magnitude of the problem indicates the need for regionalization; alternative waste treatment processes including current biological practices, new physical-chemical processes, and land disposal systems on a regional basis need further study.
- c. The stormwater runoff problem in Southeastern Michigan is of sufficient magnitude to warrant consideration of a collection system large enough to minimize the overflow risk.
- d. Combinations of disposal techniques for a regional program warrant further investigation, considering existing and possible future political, economic and institutional arrangements.

e. The range of social, aesthetic, and related institutional effects of large scale disposal operations require consideration in all future wastewater system designs.

f. The role of viruses and pathogenic bacteria in wastewater and the long-term effects of trace metals and other toxic materials, including persistent pesticides, plus the long-term effects of land use, are not fully understood and need further investigation.

FUTURE ACTIONS

The Detroit District has been assigned the task of completing a survey study by early 1973.

The planning process for the study places emphasis on public participation and coordination with involved Federal, State, and regional agencies concerned with wastewater management.

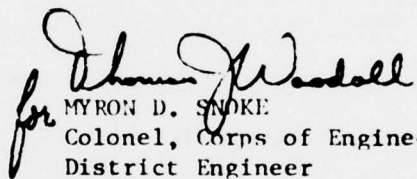
The study program will emphasize technical evaluation of advanced conventional wastewater treatment processes, physical-chemical treatment processes, land disposal systems, and an array of combination systems.

In addition to the efforts of agency staffs and technical consultants, a full impact evaluation study will be performed by experts in such environmental sciences as hygienics, virology, toxicology, landscape architecture, economics, sociology, and others to insure a complete evaluation of the impact upon the environment and the region's citizens of the wastewater management alternatives under consideration.

Final selection of a plan-for recommendation to higher authority will be made only after full consideration is given to the views of responsible agencies, groups, and citizens. However, this cannot be

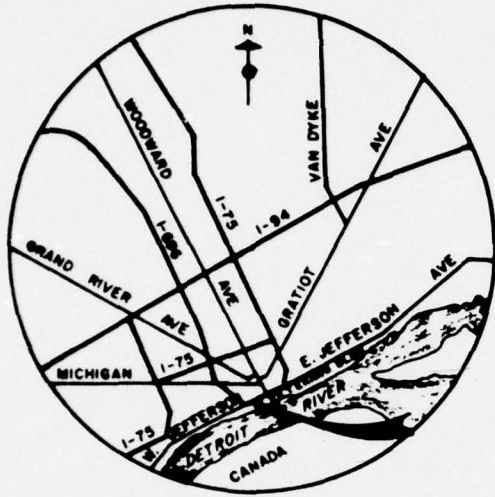
taken as an indication that the Federal Government will undertake any improvements or programs. Although the study may result in recommendations for undertakings by the Federal Government, their accomplishment would depend upon subsequent authorization and funding by the Congress of the United States.

Please bring this notice to the attention of all persons who may be interested in this matter.

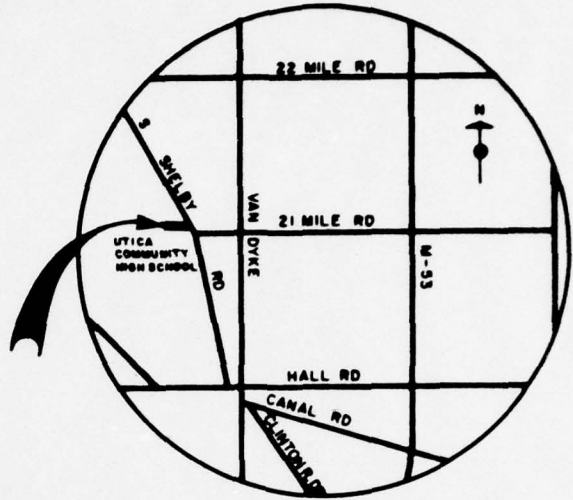

for MYRON D. SNOKE
Colonel, Corps of Engineers
District Engineer

Additional information may be obtained by contacting:

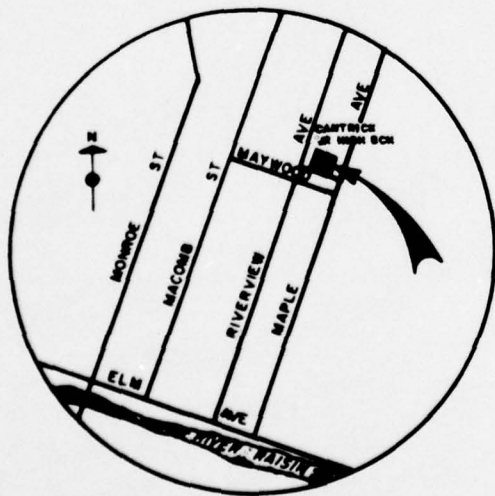
District Engineer
U.S. Army Engineer District, Detroit
P.O. Box 1026
Detroit, Michigan 48226
Telephone: (313) 226-6758



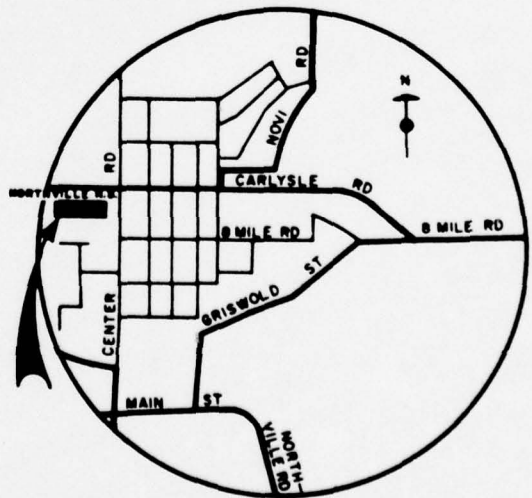
DETROIT



UTICA



MONROE



NORTHVILLE



DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P O BOX 1027
DETROIT, MICHIGAN 48231

FORMERLY NCEED-1B
NCEED-PB

23 May 1972

Dear Fellow Citizen:

As part of our continuing program of public participation in the Southeastern Michigan Wastewater Management Study, workshops will be held throughout Southeastern Michigan during the week of 25 June 1972. The purpose of these workshops is to bring together Corps of Engineers' environmental planners with local people who have an active interest in, or could be influential in resolving major environmental issues. You are invited to participate in the Environmental Workshops which are convenient for you. Feel free to bring with you others who also have a concern for our environment.

Inclosed is a list of meeting places. All of the workshops will be held at 7:30 P.M. and last until approximately 10:30 P.M.

The workshops will be rather informal. Brief presentations will be made by Corps of Engineers' personnel on the subjects of conventional wastewater treatment plants, land disposal, stormwater, physical-chemical treatment plants, and environmental assessments. Following the presentations, you will have the opportunity to discuss your views on the above subjects with other participants in small informal groups.

These workshops and future public participation meetings will provide channels through which the public can strongly influence the formation of wastewater planning and management alternatives. By working together, we can develop a plan to satisfy the water quality problems and needs, which is socially, politically and environmentally acceptable.

We are looking forward to seeing you at one or more of the meetings.

Sincerely yours,

MYRON D. SNOKE
Colonel, Corps of Engineers
District Engineer

1 Incl
List of Meeting Places

ENVIRONMENTAL WORKSHOPS

FLATROCK WORKSHOP

Date and Time - 27 June 1972 - 7:30 P.M.
Location - Youth Recreation Bldg.
Arsenal Street (1 block west of Telegraph and 1 block
north of the Huron River Bridge)

DETROIT WORKSHOP

Date and Time - 28 June 1972 - 7:30 P.M.
Location - Veteran's Memorial Bldg.
Polar Bear Room
(Next to Cobo Arena)

ROCHESTER WORKSHOP

Date and Time - 29 June 1972 - 7:30 P.M.
Location - Rochester Municipal Bldg.
Oak Street and 6th Street



DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P O BOX 1027
DETROIT, MICHIGAN 48231

NOTICE OF PUBLIC MEETINGS
"ALTERNATIVES FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN"

The third in a series of public participation meetings on the survey study, "Alternatives for Managing Wastewater in Southeastern Michigan" is being announced. The first meeting in the series introduced the survey study and reviewed the feasibility report. The second meeting was a series of workshops at which various alternatives were discussed. This third meeting is intended to present the phase I development of alternatives and receive input to the plan formulation processes that will enable selection of representative alternatives for further study in phase II.

The meetings will be held as follows:

24 July 1972 at 7:30 PM
YMCA
3211 Fort Street
Wyandotte, Michigan

25 July 1972 at 7:30 PM
Pray-Harrod Building, Room 204
(behind University Library)
Eastern Michigan University
Ypsilanti, Michigan

26 July 1972 at 7:30 PM
2nd Floor Jury Room
Macomb Court Building
(Gratiot Avenue-Downtown)
Mt. Clemens, Michigan

27 July 1972 at 1:00 PM
Rainbow Room (Room 714)
Veteran's Memorial Building
151 W. Jefferson
Detroit, Michigan

All interested parties are invited to be present or represented at the above time and place. Feel free to bring others who are interested in this study.

Oral inputs will be solicited; however, for accuracy of record, supportive data should be submitted in writing. Written inputs may be handed to me at the meeting or mailed to me beforehand.

MYRON D. SNOKE
Colonel, Corps of Engineers
District Engineer



DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P O BOX 1027
DETROIT, MICHIGAN 48231

IN REPLY REFER TO

NOTICE OF PUBLIC MEETINGS

"ALTERNATIVES FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN"

The fourth series of public participation meetings on the survey study, "Alternatives for Managing Wastewater in Southeastern Michigan" is being announced. The first meetings in the series introduced the survey study and reviewed the feasibility report. The second series was comprised of workshops at which various alternatives were discussed. The third series presented a progress report on the data-gathering phase. This fourth series of meetings will present the alternatives developed to date and comments will be requested regarding these alternatives and desires as to further direction of the study.

The meetings will be held as follows:

Monday, 11 Dec. 1972 at 7:30PM
Bad Axe Elementary School
Bad Axe, Michigan

Wednesday, 13 Dec. 1972 at 7:30 PM
Cantrick Jr. High School Auditorium
1008 Riverview
Monroe, Michigan

Tuesday, 12 Dec. 1972 at 7:30 PM
CIVIC AUDITORIUM
60931 Main Street
Richmond, Michigan

Thursday, 14 Dec. 1972 at 1:00 PM
Rainbow Room (Room 714)
Veteran's Memorial Building
151 W. Jefferson
Detroit, Michigan

All interested parties are invited to be present or represented at one of the above-listed times and places. Please inform others who are interested of these opportunities to participate in this study.

Oral statements will be solicited; however, for accuracy of record, supporting data should be submitted in writing. Written statements may be handed to me at the meetings or mailed to me beforehand.

MYRON D. SNOKE
Colonel, Corps of Engineers
District Engineer



DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. BOX 1027
DETROIT, MICHIGAN 48231

IN REPLY REFER TO

NOTICE OF PUBLIC MEETINGS

"ALTERNATIVES FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN"

The fifth series of public participation meetings on the survey study, "Alternatives for Managing Wastewater in Southeastern Michigan" is announced. The first meetings in the series introduced the survey study and reviewed the feasibility report. The second series comprised workshops at which various alternatives were discussed. The third series presented a progress report on the data-gathering phase.

At the fourth series of meetings several alternative management plans were presented. Those plans, especially several proposals utilizing land treatment were the object of widespread public comment. This fifth series of meetings will present the alternatives that are proposed for our final report to the State of Michigan. These will be used by the State for selecting its plan for managing wastewater in Southeastern Michigan. Comments will be requested regarding these alternatives and the study in general.

11 December 1973 at 7:30 P.M.
Auditorium-Tappan Junior H.S.
2251 E. Stadium Boulevard
Ann Arbor, Michigan

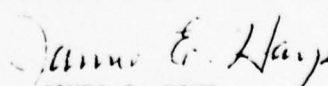
12 December 1973 at 1:00 P.M.
Rainbow Room (Room 714)
Veteran's Memorial Building
151 W. Jefferson Avenue
Detroit, Michigan

12 December 1973 at 7:30 P.M.
Cafeteria-Study Room
Port Huron Northern H.S.
1799 Krafft Road
Port Huron, Michigan

13 December 1973 at 7:30 P.M.
Auditorium-Cantrick Junior H.S.
1008 Riverview
Monroe, Michigan

All interested parties are invited to be present or represented at one of the above-listed times and places. Please inform others who are interested of these opportunities to participate in this study.

Oral statements will be solicited; however, for accuracy of record, supporting data should be submitted in writing. Written statements may be handed to me at the meetings or mailed to me beforehand.


JAMES E. HAYS
Colonel, Corps of Engineers
District Engineer

C. DIGESTS OF PUBLIC PARTICIPATION MEETINGS

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. Box 1027
Detroit, Michigan 48231

DIGEST OF PROCEEDINGS OF THE FIRST
PUBLIC MEETING IN THE FIRST SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The first public meeting in the first series of public participation meetings was conducted by the District Engineer, Detroit District, Corps of Engineers, on 24 April, 1972. The meeting was held in the Veterans Building, City of Detroit, Michigan, commencing at or about the hour of 1:30 o'clock P.M. A total of 41 persons were present, representing Federal, State of Michigan, regional, local, environmental, business, and individual interests.

2. MEETING

The meeting was convened by Colonel Myron Snoke, the District Engineer, Detroit District, Corps of Engineers. Colonel Snoke mentioned that this series of public meeting was being held in order to review the Feasibility Report, to introduce the ongoing Survey Scope Study, and to provide an opportunity for all interested parties to present their views, opinions and questions. A brief synopsis of the findings and recommendations of the Feasibility Report was conducted, highlighting the following wastewater management related considerations of the southeastern Michigan Study Area: Geography, population, current agency Wastewater Management plans and programs, land use, pollution sources and loadings, current treatment technologies, and water quality standards. The alternatives developed by the Detroit District Corps of Engineers for the Feasibility Report were examined, including the various water disposal and land irrigation treatment technologies. The evaluations which were performed were also examined to assess the importance of implementation of these alternatives.

3. Colonel Snoke then introduced the Detroit District's survey scope study, mentioning the various treatment technologies, evaluations and eventual development of representative wastewater management plans or alternatives. The importance of the public participation process was discussed, and Colonel Snoke stated that the Detroit District would attempt to keep the audience fully informed of the study progress. This concluded the Colonel's presentation; statements and questions from the audience were then requested. A summary record of these follows.

- a. Mr. Duane R. Egeland, Chief Engineer, Wayne County Road Commission.

Mr. Egeland mentioned that his remarks did not reflect the official position of the Board of Public Works, although they did reflect a staff report. Mr. Egeland mentioned that to his knowledge, the wastewater study was not requested by local agencies in this area, but that constructive solutions to wastewater problems would be welcomed. In an examination of the methodology involved in the plan formulation and evaluations processes conducted for the Detroit District, Mr. Egeland questioned the validity of an evaluation performed by a graduate student working on a masters degree, and that report credibility could be enhanced if the identity of the evaluators was disclosed.

Mr. Egeland mentioned that some of the conclusions drawn in the Feasibility Report are different than the ones which could be developed by the Road Commission. Several technologies, according to Mr. Egeland were not considered in the Feasibility Report: Reverse osmosis, the utilization of nutrient-enriched treatment plant sludge, and the nutrient assimilation of wastewater. In addition, several factors were not examined: An evaluation of the high operating costs, power resource depletion, and atmospheric degradation attendant to large scale treatment operations. Several objections to the land disposal technology were presented and several sources were cited to back up these considerations.

Mr. Egeland also discussed the institutional evaluation of the technical alternatives, taking objection to several conclusions, and mentioning that studies relating to institutional arrangements should be deleted from the report. Further examination of methods to handle stormwater runoff and combined sewer overflow should be conducted in the next phase of the study. Mr. Egeland hoped that any study

recommendations would provide information for implementing area programs. Colonel Snoke thanked Mr. Egeland for his comments, noting that several items mentioned by Mr. Egeland, although not addressed in the Feasibility Report, would be addressed now, and that the Corps of Engineers' study would be coordinated with various agency officials.

- b. Professor Jonathan Bulkley, Assoc. Professor, Civil Engineering Dept., University of Michigan

Dr. Bulkley read a statement prepared by the American Association of University Women, which was the result of a motion passed on 21 and 22 April, at a meeting of the North Central Region of the American Association of Women. In effect, the resolution stated that the Association would join forces of those who worked to abate pollution of the air, shoreline, and misuse of land development, unplanned power plant siting, and lake and stream degradation. The resolution also noted the need for supporting legislation to protect lakes.

4. Colonel Snoke thanked Dr. Bulkley and, as there were no further statements, asked for questions. A record of these follows:

- a. Mr. Joseph Price, Washtenaw County Department of Public Works.

Mr. Price asked about the target completion date for the survey scope study. Colonel Snoke replied that the study would tentatively be concluded in a year. Mr. Price subsequently asked if there was to be a formal communicating committee established for the survey scope study.

Colonel Snoke replied that the District was in the process of establishing a Coordinating Committee, to be composed of various agencies concerned with water quality management.

In a final comment, Mr. Price mentioned that those concerns, mentioned by Mr. Egeland, about land irrigation systems and some of the advanced treatment technologies, were his concerns too.

Colonel Snoke reiterated his appreciation for these questions and again acknowledged that the Corps would attempt to make frequent contacts with agencies and interests in this field.

There were no further questions.

Colonel Snoke briefly discussed the evaluations to be performed, and the channels through which the final report would go. The meeting was subsequently concluded.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. Box 1027
Detroit, Michigan 48231

DIGEST OF PROCEEDINGS OF THE SECOND
PUBLIC MEETING IN THE FIRST SERIES OF PUBLIC
MEETINGS ON THE SURVEY STUDY, "ALTERNATIVES
FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN."

1. GENERAL

The second public meeting in the first series of public meetings was conducted by the District Engineer, Detroit District Corps of Engineers, on 24 April 1972. The meeting was held at Cantrick Jr. High School, Monroe, Michigan, commencing on or about the hour of 7:30 o'clock P.M. A total of 23 persons were present, representing Federal, State of Michigan, regional, local, environmental, business, and individual interests.

2. MEETING

Colonel Snoke, District Engineer for the Detroit District Corps of Engineers, convened the public meeting, introduced the various staff present and commented on the series of meetings taking place that week. Colonel Snoke briefly highlighted the Feasibility Report, discussing the study authorization, the coordination effort with the Environmental Protection Agency, the geography of the Study Area, the land use patterns, population figures, various wastewater management plans of agencies in the southeastern Michigan area, municipal and industrial wastewater flow projections, stormwater flow projections, the problems of combined sewer overflows and the pollutant load in several constituents, and the wastewater management programs of agencies on a State of Michigan level.

Colonel Snoke then mentioned the development of various treatment technologies and subsequent alternatives to manage wastewater in the Study Area. Evaluations were performed by individuals with expertise in various environmental, social, and economic fields to assess the effects of employing these treatment technologies in the various repre-

sentative plans. In addition to the two water disposal technologies of Advanced Wastewater Biological Treatment, and Independent Physical-Chemical Treatment, various considerations of a Land Disposal Treatment alternative were discussed. The various evaluations were briefly examined and the following conclusions of the Feasibility Report were noted:

1. A more detailed survey scope study is warranted.
2. Stormwater runoff must be dealt with separately.
3. Various evaluations are required to assess system impacts.
4. Applied research is required in the fields of viruses and pathogenic bacteria for examination of trace metals, and for consideration of the long-term viability of the soil as a filtering medium.

Colonel Snoke ended the discussion of the Feasibility Report by mentioning that authorization and funding for a more detailed survey scope study has been received; noting that the treatment technologies would be designed to meet the "no discharge of critical pollutants" standards. Colonel Snoke stated that the District would have future wastewater management briefings with agency officials, and public meetings, to obtain the comments and opinions necessary to develop a feasible study effort. This completed Colonel Snoke's discussion, and as no statements were available, he asked for questions from the audience. Colonel Snoke reiterated that the Detroit District was working closely with several agencies to develop information. A record of questions from the audience follows.

a. Person in audience

The question referred to the difference between the requirement for the separation of sanitary wastes and storm runoff, establishment of effluent standards for treatment plants by the Michigan Water Resources Commission, and the Detroit District Survey Scope Study.

Colonel Snoke replied that the Detroit District's efforts would not impact on treatment facility plans and programs presently underway, and that the Corps was looking at planning requirements for the 1990-2020 framework. On the subject of effluent criteria, Colonel Snoke stated that the Corps of Engineers would develop treatment technologies which would not only meet the existing State of Michigan water quality standards, but, also attain the standard of "no discharge of critical pollutants."

- b. Mr. John Knox, Director, Monroe County Regional Planning Commission.

Mr. Knox questioned the logic of placement of the proposed land irrigation treatment sites, as the area projected to become the fastest growing residential area of the County, although several acres of marginal, agricultural lands might be rehabilitated by such a disposal method. Mr. Knox also questioned whether the metro approach was still in the Corps of Engineer study. The metro approach referred to a treatment plant servicing the Raisin River.

Colonel Snoke replied that the District is reviewing an array of regional treatment plants which employ the water disposal approach; and, depending upon the alternative selected, various combinations of these plants were possible. As to the question of land use and the land disposal site selection, Colonel Snoke stated that the Detroit District would utilize SEMCOG's updated TALUS Plan for projected land use to assist in the development of a realistic wastewater management plan. Colonel Snoke mentioned the consideration of looking at areas which had the soil capability to handle spray-irrigated material, and areas which were rural in character.

- c. Person in audience.

The question of an error in the TALUS plan was brought up. The specific points of discussion involved the projected use for Bedford Township.

Colonel Snoke replied that the Detroit District would attempt to obtain updated information from SEMCOG. Soil suitability was discussed, in addition to the rate of application of wastewater. Captain Chris Dovas discussed soil classification and soil suitability and the information contained in Appendix C of the Feasibility Report.

- d. Person in audience.

The question was posed as to how areas are selected for treatment sites, especially for land irrigation areas, in Ida Township.

Colonel Snoke replied that areas for land treatment are selected from several factors, including the area's soil conditions and land use. The minimum area for the Ida Township area is approximately a six-mile by six-mile area. Soil types were then discussed.

e. Mr. Keith Siebarth

Mr. Siebarth wondered if the farmers were going to have any say in the land irrigation treatment site selection and operation, and will the plan be forced upon the farmers.

Colonel Snoke replied that the Corps of Engineers is simply providing an engineering study, and that nobody can predict what Congress will decide to do with the results. As far as the farmers are concerned, they, as everyone else, will have opportunities for input into the study plan formulation process, and the development of viable alternatives. The social acceptability of the land disposal approach is also being evaluated.

f. Person in audience.

This person wondered if the Corps was conducting a solid waste disposal study too.

The Colonel replied that the District is not studying solid waste per se, but that methods to handle sludge would be considered.

Colonel Snoke, seeing that there were no more questions or comments, concluded the Corps' presentation by discussing the evaluations which would be performed, and reiterating that all final decisions would be made only after reviewing input from interested and affected agencies and the public.

Colonel Snoke thanked the audience for their participation and closed the meeting.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. Box 1027
Detroit, Michigan 48231

DIGEST OF PROCEEDINGS OF THE THIRD
PUBLIC MEETING IN THE FIRST SERIES OF PUBLIC
MEETINGS ON THE SURVEY STUDY, "ALTERNATIVES
FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN."

1. GENERAL

The third public meeting in the first series of public meetings was held at Northville High School, in the City of Northville, Michigan, on 27 April, 1972. The meeting convened at or about the hour of 7:30 o'clock P.M. A total of 30 persons were present, representing various federal, state, regional, local and special interests, in addition to private citizens.

2. MEETING

Colonel Myron Snoke District Engineer for the Detroit District Corps of Engineers, convened the meeting at approximately 1930 hours, welcoming the audience, introducing the staff, and reviewing the procedures of a Corps of Engineers' meeting. Colonel Snoke highlighted the important aspects of the feasibility study, briefly explaining the study authorization, the areas of the country where similar studies were undertaken, the scope or key points of the study, the geography of the study area, its population, land use, several agency wastewater management plans, current wastewater treatment standards, considerations of municipal-industrial wastewater, and urban storm runoff, the wastewater management study service area, wastewater management functions relating to standards and enforcement, and treatment technologies utilized in this Feasibility Report.

Colonel Snoke discussed the methodology used in the feasibility study, examining the alternatives or plans submitted as initial solutions to the problems of wastewater management in the southeastern Michigan Study Area, the flows considered, the treatment technologies, the various evaluators who performed the assessments and several of their findings -

including favorable and unfavorable impacts. The water disposal approach and the land irrigation treatment concepts were discussed and initial cost figures presented.

Colonel Snoke mentioned that the Feasibility Reports from the various areas of the country were channeled to Congress, thru local, State, and Federal agencies. Congress has instructed the Detroit District Corps of Engineers to undertake a more detailed survey scope study to develop alternatives for managing wastewater, planning for the 1990-2020 time frame. The plan formulation process was briefly discussed, with an emphasis being given to the role of the public and agencies in the eventual selection of representative plans. The Colonel concluded his remarks on the survey scope study and requested statements and questions from the audience. A synopsis of these follows.

a. Mr. Leonard Gurka

Mr. Gurka asked if some immediate solutions to municipal wastewater management problems were available.

Colonel Snoke replied that the survey scope study was looking toward wastewater management solutions for the 1990-2020 time frame, and that various local, regional, and State agencies were involved in ongoing programs and the gentleman's question would more readily be considered in their efforts.

Mr. Gurka then asked what the public could do in the formulation of plans for implementation, and what federal actions would be involved in any federal evaluation.

Colonel Snoke mentioned that the report would eventually go to Congress, and that it then became their responsibility for any further action. As to public involvement, the Colonel mentioned that any further individual questions would attempt to be answered by certain individuals at the Detroit District, and that additional public meetings were being considered.

b. Mr. Horace Engler, City Manager, City of Sylvan Lake

Mr. Engler asked about the responsibility for the control of interstate lake levels, and the Federal responsibility in this matter.

The Colonel replied that the Corps of Engineers do not have an established lake level control in certain areas. In these instances, state courts establish control procedures.

Mr. Phil McCallister, Chief of the Engineering Division, Detroit District Corps of Engineers, discussed the lake levels with regard to the implications of large interceptor programs.

- c. Mr. Clyde T. Wheaton, Chairman of the Planning Commission, City of Northville.

Mr. Wheaton wondered about the filling of existing streams, and whether the Corps of Engineers was making any recommendations in this matter.

The Colonel replied that the Corps was not examining stream filling in this survey scope study. Mr. Phil McCallister then discussed several considerations inherent to rural runoff, and the Corps of Engineers' permit program.

- d. Mr. James E. Kratzer, Hamill and Associates, Plymouth, Michigan, Consulting Engineers.

Wondered whether the Detroit District agreed with the SEMCOG wastewater treatment plan.

The Colonel mentioned that although the Detroit District was required to consider the wastewater plans of agencies in the study area, it took no position on this matter of agreement.

- e. Mr. Dean H. Urie, Research Hydrologist, Federal Forest Service

Mr. Urie asked what percentage of the land disposal plan would go for land acquisition, and wondered about recycling of industrial wastewater.

Colonel Snoke replied that industrial recycling was being considered in the District's requirement for treatment. The answer to the first question was approximately \$1.2 billion, but these are preliminary cost figures.

As there were no further questions or statements, the Colonel briefly discussed the study future and reiterated the invitation to come to the District if any of the audience had any questions. The meeting was concluded at this point.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
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DIGEST OF THE PROCEEDINGS OF THE FOURTH
PUBLIC MEETING IN THE FIRST SERIES OF PUB-
LIC MEETINGS ON THE SURVEY STUDY, "ALTERNATIVES
FOR MANAGING WASTEWATER IN SOUTHEASTERN MICHIGAN."

1. GENERAL

The fourth public meeting in the first series of public meetings was held on 26 April 1972, at Utica High School, in the City of Utica, Michigan. The meeting started at, or about the hour of, 7:30 o'clock P.M., and 35 persons were present.

2. MEETING

Major Thomas Woodall, Deputy District Engineer, Detroit District Corps of Engineers, conducted the meeting. Major Woodall was representing Colonel Snock, the District Engineer for the Detroit District.

Major Woodall convened the meeting at approximately 7:30 o'clock, introduced the Corps of Engineers staff who were present at the meeting, and discussed the normal procedures which are involved with any Corps of Engineers public meeting - involving tape recorders, attendance cards, and the methods of commenting from the audience.

Major Woodall then discussed the series of public meetings held that week and the object of meetings such as these; the authorization for pilot wastewater studies; the areas of the U.S. considered; the key points of the Feasibility Report; the geography, population, and land use of the study area; several current agency wastewater management plans; water quality standards; components of water pollution, including municipal and industrial wastewater, and urban storm runoff; and some of the wastewater management responsibilities of agencies with an interest in water quality in the southeastern Michigan Study Area. Major Woodall then briefly examined several test criteria which were developed in the Feasibility Report; the various pollutant loadings in the study area;

treatment technologies employed in the Feasibility Report, and the alternative plans developed for the feasibility study. Cost estimates of the various alternatives were discussed, and the evaluations which were performed were noted - as to their favorable and unfavorable impacts. The land irrigation treatment of wastewater concept was discussed, and after the schematic of this system was examined, the alternative plan was exhibited.

Major Woodall stated that the Detroit District was currently undertaking a more detailed investigation for solutions to manage wastewater in the southeastern Michigan Study Area. The role of public participation in the eventual development of viable water quality plans was mentioned, along with a discussion of the evaluations which would be prepared. This concluded Major Woodall's presentation and statements and questions from the audience were requested. The following is a synopsis of these.

a. Person in audience.

This individual questioned what the people in Washington would do with the final report recommendations. A member of the Corps of Engineers mentioned the fact that the report is a study and that ultimate report dispensation would rest with either the Congress, the Administration or the State of Michigan. The problem of stormwater runoff was discussed, and costs for treatment mentioned.

b. Person in audience.

This person asked whether the 1990 industrial projection was justified.

Phil McCallister replied that the Detroit District discussed this consideration with the State of Michigan and other interests and from all discussion, this 1990 figure was realistic.

No further questions were asked. Major Woodall then concluded the meeting.

DEPARTMENT OF THE ARMY
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DIGEST OF PROCEEDINGS OF THE FIRST
PUBLIC MEETING IN THE THIRD SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER
IN SOUTHEASTERN MICHIGAN."

1. GENERAL

The first public meeting in the third series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the YMCA, 3211 Fort Street, Wyandotte, Michigan on 24 July 1972. The meeting began at 7:30 P. M. ; the audience attendance was composed of persons representing Federal and State agencies, business interests and conservation interests.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, the District Engineer, Detroit District, Corps of Engineers, who discussed the background and purpose of the study and the purpose of the meeting. He stated that the meeting was being held to present information on hand at this point in the survey study, which the Corps is conducting on "Alternatives for Managing Wastewater in Southeastern Michigan" and to involve people, keep them informed and involve them in the planning process. The study is one of five pilot studies for wastewater management being conducted by the Corps of Engineers on five large metropolitan areas throughout the country. After a presentation by Colonel Snoke on the procedures and methods of the study that are being pursued, statements were invited from those present.

3. Statements presented during the meeting are summarized in the following paragraphs.

a. Mr. Chasca, private citizen, suggests that wastewater after primary and secondary biological treatment be impounded in artificial lakes at the headwaters of contiguous streams, from whence after a

suitable interval of time, the suitably clarified water would be discharged into the natural drainage water courses. Sludge, he believes, should be used as a nutrient in forests and forestry, and cited such use in Florida. Further, mixing chemicals and our wastes circumvent results that could be obtained by irrigation and sludge utilization. Continuing, pumping storm runoff inland for disposal, through its benefits, would encourage people to move inland, thus easing the overcrowding along lake shorelines and rivers. People must be activated to eliminate the water contamination from Flint, Michigan, to Toledo, Ohio, and he feels sewage plants at the mouth of the Clinton, Huron or St. Clair Rivers are not a good solution - they should be inland. Mr. Chasca volunteered to assist in whatever way his knowledge and study of the environmental situation might be utilized.

b. Mr. Richard Mica, of Monroe, Michigan, private citizen, endorsed the presentation and the course being pursued in the study. Concerning the Melbourne, Australia, land treatment operation, Mr. Mica asked if information on the water quality of the outflow from the irrigation field was available and if so what it was. Captain Dovas was requested by Colonel Snoke to answer and he responded that the outflow was discharged into a salt water estuary, Port Phillip Bay. Little data is available at present on the effluent characteristics. From the available indications, consisting of experience of the local inhabitants of the area, observable fish and wildlife population and tree density, even though the sewage arrives in a septic condition, there has been no discernible negative impact. Samples from the farm are being processed. However, the Australian approach should not be taken as one that would be developed here. In answer to a question by Mr. Mica, estimated recycling of industrial wastewater accounts for the reduction (temporary) in wastewater flow in 1990. Regarding acquisition or use of the site for land-treatment in Lenawee County, Colonel Snoke responded to Mr. Mica's question by saying the arrangements with land owners were under study but had not been determined at this time. The jeopardy of extinction of marshlands with their wildlife, at the western end of Lake Erie, posed by the advance of industrialization and urbanization, is a further source of concern to Mr. Mica, and leads to his opposition to wastewater treatment facilities in the locale of these marshlands.

c. Mr. William McDaniels, Down River Anti-Pollution League, discussed at some length the existing subterranean brine cavities in this region and their utilization for disposition of sewage plant sludge. He

stated that the location of these considerable cavities, due to brining, is not known exactly and the effect and hazards of such utilization remains to be determined. Lieutenant Pommeranz and the Corps consultant have examined the utilization of these "brined out" cavities in this region, for storage of storm runoff. The uncertainty of the rock seams, indefinite extent and volume of the cavities, questionable cavity support, possible interconnection with cavities in which propylene gas and other chemicals are facets of such storage which must be resolved, if they can be, were cited by Lieutenant Pommeranz. In answer to a question of Mr. McDaniels, it was stated that, suitable for irrigation, in square miles, Huron and Tuscola Counties have 611, St. Clair 375, Monroe County 83, Lenawee County 37, and Fulton and Williams Counties in Ohio, 272. This is more than is required for the total 1990 demands for municipal and industrial wastewater and storm runoff. Mr. McDaniels further asked if the Chinese method of waste disposal had been examined. Colonel Snoke answered that this had not been studied; their method is the application of raw sewage on fields as fertilizer for crops that are for animal and human consumption. It is very doubtful that the people in the United States would accept such procedure.

d. Mr. Jack Anderson, Wayne County Sportsman Club, asked if there is any thought of incorporating the disposition of sludge from wastewater with that dredged from the Rouge River. Colonel Snoke explained that these two disposals are entirely separate at this time. Mr. Anderson asked, further, if land adjacent to communities such as are in the Saginaw Bay area, is utilized for land treatment for Southeastern Michigan wastewater, where are these (Saginaw Bay communities) going to obtain land for their wastewater requirements? Colonel Snoke has recognized the validity of this but no studies have been made, as yet, of other than Southeastern Michigan.

e. Larry Lyblow, private citizen, asked if the land treatment system eliminates sludge accumulation and if a pilot recycling plant currently being operated in Pennsylvania is successful, could its operation be incorporated into the plants now being studied for Southeastern Michigan. Colonel Snoke responded that the land treatment system does not eliminate the sludge; sludge accumulates in and must be removed from the treatment and storage lagoons. In the Melbourne, Australia, system the raw sewage is deposited on the land of the treatment area. To answer the second part of the question, Captain Dovas replied that the experimental plant in Pennsylvania will process

the sewage brought into the plant, recycle it as iron, copper or whatever it may be and the garbage will be chopped up, dehydrated and emerges as fertilizer. The recycling operation lends itself more readily to the land treatment system.

f. Mr. Chasca returned to the questioning to ask how we could get the government to encourage research in ways and means of reusing and recycling waste, thereby eliminating waste. Colonel Snoke replied that over the past five or ten years, all levels of government and industry have increased their interest in the recovery of resources. There are many programs underway by these to encourage this, including fundamental research.

Continuing in an informative vein, Colonel Snoke recapitulated that notices of public participation meetings are mailed to news media, agencies and interested citizen groups, individuals and communities in the major segments of the entire Southeastern Michigan area.

4. Colonel Snoke, in the absence of further questions, thanked those present for their attendance and declared the meeting closed.

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DIGEST OF PROCEEDINGS OF THE SECOND
PUBLIC MEETING IN THE THIRD SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The 2nd public meeting in the third series of public participation meetings was held by the Deputy District Engineer, Detroit District, Corps of Engineers in the Pray-Harold Building, Room 204, Eastern Michigan University, Ypsilanti, Michigan on 25 July 1972. The meeting began at 7:30 P.M. A total of 31 persons were present, representing Federal and State agencies, business interests and conservation interests.

2. MEETING

The meeting was opened by Major Thomas Woodall, representing Colonel Myron D. Snoke, the District Engineer, Detroit District, Corps of Engineers. Major Woodall discussed briefly the background of the study and the purpose of the meeting. He stated that the meeting was being held to present information at hand at this point in the survey study which the Corps is conducting on "Alternatives for Managing Wastewater in Southeastern Michigan," and to involve the public in the planning process. Formal statements from groups or individuals were requested to be followed by a question and answer period. Major Woodall stressed the need for inputs from the meeting to obtain the feeling and thinking of different communities and groups. After a presentation by Major Woodall on the procedures and methods that are being pursued in the study, no statements were forthcoming from the audience. A question and answer period was then declared. The summary record of these follows.

a. Washtenaw County Metropolitan Planning Commission.

Mr. Robert Polens, Assistant Director, inquired if any revision in population numbers in Southeastern Michigan is contemplated, from

any cause. Captain Dovas replied that none is contemplated at this time.

b. Environmental Council of Lenawee.

Mr. Brian I. Brown asked: (1) Are storm runoff tunnels contemplated for Wolf Creek, and (2) is an interceptor for Monroe and Lenawee Counties to Lake Erie necessary in the plan. In answer to (1) no tunnel is contemplated along Wolf Creek; considering (2), several outlying communities such as Adrian, Memphis and Capac, outside the urbanized or projected urbanized areas are being examined for regional treatment but no conclusions have been reached.

c. Mr. James Dahl, Ann Arbor, asked:

In the next phase of the study, what kind of alternatives will be sought for urbanized areas? The answer here is that both, siting a small plant and running an interceptor to a large treatment plant would be appraised.

d. City of Ann Arbor.

Mr. David B. Jones, Director of Utilities, asked: How are the Corps' findings going to affect the rulings by the Water Resources Commission regarding the regional interceptor for the Ypsilanti-Ann Arbor area? This is developed further along in the discussion.

e. Washtenaw County Department of Health and Department of Public Works.

Mr. David W. Price stated that the decision of the Michigan Water Resources Commission that is now in EPA, in essence, says that a large regional interceptor is to be built down to the mouth of the Huron River for the Ypsilanti-Ann Arbor area. Mr. Price continued, that since construction is contemplated to begin in 1973 and is to accept 2020 year needs, the findings of the report of the Corps regarding this method as compared to local plants for Ann Arbor, Ypsilanti and Adrian, for example, should be available to EPA before a decision is made. However, the Corps feels that this facet is better brought to the attention of Congress by the local interests.

f. Northwestern District, Natural Resources Council.

Ms. Neil W. Waterbury asked: (1) Does the remedial attack on the pollution of Lake Erie await the resolution of the alternatives of wastewater management in Southeastern Michigan and (2) What happens to the report when it is forwarded to the agencies involved? The answer to the first question is that in the feasibility report, it is pointed out that the condition of Lake Erie is irreversible and the degradation of the lake would not be reversed by the alternatives that are being proposed. To question (2) it can be answered that, briefly, the report is sent to Congress and then is used as a basis for legislation. Also, the Governor of the State has review authority and may or may not accept it. What the reaction will be is unknown.

3. CONCLUSION

Major Woodall, in the absence of further questions, thanked those present for their attendance and declared the meeting closed.

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DIGEST OF THE PROCEEDINGS OF THE THIRD
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PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The third public meeting in the third series of public participation meetings was held by the Deputy District Engineer, Detroit District, Corps of Engineers, in the Macomb County Building, Mount Clemens, Michigan on 26 July 1972. The meeting began at 7:30 P. M. A total of 29 persons were present, representing Federal and State agencies, business interests and conservation interests.

2. MEETING

The meeting was opened by Major Thomas Woodall, Deputy District Engineer, representing Colonel Myron D. Snoke, the District Engineer, Detroit District, Corps of Engineers. Major Woodall discussed, briefly, the background and purpose of the study and the purpose of the meeting. He stated that the meeting was being held to present information on hand at this point in the survey study, which the Corps is conducting on alternatives for managing wastewater in Southeastern Michigan, and to involve the public in the planning process. Formal statements from agencies, groups or individuals were requested to be followed by a question and answer period. Major Woodall stressed the need for inputs from the public to obtain the feeling and thinking of different communities and groups. After a presentation by Major Woodall on the procedures and methods that are being pursued in the study, statements were invited from those present.

3. Statements presented during the session are summarized in the following paragraphs.

a. City of Mount Clemens, Michigan.

Mr. Abraham S. Levine, Mayor, asked a question concerning the status of "Proposed Alternate Route For Clinton River Improvement, City of Mount Clemens," for wastewater coming down from the Red Run Drain and the lower Clinton River into Lake St. Clair. This report was submitted to the Office of the Chief of Engineers by the City of Mount Clemens. The Corps of Engineers staff explained that the Corps of Engineers Interim Survey Report on Flood Control, Major Drainage and Allied Purposes for Red Run Drain and Lower Clinton River and the Mount Clemens Alternative Route Report concern themselves with flood control. The first report is authorized; but not funded. The conceptual plan proposed by the City of Mount Clemens should receive its deserved consideration in post-authorization planning. The wastewater management study under consideration here examines the total wastewater problem in the Southeastern Michigan region in the years 1990 and 2020, and is obligated not to impact any interim plans that are being developed today, such as the plan referred to by the Mayor. Ensuing discussion developed the point that the State of Michigan is satisfied that the Jefferson Avenue Plant of the DMWD would discharge an effluent meeting State standards.

b. Village of Armada.

Mr. William Bolio, representing, stated that the regional planning agencies have an interim period to meet State stipulations prior to completion of the Southeastern Michigan Study. Mr. Bolio likes small regions with small plants, but finds the SEMCOG and Corps of Engineers' plans incompatible.

c. City of Mount Clemens Wastewater Treatment System.

Mr. James Van Havermaat developed the point that Mount Clemens will incur increasing costs by tying into the Detroit Metropolitan Water Department for their wastewater management. DMWD costs are going to increase as they develop the capacity to meet State requirements because of their crowded, expensive location. He believes that Mount Clemens, in the interests of economy, should be allowed to postpone committing their wastewater management to DMWD. Mr. Van Havermaat recommends that local communities in this area have their own smaller plants with northern land disposal areas.

d. Macomb County Drain Office.

Mr. Russell Snow stated that one alternative of the study was to phase out the DMWD plants and just use them as a pumping system of untreated wastewater out to a land area. The land area would have to accommodate 1400 MGD dry weather flow and the 2,300 to 3,200 MGD storm weather flow from urban areas in the watershed.

e. Macomb County Planning Commission.

Mr. Timothy Backhurst, member, asked, concerning the St. Clair Area: (1) would current forests be eliminated, (2) would the land ownership be altered, (3) what patterns would be employed. Captain . Dovas replied that straight fee acquisition, easement, farmers cooperative and like methods were being investigated with no one being moved off the land.

f. Sierra Club.

David Collins, speaking as a private citizen, asked: (1) who would run the long range system, (2) is flow in the interceptor sewers reversible, (3) what is being considered in the intermediate stage? Answers: The organization to operate and maintain the system is under development; recommendations will be made at the end of Phase II. Concerning the interceptors, flow will be either way in order to accommodate local planning in a time phasing scheme. In the intermediate stage, local planning will be done; everything is to be phased to what it seems the local planning will result in by 1990.

g. League of Women Voters.

Ms. Marion Hugos, personal question: Where and when does the present system stop and when does the Federal study take over? Major Woodall replied that Congress has the final decision on the plan and time limitations which they will make from this report which is expected early in 1973.

h. Friends of the Clinton River.

Ms. Linda Matthews inquired concerning the plan being put under a public utility type of control. Answer: This plan has not been

evaluated; there may have to be some recommendations made for a management mechanism at a later date.

Ms. Johanna Roskopp asked how one can find out how these systems are run. The Corps of Engineers, Detroit District, 150 Michigan Avenue, Detroit, Michigan, invited Ms. Roskopp and others in the audience to come to the office for briefing on the study.

4. CONCLUSION

Major Woodall closed the meeting by assuring the audience that the Corps will return, with more detailed designs, in the quest for opinions on the systems preferred. He thanked all for their attendance and expressed the hope of seeing them at the next meeting.

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DIGEST OF PROCEEDINGS OF THE FOURTH
PUBLIC MEETING IN THE THIRD SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN

1. GENERAL

The fourth public meeting in the third series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the Veterans Memorial Building, Detroit, Michigan on 27 July 1972. The meeting began at 1:00 P.M. A total of 32 persons were present, representing Federal and State agencies, business interests and conservation.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, District Engineer, Detroit, who discussed the background and purpose of the study and the purpose of the meeting. He stated that the meeting was being held to present information on hand at this point in the survey study on wastewater management in Southeastern Michigan and to give local interests an opportunity to express their views, ask questions and submit comments. The study is one of five pilot studies for wastewater management being conducted by the Corps of Engineers on five large metropolitan areas throughout the country. After a presentation by Colonel Snoke on the procedures and methods of the study that are being pursued, statements were invited from those present.

3. Statements presented during the session are summarized in the following paragraphs.

a. League of Women Voters of Michigan.

Ms. Shirley Wall, representing 19 leagues within the Southeastern Michigan wastewater management area, expressed appreciation of the

increased inclusion of the citizenry in planning and development of projects by the Corps of Engineers. The Southeast Michigan Leagues have drawn up six objectives for an efficient and effective wastewater treatment system. They are:

(1) Active dissemination of information to the public for understanding needs and programs.

(2) Approval of a regional approach by underlying local municipalities.

(3) Installation of improved treatment, over and above planned secondary treatment, to constantly improve the quality of the wastewater, both sanitary and stormwater. Engineering for these improvements to be built in to encourage speedy and economical installation at a possible later date.

(4) Investigation and application of new techniques which might minimize the discharge of effluent into Lake Erie.

(5) Construction of interceptors and other sewers be accomplished and supervised in a manner which will provide the best safeguards for the surrounding environment.

(6) Establishment of a responsible and responsive governing body for the new sewage treatment area.

The League expressed concern over an apparent duplication of effort inherent in the SEMCOG plans and Phase One Alternatives, having in mind the Huron River installation.

Colonel Snoke outlined for Ms. Wall the procedure beyond Phase II of the study in response to her request.

b. Wayne County Department of Public Works.

Mr. Duane Egeland, Chief Engineer, submitted for consideration remarks and recommendations in written form by the staff of the Wayne County Department of Public Works on the feasibility study of the alternatives for managing wastewater in Southeastern Michigan. These have been adopted or concurred with by the Wayne County Board of Public

Works. The following presents their recommendations:

If the study is to proceed, it is urged that its emphasis be altered so as to provide information that will be of use in the implementation of the established programs of the area.

Specific recommendations are as follows:

(1) The land disposal strategy should be removed as a major alternative and relegated to an interim method of disposal. In conformance with current thinking, treatment prior to land disposal shall be the same as if disposal were to water.

(2) Studies relative to institutional arrangements should be deleted from the report.

(3) Evaluation of methods for recycling sewage sludge and for utilizing aquatic eco-systems to productively assimilate waste resources should be included in the study.

(4) Alternate methods of handling the combined overflow and stormwater problems, including combined sewer separation, primary treatment and source of contamination controls, should be carefully evaluated.

The County further recommends that the Corps establish and operate a technical advisory committee to allow for close cooperation and full participation of State and local agencies that it is the intent of EPA and the Corps to have.

c. Wayne County Department of Public Works.

Mr. George Bingham, Director, stressed the importance of the selection of processes of wastewater treatment and further recommended the technical advisory committee, working with the Corps as a better way to get input from an area to be served and pay for it than the public meeting approach. * Wayne County relies upon the State and Federal agencies for the requirements as far as the pollutants that must be removed and

* The area served would ultimately pay for this service.

what can be permitted to be discharged. The fact that the definition of pollution keeps changing leads to apprehension of long range problems being solved on short range data. In response to a question by Mr. Bingham, Colonel Snoke stated that the studies of the five metropolitan areas selected have the same goals, are independent studies, are subject to a certain amount of general policy guidance and have no preformed conclusions.

d. Dearborn - Dearborn Heights, Local, League of Women Voters.

Ms. Mary Richardson asked if maximum urbanization of an area can be studied with the idea of restricting urbanization beyond the point that water standards would be violated. Colonel Snoke stated that within the confines of this study, it is not apparent that the Corps could address the question of maximum urbanization.

e. Shelby Township Planning Commission.

Mr. George Kullman, member, asked: (1) who would build and operate the system and (2) has any consideration been given to atomic generators whereby the side product could be electric power. Colonel Snoke responded that in the study it is assumed that construction, operation and maintenance would not be entirely through Federal funding; there would be Federal support under the current Federal laws which exist. Captain Dovas stated that the interface between power utilities and the land disposal scheme is being explored. There is a possibility that a beneficial relationship and operation between the utility cooling lagoons and the wastewater treatment lagoons could be evolved.

4. CONCLUSION

Colonel Snoke concluded the meeting by thanking those present for their attendance and inviting anyone so inclined, after the meeting formally closes, to individually discuss any aspect of the study with them.

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DIGEST OF PROCEEDINGS OF THE FIRST
PUBLIC MEETING IN THE FOURTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The first public meeting in the fourth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the Bad Axe Elementary School, Bad Axe, Michigan, on Monday, 11 December 1972. The meeting began at 7:30 P. M. A total of 607 persons were present, representing Federal and State agencies, agricultural, business, conservation, construction, educational, industrial, professional, and religious interests.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, District Engineer, Detroit, who stated that the purpose of the meeting was twofold. First to provide all present with information on this study, alternatives for wastewater management in Southeastern Michigan, and secondly, to obtain views from the public on the study, so that it may guide us in providing a more viable and accurate study in the end. Colonel Snoke then related briefly the background of the study, how it developed, as a result of concern for the future environment, into the Southeastern Michigan study, one of five pilot wastewater management studies in the nation. He stated that the purpose of the study is the development of alternative systems for wastewater management, which can then be considered by the state and other officials, with an ultimate determination as to what kind of area-wide system would be the best for future implementation. The Corps will make no recommendation for a particular alternative. Colonel Snoke continued with a presentation of the methods and procedures being currently employed, a description of the alternative systems developed and the status of the study at this time.

With the general presentation concluded, Colonel Snoke asked for statements from interested persons.

3. Statements and questions presented during the session are summarized in the following paragraphs. They are almost entirely concerned with the land disposal treatment system to the exclusion of the other seven available alternates.

a. Lieutenant General Lawrence J. Lincoln.

Former and still involved ancestral-land owner. General Lincoln, who is retired from the U. S. Army, voiced strong opposition to the land treatment method of wastewater management. The law requires that all possibilities of management be explored and this meeting should result in the elimination of the land treatment alternative from further consideration, stated the General. Continuing, he spoke of the large land requirements, the threat to the welfare of Huron County, the unsuitability of the soil, the adverse economic and social impact on Huron County and the incompatibility with existing treatment methods, as undesirable aspects of this method. Seven other alternatives are available.

b. Judge James H. Lincoln.

Huron County ancestral-land owner and Detroit Judge, stated that he wished to speak in opposition to the land treatment system of wastewater management. He stated that he was advised on this matter by the Detroit Metro Water Services, and feels that this plan should be submitted to them for their opinion. Judge Lincoln drew upon his experiences in public life in Sand Beach Township, Michigan, the United States Government and the City of Detroit to speak of the objectionable features of the method, and specifically the difficulty of land acquisition by condemnation, the disagreement of experts on matters similar to the ones under consideration, the lack of assurance of removal of Detroit's harmful industrial wastes, the harassment and litigation accompanying tunnel construction and his predicted violent opposition of Detroit. He expressed the hope that the land treatment system would be deleted at once because of these undesirable aspects and the resulting depression of land values in Huron County.

c. Huron County Board of Commissioners.

Mr. Philip Woodworth, attorney at law, representing, stated that the record should show that due to press of duties of the prosecuting attorney of the Board of Commissioners, he was engaged to represent them. He stated that the Board of Commissioners believe they speak for the people of Huron County when they say that to bring wastewater from Southeastern Michigan to Huron County would be a disaster. Mr. Woodworth further stated that it is the intent of the Commissioners of Huron County to fight this proposal with all the resources available to them and they requested that the Corps of Engineers delete this proposal from the alternatives that are presented in the survey and that the proposal to bring waste into Huron County not be presented to higher Commissions within the Corps of Engineers not to the government of the State of Michigan. He further requested certain documents from the Corps and to place into the record a formal statement.

d. Harbor Beach.

Mr. Glenn Roggenbuck, farmer, asked if any property had been bought for this project (land treatment system)? Colonel Snoke replied no, because nothing has been determined.

e. Minden City.

Mr. Harold Scholk, private citizen, stated that he had been informed at Michigan State University recently that nowhere in the world that they knew of had soil of the type that the Thumb of Michigan has.

f. Property Starting Club, Thumb Board of Realtors, and some private property owners on Lake Huron.

Mr. Jerry Toole, representing, stated that he opposed the plan (land treatment method) economically and ecologically.

g. Unionville.

Mr. Elmo P. Treiber, farmer, asked if the land treatment system will not work for human food from the cash crops of Tuscola County, why would it be suitable for animal feeds? He stated his opposition to this method, and questions the forfeiture by taxpayers of money for its continuance.

h. Ruth.

Mr. L. G. Walschleger, farmer, stated that had farmers been consulted, their adverse sentiment would have been apparent at once.

i. Mr. Philco.

Mr. Philco opposes the land treatment method, strongly, as does Mr. Melvin Girsh.

j. Mr. Johnihan.

Mr. Johnihan asked, "Where is the water or sewage, pumped here, going to after a period of years? To the drinking water?" Colonel Snoke replied that with the treatment by the systems outlined, the resulting quite pure water would be placed back in the streams and lakes.

This concluded the statements of the people who had indicated their intent to present them. Colonel Snoke then inaugurated the question and answer period of the session.

k. Lieutenant General Lawrence J. Lincoln.

General Lincoln asked that the Corps of Engineers turn over to the Huron County Commissioners their soil information if it is complete, and thus save the expense of their elaborate soil survey which is underway. Mr. Conyers, contractor, of Dow Engineering Incorporated, at Colonel Snoke's direction, responded to this request. He stated that his firm did not have a complete; recent soil survey in Huron County; a survey is now in progress which will take two or three years.

l. Harbor Beach.

Mr. James R. Johnston, teacher, Harbor Beach Schools, asked (1), if any basic research had been done on soils in Huron County, (2), would Dr. Erickson of Michigan State University concur in this study? Mr. Conyers replied that available data was used, no research was done.

m. Bad Axe.

Mr. Philip Woodworth, attorney, representing Huron County Board of Commissioners, asked (1) is the Corps required to consider

the economic social and political impacts of this matter or is the Corps merely given an assignment to find some alternative plans in this regard; (2) how can moving in this area solve the problem of our Canadian neighbors in cleaning up the lower lakes? Colonel Snoke replied to (1) that the Corps must and does consider all the impacts. To (2) Colonel Snoke said that actions on the United States and Canadian sides are taken by their respective governments; it is believed that an organization has been formed to address the international water quality problem.

n. Bad Axe.

Ms. Eilene DeChane asked what effect the polluted alfalfa would have on the taste of milk. Colonel Snoke replied that the wastewater is disinfected before spray irrigation and only the nutrients remain like other nutrient fertilizers. The answer to the question as put is not available at this time.

o. Huron County.

Mr. Frank Hammond, farmer, asked who will have the final power of acceptance or rejection of these proposals. Colonel Snoke replied that the ultimate determination as to the system selected would be left to the State, in conjunction with any legal or local agencies concerned.

p. Huron County.

Mr. William Nugent, Huron County Board of Commissioners, stated that lagoons are not permissible in Huron County, contrary to the proposal of the Corps. Colonel Snoke responded that the Corps does not propose lagoons in this area.

q. Judge Lincoln asked how it was proposed to remove the harmful inorganic pollutants generated, to a large degree, by the auto industry, in the land treatment method. Colonel Snoke replied that the industries would have to pretreat their wastes until they are acceptable for introduction into this system.

r. Mr. Ward Bucshing, not identified, asked what would be done with two inches of water per week for thirty-five weeks even if it was pure water? Colonel Snoke replied that it is percolated through the soil

and collected by the under-drainage system for discharge.

s. Caro.

Mr. D. R. John Karpovich asked if it can be told how the effluent smells. Dr. Conyers replied that this could be determined only by test, but from information and experience available, it has not proven to be seriously objectionable.

t. Fairview.

Mr. Carl Montygh asked what happens if, of the before-mentioned inorganic pollutants, just one escapes the pretreatment? He suggested that if Detroit would take care of pretreatment, their problems would be over. Colonel Snoke reiterated that from the studies reviewed, we have the reasonable assurance that the system would work. The Corps would want verifying information from thorough pilot test.

u. Harbor Beach.

Ms. Susan Oakes asked who is our adversary and what will be done that we are unaware of? Colonel Snoke responded that the public meetings are to make all concerned aware of and informed on the alternatives and the status of the study.

v. Gene Giffin, not identified, asked what will spraying do to the inside of his house with the windows open, in a residential community. Colonel Snoke replied that land arrangements would be such that no material would be put on residences.

4. CONCLUSION

Colonel Snoke, at the hour of 11:00 P.M., thanked the audience for their attendance and interest and formally closed the meeting.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
P. O. Box 1027
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DIGEST OF PROCEEDINGS OF THE SECOND
PUBLIC MEETING OF THE FOURTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The second public meeting in the fourth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the Civic Auditorium, Richmond, Michigan, on 12 December 1972. The meeting began at 7:30 P.M. A total of 81 persons were in attendance representing Federal and State agencies, business interests, farming, conservation and property owners.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, District Engineer, Detroit, who stated that the purpose of the meeting was two-fold. First, to provide information to the public on the status of the study, alternatives for wastewater management in Southeastern Michigan; and secondly, to obtain the views of the public to assist the Corps in further work on the study, and ultimately completing it. Colonel Snoke then related, briefly, the background of the study, how it developed as a result of concern for the future environment into the Southeastern Michigan study, one of five pilot studies in the nation. He stated that the purpose of the study is to develop alternative systems for wastewater management in the region. This was followed by a presentation of the methods and procedures being currently employed, a description of the alternative systems developed, and the status of the study at this time. With this accomplished, Colonel Snoke asked for statements from the public for guides in furtherance of the study.

3. Statements presented and questions asked with their answers, during the session, are presented in the following paragraphs.

a. Columbus Township Planning Commission.

Mr. Sylvester Pierzynski, Chairman, stated that the Commission is opposed to any land use in St. Clair County for sewage disposal. This is the one alternative they oppose.

b. St. Clair Shores.

Mr. Douglas Schlabach, resident, asked if the area of the Australian ground-sewage-disposal operation was habitable for humans. Colonel Snoko responded that people continue to live there and are having no problems.

c. Croswell.

Mr. Carl C. Schneider, resident, protested vigorously the use of land in the State for the disposal of sewage and suggests that cities be stopped from building until they can take care of their own waste.

d. Emmet.

Mr. Donald Wendling, resident, stated that due to the fact that the weather has surely limited the attendance at the meeting, another meeting should be scheduled and held when full or greater representation by the public can be had.

e. Fremont Township.

Ms. Anna Winn of Yale expressed the feeling of Fremont Township, held to be one of the best farm areas in the state, stating that land use for disposal of wastewater would have no value whatsoever. Two of the cash crops that may not be raised on the disposal land are sugar beets and navy beans. The latter is one of the larger cash crops in the area. Land values have declined, and dairy farming would suffer; this scheme is of no value in Fremont Township.

f. This terminated the statements, whereupon a question and answer period was begun.

g. Port Huron.

Mr. Claude S. Lawrence, filling station operator, states that

the land disposal of sewage contemplated in the study will aggravate already poor sanitation in Port Huron Township. This disposal method has shaken his faith in land values of some of the area.

h. Yale.

Mr. William Seaton is reasonably sure he is opposed to land disposal of wastewater. He asked (1) if the disposal of wastewater on a land area would affect the next township and (2) if the Corps has been connected with any acquisition of land at Bad Axe where land prices have skyrocketed? To answer (1), Mr. McCallister explained the closed hydraulic circuit employed in land disposal of wastewater, thus demonstrating the absence of effects on adjoining land. Colonel Snoke, in answer to (2), stated that the present study requires no acquisition of land by the Corps at Bad Axe or elsewhere.

i. National Organic Farm and Garden Club of Lapeer.

Mr. Jack Duncan, representative, stated that the addition of chlorine to a nutrient reduces its effectiveness as a fertilizer. Colonel Snoke agreed, explaining that chlorine may not be the most appropriate disinfectant; there are other means, and disinfectant probably should have been the term applied in the text rather than chlorination. Mr. Duncan also asked (1) if the water could be used for cooling for nuclear plants to be built in St. Clair County and (2) would putting water for land treatment on the Thumb area affect lake levels significantly? In answer to (1), Colonel Snoke replied that in the use of water the concept is that the water would be moved into holding ponds for reuse potentials. These potentials are being explored and the use for nuclear plants could be one. Regarding question (2), putting water for land treatment on the Thumb area would have no significance on lake levels.

j. St. Clair Shores.

Mr. Douglass Schlabach, salesman, asked, concerning the land disposal method, should the land used as a filter become saturated to a degree where it is useless as a filter, what becomes of the land? Colonel Snoke replied in answer that this aspect requires much more research and testing on pilot plants before a system of this type would be implemented.

k. Columbus Township Planning Commission.

Mr. Sylvester Pierzynski, representative, asked, "Why can't the sludge be reprocessed as is done in the City of Milwaukee?" Colonel Snoke replied that along with sludge, treatment processes produce liquid wastewater requiring much more advanced treatment. The A.W.T. processes deal with this combined problem.

l. Smith Creek.

Mr. John Wessel, farmer, asked (1) what is meant by the ten-year design frequency, (2) what is the source of the Corps population projection, (3) who will control the farms for wastewater disposal and what would the management processes be? Colonel Snoke replied: that the term ten year design frequency means that the facilities provided will handle the maximum storm that occurs every ten years; the 1970 Census Requirements and data from the Great Lakes Basin Commission framework study were utilized for the population projection; control of the farms is not involved in this study effort; management processes are viewed, at this time, as a matter for the State to work out with regional and local officials.

m. Mr. Wesson, not identified, asked (1) if the land disposal of wastewater method had been tried in Michigan; (2) how long would trial tests require before acceptance of the method; (3) is a farm irrigated by wastewater safe for humans if subjected to cloud burst or heavy rain. Colonel Snoke replied that: in answer to (1) and (2), the method has been used in Michigan on a smaller scale, in other states on varying scales, that Muskegon County is monitoring and testing a trial system for 1990 requirements; (3) adequate drainage must necessarily be provided to eliminate the flooding inferred.

n. Memphis.

Mr. Alan Hazelton, farmer, understands that the required land for land disposal would be acquired by the State, which would eventually move the people off the land. If this occurs, he asked would the cost of irrigation or irrigation equipment be of any concern to the present land owners? Colonel Snoke answered, saying it is recognized that there are several methods or arrangements of management possible; what the best one is cannot be told at this time. Work in this sphere has been done only for the estimates of costs.

o. Lenox Township.

Mr. Joseph Yelencich, supervisor, representing, stated that Lenox Township has quite a problem with sewage and asked if the township could tie into the system. Colonel Snoke sees no difficulty in this.

p. Richmond.

Mr. John Ristea, farmer, asked, how would the land disposal of wastewater affect the ground water that is pumped for drinking purposes? Colonel Snoke answered that research studies indicate that the underdrain collection system and the filtration system in the soil would not result in harm to the ground water. However, a pilot test, in the view of the Corps, would have to be conducted first before installing a large scale system.

4. CONCLUSION

Colonel Snoke concluded the meeting by expressing appreciation of the reasonable attendance and the resulting comments and questions. More public meetings will follow as the study moves along; should anyone like to discuss the study at our office, feel free to call. Transcripts of this meeting are available at cost.

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DIGEST OF PROCEEDINGS OF THE THIRD
PUBLIC MEETING OF THE FOURTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The third public meeting in the fourth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the Cantrick Jr. High School Auditorium, Monroe, Michigan, on 13 December 1972. The meeting began at 7:30 P. M. A total of 247 persons were present, representing Federal and State agencies, and a cross-section of the agricultural and industrial community consisting of agricultural, business, conservation, educational, labor union, professional, and transportation interests and others.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, District Engineer, Detroit District, who stated that the purpose of the meeting was twofold: first to provide further information on the study that the Corps is conducting, to explore alternative systems for wastewater management for southeastern Michigan; and secondly to obtain views from all interested parties with respect to the study. Colonel Snoke then discussed the background of the study, which is one of the five pilot wastewater management studies that the Corps of Engineers is making in five large metropolitan areas of the nation and was approved in 1970. He emphasized that the study is the exploration of alternatives for wastewater management, not implementation, for consideration by the decision making officials. Continuing, Colonel Snoke described in appropriate detail the basic criteria, and the methods and procedures that are being pursued in the study and which have resulted in eight alternative systems. This was followed by presentation of statements by interested persons and then the question and answer period.

3. Statements presented during the session are summarized in the following paragraphs.

a. State Representative Edward Mahalak of Romulus, 38th District, presented his views and those he believed of the majority of his constituents, on the so called "sewage farms proposal." He voiced strong opposition to this alternative and pointed out the disadvantages and uncertainties at some length, stating that the sewage problem should be corrected at its source.

b. United States Department of Agriculture, Soil Conservation Service.

Mr. Donald Packer, agency employee, asked for a further re-evaluation of the soil of Monroe on more adequate information than is presented by the small scale map based on 1941 information.

c. Monroe County Health Department.

Mr. James E. Akers, Director, Environmental Health Division, shares Mr. Packer's concern on the soil of the area chosen for sewage disposal, and stated that he had serious reservations to this sewage farm concept and spray irrigation. He wishes to reserve the right to submit a written report after more study of the data.

d. City of Monroe.

Mr. James Peltier, Director of Community Development, outlined the 1967 Monroe County Planning Commission plan for wastewater management adopted by the Monroe County Board as the official plan and is concerned as to the real impact that this has on the alternative plans for Monroe County. He stated that the communities in Monroe County have taken positive action in the last five or seven years to remove pollution and the commission has proposed and adopted a comprehensive plan for the orderly development of the county.

e. City of Monroe.

Mr. John R. Iacoangeli, Planning Aide, Department of Community Development, stated his opposition to the alternatives for managing wastewater in southeastern Michigan. His opposition stems from the report's

alleged inadequacy to include several important environmental factors and design considerations that might affect the entire Monroe County ecosystem if implemented. Mr. Iacoangeli submitted several generalized recommendations for the Corps to consider.

f. Citizens Pollution Control Association.

Ms. D. C. Brown, representative, stated that there is an omission of, and need in the report for, considering the recycling of industrial wastes. She further stated that Monroe County Soils are unsuitable for filtration and that there exists danger of polluting drinkable water supplies by sewage treatment plants. Ms. Brown questioned the propriety of Monroe County financing the large industrial need for wastewater management.

g. Lake Erie Cleanup Committee, Rod and Gun Club of Monroe County and the Downriver Anti-Pollution League.

Mr. John Chasca, representative, opposed the use of Monroe County for disposal of sewage and industrial waste. He stated that water, land and air must be kept clean; each community should have their own treatment facilities and be responsible for their operation and results; the answer is not larger sewers into our fresh water lakes.

h. Monroe Ecological Action, Inc.

Ms. Donna M. McKay, representative, stated that their group views the land irrigation method of wastewater disposal as a disaster. Much of the Monroe County population depends upon wells for water supply; the group feels that this fact is sufficient reason to prevent wastewater being applied to the land. Ms. McKay foresees odor problems and stated that waste disposal would be more properly dealt with at the generating source.

i. Point Mouillee Waterfowlers Association.

Mr. Richard G. Micka, representative, stated that the Association opposes that part of the Southeastern Michigan plan that includes the Huron River Basin Sewer Interceptor, a wastewater treatment plant on Lake Erie at the mouth of the Huron River, and any filling of wet lands on the west shore of Lake Erie with sludge from sewage treatment plants. Mr. Micka

presented five proposals of the Association for wastewater management. He stated that management should not be monopolized in the Detroit metropolitan area; local units of government must develop their own wastewater treatment facilities regardless of other areas.

j. Monroe County Board of Commissioners.

Mr. Arden T. Westover, representative, entered in the record the opposition of the Monroe County Board of Commissioners to the proposed sewage plant. He stated his belief that Monroe County can take care of its own problems and finds it hard to believe that the plan of the Commission is obsolete. He does not think Monroe County will be asked to assume another burden because of obsolescence of the official plan.

k. People's Lasting Ecology Action.

Ms. Mary Younglove, representative, cited excerpts from a Corps of Engineers Report of 1971, that deals with the supply of drinking water and the benefits and hazards to birds and animal life that would result from the farm sewage disposal system. To her the excerpt as presented appears to be contradictory. Ms. Younglove stated that the farm sewage disposal system is referred to as the best and the local sewage systems are condemned although the alternative plans are similar to them (local systems in operation).

l. Monroe resident.

Tom Morgan stated his approval of the informative meeting approach to the current study. He also commented that the information on the study had been available to him only at a late date, and therefore withholds his judgment. Continuing, Mr. Morgan stated that Monroe County has had disappointing experiences with their technical and financial reports on environmental preservation and as a result is not a fertile ground for unproven methods; examples of these experiences were cited. He closed his statement by emphasizing the importance of the study to residents, and by asking if, prior to the summer of 1971, these studies were conducted with the Monroe Planning Commission.

m. City of Adrian.

Mr. Tom Mentzer, representing the City Administrator,

presented Adrian's statement entitled, "Regional Waste Treatment and Successive Efforts." Excerpts from this statement follow, in quotation marks. "Methods under consideration by the Army Engineers, generally require mammoth treatment plants, which serve an entire region. An alternative method, -- would simply eliminate the pollution at the source. In harmony with principles of conservation, this method restricts by laws, rules, and ordinances the concentrations at which substances may enter a sewer system. That which may be introduced to sewers in reasonable amounts would be removed at local treatment plants. As a consequence of strong anti-pollution sentiment in the last few years, this alternative is rapidly being instituted, --- efforts by the Water Resources Commission, the Michigan Department of Public Health, and other agencies--- are requiring cities and townships in Michigan to provide within the next few years, complete treatment and control of wastewater from within their corporate areas. This is being accomplished by the construction of costly new treatment plants and plant additions at numerous locations. --- With such expensive and adequate waste treatment facilities being planned, in existence, or under construction, alternatives to present waste treatment requirements are redundant and unjustified, --- Pollutants should be removed near the source."

Mr. Mentzer stated that he had another statement entitled "Regional Storm Sewers and Extravagant Waste." The following, in quotation marks, is excerpted from this statement. "Collection and treatment of all stormwater run-off, from urban and suburban land in southeastern Michigan, is advocated by some groups seeking the rehabilitation of Lake Erie. Of equal importance, is maximum preservation of the natural environment and minimum disruption of unspoiled terrain. --- The construction of extensive conduits on the surface, or deep underground, is a most disruptive and least economical means of conducting storm run-off from southeastern Michigan to Lake Erie. ---nature provides conduits to Lake Erie in the form of streams. --- Abandoning natural streams, in favor of artificial canals and tunnels, is an inherent weakness in regional collection of storm water for central treatment, --- Extension of storm sewers beyond urban land, across rural fields and streams is not only an unnecessary extravagance, but it is a great travesty to the environment we need so desperately to conserve."

n. Monroe.

Mr. Dean Bathgate, resident, for the record stated that he is not in favor of this (report) at all.

o. Raisinville Township.

Mr. Frank G. Domsle, representative, submitted for consideration a report compiled by six teachers of long experience in teaching. He stated that the purpose of the report was to supply information to the Corps.

p. Monroe.

Mr. William A. Eberline, resident, stated his opposition to sewage disposal in the area and his extreme skepticism of the spray irrigation method as a means of wastewater treatment.

q. Exeter Township.

Ms. Beverly Hoesczle, representative, states that land disposal of wastewater is obsolete; human and animal wastes can be converted into fuel and industry pollutants being discarded are actually useable raw materials that other companies need in various processes. Continuing, she cited the study of behavioral habits of rural residents as contributing little that rural people could respect.

r. S P T P A.

Mr. Frank Kuron, representative, stated that results with planning have been disappointing in Monroe County and cited an experience of a Campbell Soup plant, where spraying a wastewater on surrounding land contaminated an adjacent river. He feels that the land disposal method of wastewater should be tried first elsewhere before application in Monroe County.

s. Monroe.

Ms. Jeanne P. Micka, homemaker, stated that a reordering of national priorities is needed to focus needed technology and funds on the wastewater problems confronting us here. She suggested that Congressmen, both Federal and State, pressure the Executive Department to release funds under the Water Quality Act and that the Executive Department "jawbone" industry into active participation in elimination of waste disposal.

t. Mr. F. J. Smith, association unnamed, voiced concern about the number of people to be displaced, roads to be cleared, farms to be eliminated, and odors created by the wastewater management alternatives. He stated that property along Raisinville Road, or east of the land disposal area, would be adversely affected by resulting odors, and it is not right to displace Monroe County people from their land for the treatment of Detroit wastewater.

u. Monroe.

Mr. Keith Siebarth, pipefitter, Ford Motor Company, stated that the increased flow in the River Raisin that would result from the land treatment plan would necessitate moving of many people off ancestral farms, which is highly undesirable.

v. Monroe City Planning Commission.

Dr. Lawrence A. Larck, member, speaking of the land treatment system of wastewater management, is opposed to the system and feels that it is an exploitation of Monroe County. He stated that an official statement from the Commission will be forthcoming.

w. Monroe.

Ms. Nancy Carleski, college student, asked what would be done with the crops grown on the irrigated land. Colonel Snoke answered that there are several means to utilize them, on dairy farms and meat producing farms; animals from the meat producing farms could be consumed after the pilot tests have been run and it could be determined for sure that they were suitable for human consumption.

x. Monroe County Board of Commissioners.

Mr. Donald Doty, Commissioner, asked if the land treatment system, sewage farm treatment method, was believed to be technically feasible. Colonel Snoke answered yes, based on prior studies and the existence of the system in the country. Mr. Doty stated he was unconvinced of the Corps' knowledge of the suitability of Monroe County soil for this purpose, and is definitely opposed to the method. He further stated that the decisions on the report are going to be made, probably, by the Governor or the Legislature. Mr. Doty recommended further

examination of the type of agriculture, resulting, and other alternatives of wastewater management, excepting lagoon systems. Colonel Snoke reiterated that the Corps is making no recommendation in the study, and pointed out that despite the fact that comment has been mainly on the land treatment alternative, there are seven other alternatives; rightly or not it is appearing on the record that the people like none of them.

y. Citizens Pollution Control Association.

Ms. Marie Janssens, representing, directed several questions to Colonel Snoke. The questions concern the land treatment system. The questions and Colonel Snoke's answers follow: Q denotes the question and A the Answer.

Q: Who are the Representatives and Senators supporting the plan?

A: I don't know that there are any at all because the study is incomplete.

Q: Who will give the final authority to go ahead? Who makes the decisions?

A: The study will go to the State for whatever use they deem appropriate. It is not an implementing type of study. It is up to the State as to its use.

Q: Will industry be big for the scheme?

A: Seventy-five and twenty-five percent, respectively, of the cost of constructing wastewater management facilities would be paid by the Federal Government and State plus local Government and since corporations pay income taxes and other taxes, they will pay for part of it.

Q: Will oil and grease filter through our clay?

A: No. That material can be removed in one of these processes and will not be a contaminant in the effluent water.

Q: I wonder if you have any area in mind in which you are going to move us all? It seems like some type of reservation, maybe.

A: There is no intent to move people onto a reservation.

Q: Who would assure the environment qualities for our and our childrens' future?

A: This involves a monitoring program, and not different from the monitoring program that is being done on the Muskegon County System. There would have to be, as we see it, a pilot program on each alternative on each soil with complete monitoring program. We are still in the study and have a wide range of assessments underway for each of the eight alternatives.

4. CONCLUSION

Colonel Snoke closed the formal meeting by inviting anyone to remain for further discussion, correspond with the Detroit District, or come and visit the Detroit office. He briefly reviewed the progressive increase in activity, attendance and interest of the meeting and stated that the Corps was trying to provide a service to improve the water in our streams and lakes.

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DIGEST OF PROCEEDINGS OF THE FOURTH
PUBLIC MEETING OF THE FOURTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The fourth public meeting in the fourth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers, in the Veterans Memorial Building, Detroit, Michigan, on December 14, 1972. The meeting began at 1:30 P. M. A total of 54 persons were present, representing Federal and State agencies, business, civic, conservation, industry and transportation interests.

2. MEETING

The meeting was opened by Colonel Myron D. Snoke, District Engineer, Detroit, who stated that the purpose of the meeting was twofold: First to provide the public with information on the study, "Alternatives for Wastewater Management for Southeastern Michigan" and secondly to obtain views on the study, to help guide the Corps in further work on it. Colonel Snoke then presented briefly the background of the study, how it developed as a result of concern for the environment into the Southeastern Michigan study, one of five pilot wastewater management studies in the nation. He stated that the purpose of the present Survey Scope Study is to develop and assess alternative systems for managing wastewater in this region with the further aim of making these studies available to the decision makers at the state, regional or local level for consideration. The Corps is not recommending any particular alternative. Colonel Snoke continued with a presentation of the methods and procedures being currently employed, a description of the alternatives developed and the status of the study at this time. With the general presentation finished, Colonel Snoke asked for statements from those who wished to make them.

3. Statements and questions presented during the session are summarized in the following paragraphs.

a. Detroit Metro Water Dept.

Mr. James C. Kegler, representing, submitted four questions. The question with Colonel Snoke's answers follow:

Question: Has the Corps of Engineers evaluated the Detroit Metro Water Services program and will it become an integral part of the Corps program?

Answer: Yes, the DMWD plan was considered in the development of the Corps plan for existing water standards.

Question: What does "zero discharge" mean as related to plant effluent, combined sewage overflows and stormwater overflows?

Answer: "Zero discharge" means no discharge of critical pollutants in any effluent.

Question: Will the study give the construction costs, only, or both construction and operating costs?

Answer: Construction costs will be given by a time phased program; operation and maintenance costs will be given also.

Question: Are the contractors and the individuals that are making the assessments attending any of these public hearings?

Answer: Yes, the District Staff personnel involved in the assessments do attend public meetings.

b. League of Women Voters, Southfield-Lathrup.

Ms. Shirley Wall, representing, stated that the alternative plans for stormwater run-off are disquieting because of accompanying land disturbances above and below the ground surfaces. She spoke of institutional methods, acquisition and preservation of flood plains and wet lands, disconnecting downspouts from sewer systems and grid surfacing on parking areas as worthy of consideration for dealing with storm water.

c. Lansing.

Mr. Alex Sagady, private citizen, foresees a critical decision facing the people. He spoke at some length on the chemistry and energy flow of water pollution treatment, concluding that a major commitment should be made to land disposal of our wastes, in the interest of energy and other conservation. Continuing, he stated that the disposal of heavy metals into public sewers or surface waters is intolerable as is the discharge of harmful organic compounds. Internal plant processes could and should recover these non-renewable resources; strict control and protection must keep nitrate and phosphate run-off from becoming a problem.

d. City of St. Clair Shores.

Mr. R. Marlin Sumner, City Engineer, representative, stated that a growing personal concern stems from the continuing but objectionable use of water as a vehicle to convey sewage and the fact that current treatment plants are being improved but no new methods are being devised. He stated that verbal and published statements have been made that zero discharge of effluent is a goal by 1985, and effluent will not be allowed. He believes that the current technology has not kept apace with requirements; we are only improving the treatment plants and the effluent. Mr. Sumner believes that in terms of projecting 18 years from now, much effort should be devoted to developing new treatment plants and a new method of conveying sewage other than water borne.

e. Colonel Snoke then formally announced the inception of the question and answer period, although it is true that the statement period had been punctuated with questions.

f. League of Women Voters, Dearborn.

Miss Mary E. Richardson, representing, asked about reports that interceptors may run down the Rouge Valley and their construction. Colonel Snoke replied that the subject of the question was one that is not part of this Corps' study; he believes that it is a private development and is essentially a flood handling measure. Mr. McCallister stated that, as he understood it, a portion of the Rouge Basin is to collect stormwater; the tunnels in which it would be stored would be far below the ground surface and they would cause no intermediate or surface disturbance.

g. Conservation for Survival.

Mr. Stephen M. Stackpole, Grosse Pointe, representing, asked how much chlorination in wastewater sprayed on land would interfere with the natural processes of converting nutrients in nature so that they would be neutralized and taken up by the plants and no longer constitute contamination? Colonel Snoke replied that chlorination is the most common method of disinfection, because it is the least expensive but other means, more expensive, may produce an effluent superior in the respect in question. Mr. McCallister stated that the word "chlorination" should probably be replaced by the more accurate term disinfection, in dealing with concepts as the study does. Mr. Stackpole, continuing, stated his understanding that chlorine can interfere with the growth and health of plants and asked, further, if animals eat plants that take up heavy metals in sewage, are they fit for human consumption? Colonel Snoke concurred in Mr. Stackpole's statement regarding chlorine; however the tests so far on the land treatment have indicated that it is a viable concept. Mr. McCallister stated that tests available on animals have shown no discernible ill effect due to foraging on land sewage disposal areas; however, the information on this facet is incomplete.

h. Macomb County Planning Commission.

Mr. Timothy Backhurst, Urban Planner, representing, asked how many acres of land would be required for equalization lagoons in the Physical Chemical Treatment of storm water. Colonel Snoke replied that in the St. Clair area 2000 acres would be required.

i. Mr. Alex Sagedy commented on the questions of Mr. Stackpole to the effect that Cornell University found that otherwise edible plants, raised on treated sewage sludge, contained heavy metals in amounts toxic to humans and animals. Mr. Sagedy stated that means other than chlorination should be used for disinfection, because chlorine, being very toxic, causes transmission of large amounts of extremely toxic substances.

j. League of Women Voters.

Ms. Shirley Wall asked if any research was being done on self-contained treatment units for use within each home or building. Mr. McCallister answered that small gas-fired incinerator devices are available in the recreational boating field. There are small devices

available for trailers, homes or boats that will consume human waste. Colonel Snoke pointed out that costs of treatment of wastes in individual home facilities would be much more than in central treatment plants.

k. League of Women Voters.

Miss Olga Weir asked several questions - they follow with Colonel Snoke's answers.

Question: Does the Corps recommend any alternative system of study?

Answer: No.

Question: Are the statements made here included in the report?

Answer: Yes.

Question: Will the information given today be included in the report?

Answer: Yes.

Question: Does this end your study?

Answer: No; more in the next phase will be done on assessments and then more public meetings.

Question: Do the Drain Commissions participate in this study?

Answer: Treatment systems in being or projected are all considered in developing the alternatives.

l. Washtenaw County Department of Public Works.

Mr. Joseph W. Price, Director, representing, asked what effect Sections 108D and E of the Federal Water Pollution Act would have on the work done to date in the study of alternatives for wastewater management. He explained that these sections (108D & 108E) instruct the Corps to immediately plan the rehabilitation of Lake Erie. Colonel Snoke replied that these sections refer to a demonstration program for environmental repair of Lake Erie; their import is not precise at this time.

m. Ford Motor Company.

Mr. M. L. Alexander, Environmental Engineer, representing, asked what would be done with the sludge generated by the alternatives and have calculations been made of the detailed amounts and the practicality of land disposal? Colonel Snoke replied that information is available and more is being developed on the magnitude of the sludge problem, potential requirements of land fill operation and incineration for the Physical-Chemical Treatment.

n. SEMCOG.

Mr. Nelson Fabian, representing, asked, "Will the report be formally presented to somebody? If so, to whom and when, and what are the institutional arrangements?" Colonel Snoke replied that the report will be presented to the State of Michigan and other interested agencies; the scheduled date for this is midsummer of 1973. On institutional arrangements, Colonel Snoke stated, base information is being developed on existing institutions available to deal with wastewater management and what increases in authority would be necessary. Mr. McCallister added that not only are these existing agencies being examined for their capability, but the various possible ways for managing systems such as these are being explored.

o. League of Women Voters, Southfield.

Ms. William H. Morse, representing, expressed approval of the public participation meetings, the regional approach in wastewater management, and the attempts to find ways for removal of phosphates.

3. CONCLUSION.

With the question and answer period thus ended, Colonel Snoke thanked those present for their attendance and their contribution to the meeting and formally closed the meeting.

DEPARTMENT OF THE ARMY
DETROIT DISTRICT CORPS OF ENGINEERS
P. O. BOX 1027
DETROIT, MICHIGAN 48231

DIGEST OF PROCEEDINGS OF THE FIRST
PUBLIC MEETING IN THE FIFTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The first public meeting in the fifth series of public participation meetings was held by the District Engineer in the Tappan Junior High School, 2251 East Stadium Boulevard, Ann Arbor, Michigan, on December 11, 1973, commencing at 7:30 P.M. A total of 51 persons were present representing Federal, State, County and City agencies, business interests, conservation interests and farm interests.

2. MEETING

The meeting was opened by Colonel Hays, District Engineer, Detroit, who stated that the purpose of the meeting was to give the people a view of the status of the study "Alternatives for Wastewater Management for Southeastern Michigan" and to obtain the views of the public to guide the Corps in further work on the study. Colonel Hays then presented, briefly, the background of the study, stated its eventual repository and emphasized that three alternatives are to be presented--but no recommendations. He then turned the meeting over to Major Cabrinha.

3. PRESENTATION

Major Cabrinha proceeded to present a brief synopsis of the study, its content, manner of conduct and the findings: The study has progressed to a point where a summary report in draft form has been written. Major Cabrinha then narrated briefly but clearly the general procedure and events in the development to date. Four plans are to be presented to the State of Michigan as presented in the Draft Summary Report. It is hoped to complete the report in the near future. With the general presentation concluded, Colonel Hays asked for statements from those desiring to do so.

4. Statements and questions presented during the session are summarized in the following paragraphs.

a. Mr. Zane, of the Dundee Cement Company, presented a written statement and asked that it be incorporated into the record. It is reproduced in its entirety in the following pages.

"(The following is the statement requested by Mr. Bruno Zane to be incorporated into the record.)

"Comments by: Bruno Zane, P.E.
Corporate Environmental Engineer
Dundee Cement Company
Dundee, Michigan

"In reference to the Public Hearings being held regarding water pollution control and, specifically, to proposals to gather and treat runoff from rain and snow storms, Dundee Cement Company, located in Dundee, Michigan, County of Monroe, would like to offer as a matter of record the following statements.

"It is the sincere desire of the Dundee Cement Company to do all that it can do to cooperate with governmental agencies to control water and air pollution.

"The Portland Cement Association was invited by Mr. Philip B. Wisman of the E.P.A. Information Center - Environmental Protection Agency, Washington, D.C. 20460 to comment on the proposed regulations, published in the Federal Register on September 7, 1973 (FR 73-18868), dealing with water effluent limitation guidelines for cement manufacturing. PCA is the research, promotional and public affair arm of the cement industry, representing the great bulk of production capacity in this country.

"The Dundee Cement Company agrees with the following items presented to the E.P.A. by the Portland Cement Association.

"1. The period of time available for collection and evaluation of technical and economic data, as well as the period for comment by the industry, makes it unlikely that the specific effluent limitations could be realistically evaluated. The non-water quality environmental impact, energy considerations, age of the facilities, in addition to engineering considerations did not appear to have been considered in the specific effluent limitations statements.

"There seemed to be a great difference in the costs indicated by the Southern Research Institute, which ran the study for the E.P.A., and cost studies made by cement manufacturers. Another example in the Development Document, on page 83, discusses the disposal on plant property of collected kiln dust and gives details of dimensions of the piles, as well as costs. Cement company experts feel that the particular solution outlined is only barely possibly technologically and can be achieved only at exorbitant costs.

"The proposed regulations require containment of runoff from the plant areas during periods of high rainfall. The provisions dealing with runoff appear to need further clarification from both an engineering and cost balancing standpoint. There is no authoritative data available in the development documents or elsewhere which indicate the nature of the runoff problem and how it influences effluents from cement plants. The volume and constituents of any pollutants in storm runoff has not been determined, nor has possible solution to such problems been detailed. Cost balancing could not be performed without detailed information. The proposal's statement that dikes and containment ponds be designed for a 10-year, 24-hour rainfall event, needs clarification and elaboration, given the wide geographical dispersal of cement plants.

"Provision should be made for unusual or 'upset' conditions during which a specific limitation might be unavoidably exceeded for a short period of time. E.P.A. has recognized the need for such relief in the air quality field in its standard of performance. The same situation exists in the water effluent regulations.

"Certain specific points in the guidelines need further definition and clarification. For example, in the discussion of 'Effluent Characteristics' (e.g. Section 411.12 of the Federal Register proposal), 'total suspended non-filterable solids,' is subject to several interpretations. Also, in the effluent limitations set out in Section 411.12 thru 411.15, it should be made clear that consideration is given to concentrations present in the intake water, so that the particular values represent 'net' figures. Thus, concentrations in the discharges will be allowed at the same level as those in the intake water where the discharge is into the same body of water.

"At this point, we would like to present the following excerpts from The Federal Water Pollution Control Acts Amendments of 1972 (issued by U.S. E.P.A., Office of Enforcement and General Council, Washington, D.C. 20460, January 1, 1973.)

"As stated in the 1972 Act, it is the national goal that the discharge of pollutants into navigable waters be eliminated by 1985, and that as an interim goal whenever attainable there be achieved by July 1, 1983, water quality which provides for recreation in and on the water.

"The 1983 goal is an objective which carries with it defined, specific enforcement mechanisms while the 1985 goal is an ideal toward which Congress intended the country to strive. To reach these goals, the Act requires that a discharge of waste or of waste-containing water be of a specified, improved quality before its release from a point source to the receiving water, or in some cases that the discharge be prohibited.

"It is our interpretation that the intent of Congress when the legislation was passed in setting up the 1985 no discharge into navigable waters goal was that it was an ideal toward which our industry should strive, not an ultimate mandate which can be the cause of economic chaos in industries such as ours."

b. Mr. William J. Pollard, Co-director of the Citizens Opposed to Super Sewer.

Mr. Pollard stated that Citizens Opposed to Super Sewer have reviewed "Alternatives for Managing Wastewater in Southeastern Michigan" presented in Information Brochure No. 2 by the Corps of Engineers, and are absolutely opposed to the plans since they all include the "Super Sewer." The Citizens have always opposed the Michigan Water Resources Commission Plan II. The Citizens Support:

- (1) Land irrigation treatment systems in the limited areas proposed.
- (2) The use of multiple advanced wastewater treatment plants.
- (3) The inclusion in the Alternative plans of the treatment of stormwater runoff.

c. Mr. Raymond Smit, State Representative, State of Michigan.

Mr. Smit finds the idea of separating industrial and municipal wastes as proposed, hard to understand; Michigan policies have been to arrange, cooperatively, for treatment of industrial and municipal wastes, not separating the problems, because the former effects economies and greater treatment. The second concern of Mr. Smit is that he has felt that the construction of large intercepting sewers for the Southeastern Michigan region is not the best solution in any sense. Mr. Smit, continuing, objected to the irreversibility and magnitude of abandoning existing public investment in wastewater facilities throughout the southern part of the state, if these mammoth systems are brought to fruition. Mr. Smith viewed the costs of the submitted plans with disbelief; a deficit of the first year of 370 or 400 million dollars is forecast--its financing is dismaying. Land irrigation creates problems in urban areas, and misinformation concerning costs and benefits of this method have been offered. Rude awakenings to massive deficits in financing because, crop profits have not materialized, and construction and operating costs have soared above estimates, point to the need for review of this method. The social upheaval by dislocating existing residents, particularly under public ownership, is a massive problem of the land treatment method. Energy requirements for the new techniques are considerable--in some methods very large; this facet deserves more close and careful scrutiny.

d. Mr. Thomas E. Bletcher, Deputy Drain Commissioner of Washtenaw County.

Mr. Bletcher credits the drain commissioner of Washtenaw County with lowering the water table of Washtenaw County, over the years, as much as five or six feet by process of nature and public works. The County prior to this was "largely a swamp." The Corps of Engineers, by land irrigation, could undo this work. Mr. Bletcher believes that the study has ignored the concept of treating wastes, municipal or industrial or stormwater, as close to their source as possible, by transporting them at enormous costs and concentrating them in areas where it requires very high technology to treat them and dispose of wastes. Mr. Bletcher has little respect for land treatment and questions the veracity of its assessment. His office finds the stormwater treatment plants, of the study, grossly inadequate, due to the non-local treatment and non-recharging of the groundwater systems. Rather the study transports the stormwater vast distances, treat it in large regional plants, and discharges it into rather sensitive water resource areas. Mr. Bletcher states that no one in any of the studies has gotten down to dealing with the economics of rate structures and how and who is going to pay for these systems and what the impacts on people are going to be. Another equally important aspect is the issue of who is to control these systems and what are the politics of this control in terms of representation, public accountability and good environmental control. The State of Michigan, the Governor and the Corps of Engineers should be urged to take a much more local oriented look at the alternatives for wastewater management, including small-area plants with the use of home wastewater treatment, runoff retention and recycling industrial waste within industrial facilities.

e. Mr. Joseph Price, Director of Public Works, Washtenaw County.

Mr. Price terms Public Law 92-500 a shaky basis for planning because the definitions, such as "best available technology" have yet to be made, thus needed economic comparisons cannot be made. A second question that Mr. Price raises is the incomplete distinction made in the report between regional facilities and separate facilities; what areas should be included within a regional facility and what within a separate facility are not made clear. This has been a problem to Washtenaw County and Ann Arbor for some time. Another uncertainty to Mr. Price is the relationship of the three Representative Plans to the Interim Plan, and where does Super Sewer (the large Huron Interceptor) fit with respect to the three Representative Plans. He states that a confusing and false impression is given in the announcement notice to the effect that the Corps was commissioned by the State of Michigan to make this study. Further criticism by Mr. Price was directed at the "Interim Plan," and the arrangement of transportation and treatment system as being confused and neglected. He proposes a new study which employs "best practicable treatment technology" regardless of new plant location and then optimizes transport and treatment for the most cost-effective arrangement. The new Huron River Regional Plant and the massive, connecting system of interceptors appears totally unfeasible. Washtenaw County, at the invitation of the State, has prepared an Interim Wastewater Management Plan, called 83-D, for Washtenaw County.

A copy of the study made for the County and the Plan was provided, and should be given consideration.

f. Mr. Lowell Eisenmann, Blissfield, Michigan.

Mr. Eisenmann, speaking on behalf of Blissfield area farmers, thinks that agricultural people in the involved areas should be consulted in the study, and that prime farmland in Blissfield and Palmyra Townships, Lenawee County, should not be considered for wastewater treatment without considerable study with the Agricultural Extension Office and the Township Supervisors.

This completed the list of people for comments and Colonel Hays opened the meeting to questions from participants.

g. Mr. Russell Dennis, Staff Writer, Lenawee Tribune, Adrian, Michigan.

Mr. Dennis asked four questions, mainly involving Lenawee County. The questions with their answers follow. "Q" denotes a question; "A" denotes the answer.

Q. How many acres of land will be needed in Lenawee County and where will it be located?

A. Representative Plan Two requires 5,000 acres, Representative Plan Three requires 15,000 acres.

Q. How would this land be obtained?

A. This information is not available at this time; in certain instances, condemnation might have to be made.

Q. Will the plants in Lenawee County process Lenawee County effluents only?

A. Yes.

Q. How much will the facilities in Lenawee County cost?

A. This information is not available at this time.

h. Mr. Nathaniel M. Semple, representing Congressman Marvin L. Esch.

Mr. Semple asked, since all three representative plans submitted assume there will be a "Super Sewer," and a total of 13 different plans have been made, why cannot the Corps make a plan which does not include the Super Sewer?

Colonel Hays replied that all plans will be turned over to the State. Three of the plans are highly thought of by the Corps but recommendations are the province of the State.

- i. Mr. Sang Y. Nam, Senior Planner, Washtenaw County Metro Planning Commission.

Mr. Nam asked, concerning Representative Plan Two, are two IPCT plants proposed on the Huron River or just the Super Sewer, which we understand as a regional sewer?

Major Hays replied that there will be IPCT plants for treating stormwater at Ypsilanti, Plymouth and at the mouth of the Huron River.

- j. Dr. John E. Schenk, Environmental Control Technology Corporation.

Dr. Schenk asked, if the Corps conclusion is that for new plants the best treatment would be IPC which is recommended for the mouth of the Huron, why is secondary treatment recommended for the Interim Plan?

Major Cabrinha replied that the Interim Water Quality Plan is based upon the attainment of current water quality standards in Michigan, with a high level of phosphorus removal. If the goal is the current standards of Michigan the Interim Plan applies; if the goal is the no-discharge-of-pollutants, advanced plans apply.

- k. Mr. Dean S. Smith, Teacher-Elementary, Ann Arbor, Michigan.

Mr. Smith asked, can the crops raised on irrigate lands only be fed to livestock? They will not be used for human consumption?

Colonel Hays replied that this is not true.

- l. Mr. John F. Langowski, Graduate Student, University of Michigan, Ann Arbor.

Mr. Langowski inquired whether the Coordinating Committee of which the Detroit Metropolitan Water Department and the Michigan Water Resources Commission are members, played any role in limiting the Corps' concern with technical alternatives? The DMWD and MWRC have played key roles in the adoption of the Super Sewer concept.

Mr. Gregory replied they were listened to but the Corps decided the alternatives.

- m. Ms. Beverly Farrar, Livingston County Press, Howell, Michigan.

Ms. Farrow requested the acreage figures in Livingston County on Plans Two and Three.

Colonel Hays replied that there was no requirement in Livingston County.

n. Mr. William J. Pollard, Ann Arbor, Michigan.

Mr. Pollard, referring to Plan Two, stated that he understood that an analysis to show it was the most cost effective and practical had not been made. It was simply included and he asked for further clarification.

Mr. Gregory replied that a detailed alternate analysis had not been made of Plan Two; it was assumed that the State would implement its on-going program. Reanalyzing and reconsidering old decisions of the State plan as such were not considered productive.

o. Mr. Ray Smit, State Representative, State Capitol, Lansing, Michigan.

Mr. Smit stated that the IPC is said to be the most desirable since it can provide suitable plants on a smaller scale than some other methods and in many cases can eliminate interceptors; therefore, if IPC plants are to be recommended, a re-evaluation of the large sewers is in order.

Mr. Gregory replied that a series of decisions had been made on massive collective system but the IPC plant had not been analyzed.

p. Mr. Thomas E. Bletcher, Deputy Drain Commissioner, Washtenaw County.

Mr. Bletcher deplored the lack of knowledge on the economics, rate structure and administration of this regional system which he sees as insurmountable difficulties no matter how good the engineering. Engineering studies have outpaced the problems of how do we run it and how do we pay for it.

Colonel Hays replied that management had been addressed in the institutional portion of the study. The Corps has not taken upon itself to say how the system should be run; it has dealt with the engineering but does not have the full answers on costing and operation. Time prevents the presentation of the entire study at this meeting.

Mr. Bletcher asked if it is unreasonable to direct the study to alternatives which are given management and financial resources, now, rather than dealing with future decisions before financial and administrative management capability are at hand.

q. Mr. Lowell Eisenmann, Farmer, Lenawee County.

Mr. Eisenmann thinks that the financing lies squarely with the cities involved.

r. Mr. William Pollard, Ann Arbor, Michigan.

Mr. Pollard calculates his share of the cost of 400 million dollars per year to be 6,400 dollars over 20 years. He asks that a report be made on financial feasibility, based on total income, property evaluation and taxes on the area, possibly, and somehow show how local units of government can support their share of the plans financially.

Major Cabrinha replied that the Summary Report deals with some of these costs, not to Mr. Pollard's calculated level, however. The impact tables shows effects on people in the immediate area, the people in the region and nationally.

s. Mr. David Coolidge Firestone, Ann Arbor, Michigan.

Mr. Firestone asks if the population figures presented may be in error considered in the light of reports of SEMCOG that some errors in population estimates were made between and in the 1970 to 1972 period.

Colonel Hays replied that the SEMCOG projections are known, but the resultant effect on the study is not significant.

t. Mr. Richard B. Mieremet, Graduate Student, Water Resource Management, Ann Arbor, Michigan.

Mr. Mieremet asked, concerning land treatment methods, where will the sewage go during the non-irrigation season, is there an incentive for farmers to accept the irrigation water and should farmers not want to participate in the irrigation what will be done?

Colonel Hays replied that holding basins are provided to contain the sewage during the non-irrigation season; there are economic benefits to the farmer in the land treatment system. In the case of reluctance of farmers to participate, there are two ways to induce participation. One is governmental administration with public ownership of the land; the other is by maintaining private ownership in which the management entity would seek out farmers who would like to join in the cooperative venture utilizing the wastewater as a nutrient source on the soil.

u. Mr. David Coolidge Firestone, Ann Arbor, Michigan.

Mr. Firestone, in posing another question, asks if the population estimate accepted will be one that will tend to induce a population increase to pay for the installation?

Mr. Gregory replied that for the total region the estimates are reasonable.

Colonel Hays then thanked the participants for their time and attendance and closed the meeting.

DEPARTMENT OF THE ARMY
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DIGEST OF PROCEEDINGS OF THE SECOND
PUBLIC MEETING IN THE FIFTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The second public meeting in the fifth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers in the Veteran's Memorial Building, 151 West Jefferson Avenue, Detroit, Michigan, on December 12, 1973, commencing at the hour of one o'clock P.M. A total of 46 persons were present, representing Federal, State, City and County agencies, business civic, conservation and industrial interests.

2. MEETING

The meeting was opened by Colonel James E. Hays, District Engineer, Detroit, who stated that the purpose of the meeting was to provide the public with information on the study "Alternatives for Wastewater Management for Southeastern Michigan" to date, and to obtain public views on the study to help guide the Corps in further work on it. Colonel Hays then presented briefly the background of the study. Basically, the purpose of the study, at the direction of Congress, is to assist the people of Michigan by proposing several alternative plans for the management of wastewater. A draft report has now been completed which will be summarized here today. The study is predicated on a regional approach and combines the solutions for municipal and industrial wastewater flows and stormwater flows. Three methods of meeting this problem, the Advanced Wastewater or Biological Method, the Physical-Chemical Treatment Method and the Land Treatment Method, are presented. Thirteen alternatives using various combinations of these three methods have been developed; three viewed with marked favor by the Corps are to be presented to the State for their consideration. At this point, Colonel Hays asked Major Cabrinha to make his slide presentation on the study.

3. PRESENTATION

Major Cabrinha presented some of the background, a description of the study area, interpretations of the law and various technologies explored,

a quick look at the many alternatives that were developed and finally the Corps-presented alternatives to the State in a manner to refresh the information in the participant's understanding. This presentation was in appropriate detail and is not repeated here--it appears in its entirety in the "Transcript of the Proceedings" and the Summary Report for those who wish it. At the close of Major Cabrinha's presentation, Colonel Hays opened the meeting to statements.

4. STATEMENTS

Statements presented and questions asked are presented in the following paragraphs.

- a. Mr. Charles Blessing, Director-Secretary of the City of Detroit Planning Commission, mailed a statement to Colonel Hays. It is presented here in its entirety.

"Our office has recently reviewed 'Alternatives for Managing Wastewater in Southeastern Michigan' dated November, 1973. In reviewing the report, our major concern is with the handling of stormwater runoff. The report states that stormwater runoff requires storage prior to treatment. The report further shows that each of the alternative plans provides for 51 reservoirs of various sizes located throughout the region.

"In recent weeks our office has reviewed, as a part of the Federal A-95 Review process, two applications by the Detroit Metropolitan Water Department for federal funds to construct stormwater overflow control facilities. As can be seen from our attached responses, our major concerns are: 1) the adverse environmental and aesthetic effects of retention basins, and 2) the possible destruction or preemption of large tracts of land that might otherwise be used for recreational purposes.

"Although it appears from your report that the proposed 'reservoirs' may be somewhat different from the DMWD stormwater overflow control facilities, it is our belief that the above stated concerns still apply. It is our hope that in further delineating a stormwater storage system, careful consideration be given to environmental and land use problems and that alternative methods of handling stormwater runoff be given serious consideration and evaluation."

- b. Mrs. John Donaldson, President of the Birmingham-Bloomfield League of Women Voters, Member of Voters River Rouge Basin Committee.

Mrs. Donaldson stated that the League has been interested in water quality for years and has worked hard in Washington for high water quality standards, water quantity and Federal funding of treatment plants. For some time the League has been pressing for an answer to a question which remains unanswered. The question is: "What will happen to the water table under southeast Michigan when the systems of deep tunnels, that you propose,

draw off the water from heavy rains?" Mrs. Donaldson followed this with an explanation of subterranean water hydrology and the necessity of re-charging ground water supplies.

Colonel Hays replied that the second section is for the questions; statements are appreciated at this time.

- c. Mr. Bruno Zane, P.E., Corporate Environment Engineer, Dundee Cement Company, Dundee, Michigan, submitted another written statement. It appears in the following paragraphs, in its entirety.

"Comments by: Bruno Zane, P.E.
Corporate Environmental Engineer
Dundee Cement Company
Dundee, Michigan

"In reference to the public hearings being held regarding water pollution control and, specifically, to proposals to gather and treat runoff from rain and snowstorms, Dundee Cement Company, located in Dundee, Michigan, County of Monroe, would like to offer as a matter of record the following statements.

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"The Dundee Cement Company agrees with the following items presented to the E.P.A. by the Portland Cement Association.

"The period of time available for collection and evaluation of technical and economic data, as well as the period for comment by the industry, makes it unlikely that the specific effluent limitations could be realistically evaluated. The non-water quality environmental impact, energy considerations, age of the facilities, in addition to engineering considerations did not appear to have been considered in the specific effluent limitations statements.

"There seemed to be a great difference in the costs indicated by the Southern Research Institute, which ran the study for the E.P.A., and cost studies made by cement manufacturers. Another example in the Development Document, on page 83, discusses the disposal on plant property of

collected kiln dust and gives details of dimensions of the piles, as well as costs. Cement company experts feel that the particular solution outlined is only barely possible technologically and can be achieved only at exorbitant costs.

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"Provision should be made for unusual or 'upset' conditions during which a specific limitation might be unavoidably exceeded for a short period of time. E.P.A. has recognized the need for such relief in the air quality field in its standards of performance. The same situation exists in the water effluent regulations.

"Certain specific points in the guidelines need further definition and clarification. For example, in the discussion of "Effluent Characteristics" (e.e. Section 411.12 of the Federal Register proposal), 'total suspended non-filterable solids,' is subject to several interpretations. Also, in the effluent limitations set out in Section 411.12 thru 411.15, it should be made clear that consideration is given to concentrations present in the intake water, so that the particular values represent 'net' figures. Thus, concentrations in the discharges will be allowed at the same level as those in the intake water wheter the discharge is into the same body of water.

"At this point, we would like to present the following excerpts from the Federal Water Pollution Control Acts Amendments of 1972 (issued by U.S. E.P.A., Office of Enforcement and General Council, Washington, D.C. 20460, January 1, 1973).

"As stated in the 1972 Act, it is the national goal that the discharge of pollutants into navigable waters be eliminated by 1985, and that as an interim goal whenever attainable there be achieved by July 1, 1983, water quality which provides for recreation in and on the water.

"The 1983 goal is an objective which carries with it defined, specific enforcement mechanisms while the 1985 goal is an ideal toward which Congress intended the country to strive. To reach these goals, the Act requires that a discharge of waste or of waste-containing water be of a

specified, improved quality before its release from a point source to the receiving water, or in some cases that the discharge be prohibited.

"It is our interpretation that the intent of Congress when the legislation was passed in setting up the 1985 no discharge into navigable waters goal was that it was an ideal toward which our industry should strive, not an ultimate mandate which can be the cause of economic chaos in industries such as ours."

d. Verona Morse, League of Women Voters.

Ms. Morse commented that this was not a good time to hold such a meeting on account of Christmas, the supply of reports was inadequate and not early enough and information in the reports is confusing regarding interceptor and tunnel conveyance systems. Ms. Morse cited the millions of dollars that have been spent, ineffectually, by the government in an attempt to improve the environment, and is skeptical whether the large sums for the alternate plans assure an equal value in improvement of the environment. The hearing is on four alternate plans but she questions any fundamental difference in them. The League's stand on regional planning does not necessarily mean regional treatment. Costs of wastewater transmission to river mouths might better be used to upgrade inland treatment plants closer to the source of the sewage. The questions are posed, whether the alternatives were really developed or were the deep tunnels and storage decided by fiat and, are the plans self-propagating in installation? Drying out of the 5,372 square miles, should the plans not hold the rainfall back and recharge the groundwater, could cause the soil to shrink and damage foundations. The public should be informed of the consequences of transporting stormwater off the land to distant disposals.

e. Ms. Julia M. Kleppin, Southfield, Michigan.

Ms. Kleppin favors systematizing and organizing the collection and treatment of wastewater in Michigan. However, she is unsure of the advisability of the Corps plans. The plans have not been made clear; information is lacking and people do not understand the Corps proposals. Ms. Kleppin feels that the people involved are the Army Corps of Engineers, the Water Resources Department, the Environmental Protection Agency and some contractors and planners, to the exclusion of the public. The draft report was not made readily available, if at all, and Information Brochure No. 2, to her, had little or nothing of importance. Ms. Kleppin continued with a recitation of some of the costs of construction and operation which she feels can neither be justified nor the amounts raised. Much more information is necessary before any final decisions can be made.

f. Ms. Sarah LaVoie, Dearborn, Michigan, representing the Rouge Basin Coalition.

Ms. LaVoie stated that the Rouge Basin Coalition is a coalition of citizens groups interested in preserving the flora and fauna of the Rouge

River and its flood plains. They have been disappointed in the unavailability of information on the plans. The Coalition is wary of plans that encourage development of outlying regions; in such, old mistakes such as combined sewers and no retention of runoff are often repeated. New preventative measures are needed; separation of sewage and stormwater and retention of stormwater are advocated; deep tunnels are viewed with distrust. The public should be assured of a voice when the choice of alternatives is made.

g. Mr. Bruno Zane, Dundee, Michigan.

Mr. Zane commented that in the plans for sludge incineration, natural gas is used for fuel. With the current shortage of fuel, an air pollution problem might thus develop.

This completed the list of statements to be made and Colonel Hays then asked for questions from the participants.

h. Mrs. B. Kleppin, Southfield, Michigan.

Mrs. Kleppin asked if Mr. Blessing's letter could be read aloud.

Colonel Hays replied, yes, and proceeded to read it. The letter is reproduced elsewhere in this "Digest."

i. Mrs. Katherine Cushman, President, League of Women Voters, Dearborn, Michigan.

Mrs. Cushman asked what type of locations are planned for the reservoirs.

Mr. R. L. Gregory replied that any surface reservoirs would be located out in areas that have not been developed yet or won't be for the next five or ten years and on private property.

j. Ms. Sarah LaVoie, representing the Rouge Basin Coalition.

Ms. LaVoie asked why were underdrains necessary in the land treatment areas.

Colonel Hays replied that drains under the living soil filter were to prevent saturation of the filter with water. Major Cabrinha added that flow through the soil filter was necessary, also, to permit monitoring of the outflow to assure that the necessary treatment of the water is being obtained. Before any system is built in Land Treatment, pilot plants must be built and tests made over a span of years to assure acceptable performance. Ms. LaVoie was still not clear on the land filter operation, so Dr. Ray L. Cook explained that soils will not absorb the total amount of water applied at the required rate, so, arrangements must be made to move an excess through the filter and away; this is done by subterranean tile drains perforated for admitting the transiting water.

k. Mrs. John Donaldson, League of Women Voters, River Rouge Basin Committee.

Mrs. Donaldson asked, how and what stormwater, other than that collected by the combined sewers (existing), is to be collected?

Colonel Hays replied that the stormwater to be collected is that falling in urban areas on streets, parking lots, roofs and all mechanically drained surfaces and areas; not from precipitation on unimproved lands, farm lands, yards and so forth.

Mrs. Donaldson further inquired, what plans are there for recharging the groundwater or the zone of saturation.

Colonel Hays replied that the Corps does not feel there is going to be any significant change in the water table due to a treatment method. There is no change in the amount of water available to recharge subterranean waters or the presently occurring ground water table.

l. Mr. Brune Zane, Dundee, Michigan.

Mr. Zane asked what analysis had been made of growing saleable crops versus using land treatment facilities just to get rid of nutrients.

Colonel Hays replied that in the case of publicly owned lands, in the land treatment method, the sole purpose is to eliminate pollutants by crops and the soil filter. Crops would be harvested at the time of their maximum nutrient extraction. In the so-called private plan, the amount of water is smaller and the variety of crops and their harvesting is left to the farmer.

m. Mr. Robert M. Buckley, U.S.E.P.A.

Mr. Buckley asked how are the crops that are harvested before maturity going to be disposed of?

Major Cabrinha replied that the crops would be "green chopped," pelletized and used for feed.

n. Ms. Julia Kleppin, Southfield, Michigan.

Ms. Kleppin asked:

(1) Will the salt be removed from all irrigation waters before it is used for irrigation?

(2) Will salt collect in the soil and prohibit the growth of crops and plants?

(3) In the food chain, plants to animals to human food, plants irrigated by waters containing lead or mercury or other heavy metals absorb these metals; their concentration increases as they pass from organism to organism. Does this result in concentrations of these metals that would be harmful to humans?

Colonel Hays replied to (1) that, in the land treatment method, a large amount of the salt from de-icing streets or other source will settle out in the settling basins. Also, the method is so operated as to get maximum extraction by the soil filter.

Dr. Ray L. Cook continued, the operation is planned so that saturation of the soil filter will not occur before a 50-year operating period. Plants take up lots of sodium. In answer to (3), fortunately most of the heavy metals settle out in the sludge and do not get into the wastewater irrigated on the land. When it is necessary to use the sludge on farmland, most of the metals can be removed at the plant where they are discharged. When and if one of the systems is installed, there will be no danger from heavy metals because they will be settled out in the sludge or removed at the sewage source.

- o. Mr. James McCrory, City Attorney, City of Lathrup Village, Michigan, representing the City of Lathrup Village.

Mr. McCrory asked three questions. They are:

(1) Do the cost estimates include necessary modifications of existing drains and tunnels to collect and convey the stormwater?

(2) Is there any relationship between the proposals here and the pending application of the Wayne County Drain Commissioner to create a super tunnel as recommended by Wade & Trim Associates from Birmingham to the Detroit River?

(3) What plans have been made for the financing and apportioning of the costs of the system?

Colonel Hays replied to (1), the costs have been estimated using the existing system as the starting point and improving the existing system to handle the projected flows for the future. To question (2), Mr. Gregory answered, essentially, the cost of the tunnel has been included in the estimate, to Mr. McCrory's skepticism. To question (3), Colonel Hays replied, methods of taxation are left to the state and municipalities as to how the costs are to be borne. One of the purposes of the study is to enable the State to have plans that meet Federal requirements in order to qualify for Federal cost sharing.

p. Mr. Duane Egeland, Wayne County Department of Public Works.

Mr. Egeland requested a copy of the report because they haven't received one. He stated that the Wayne County Road Commission is opposed to Land Treatment, deep tunnels and physical-chemical treatment, all of which are presented in the report, and asked if energy comparisons were made for the different systems.

Colonel Hays answered, yes, energy comparisons were made and the energy costs are roughly comparable between the representative plans as presented here.

Mr. Egeland asked if deep tunnels were included in each of the alternatives and Colonel Hays replied the exactly same type of tunnel system was not necessarily used in every one. Stormwater and M&I wastewater have been separated in the Summary Report and appendices, but not in the brochure.

q. Ms. Verona Morse, League of Women Voters.

Ms. Morse raises the question whether construction dewatering would have a serious effect and whether possible contamination of groundwater from wastewater stored in unlined tunnels and lagoons would occur.

Mr. Gregory replied that no construction problems are envisaged that cannot be coped with--some tunnels may have to be lined--that cannot be foretold at this time and it is not necessary to do so.

Ms. Morse asked, continuing, what would happen to all the material taken out of the tunnels during construction.

Mr. Gregory replied, the bulk of the material would be limestone which can be processed into lime or concrete aggregate; there is a market for it in the region. It is a problem of distribution and engineering economics of disposal.

r. Mrs. Katherine Cushman, President of League of Women Voters, Dearborn, Michigan.

Mrs. Cushman asked if access shafts to the deep tunnels would be spaced about every quarter of a mile and would occur in the wildlife area of the valley of the Rouge River between Ford and Michigan Avenues.

Mr. Gregory replied that the access shaft spacing is five miles and there was reasonable assurance that none would occur in the area she inquired concerning.

Mrs. Cushman pointed out that recent SEMCOG population figures indicate that southeastern Michigan may be much less than the 8.1 million population given here. She then asks, in the light of this, are all the

things proposed needed, and is not building in the outlying areas encouraging the depopulation of Detroit, Dearborn, Allen Park, Southfield and other cities? A further question is, can the geological borings projected, be made without despoiling virgin areas--the League is firmly opposed to any despoilation.

Colonel Hays replied that the differences in population as projected by SEMCOG do not materially change the Corps plans. A difference of population of as much as three million, of course, would require an entire reevaluation. In regard to leading the population out from present positions, the population and its location as projected in the TALUS study has been used in developing the facilities to service it.

s. Mrs. John Donaldson, League of Women Voters.

Mrs. Donaldson asked that a more definitive picture of the tunnels be made, showing location and size; those available are quite small.

Colonel Hays replied that the grid systems are in the report; after a study of the report if there is still any question, the proposal might be entertained.

t. Ms. Verona Morse, League of Women Voters.

Ms. Morse states she is unable to visualize what the environmental impact on southeastern Michigan will be and what the end result will be.

Colonel Hays replied that this can be assessed only after the reception the State and the people accord and adopt, of the plan, is known. It could be quite an environmental impact.

u. Mrs. Julia Kleppin asked, what had been done to involve the public in the decisions, what work has been done with the information media and what kind of a public relations department does the Corps have.

Colonel Hays replied that the past and current series of public meetings has been one step for public involvement. Major Cabrinha cited the Coordinating Committee as an agency for dissemination of procedural events and the talks given by Corps personnel to organizations and the public. Mr. Gregory reported that 3,000 information brochures had been sent to the public in the area. The bulk of the decisions involve technical matters and local government and various levels of government and SEMCOG have all been involved. Colonel Hays, replying to the last question, added that within the district is the Public Affairs Officer, Mr. Perrini, with an assistant. Some rather voluminous mailing lists are maintained of concerned people. In the case of this meeting, 4,000 notices were mailed to individuals and groups, but the attendance is dissapointing. Suggestions for improving the public liaison are invited and welcomed.

Mrs. Kleppin continued in a very critical vein stating that, media relations have been poor, publicizing meetings have been inept and information has been vague.

Colonel Hays replied that recent vigorous efforts and personal contact with newspapers in the entire southeastern Michigan area to encourage dissemination of information on the study, have resulted only in disappointment; however, efforts are continuing. Perhaps concerned citizens should approach the media and impress upon them the study's importance.

- v. Mr. Duane Egeland, Wayne County Department of Public Works, Detroit, Michigan.

Mr. Egeland stated that they had shared the same experiences as the Colonel, but the study is just not a subject of public interest and newspapers are little interested to the point where it is ignored.

- w. Dr. Ray L. Cook, Professor Emeritus, M.S.U.

Dr. Cook stated that the concern over cost of managing wastewater is not justified; it is a small figure compared to future living costs.

- x. Mrs. John Donaldson, League of Women Voters, Rouge River Basin Committee.

Mrs. Donaldson asked if interest could be evoked in villages and various metropolitan governments.

Colonel Hays responded that the stress has been to utilize governmental representatives on a regional basis.

- y. Ms. Verona Morse, League of Women Voters.

Ms. Morse emphasized that the cost is a major concern, as is lowering the groundwater table, contamination of ground water and keeping the options open.

Colonel Hays answered that these uncertainties were the purpose for making the study. All the remarks made here will be analyzed and hopefully the Corps will be able to propose plans that are capable of being accomplished in the best interests of all.

- z. Mr. Liz Maury Dean, Retired, Dearborn, Michigan.

Mr. Dean asked several questions which are given here with the Corps answers. "Q" means question; "A" is the answer.

Q. Would the deep tunnel sewer proposed replace the Huron River, lower the water table or the water level of the River?

A. No, to all.

Q. What do the reservoirs look like and would they be suitable for recreational purposes?

A. In heavily urbanized areas, the reservoirs would be underground; in the outlying areas, they would be on the surface. Some would be used for boating.

Q. Will the reservoirs be impervious?

A. Yes.

aa. Ms. Sarah LaVoie, Dearborn, Michigan.

Ms. LaVoie asked if stormwater projections were based on the assumption that the present construction practice will be continued, are any changes in construction practice to lower costs advocated, and does the study advocate separation of stormwater and municipal and industrial wastewater on a local level?

Mr. Gregory replied yes to the first question, no to the second, and yes to the third.

There being no more questions, Colonel Hays thanked the participants for their involvement and closed the meeting.

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DIGEST OF PROCEEDINGS OF THE THIRD
PUBLIC MEETING IN THE FIFTH SERIES OF PUBLIC
PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The third public meeting in the fifth series of public participation meetings was conducted by the District Engineer, Detroit District, Corps of Engineers, on 12 December 1973. The meeting was held at Port Huron Northern High School, 1799 Krafft, Port Huron, Michigan, commencing at the hour of 7:30 o'clock P.M. A total of 153 persons were present representing Federal, State, County, and City agencies, and business, conservation, engineering and farm interests.

2. MEETING

The meeting was convened by Colonel James E. Hays, the District Engineer, Detroit District, Corps of Engineers. Colonel Hays stated that this was the third meeting of the fifth and last series of meetings on the survey study "Alternatives for Managing Wastewater in Southeastern Michigan." The purpose of the meeting is to acquaint the public with the status of the study and our findings, and in turn to receive the views of the public in this respect for study guidance. Colonel Hays then presented, briefly, the background of the study and its purpose. A draft summary report has been written which will be appropriately briefed. Colonel Hays emphasized the regional approach of the planning, that is, considering southeast Michigan as an entire region, and the addition of stormwater runoff to the municipal and industrial wastewater. Three methods of attacking the wastewater management problem are proposed--Advanced Wastewater Treatment, Physical-Chemical Method of Treatment, and the Land Method of Treatment. Alternatives using combinations of these have been developed. Upon study and report completion, they will be offered to the State of Michigan for their deliberations in arriving at the solutions on the wastewater management problem in southeastern Michigan. Colonel Hays then asked Major Cabrinha to make his presentation of the study findings.

3. PRESENTATION

Major Cabrinha recounted the inception of the Pilot Wastewater Management studies and briefly narrated the procedures that developed through the

Feasibility Study until now, when the Survey Study Report and Appendices are being written. The advanced technologies of wastewater management were of prime interest, Advanced Wastewater Treatment, Independent Physical-Chemical Treatment and Land Treatment, the principles of which were briefly explained. Thirteen alternatives for the management of wastewater were developed from these technologies and combinations of them. From these, four plans have been selected which are most favored by the Corps. They are called Representative Plans in the reports and represent the final thoughts for a regional system of treatment. Major Cabrinha briefly described these. They are based on Public Law 92-500, and are planned to accomplish the ultimate quality goal. After the review by public agencies and by concerned individuals, the study will be finalized and offered to the Governor of Michigan and the U. S. Congress. This completed the presentation.

Colonel Hays stated that a large number of people had indicated a desire to make a statement and the meeting was declared open for these.

4. STATEMENTS

Statements and questions presented are summarized in the following paragraphs, statements first.

- a. Mr. Alvin DeGrow, State Senator for the 28th District, which is comprised of Huron and Sanilac Counties and the major portions of Tuscola and St. Clair County.

Senator DeGrow chronicled the two public participation meetings held in his senatorial district, on the study, and meetings he had arranged and held with the Corps since its inception. He disclosed that he had no official notification of either of the two public meetings, and upon investigation discovered that no Senator or Representative in the Monroe-Lenawee County or the Thumb Areas had received any information about the new plan or the meetings scheduled for their districts. In the light of his personal experience, he terms the intentions and the plans for Wastewater Treatment, highly suspect, to saccharify his comments. Plans III, II and I were discussed by the Senator and caustically questioned at some length. Senator DeGrow's evaluation of the plans can be summarized by quoting his closing comment, "Taking all these things into consideration, I simply cannot understand the audacity of the U. S. Army Corps of Engineers to stand before a group of taxpaying citizens and present these plans for Wastewater Management."

- b. Mr. Fred Belleville, Farmer, Yale, Michigan.

Mr. Belleville stated that he is intolerant of adding wastewater to the soil when for the last two years there was so much storm water, the land could hardly be worked. He is apprehensive of the effect on water life in streams and ponds and the potable water supply by land treatment of wastewater.

- c. Mr. Thomas Donahue, Drain Commissioner, St. Clair County, Legislative Agent for St. Clair County Board of Supervisors.

Mr. Donahue stated that the economics of the program, and the total program, are unrealistic; nutrients in the sewage would not justify the expense involved. A fifty-year term of amortization, an investment of five thousand dollars per acre, and the uncertainty of private ownership or public ownership are conditions that have no appeal for the farmers of this locale.

- d. Mr. Calvin Fladzinski, Custodian, Vale Schools, Yale.

Mr. Fladzinski stated that he feels that plants can be built to deal with this current and approaching situation.

- e. Mr. Engel Glenn, Yale.

Mr. Glenn stated that the water will not seep into the ground as proposed in the Land Treatment System. The water's escape would be by evaporation which would pollute the air. The audience of only 125 people attests to the inadequacy of the publicity given the meeting.

- f. Mr. Gerald Hummel, City Engineer, City of Port Huron.

Mr. Hummel stated that, at the inception of the study in five major urban areas, the complexity and impact of such a study was not realized by Congress or the Corps of Engineers. The Corps of Engineers study is of the academic type, not subjected to the concerns of programming, planning, construction, implementation, operation and enforcement. The Corps has mediated between various positions and viewpoints and evolved presentable results, from a large array of technical reports, which are very valuable for future choices and decisions. The interpretation of Public Law 92-500 can greatly affect the cost of the treatment required. Mr. Hummel has not found sufficient evidence to demonstrate the need for tertiary treatment at the Port Huron plant which is currently being expanded to a secondary treatment plant. It is recognized in a Corps technical report that the entire plan may not have significant effect upon Lake Erie if other sources outside southeastern Michigan continue, unabated, to contribute to the problem. Mr. Hummel feels that the presentation of the report showing a physical-chemical plant for Port Huron at this time is an assumption which is premature. The decision as to the type of treatment, should it be proven necessary, should be left to the state and local governments. The transport of storm water, wastewater and sewer overflow to a treatment plant in East China Township is uneconomical. The logical thing is to control stormwater volumes within the location where the rainfall occurs. Land disposal does not totally meet the zero discharge requirement and the long-term effects of land disposal of sludge are as yet undetermined. Summarizing, Mr. Hummel stated that the Corps of Engineers study has produced valuable technical data and alternatives for decision making by EPA, the State of Michigan and

other agencies. Public Law 92-500 must be clarified. Higher degrees of wastewater treatment than secondary must be fully justified by agencies requiring them. Stormwater treatment and combined overflow control need solutions that are in the source areas. The time has come for the study results to be turned over to the State of Michigan.

g. Mr. William R. Maplethorpe, Maplethorpe Insurance Agency, Avoca.

Mr. Maplethorpe asked if a future fixed pumping station had been positioned where his house at Avoca is located.

h. Mrs. Iris D. Meisner, Goodells.

Mrs. Meisner stated that in Clyde Township, which is on the Black River, the rainfall is more than ample; the land could not take more since it floods periodically along the river. Some discomforture has been experienced in the township due to the type of sewage disposal of the industrial plants. Mrs. Meisner stated that the accompanying odor was apparent but condoned by "men from the State."

i. Mr. John Ristea, Richmond.

Mr. Ristea stated that in Richmond Township, the soil is clay, not medium textured, and furrowing for protection against water-killing of crops is practiced even on tiled lands.

j. Mr. Richard Sullivan, Port Huron.

Mr. Sullivan was highly critical of the overrunning of the farms and proposed irrigation with wastewater.

k. Mr. Ted Clark, Avoca.

Mr. Clark stated that cities should deal with their own waste problems; he further objects to the apparent taxation involved in the study.

l. Mr. G. Latart, Yale.

Mr. Latart inquired, what would be the disposition of the oil rights on the land in this highly productive oil region.

Colonel Hays replied that this is a determination to be made by the State managing agency for the wastewater program.

m. Mr. Eli Hayes, P.E., Lexington.

Mr. Hayes voiced the opinion that the cost to the people is too high and simpler ways to accomplish the desired results should be sought.

n. Senator DeGrow.

Senator DeGrow asked who would compensate businessmen for their losses should Plan II be implemented.

Colonel Hays replied that this question has not been dealt with in the study. Quite likely, the managing agency would have to determine this.

o. Senator DeGrow.

Senator DeGrow stated that in this area (Huron County) no farm could use more than an additional ten inches of water per year. Normal rainfall is twenty to forty inches per year. Forty inches of rainfall per year causes severe problems. It is going to be very difficult to convince farmers to apply more than five, ten or fifteen inches of irrigation water per year. The disposition of such relatively small amounts of water would necessitate an increased area of land to irrigate. This increase would not be economically feasible. Special equipment would be necessitated by the crops envisaged by the Corps. The Senator recommends abandonment of the plan.

p. Mr. Michael Nuss, Builder, Emmett.

Mr. Nuss terms the transport of waste to Kenokee Township as very uneconomical.

Colonel Hays stated that in Plan III, only the wastewater from St. Clair County would be applied to St. Clair County land. The Corps is a public agency to respond to the direction of Congress. This is what is being done here in presenting alternatives. The several technologies for managing wastewater have been examined and the results presented to you to inform the public so the best decision can be made as to the plan to be adopted.

Mr. Nuss continued by saying that the County Environmental Health Department states that the land will not take the water that the reports are based on. Why is this?

Colonel Hays replied that a very detailed survey of the amounts of water that particular soils would accept had been made. This is the basis of the report.

q. Mr. Robert Wixon, Avoca.

Mr. Wixon asked why is the particular area near Fargo selected.

Colonel Hays replied that the soils of certain areas are suitable for the crop associations and the nutrient eliminating capacity necessary in the presented Land Treatment method. It is on this basis that the area selections are made.

r. Mr. Thomas Donahue, Drain Commissioner, St. Clair County.

Mr. Donahue, referring to a quoted news report that farmers are becoming more receptive to this idea, asked where Major Cabrinha found this to be true.

Major Cabrinha replied that this was found to be true of the Lapeer and Ida meetings in March of 1973. Members of the Soil Conservation Service in the twenty-five counties studied by Michigan State University, and agents of the Extension Service were interested and thought benefits could accrue from the system. Further, in meetings in November 1973 in St. Clair and Lenawee Counties, of people invited by the Extension Service, we detected an increasing awareness of the possibilities of the Land Treatment Method and an increased desire to learn more about it and how it could be utilized.

Mr. Donahue countered that he had a different interpretation of the reaction.

s. Mr. Donald Wendling, Emmet, St. Clair County.

Mr. Wendling quoted their County Extension Agent as follows: "I can't envision putting the seventy inches of moisture in the soil that the Corps proposes," and, "I don't think using wastewater for irrigation is practical or economically sound until fertilizer becomes more expensive and land becomes more scarce or food becomes more valuable." He asked, if some plan of land treatment were implemented in this area, and it should prove unsuccessful, what happens to the people that have been moved by the program.

Major Cabrinha replied that the results or performance of the methods cannot be foretold with precise, meticulous, accuracy. To confirm current estimates of performance of the Land Treatment Method, exhaustive tests on pilot plants are imperative.

Mr. Wendling continued to the effect that he supports Senator Alvin DeGrow's proposed state bill which prohibits the transport of sewage, storm runoff and sludge drastically. He further muses that with the present projection of people, the urban area will be greatly enlarged.

Colonel Hays commented that the experts have forecast the future locales of the population, the plan has been developed to service their demands.

t. Mr. Gary N. Campbell, Yale.

Mr. Campbell stated that the plans require further testing and consultation with farmers.

u. Mr. J. G. Latart, Yale.

Mr. Latart inquired, how successful is the Chesterfield Township pond system, and how successful is Detroit with their treatment system?

Mr. Robert Gregory replied that the Chesterfield Township Lagoon System is an interim means for the township, is successful, but will be phased out when their connection to the Detroit is made. The Detroit system is very successful.

Mr. Latart then asked why is the Chesterfield Township Lagoon System being phased out, if it is so good?

Mr. Gregory replied that the urbanization is overtaxing the plant.

v. Mr. Michael Nuss, Builder, Emmett.

Mr. Nuss stated that the connection of the Chesterfield Township Lagoon System into the Detroit treatment system is urgently needed but the timing is unknown at this time.

There being no further questions, Colonel thanked the participants for their attendance and adjourned the meeting.

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DIGEST OF PROCEEDINGS OF THE FOURTH
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PARTICIPATION MEETINGS ON THE SURVEY STUDY,
"ALTERNATIVES FOR MANAGING WASTEWATER IN
SOUTHEASTERN MICHIGAN."

1. GENERAL

The fourth public meeting in the fifth series of public participation meetings was held by the District Engineer, Detroit District, Corps of Engineers in the Cantrick Junior High School, 1008 Riverview, Monroe, Michigan, on 13 December 1973 commencing at 7:30 P.M. A total of 78 persons were present, representing Federal, County and City agencies, business interests, conservation interests and farmers.

2. MEETING

The meeting was opened by Colonel James E. Hays, District Engineer, Detroit, who stated that the purpose of the meeting was to provide the public with information on the study "Alternatives for Wastewater Management for Southeastern Michigan" and to obtain views on the study to help guide the Corps in further work on it. The study has progressed to a point where a summary report in draft form has been written. Colonel Hays then introduced and called upon Major Cabrinha to explain the study up to this point. The Major then presented briefly the background of the study, how it developed as a result of concern for the environment into the Southeastern Michigan Study, one of five pilot wastewater management studies in the nation. At this time a draft report for this survey scope study is being completed for comment by Federal, State, regional and local agencies and by the public. The Corps is not recommending any particular alternative, only presenting them for consideration. Major Cabrinha continued with a presentation of the methods and procedures employed, a description of the alternative methods developed and the present status of the study and the remaining procedures to be completed. With the general presentation completed, Colonel asked for statements from those desiring to enter statements into the record.

3. Statements and questions presented during the session are summarized in the following paragraphs.

- a. Mrs. Richard Micka, Monroe, Michigan, representing the Pointe Mouillee Waterfowlers Association.

Mrs. Micka feels that any proposals forwarded to the State of Michigan for possible implementation should include elements of environmental enhancement according to the EPA inspired concept in "Project Cure-Clean Urban River Environment." These offer solutions to problems without reliance, entirely, upon extensive interceptors, super sewers or sewage farms. Caution is expressed against landfills of sludge in wetlands or flood plains and the use of Project Cure in wastewater management is advocated.

- b. Mr. John R. Iacoangeli, Planning Technician, Monroe Department of Community Development, and Coordinator of the City's Environmental Liaison Unit.

The City of Monroe opposes any plan that calls for implementation of wastewater treatment through land irrigation and filtration. The City does support coordinated regional planning of wastewater facilities on a decentralized scale of operation. Mr. Iancoangeli stated that the concept of decentralized tertiary wastewater plants within the respective river basins has not been adequately assessed as an alternative measure to wastewater treatment and recommends further analysis of wastewater management and respective alternatives, but only on a decentralized plan. A letter from the Monroe City Planning Commission presented by Mr. Iancoangeli, states their disapproval of Representative Plans 2 and 3 as published in the Army Corps of Engineers Wastewater Management Bulletin No. 2. The Commission states their approval of Representative Plan No. 1, with the exception of a regional wastewater treatment plant at the mouth of the Huron River, and further states their approval for the plan for wastewater decentralization for the Huron River Basin.

- c. Tom Morgan, Monroe.

Mr. Morgan stated that Michigan House Bill 5055 is a step in implementing the proposed Sewer Farms and voices strong opposition to the land treatment method of managing wastewater. He cited as an applicable reference a clause in his labor union's contract that creators of "messes" must correct them, and feels that a parallel is the "repulsive spraying of Detroit's flushings" on Monroe County. Mr. Morgan warns that although Raisinville Township at this time is the prime target for sewage disposal, the rest of Monroe County will be subjected to similar future planning. Monroe County has on hand, now, a problem of sludge disposal to solve before solving Detroit's problem. He referred to his year-old unanswered question whether the Corps has tried a pilot program, hoping for an answer at this meeting. In closing, Mr. Morgan emphasized the magnitude of the problem and stressed the importance of public officials making their position known.

- d. Frank Kuron, President, Home Owners Tax Payers, Monroe, Michigan.

Mr. Kuron stated that their questions posed at a corresponding meeting a year ago remain unanswered. Monroe County is in a tremendous sewer and water program and in financial trouble. Mr. Kuron is apprehensive that the wastewater management plans if carried out in Monroe County will result in adverse conditions similar to those created by the quarrying of limestone in the county; he is very skeptical of the value of "experts" heretofore and currently utilized.

- e. Keith I. Siebart, representing the Citizen's Pollution Control Association.

Mr. Siebart stated that the Association feels that they have not been adequately assured that their land will not be used for application of sewage sludge and wastewater and question the use of huge lagoons in the county. The Association believes in decentralized wastewater treatment facilities near the various population centers with incineration, and question the concept of Regional Plans. Should the "Super Sewer" be finalized, they oppose "land application" of sludge or wastewater from metropolitan areas or Monroe and feel that tertiary plants and sludge incinerators should be given top priority throughout the state; land application is infeasible because sludge analyses are incomplete, metals are above acceptable levels, and information on land effects is unavailable. According to the fourth estate Monroe County farmers' fertilizing practices result in polluted groundwater and streams.

- f. Lawrence Leibold, representing the Lake Erie Advisory Committee.

Mr. Liebold stated that the efforts of the Lake Erie advisory Committee are to search for a better way to improve life along the shore of Lake Erie. Their review of Corps of Engineers proposals discloses to them a too grand "grandiose engineering feat." Mr. Liebold presented the Committee's objections to these methods and advised their abandonment, recommended decentralization of sewage and wastewater treatment centers and study of the "Headwaters" concept.

- g. Marie Janssens, Monroe, Michigan.

Ms. Janssens stated that there is no assurance that land application is not threatening the countryside and experts are planning away our land and livelihood; emphasis is being placed on the need for land. She pointed out that first the clay soil being termed a filter and then changed to a water barrier makes experts suspect and foresees polluted wells, total land control, stench, contamination of food, losses of property, lost tax base and soil saturation. Monroe City's rejection of a state ordered incinerator, and their sludge disposition problem precludes the addition of of Detroit's and regional problems.

- h. Ms. D. C. Brown, representing the People's Lasting Ecology Action.

Ms. Brown states that the environmental fate of Monroe County, the responsibility of individual citizens, is being projected into an uncertainty involving displacement of people, public control, regionalism, more red tape, land control and underground water table by the current planning. She decries a pilot program vigorously.

- i. Mr. Howard McNee, representing the Organic Farmers and Gardeners of Michigan.

Mr. McNee stated that the Organic Farmers and Gardeners are totally opposed to burning sewage sludge; it should be recycled and returned to the farmland. Their group has found sewage sludge to be valuable fertilizer without ill effects and presents four statements to support their view. They request that the Corps reject sludge incineration.

- j. At this point, Colonel Hays read a written resolution of the Board of Commissioners of Monroe County for and into the record. This resolution objects to the development of any plan for Monroe County whereby so-called Sewage Farms for the disposal of wastewater are devised or contemplated. Copies of this resolution were directed to the U. S. Corps of Engineers District Office in Detroit, Department of Natural Resources, Water Resources Commission and the State Environment Agency.

Colonel Hays then opened the meeting to questions. These and their answers appear in the following paragraphs.

- k. Mr. P. J. Betrus, Monroe, Michigan.

Mr. Petrus asked if all the alternatives and plans were since 1971, and did not exist as contingency plans before then.

Colonel Hays replied that all plans presented were developed after 1971; no others were in prior existence.

- l. Ms. Jeanne Micka, Monroe, Michigan, and for the League of Women Voters, Dearborn.

Ms. Micka asked what means are used for the transmission of wastewater and what is the disposition of fly ash?

Colonel Hays replied that tunnels, open channels and above and below ground pipes are used for wastewater transmission. Fly ash is taken to an acceptable landfill.

- m. Mr. Frank Kuron, President, Home Owners Tax Payers, Monroe, Michigan.

Mr. Kuron voiced strong opposition to a large sewage treatment plant at the mouth of the Huron River, saying its discharge would further contaminate the already inadequate Monroe City water intake.

Major Cabrinha explained that the effluent from the Huron River Treatment Plant would be entirely acceptable for discharge into Lake Erie.

n. Mr. P. J. Betrus, Monroe, Michigan.

Mr. Betrus asked if Colonel Hays was aware of any federal plans dating back to 1968.

Colonel Hays replied no.

o. Mr. Adam Yeager, Monroe, Michigan.

Mr. Yeager asked if game taken from sewage farms was safely edible, how much did the study cost and what agency authorized the study.

Colonel Hays replied that if the Land Treatment Method were selected, we would assume that there wouldn't be any uptake in the grasses or grains or crops that would in turn poison an animal.

p. Mr. William Bacarella, Monroe, Michigan.

Mr. Bacarella asked what voice does the Department of Natural Resources have in the determination of the plan to be adopted and will they manage the operation?

Colonel Hays replied that the study included mention of types of agencies that could be formulated to run this program but no recommendation was made. That is up to the State and local government.

q. Mr. Howard McNee, Monroe, Michigan.

Mr. McNee asked if costs of drying and burning sludge were at hand.

Colonel Hays replied that such costs are probably available but not at hand.

Mr. McNee continued by asking if the Corps or anyone else was concerned with the pollutants from farmlands and septic tanks that are now flowing into the streams and rivers.

Colonel Hays replied that the Buffalo District of the Corps of Engineers is inaugurating a study on the pollution of Lake Erie. The Environmental Protection Agency, the Department of Agriculture and the Michigan Department of Natural Resources are involved in the study.

r. Mr. Chester Jones, Monroe, Michigan.

Mr. Jones asked if water for irrigation was just to be used as needed and how was freezing in the winter to be coped with.

Colonel Hays replied that the water is applied at rates in consonance with the type of soil and crop being grown for the period of non-freezing temperatures. During the freezing part of the year, the water is stored in the storage lagoons and used when conditions are suitable.

s. Mr. Pete Opfermann, Monroe, Michigan.

Mr. Opfermann asked what happens to the land after the sludge was put on it.

Colonel Hays answered that material applied would be wastewater at a rate that would fit the soil in each case. The soil would treat this water and be suitable over a period of 50 years.

t. Diane Brown, Raisinville Township, referring to public control, stated that, to her, this smacked of communism and asked where would the tax base be obtained.

Colonel Hays replied that public control would be the same as that exercised in the present wastewater treatment plants and through some local government body. The tax base would be the same as the area mentioned earlier, that is the area of southeast Michigan. Meeting the water quality standards enables the area to qualify for Federal assistance and cost sharing.

w. Mr. John R. Iacoangeli, Planning Technician, City of Monroe.

Mr. Iacoangeli asked about the problems of trace elements in the City of Monroe's water inlet due to the proposed Huron River treatment plant, and what trace elements would be in the water after treatment.

Colonel Hays replied that if one of the Advanced Wastewater Treatments were adopted, the trace elements would be about the same as those existing today.

Mr. Iacoangeli asked, what costs are going to be incurred in revising the present treatment plant if toxic elements occur. He does not know of any presently existing.

Colonel Hays replied that any dangerous trace elements found would have to be dealt with by the municipalities involved.

Mr. Iacoangeli, continuing, asked what would Monroe have to do in processing its water for customers if copper, zinc, nickel, iron, magnesium and chromium were in the effluent (of the new Huron River plant).

Colonel Hays answered that these elements would not go through the proposed plant, they would be eliminated. In addition, industry must recycle their own wastewater and meet certain standards, thus eliminating them at the source.

v. Doctor R. O'Dell, Lambertsville and Dundee, Michigan.

Dr. O'Dell asked who decided that the crops to be grown are those suitable to the irrigation process and not necessarily the current agriculture. Further, is this a government directive or will a vote be taken to have this one way or the other?

Colonel Hays replied that the Corps proposed the type of crops-- it is not the intent to dictate. The study will be turned over to the State of Michigan for use in meeting the water quality standards of Public Law 92-500. The action taken on wastewater management is up to the people of Michigan through their elected officials. All Corps material will be available.

w. Mr. Howard McNee, Monroe, Michigan.

Mr. McNee asked, in the light of the feeling about the proposed Huron Treatment Plant, if it is feasible to move the Monroe City water intake upstream from the proposed Huron Plant.

Colonel Hays answered, yes, it is feasible; if the people of Monroe accept the Huron Plant it is their decision to move the intake or leave it alone.

With the question and answer period thus ended, Colonel Hays thanked those for their attendance and their contributions and formally closed the meeting.

Mr. Edward E. Mahalak, a State Representative, representing the 38th District submitted a statement for the record which is reproduced in its entirety.

"(Although Edward E. Mahalak was unable to be present for the meeting, it was requested that his statement be included in the record.)

"My name is Edward E. Mahalak, a State Representative, representing the 38th District. I appreciate the opportunity to speak at this public meeting concerning alternates for managing waste water in South-eastern Michigan.

"I last spoke some time ago concerning the sewage farms concept. I welcome this opportunity to speak again and will confine my remarks to the 3 proposals proposed by the U.S. Army Corps of Engineers, Detroit Office.

"The prospects of completion of the Waste Water Management Study is beginning to appear in view. At least 70 per cent completed and the concluding items are near completion or have been completed. The study

appears to be one of great magnitude dealing with clean water and costing a tremendous amount of Federal funds.

"The three alternate Waste Water Management system proposals provided as goals for the Southeastern Michigan area are proposals that I reject. However, I commend you on your efforts in developing your concept in attempting to solve a critical problem existing in Southeastern Michigan.

"Plan I in emphasizing Plant Type Treatment on a regional basis is almost the same as the Department of Natural Resource Plan. Plan I in utilizing ten regional plants for treatment of municipal and industrial waste water and urban storm runoff. Plan I also appears to carry the smallest price tag of all three proposals that are being proposed, that of three hundred seventy-one million dollars. The high cost of this Plan excludes small communities until such time as a regional interceptor is extended to their communities.

"The Michigan Department of Natural Resources proposed a plan containing forty-three separate facilities, three regional facilities of the interceptor type. Included in the construction are a number of separate facilities. The land (acres) required total seven hundred eighty-one acres. The price tag of this project totals one hundred fifty-three million dollars. By comparison of Plans I, II, & III, requiring twenty-eight thousand to thirty-four thousand acres of valuable lands.

"At the general election held November 5, 1968, referendum on Act 76 of the Public Acts of 1968 - proposal relating to bonding to abate water pollution - 'Shall the State of Michigan borrow the sum of \$335,000,000.00 and issue general obligation bonds of the State therefor pledging the full faith and credit of the State for the payment of principal and interest thereon for the purpose of planning, acquiring and constructing facilities for the prevention and abatement of water pollution and for the making of grants, loans and advances to municipalities, political subdivisions and agencies of the State for such purposes, the method of repayment of said bonds to be from the general fund of the State?

Yes () 1,906,385

No () 796,079

Total Votes 2,702,464

"The Legislature and the Governor has designated the Department of Natural Resources to be a representative of the State of Michigan in matters dealing with water pollution. The Department of Natural Resources has been designated as the agent for the State of Michigan in many other areas. This great State of Michigan does have the expertise, the intelligence and the know-how to go about cleaning up its matters.

"In the final analysis the job of cleaning up the waters and lakes of the great State of Michigan will be left to this State.

"As a result of the three hundred thirty-five million dollar clean water bond issue which was approved by the voters of Michigan, Michigan currently has two programs pertaining to the abatement of water pollution. Both of these programs are administered by the staff of the Michigan Water Resources Commission in accordance with the Implementation Legislation that was enacted by the State Legislature that was enacted by the State Legislature in 1969.

"One program, two hundred eighty-five million dollars, providing for financial assistance for sewage treatment works projects falls under the provisions of the Federal Water Pollution Control Act, Public Law 84-660, as amended, and the Michigan Act No. 329, Public Acts of 1966, as amended. Under these Acts, any city, village, township, county, or other public body created pursuant to State Law and having jurisdiction over the disposal of sewage, industrial wastes, or other wastes, may apply for a grant to assist it in financing construction or reconstruction of sewage treatment works, intercepting sewers and outfall sewers.

"Under existing Legislation and at the present level of Federal Appropriations, combined State-Federal Grants are limited to fifty-five percent of the cost of an eligible project, leaving forty-five per cent to be financed locally. However, should future Federal Appropriations exceed the amounts presently anticipated, such funds will be used to reimburse local unites in order to reduce their share to twenty-five per cent.

"The other program, fifty million dollars, which provided for financial assistance for collecting sewers projects, falls under the provisions of Michigan Act No. 159, Public Acts of 1969. Under this Act, any city, village, township, county or parts thereof, or other public bodies created by or pursuant to State Law and having jurisdiction over collecting sewers, may apply for a Grant to assist it in financing the construction of collecting sewers.

"Or in other words, Federal funding of the eligible cost of the construction of sewage treatment facilities consisted of a twenty-five per cent State Grant, a thirty per cent amount which was composed of a State advance of Federal funds and a Federal Grant, a twenty-five per cent local advance of Federal funds and a twenty per cent local share.

"Since the passage of PL 92-500 on October 18, 1972, the Federal share now consists of seventy-five per cent, the State share amounts to five per cent, leaving the remaining twenty per cent to be funded by the local units of government.

"To protect the surface waters of Southeastern Michigan for partial body contact and the habitation of intolerant warm water species of

fish. The establishment of effluent criteria for treatment plans in this system depends, therefore, on the use of these surface waters to assimilate specified quantities of wastes. With these points in mind the alternative plan for Wastewater Management in Southeastern Michigan was proposed.

"This alternative consists of forty-six plants throughout the Southeastern Michigan area that will treat both combined sewer overflows and municipal-industrial wastewater.

"Three major regional wastewater collection and treatment systems would be expanded from the two regional systems developed by Detroit and Wayne County which are now in existence. These regional systems will make it unnecessary for construction of new treatment facilities in the rapidly developing suburban areas.

"The remaining smaller sized facilities outside the suburban Detroit area will handle that which will be generated. Many of these systems may be phased out at a date later than 1990 as the urban sprawl and regional collection facilities require the smaller communities to join with a regional system.

"The three large wastewater treatment plants located in Detroit, Wyandotte, and at the mouth of the Huron River would be conventional activated sludge plants. The Detroit collection system is to be expanded with the addition of new major interceptors to provide service to the newer suburban areas. This also insures against overloading of the present Detroit interceptors. The Wayne County collection system would require the construction of several new interceptors because the mouth of the Huron River Treatment Plant is not in existence.

"In arriving at a conclusion that it takes money to complete the project, I can safely say that any project to be completed must have the necessary funds in order to insure its construction. I would hope that the U. S. Army Corps of Engineers would propose that the Department of Natural Resource's Plan to protect the surface waters of Southeastern Michigan be proposed and that efforts be made that the Federal Government fund the project.

"In order to meet the proposed schedule, funding will be needed to complete Secondary Treatment Plants by July of 1977 and a tremendous amount of funds will be needed to complete other projects by July of 1983.

"The Federal Grants received by the State of Michigan are for programs deemed necessary and are spread over the entire state. In order for this state to meet the proposed time schedules that have been given priority dates, large additional amounts of Federal funding will be necessary."

D. MINUTES OF COORDINATING COMMITTEE

MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY

SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 1

MARCH 23, 1972

MINUTES
DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY
COORDINATING COMMITTEE MEETING NO. 1
MARCH 23, 1972

<u>ORGANIZATION</u>	<u>PARTICIPANTS</u>
Soil Conservation Service (USDA)	David Carpenter
Water Resources Commission	Fred Clinton
Water Resources Commission	Frank Baldwin
Water Resources Commission	Bill Marks
SEMCOG	Nelson Fabian
SEMCOG	Paul Reid
U. S. Environmental Protection Agency	C. R. Ownbey
Bureau of Sport Fisheries & Wildlife	Jon Lauer
Corps of Engineers	Col. M. D. Snoke
Corps of Engineers	Phil McCallister
Corps of Engineers	C. Argiroff
Corps of Engineers	R. Gregory
Corps of Engineers	Cpt. C. Dovas
Corps of Engineers	Lt. A. Maser
Water Resources Commission	John Bohunsky

The meeting convened at 1:10 P.M.

Colonel Snoke:

Welcomed the Assembly.

Delineated a synopsis of Corps participation in the preparation of a wastewater management feasibility study for the five major areas in the United States, explaining that Congress had authorized this Phase I task and that phase II (a survey scope study) would hinge upon Congressional satisfaction of the quality of the feasibility study.

The Detroit District Corps has an ongoing study concerning water resource activities entitled The Southeastern Michigan Water Resources Study. Last summer, the Detroit Corps completed the phase I, Feasibility Report, entitled Alternatives For Managing Wastewater for Southeastern Michigan. After a lengthy review, Congress has now authorized a detailed wastewater management survey scope study.

The need now exists for a coordinating mechanism to insure cooperation between all concerned and affected agencies and individuals within this study area; subsequently, the Detroit District has asked each of the agencies present at the coordinating meeting to present views and comments to provide input to the study effort.

Cpt. Dovas:

Delineated the five study areas within Southeastern Michigan.

Discussed the five test criteria to be applied to the alternatives involving wastewater management within the outlined area.

Discussed the three water based treatment plans and three typical inland treatment plants.

Discussed a land-based alternative.

Discussed the possible combination of both systems.

Related that both technical and environmental analysis would be incorporated within these alternatives.

Mentioned that any conclusions as to the optimum treatment system, with respect to individual areas, would be constantly studied and evaluated.

Bill Marks (WRC):

Questioned whether or not the Corps has considered land disposal in Oakland County, because of the area.

Delineated on the board depicting a possible treatment system, was close to the Oakland County interceptor system.

Col Snoke:

Replied that the Corps had taken this issue into consideration, and that the area would be considered as a whole and that the Corps saw no problem.

Traced the steps, as concerns which authorities reviewed the Feasibility Report.

Mentioned that the Corps has \$700,000 to carry out the phase II study and that it is to be completed by next February.

The Corps is empowered (authorized) to examine all applicable wastewater treatment systems and to come up with the best alternative system to:

- (a) Meet 1990 demands, while within a 2020 framework;
- (b) Meet existing water quality standards, and
- (c) Contain no discharge of critical pollutants.

Cpt. Dovas discussed the definition of critical pollutants, mentioning a "reduction to background levels," based upon environmental sensitivity.

Col. Snoke:

Sketched the network diagram (see attachment), depicting the Corps' approach to phasing of the wastewater management study operations.

An environmental impact statement will be included with the report to OCE.

Jon Lauer (Bureau of Sport Fisheries and Wildlife) asked whether or not different resources were to be pooled.

Colonel Snoke replied that basically, resources were to be centralized.

Bob Gregory commented that there are two independent studies considering regional adoption: A University of Washington study and a Cold Region Research Lab.

Paul Reid (SEMCOG): questioned whether this study would be utilized by local agencies, and its value as an end product.

Colonel Snoke replied that the Corps has a deadline for the survey study and that we do not exactly know what action Congress will take after receiving the study. As far as local agencies were concerned, the report is not to impact on the short range development. We are obligated to accept everything in place or under construction by 1 July 1973 as existing.

Bill Marks (WRC) asked if Corps were obliged to develop a system with the least cost.

Colonel Snoke - No.

Paul Reid stated that hopefully, the study should include two things:

- (a) Technical quality.
- (b) Institutional arrangements and existing government support.

Colonel Snoke replied that the Corps hopes that this report would be beneficial to the existing government agencies.

Paul Reid stated that the economic character of the region should be studied, but that the study should not simply be one of gross population and bulk figures.

Bob Gregory mentioned that the items are parallel.

Colonel Snoke mentioned that the study has built in population projections and that we have done some economic studies.

Paul Reid discussed ramifications of economic forecasts for the Detroit area.

Captain Dovas discussed wastewater flow projections:

(a) Character of areas.

(b) Stormwater flows to 1990.

(c) Permit Program and explained how the Corps has included the 1970 census.

Colonel Snoke explained stormwater flows for 2, 5 and 10 years and that the Corps has a separate contractual approach to the stormwater problem. He asked the participants if there were any questions about the flows.

Paul Reid asked if the new wastewater and stormflow projections include increasing urbanization and water runoff.

Cpt. Dovas replied that the Corps has taken this information into account.

Ray Ownbey (EPA) responded to Paul Reid's question about impact the program will have on grants. (No impact.) He explained that both EPA and the Corps entered into a memorandum for agreement in the Feasibility Report. EPA is aware that Congress had determined that the Corps should proceed with the study; however the memorandum of agreement was terminated with the completion of the Feasibility Report and was not reissued for the survey report.

He discussed:

Who should quarterback the planning team (EPA).

EPA understands that SEMCOG is the A95 "clearing house" and that the Michigan WRC is the State certifying authority for the plans.

WRC has recently submitted a comprehensive development plan for the Michigan area to the EPA and there are Federal grant possibilities.

The Corps is questioned when it undertakes institutional arrangements.

Plans are usually prepared at local levels and sent to State and Federal groups.

Colonel Snoke mentioned that one of the purposes of this coordinating committee is to bring all interested parties together, the Corps' charter is to come up with the best possible alternatives and to consider all possible views.

R. Ownbey stated that EPA hoped that the Corps would complement other studies and that there are two areas for opportunity for aiding other districts:

- (a) Urban runoff and drainage control.
- (b) Final consideration of waste residue.

Asked what is to be the final disposition of those constituents removed from water (residues), Colonel Snoke explained "reuse."

Ray Ownbey mentioned land disposal of sludge in Chicago as a final residue disposal; while in Detroit and Cleveland, incineration is used. Residue is put back into the air.

Bill Marks (WRC) mentioned that there is not enough money in the State studies to solve these regional problems. The State is trying to solve the problems of 10 years ago, but he did not think that the State would have any trouble with this study since it is looking at 1990-2020.

Paul Reid stated that he liked the concept of the Coordinating Committee.

Colonel Snoke stated that the Contractors' input will be forthcoming soon, to strengthen the Committee.

Ray Ownbey (EPA) asked if the Coordinating Committee members would be informed when the Corps' contracts go out.

P. McCallister replied that everyone would be informed and that the Coordinating Committee members will be given contract appendices.

Colonel Snoke mentioned that the Corps is focussing on urban runoff as a problem: That the material must go somewhere and that the Corps was heavily considering items of "reuse."

Ray Ownbey asked if the Corps could explore sludge disposal as an alternative.

Colonel Snoke replied that the Corps is considering different measures, and initiated a discussion about public meetings:

(a) They will probably convene the third week of April, between the 16th and the 22nd.

(b) Several possibilities for locations:

- (1) Monroe.
- (2) In the Detroit city area.
- (3) In the northern part of the State.

Ray Ownbey stated that public meetings should be held within disposal areas, as EPA can see firm economic impacts upon the residents.

Bob Gregory mentioned that the sites selected by the Corps would be in consideration of this point.

Paul Reid vied for:

- (a) Macomb-Clinton.
- (b) The counties of Western Wayne, Eastern Washtenaw, Western Oakland.
- (c) Mt. Clemens.
- (d) Monroe.
- (e) Detroit.

Ray Ownbey discussed the positive ramifications of agency participation at these public meetings. (If EPA attends, it will only be as an observer.)

P. McCallister mentioned that Rochester and Northville might be considered as "neutral ground."

Colonel Snoke asked for a consensus and stated that the Corps would have the public participation meetings at the following sites:

- (a) Monroe
- (b) Downtown Detroit
- (c) Rochester
- (d) Northville

Break at 1540.

Colonel Snoke mentioned that the Corps would make available refinement of stormwater data and stormwater flow information.

Other agencies which could add inputs to the public meetings:

- (a) League of Women Voters
- (b) Michigan United Conservation Club

Paul Reid asked about the inclusion of a U.A.W. representative.

Colonel Snoke mentioned that the Coordinating Committee should select responsible groups to reflect public concern.

Bill Marks (WRC) discussed Martha Reynolds of the Governor's Council on Environmental Quality.

Ray Ownbey asked about the inclusion of Michigan State University and wondered if they were not doing studies in land disposal.

P. McCallister replied that the Corps is seeking the contracts of various consultant agencies which were representative of the academic community.

Paul Reid asked about the Huron-Clinton Metropolitan Authority.

Bill Marks mentioned that the Sierra Club was fragmented at this time.

P. McCallister asked who was to be the spokesman for the agricultural interest.

Bill Marks replied that it would be the various soil conservation districts, with Russ Hill as the executive secretary, and mentioned that WRC mailing lists were to be made available.

Paul Reid discussed the inclusion of "United Community Services."

Colonel Snoke stated that the Corps would look into this organization. He summed up by thanking the participants for their cooperation.

The meeting adjourned at 1600 hours.

MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY

SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 2

12 JUNE 1972

AGENDA
DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY
COORDINATING COMMITTEE MEETING NO. 2
12 JUNE 1972

OPENING REMARKS
AWT TECHNICAL STUDY
LAND DISPOSAL TECHNICAL STUDY
PHYSICAL-CHEMICAL TECHNICAL STUDY
STORMWATER TECHNICAL STUDY
ENVIRONMENTAL ASSESSMENT
PLAN FORMULATION MATRIX
DISCUSSION
PUBLIC WORKSHOP CONCEPT
CLOSING REMARKS

Inclosure

MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 2

12 JUNE 1972

ORGANIZATION

PARTICIPANTS

Soil Conservation Service (USDA)

David Carpenter

Water Resources Commission

Richard Emerson

Water Resources Commission

Bill Marks

SEMCOG

Nelson Fabian

SEMCOG

Paul Reid

U.S. Environmental Protection Agency

Bob Buckley

U.S. Environmental Protection Agency

C. R. Ownbey

Bureau of Sport Fisheries & Wildlife

Clyde R. Odin

Bureau of Sport Fisheries & Wildlife

William H. Gill

IWR - Michigan State University

Thomas Bahr

League of Women Voters

Verona Morse

Corps of Engineers

P. McCallister

Corps of Engineers

R. L. Gregory

Corps of Engineers

Cpt. C. Dovas

ORGANIZATION

Corps of Engineers

Corps of Engineers

Corps of Engineers

Corps of Engineers

PARTICIPANTS

S. Jones

Lt. M. Pommeranz

Lt. A. Maser

Lt. R. Pillmore

The meeting convened at 1:00 P. M.

Phil McCallister welcomed the assembly.

- Delineated the current status of the wastewater management study, commenting that in the public participation meetings, held previously, there was a lack of attendance.

- Mentioned that the Corps had received additional funds from OCE for the Wastewater study--a total of \$830,000.

M. Pommeranz discussed the Advanced Waste Treatment (AWT) Contract, including the Corps' utilization of their consultant, Stanley, Inc.

- Explained 3 and 6 plant outfall, to include the following:

3 Plant Outfall

Urban Detroit - The Jefferson Ave. Plant. The proposed plant at the mouth of the Huron River Algonac Area

6 Plant Outfall

Detroit - the Jefferson Ave. Plant. Proposed treatment plant at mouth of the Huron River
Monroe
Port Huron
Algonac
E. China Twp.

- Mentioned that Stanley, Inc. is also studying an inland community alternative. Adrian is being studied as it represents a typical inland community.

- Discussed influent and effluent criteria which has been developed for each plant alternative.

S. Jones discussed the two Corps' contracts concerned with land disposal, namely, Bauer Engineering (Chicago) and Dow Engineering (Midland, Michigan).

a. Bauer will be concerned with waste treatment lagoons, in addition to transmission lines and pumping stations.

b. Dow Engineering is concerned with irrigation and collection facilities. In coordination with Corps staff and Dow, two sites have been selected: Ida Township and Armada (Dow is looking at four other potential sites).

The overriding concern is that there be a minimum amount of wastewater in the ground water table. With this consideration in mind, Dow is looking into an underdraining system.

Dow is also studying methods of placing wastewater on land, with emphasis given to the considerations of crops, nutrients and harvesting. (Additional considerations are being afforded to meteorological studies to aid in this task.)

Both Dow and the Corps have agreed upon a 2"/week rate of application of wastewater upon the land.

The Phase I report, with emphasis on municipal and industrial (M & I) and Stormwater, is due on 30 June 1972.

Both Bauer and Dow are being directed to consider wastewater systems designed for 1990, with the possibility of expanding to meet 2020 needs.

Mr. McCallister then highlighted the wastewater treatment system in Australia, after which a discussion ensued.

Lt. Pillmore discussed the Corps' Physical-Chemical contract with Dr. Weber.

Mr. McCallister delineated the relationship between Lt. Pillmore and Dr. Weber:

- Lt. Pillmore doing the design work for a P-C process, while Dr. Weber will act as the design consultant.

Lt. Pillmore briefly discussed the Physical-Chemical process, consisting of:

- a. Screening and grit removal.
- b. Two-stage lime clarification.

- c. Carbon adsorption.
- d. Breakpoint chlorination
- e. Filtration - adsorption.
- f. Sludge disposal by incineration and landfill.

- Mentioned that the Corps is designing four specific sized plants to develop cost-size relationship. The sizes are 10, 50, 250, 1250 MGD. (This effort is Phase I.) The Phase I report would be completed by 1 July 1972.

- Stated that Phase II would consist of site adaptation of the aforementioned process.

In the following discussion it was brought out that the proposed design of the P-C plants is conservative in nature.

Lt. Pommeranz discussed the Ayres, Lewis, Norris and May contract, whose services concerned stormwater.

- Ayres, Lewis, Norris and May is responsible for developing five outfall methodology alternatives. They are concerned with system alternatives (collection and storage) for the prevention of separate and combined sewer overflow in Southeastern Michigan.

- The Corps has developed a land use projected runoff, utilizing SEMCOG's projected service areas.

- Ayres, Lewis, Norris and May is working with Dr. Brater, a recognized expert in the field of hydraulical predictions of flood frequencies in Michigan.

Tom Bahr - Institute of Water Research, Michigan State University:

Tom Bahr is presently under contract to study Pollution - Biology and Physiology, in the overall context of assessing the impacts of various wastewater management alternatives. These assessments are directed towards identifying physical and chemical factors that impose stressful conditions on components of the aquatic environment.

- Discussed the environmental impact assessments with reference to the aquatic zone. Mr. Bahr mentioned that in order to obtain a nutrient budget for lakes, it is necessary to consider stream inputs of nutrient materials. Mr. Bahr also discussed the following ecological considerations involving the wastewater management study.

- a. Tile fields and their impact on streams and vegetation.
- b. A comparison between chemical and biological parameters.

Bill Marks questioned whether the Institute or the Corps was aware of an International Joint Commission report on Lake Erie. Mr. Marks discussed some of the report's conclusions. Tom Bahr commented that the IWR was indeed utilizing the report. (The IJC project is referred to as Project HYPO.)

Mr. McCallister and R. Gregory discussed the Corps' specialized contract studies to augment the ecological efforts, to include the following:

- a. Institutional Considerations - Jonathan Bulkley
- b. Hygienic Studies - Drs. Gannon, Smith and Cochran
- c. Geological Studies - Dr. Mazola
- d. The Corps has two study areas under consideration: Landscape Architecture and Sociology. Shortly, the Corps will have a sociologist on board to augment the efforts of the in-house staff.

Ray Ownbey (EPA) led a discussion concerning solid and liquid waste disposal in three urban areas: incineration of solid waste in Cleveland, land disposal in Chicago, and incineration combined with disposal of ash on the land in Detroit.

Bob Buckley (EPA - Grosse Ile), mentioned the energy potential of sludge in a discussion of the uses of sludge. Captain Dovas discussed the possibility of utilizing lagoons to preclude the utilization of thermal discharge to lakes. Edison is concerned with this problem.

Mr. Ownbey commented on a large electric plant in St. Louis which uses solid waste as a partial fuel requirement. It was brought out that the city of Port Huron operates a plant by utilizing methane.

Paul Reid: - Along the lines of the discussion on solid waste disposal, Mr. Reid mentioned that SEMCOG was preparing a study involving solid waste and that a good man to coordinate with would be Fred Cheek.

Mr. Ownbey highlighted the method of collecting solid waste at Disney World in Florida. A pneumatic vacuum tube is utilized. Mr. Ownbey was of the opinion that the concept of "Reuse and Recycling" is being oversold.

Captain Dovas mentioned that methods currently exist to heat incinerators to 1500-1800^o Farenheit. Combustible materials must be separated, though.

Mrs. Morse questioned whether phosphates were being considered in the wastewater management study; to which Tom Bahr replied that both phosphorus and nitrogen were being studied.

R. Gregory discussed the concept of Plan Formulation, referring to periodic progress reports by in-house staff and consultants in scheduled meetings.

- Referred to the three methodology wastewater management matrix (Exhibit A), explaining the makeup of the chart and its intended usage (as a visual aid).

- Mr. McCallister stated that the flows developed in the Feasibility Study were flexible. There is an amount of leeway with each flow figure for a specific treatment method. The use of such a chart aids in systems comparisons.

- When the matrix has been completed, it will be possible to have inputs from the analogous wastewater management studies, i. e., institutional, sociological and recreational.

Mr. McCallister, in response to a question by Bill Marks concerning the need to collect the data before the filling out of a matrix, stated that the Corps, in effect, has provided a tool to direct the flow of information. Someone has to take the first cut at making a statement from which additional inputs will stem. A combined effort by the Corps and concerned agencies will aid in this effort.

- There will be a Coordination Committee Meeting sometime in the beginning of July. At that time, the Corps will have additional inputs from their consultants. Certain sites, plant types and flows will have been chosen.

- The Coordination Committee will take a look at these proposals and at that time have sufficient information to make first-cut comments.

R. Gregory discussed the need to coordinate the proposed service areas with both SEMCOG and WRC. SEMCOG's service area was reduced to a HUD request. It is important that the Corps get together with DMWD to discuss each other's wastewater proposals.

Mr. McCallister discussed the proposed Public Workshops, explaining that they will be formulated around the information available in the matrix. The opportunity exists to obtain a first-cut response.

Bob Buckley asked whether flyers pertaining to the Public Workshops were distributed to the citizenry, to which Mr. McCallister replied that the Corps had contacted the major newspapers in Southeast Michigan, radio stations, TV, and professional magazines, in addition to some local newspapers.

- Hopefully, members of the Coordinating Committee will feel free to invite additional concerned persons and agencies who have not been contacted concerning the workshops.

Mr. McCallister stated that anyone is welcome to attend.

The Coordinating Committee meeting **was** adjourned at 4:20 P.M.

Mr. McCaffrey stated that the Commission is a committee of the Board of Directors and that the Board is the ultimate authority on all matters relating to the Corporation. He stated that the Board is composed of representatives of the various departments of the Corporation and that the Commission is a subcommittee of the Board.

The Commission is a subcommittee of the Board of Directors and is composed of representatives of the various departments of the Corporation. The Commission is authorized to investigate and report to the Board on all matters relating to the Corporation.

The Commission will take a look at their report and will make recommendations to the Board of Directors.

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CORPS OF ENGINEERS DETROIT MICH DETROIT DISTRICT
SOUTHEASTERN MICHIGAN WASTI.WATER MANAGEMENT SURVEY SCOPE STUDY.--ETC(U)
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MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY

SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 3

20 JULY 1972

AGENDA
DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY
COORDINATING COMMITTEE MEETING NO. 3
20 JULY 1972

INTRODUCTION

AWT ALTERNATIVE WITH DISCUSSION

PHYSICAL-CHEMICAL ALTERNATIVE WITH DISCUSSION

IRRIGATION AND COLLECTION WITH DISCUSSION

SPECIALIZED STORMWATER CONSIDERATIONS WITH DISCUSSION

SUMMARY

CLOSING REMARKS

COORDINATING COMMITTEE MEETING NO. 3
20 JULY 1972

ORGANIZATION

PARTICIPANTS

Corps of Engineers	Colonel M. D. Snoke
Corps of Engineers	Major J. Cabrinha
Corps of Engineers	Carl Argiroff
Corps of Engineers	Robert Gregory
Corps of Engineers	Sylvester Jones
Corps of Engineers	Captain C. Dovas
Corps of Engineers	David Cook
Corps of Engineers	Lt. Milton Pommeranz
Corps of Engineers	Lt. Andrew Maser
Corps of Engineers	Lt. Robert Pillmore
Corps of Engineers	Dr. M. Cooper
United States Environmental Protection Agency, Region V, Chicago, Illinois	Jon-Eric T. Stenson
U. S. D. A. Soil Conservation Service	Ralph S. Wadleigh
U. S. Department of Interior; River Basin Bureau of Sport Fisheries and Wildlife	Darrell Uptegratt Frank M. Baucom
State of Michigan, Department of Natural Resources, Water Resources Commission, Planning Section	Richard Emerson

COORDINATING COMMITTEE MEETING NO. 3
20 JULY 1972
(continued)

<u>ORGANIZATION</u>	<u>PARTICIPANTS</u>
Southeast Michigan Council of Governments, Planning Division	Paul Reid
SEMCOG - Project Coordinator	Nelson Fabian
League of Women Voters, Environmental Committee	Verona F. Morse
Detroit Metropolitan Water Department	J. C. Kegler

Colonel Snoke welcomed the assembly, mentioning that the intended purpose of the Coordinating Committee meeting was to place before the Committee a synopsis of the information (received from the Corps' contractors and developed by the wastewater staff) for constructive criticism and comments.

Lt. Pommeranz (AWT) explained that the Corps' contractor (Stanley Consultants, Inc.) was required to consider a 3 and 6 plant outfall alternative, in addition to an inland outfall alternative. Lt. Pommeranz mentioned a few possible locations for inland outfall alternatives and explained the meaning of the term "AWT". The problem of sludge disposal was considered, and Lt. Pommeranz explained the amounts of sludge that would be treated in the following cases:

1. If there was no incineration and filtration of sludge.
2. If the lime was recalcined the acreage required for sludge handling could be reduced.
3. If the sludge was incinerated and eventually landfilled the land requirements could be lessened, but that the problems associated with air quality would have to be considered.
4. For pure land disposal, a large amount of land was required.

It was decided by the Corps that the problem of stormwater was to be a separate consideration. Lt. Pommeranz mentioned a figure of 40 acres for non-incinerated M&I sludge, and 100 acres for combined sludge. The cost of a 250 MGD AWT plant is approximately \$93 million. The system produces a high quality effluent.

Colonel Snoke reiterated that the contractor must meet or exceed the Corps' effluent criteria for the development of a 1990 system (AWT) and that the Corps is working with both M&I and Stormwater flows developed in the Feasibility Study.

Bob Gregory - We would like to hear your responses to some locations that we have proposed, responding, the Coordinating Committee felt, in general:

1. that the Jefferson Avenue Plant would remain, but that certain problems with air quality would have to be resolved. The consideration

of how much more flow to be brought to the plant is more a policy decision than other factors. It was a consensus of the Committee that, for planning purposes,

2. the proposed wastewater treatment plant at the mouth of the Huron River could be moved two to three miles from the mouth. According to Mr. Stenson, the EPA had the proposed plant under consideration and that the Lake Erie Report mentioned a possible Metro Plant at Monroe.

Bob Gregory asked the Committee to discuss the criteria for the selection of a wastewater plant at a specific location.

J. C. Kegler stated that the economics of the proposal must be considered, in addition to considering safety involved with one major plant, as opposed to a number of smaller plants. Mr. Kegler also mentioned that it has become increasingly certain that the environment must be considered; to which Mr. Stenson fully agreed. Mr. Kegler desired to ascertain whether or not the Corps was considering the Conner Creek area, to which it was replied that the Corps is studying the possibility of placing a treatment plant at the intersection of Conner Creek and the interceptor flowing to the Detroit Plant. Mr. Kegler mentioned that DMWD will have to look into the matter.

Paul Reid stated that we may not have to place three treatment plants up in St. Clair County, what with the small increase in population. Perhaps there can be one plant at Port Huron and one placed in the southern portion of the County. Reid felt that many factors should be considered in the selection of a plant.

Bob Gregory mentioned that the Corps now has a plant module to utilize in the possible location of a facility; the module can be expanded to fit the requirements.

Richard Emerson questioned how concrete economic decisions could be made without three to four months of engineering decisions, to which Gregory mentioned that the Feasibility Study outlined the wastewater management program and what questions needed to be answered. Bob Gregory stated, in addition, that many of the engineering questions were being considered in-house, the final effort to be a combination of contractor's input and in-house effort.

Mr. Stenson brought up the point about regionalization. He questioned as to the direction that the State would take in wastewater management planning. The State has developed effluent criteria, and that each proposal must meet the criteria. Stenson mentioned that each location and plant type must presuppose a consideration about the engineering economics, the taxpayer's dollar and the practicality of the proposal.

Richard Emerson mentioned that the costs of interim wastewater management systems should be considered; the example given was Ann Arbor. Some small communities need some interim arrangement prior to their being attached to a regional system. There is no objection to the AWT modules.

Bob Gregory mentioned the problem of sludge disposal and asked for the Coordinating Committee's consideration.

Paul Reid asked why the gravel pits in Oxford Township couldn't be utilized for sludge disposal. To prevent seepage, the pits would be lined with clay. The consideration of land recovery is important to the topic of sludge disposal upon or in the land.

Verona Morse mentioned that the Corps should consider the possibility of reclaiming phosphates in the gravel pits.

Lt. Pillmore (P-C) - In his discussion of the Physical Chemical Treatment Process, Lt. Pillmore mentioned that the P-C process is essentially similar to the AWT treatment process, but without the biological process. In explaining the procedural considerations in handling sewage treatment, he explained that there are various methods to handle sludge: landfill of the material in a dewatered basis, and incineration-recalcination of the sludge, leading to landfill and lime reuse. Lt. Pillmore mentioned that the Corps is considering four plant sizes: 10, 50, 250 and 1250MGD. The costs range from \$5 million for the 10MGD plant to \$290 million for the 1250MGD plant. Comparing the 250MGD plant (AWT) to the 250MGD (P-C) plant, one finds that the AWT plant runs some \$93 million, while the P-C plant runs some \$68 million. The Corps has a plant module which can be applied at any location, and that the design will meet Corps standards. The P-C plant will take up 50% of the land requirements of an AWT plant of the same size. The chemical requirements are the same, while the carbon usage is higher.

The use of lime is the same as if used for an AWT plant, while the cost associated with chlorine usage is higher in a P-C process, when compared to an AWT process. The factors which are considered for the selection of an AWT plant are similar to those which are associated with a P-C plant. The transportation of chemicals to the plants necessitates a location in proximity to transportation lines.

Bob Gregory questioned the Coordinating Committee as to the use of a centralized sludge collection facility. Paul Reid mentioned the potential problem of odor, to which Gregory replied that odor becomes a problem when a small plant is overloaded. Richard Emerson stated that the factor of reliability should be considered when discussing a centralized facility.

Sylvester Jones (Land Disposal) discussed the Irrigation and Collection contracts to include both the contractor studying lagoons and the contractor concerned with land disposal. Sylvester delineated potential areas for disposal, mentioning the characteristics of the soil. He mentioned that the disposal areas were analogous to the land use patterns developed in the TALUS Study. Jones then depicted the particular O&M costs for the specific sites and explained the use of the Land Disposal Chart, refer to Appendix A. Of the various methods of irrigation, furrow irrigation is the least costly; this comment was mentioned by Mr. Stenson of the EPA. According to Stenson, 40% of the water sprayed in a land-disposal system is evaporated into the atmosphere before it hits the ground. Comparing this method of irrigation with a solid set system under low pressure, the process allows for a 70% water retention, when accomplished at night. Bob Gregory commented that the water goes back into the atmosphere in the sprinkler system. Mr. Stenson questioned whether a centralized water system was being considered, as it related to soil contamination, to which Sylvester Jones replied that all effluent would be monitored and checked to prevent contaminated water seepage into the water table. It is important that we ensure that the quality of the water permeating the soil, eventually finding its way into streams, is of a high standard.

Stenson questioned the social acceptability of acquiring large amounts of land for this method of sewage disposal. The Colonel replied that the consideration of land use is being studied, and by necessity, the Corps' proposals will certainly address that question.

Colonel Snoke highlighted the Melbourne wastewater disposal system.

Lt. Maser (Stormwater Retention Basin) discussed a special study being considered by some of the wastewater staff--the use of large retention basins, placed north and south of the urban area (as depicted in the 1990 TALUS land use map) for the storage of stormwater. The following represents a few of the key points in the discussion:

1. By 1990 there will be a need to store stormwater; M&I flow will be fairly well controlled, due to the enforcement of industry regulations, as well as the improvement of municipal treatment plants.
2. A major source of water pollution will be combined sewer overflow and stormwater runoff.
3. Storing stormwater produces treatment at a uniform rate, leading to a high quality effluent discharge.
4. Underground storage in the Detroit urban area has many constraints, the major ones being structural in nature.
5. Above ground storage in urban areas necessitates the acquisition of large tracts of land.
6. The storage requirements, 25-40 billion gallons of stormwater at any one time during the year, utilizing a 35' retention basin --a figure of six square miles for a storage area is reasonable.
7. With the proposed land use considerations in mind, especially the proposed urbanized area delineated by the TALUS maps, the wastewater staff has proposed two large retention basins north and south of the urbanized area. We are considering locations in Macomb, and Monroe Counties.
8. These retention basins will be placed in proximity to transportation lines for delivery of chemicals and materials to the treatment plant, which may be placed akin to the retention basin.
9. The proposal must conform to the existing and proposed land use for the area. This necessitates the coordination with local

and regional planning officials, and reviewing their documents.

10. The basin should be placed near the discharge area, in this case the area being the lakes. The basin itself can be surrounded by a stream or moat with a high quality effluent. The moat will be surrounded by a buffer area, lending itself to passive recreation.
11. The project can be made aesthetically pleasing, blending in with the character of the area, or improving it.

Colonel Snoke mentioned that the Corps is considering a number of methods by which to store stormwater, and that this method is one of several.

There were no further questions from the Coordinating Committee, and the Colonel thanked the attendees for their consideration and informed them of the upcoming public meetings to be held the week of the 24th.

The meeting was adjourned at 1630.

APPENDIX A

AVAILABILITY OF WASTEWATER IRRIGATION SITES		ST. CLAIR COUNTY SITE	HURON-TUSCOLA COUNTIES SITES	MONROE COUNTY SITE	LENAWEE COUNTY SITE	FULTON-WILLIAMS COUNTIES (OHIO) SITES
AVAILABLE LAND		375 SQ. MILES	611 SQ. MILES	83 SQ. MILES	37 SQ. MILES	272 SQ. MILES
		AREA % OF TOTAL AVAILABLE	AREA % OF TOTAL AVAILABLE	AREA % OF TOTAL AVAILABLE	AREA % OF TOTAL AVAILABLE	AREA % OF TOTAL AVAILABLE
LAND NEEDED FOR WASTE-WATER IRRIGATION	With Stormflow	354				
	Half of Flow Sent to Sites North of Detroit	94.4%				
LAND NEEDED FOR WASTE-WATER IRRIGATION	Without Stormflow	210				
	Half of flow Sent to Sites South of Detroit	56.0%				
LAND NEEDED FOR WASTE-WATER IRRIGATION	With Stormflow			83	37	234
	All of Flow Sent To Sites North of Detroit			100%	100%	86.0%
LAND NEEDED FOR WASTE-WATER IRRIGATION	Without Stormflow			83	37	90
				100%	100%	33.1%
U. S. ARMY CORPS OF ENGINEERS DETROIT DISTRICT--19 JULY 1972						

MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY

SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 4

8 DECEMBER 1972

MINUTES
DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY
COORDINATING COMMITTEE MEETING NO. 4
8 DECEMBER 1972

ORGANIZATION

PARTICIPANTS

U. S. Environmental Protection Agency	Thomas Windau
Water Resources Commission	Bill Marks
League of Women Voters	Verona Morse
Corps of Engineers	Philip McCallister
Corps of Engineers	Carl Argiroff
Corps of Engineers	R. L. Gregory
Corps of Engineers	Major J. W. Cabrinha
Corps of Engineers	Ms. Bobbie Yancey
Corps of Engineers	Lt. Andrew Maser

The meeting convened at 1:10 P.M.

P. McCallister welcomed the assembly and mentioned that the objective of the upcoming public meetings was to solicit comments and criticism to the Corps' study.

Major Cabrinha discussed the events that have occurred since the last Coordinating Committee meeting:

1. Received Phase I and Phase II reports from contractors.
2. District has formulated several alternatives.
3. We held a series of public meetings, the response being relatively small.

R. Gregory mentioned that the assessments would come in around January.

P. McCallister noted that the evaluators have just recently been given the technical information to make the assessments.

Mrs. Morse wondered when contracts would be let for construction.

P. McCallister reiterated that this was only an engineering study or service.

R. Gregory mentioned that the Corps would not recommend any particular alternatives but, rather, would present several alternatives to the State.

Ms. Morse: - Are any of these lands low lands?

R. Gregory: - No, all lands are prime agriculture lands, as selected from the various criteria.

Major Cabrinha then presented the Corps' alternatives, mentioning that this would be the same presentation as would be given in the public meetings, with a few exceptions.

Ms. Morse: - Do you have any information on pollution by stormwater?

R. Gregory: - We have information in the works from the Institute of Water Research, Michigan State University.

Bill Marks: - Do you have any Capital Costs figures?

R. Gregory: - Yes, but they aren't noted here.

EPA: - Are these alternatives for a 1990 capacity?

P. McCallister: - Yes, we are designing 1990 alternatives.

Bill Marks: - What is the expected population for 1990?

Major Cabrinha: - Approximately 6.9 million.

R. Gregory: - You could adjust MGD's from available engineering data if the population doesn't reach the projected figures.

EPA: - What was the reason for the shape of the thum land areas?

P. McCallister: - Those areas were judged to have suitable soil. And, specifically, that area is an old beach plain.

A discussion ensued about the construction of deep tunnels.

Ms. Morse: - Do you have an alternative which only includes M & I?

Major Cabrinha: - The next to last page has some information, but we can get the costs.

A discussion ensued about the data that the Institute of Water Research collected and the results that would be available.

A discussion of stormwater collection ensued, centering around the 2.1 inch figure of stormwater collection.

Bill Marks: - Do you have any dialog about using the lagoons for cooling water?

R. Gregory: - We have made contact with some people who have commented unofficially.

P. McCallister: - Discussed crop yields and potential reaction at Bad Axe. We could change some crops if that was desirable. We must discuss all aspects of the plans. There are opportunities and we should explore them.

Bill Marks: - Perhaps more in-depth studies need occur before any plan is implemented, especially in the agricultural areas.

P. McCallister agreed and discussed the public participation program.

Ms. Morse: - Have you looked into soil around Lake City?

A discussion of the soil suitability and cropping patterns ensued.

Ms. Morse: - Paul Reid from SEMCOG mentioned that perhaps a pilot project might be practical.

C. Argiroff mentioned that Muskegon is a pilot project.

Bill Marks: - You might expect some institutional questions.

P. McCallister: - We expect to cover a range of alternatives, with various methods of institutional management.

The meeting adjourned at 3:10 P.M.

MINUTES
DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
SCOPE STUDY
COORDINATING COMMITTEE MEETING NO. 5

31 MAY 1973

Col. Snoke opened the meeting at 1330 hours by welcoming all members present and by summarizing the plan for this meeting and the general study status.

Maj. Cabrinha provided the status of all study reports and presented the public participation program activities that had been accomplished. He noted the resulting changes in direction that had taken place in the study since the December 1972 public meetings. Small group meetings were also discussed.

Lt. Pommeranz presented the refinements that had been made in the alternative wastewater management plans presented in December 1972 public meetings. He also described the additional plans which had since been developed.

Maj. Cabrinha explained the new direction in land treatment that had been developed as a result of the public opposition to the land treatment plans presented in December 1972. He described the activities that had taken place leading to the development of this new concept of application. The role of MSU, Crop and Soil Science experts and Dow Engineering were described in this new task. Evaluations to be accomplished were also discussed. The general status of evaluations was also presented.

Col. Snoke closed the presentations with a summary. He noted that public participation had been very slight within Detroit itself. He also said that this study was to be furnished to the State of Michigan for its use in complying with the planning requirements of PL 92-500. This study is an objective view toward regional wastewater management and will consider equally the major treatment technologies.

Mr. Emerson offered several comments on the conduct of public meeting. They were:

Keep presentations simple and don't emphasize any one alternative.

People have the impression that the Corps is going to build these systems.

Watch terminology when talking with lay people.

In addition, he noted that the State Interim Water Quality plan would soon be completed.

Mr. Fabian agreed with the above comments. He added that small group meetings were a great idea and to try to continue with this approach.

Mr. Emerson added that land treatment appeared to be technically feasible; however, its greater cost would make the process less desirable.

Mr. Harner requested that we comment on the Huron and Tuscola County soil interpretations that had recently been made by MSU experts.

Col. Snoke agreed that the Huron-Tuscola soils problem should be addressed. He closed the meeting with a description of the approach to public meetings.

MINUTES

DETROIT DISTRICT, CORPS OF ENGINEERS

SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY

SCOPE STUDY

COORDINATING COMMITTEE MEETING NO. 6

27 SEPTEMBER 1973

MINUTES
 DETROIT DISTRICT, CORPS OF ENGINEERS
 SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT SURVEY
 SCOPE STUDY
 COORDINATING COMMITTEE MEETING NO. 6
 27 SEPTEMBER 1973

ORGANIZATION

PARTICIPANTS

Corps of Engineers	Philip McCallister
Corps of Engineers	R. L. Gregory
Corps of Engineers	Joseph Cabrinha
Corps of Engineers	Andrew Maser
Michigan Water Resources Commission	Richard Emerson
Michigan Water Resources Commission	John M. Bohunsky
U. S. Environmental Protection Agency	Thomas Windau
Soil Conservation Service, East Lansing	Ralph Wadleigh
Bureau of Sport Fisheries and Wildlife	William H. Gill
Michigan Department of Natural Resources	Merle Crow
Michigan State University, Crop and Soil Science	Bernard D. Knezek
Michigan State University, Crop and Soil Science	Ray Cook
Detroit Metropolitan Water Department	J. C. Kegler
Southeast Michigan Council of Governments	Nelson Fabian
Dow Chemical, Midland	George Higgins
Dow Chemical, Midland	Emery Conyers

COORDINATING COMMITTEE MEETING NO. 6
27 SEPTEMBER 1973
(continued)

ORGANIZATION

PARTICIPANTS

League of Women Voters

Onie Morse

League of Women Voters

Nancy Johnson

The meeting convened at 1:00 P. M.

P. McCallister welcomed the Committee, stating that he was acting for Col. Hays as Chairman of the Coordinating Committee. Objective of this meeting was to bring up matters of concern to all from the MSU and Dow chemical studies.

Major Cabrinha discussed status of reports and brought the Committee up to date with a slide presentation.

Dr. Cook (MSU): Stated that from his observations of the world situation, countries who in the past were exporting grain are in many cases importing grain. We must increase production of sandy soil and control the moisture in soil to get higher crop yields.

Dr. Knezek (MSU): Summarized the MSU Report, "Land Treatment of Wastewater in Southeastern Michigan." Stated that the only way to use wastewater to advantage is to control nutrients and water going into the soil. Emphasizing that Boron is the element we should be concerned about immediately because of the Boron content in wastewater.

Major Cabrinha stated that the work MSU had done is the basis for the Wastewater Management alternatives designed using the concept of land irrigation on privately owned lands.

Dr. Conyers (Dow) stated that the objectives of his study were:

1. Describe concept of land treatment irrigation on privately owned farmland.
2. Establish cost estimates for irrigation zones.
3. Highlight the benefits and detriments.

Explained assumptions made by Dow before beginning study:

1. Landowners would receive wastewater containing nutrients.
2. Farmer would select crops he wants to grow.
3. Crops and soil would determine amount of water needed.
4. Wastewater would be applied according to a schedule.
5. Farmer would possess an independent irrigation system.

Summarized the report, "Wastewater Irrigation Using Privately Owned Farmland in SEM."

Noted that Capital Annual Cost range for irrigation program only per M G would be \$3,400 to \$6,900.

Sited benefits brought out in study:

1. Increase crop yields.
2. Ability to recycle nutrients.
3. Plan for treatment of wastewater.

Detriments brought out in study:

1. Farmer would have increased responsibilities.
2. Irritations and inconveniences due to construction, etc.
3. Large land areas would be needed for lagoons.

Dr. Conyers recommended that a demonstration project is needed to provide more conclusive findings.

Ms. Morse: - Could the system Dr. Cook mentioned in Muskegon be used as a demonstration project?

Dr. Conyers: - Not entirely, for to use Muskegon as a demonstration project would

1. Take the farmers off the land.
2. Compare a different nutrient relationship.
3. Compare a different pollutant load.

John Bohunsky: - Could the cost figure be broken down to a cost per family basis?

Dr. Conyers: - It is the Corps' task to ascertain the cost for complete alternative plans, but surely this could be done.

P. Reid: - Lagoons freeze over in the wintertime. What happens when they break up in the spring?

M. Crow stated it has been his experience in Southeastern Michigan that even with an ice cover of 14", as long as the ice is clear and the sun shines through it, there is biological activity going on. However, there is a high degree of odor when 14" of ice is covered with snow so that the

sun can't shine through it. The material in the lagoon turns black like black paint.

T. Windau: - What ideas do you have for an education process to generate enthusiasm to the farmers?

Major Cabrinha: - Stated the education opportunity will be handled with the aid of MSU Extension and Soil Conservation agents working in cooperation with the farmers.

T. Windau: - Is there a model or working plan?

Dr. Conyers: - Yes. There are working models in Texas and California. These systems have over 5 MGD and work with primary effluent.

T. Windau: - What location in Southeastern Michigan could be used?

Dr. Knezek: - This is a political issue. Muskegon and other sites could be used.

M. Crow pointed out that Muskegon is not a good site for studies of efforts in SEM because it has a different soil and the pollutant load is very different.

Major Cabrinha discussed new direction for land treatment and comparison of policies and alternatives for wastewater management.

M. Crow: - Since Dow Chemical designed zones over a 25-county area, it would seem that you're expanding further westward for your study.

Major Cabrinha explained that the area of investigation had to be expanded because of greater demand for land areas and measured increased flexibility in design.

Discussed four new Wastewater Plans.

M. Crow: - Are there provisions for stormwater in the Interim Quality Plan?

Major Cabrinha: - Yes, it does include a stormwater system.

Jim Kegler: - Does this plan include collection and transportation?

Major Cabrinha: - Yes.

Ms. Morse: - Can I break the total cost down into separate parts in order to determine the cost of stormwater treatment alone?

Major Cabrinha: - The charts available with each alternative will allow some separation of costs.

M. Crow: - Is there a fifth plan?

Major Cabrinha: - Yes. The pure land system using privately owned land is a fifth plan. However, it was developed for comparative purposes only and is not to be one of the alternatives recommended to the State.

A Draft Survey Scope Study Report has been prepared and originally was planned to be sent to everyone on the mailing list. However, since the report is rather extensive and would require approximately four hours to read, it was decided that a brochure should be made, based on the Draft Survey Report, and mailed out instead.

The series of draft reports which make up the Survey Scope Study will be sent to community libraries and engineering colleges and universities for review by the interested public.

Mr. Morse: - How will the public know that the report is on file in the libraries?

Major Cabrinha: - Part of the public notice will state that the series of reports is on file and where they will be located.

Mr. McCallister thanked members for coming and encouraged further comments. The next Coordinating Committee Meeting will be after the report goes public and before the public meeting, probably some time in November.

The meeting was adjourned at 3:30 P. M.

M I N U T E S

DETROIT DISTRICT, CORPS OF ENGINEERS
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT
SURVEY SCOPE STUDY

SEVENTH COORDINATING COMMITTEE MEETING
28 NOVEMBER 1973

SEVENTH COORDINATING COMMITTEE MEETING
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT STUDY

LIST OF PERSON ATTENDING:

ORGANIZATION

PARTICIPANT

League of Women Voters	Ms. Verona Morse
USDA, Soil Conservation Service	Mr. David Carpenter
USEPA, Region V	Mr. M. W. McMullen
USDI, Bureau of Sport Fish. & Wildlife	Mr. M. E. Stoll
USDI, Bureau of Sport Fish. & Wildlife	Mr. Vernon Lang
Michigan Water Resources Com.	Mr. Richard Emerson
Michigan Water Resources Com.	Mr. Frank Baldwin
Southeastern Michigan Council of Governments	Mr. Nelson Fabian
Detroit Metropolitan Water Department	Mr. J. Kegler
USA Engineers District, Detroit	Mr. Carl Argiroff
USA Engineers District, Detroit	Mr. R. L. Gregory
USA Engineers District, Detroit	Maj. J. W. Cabrinha

MINUTES

SEVENTH COORDINATING COMMITTEE MEETING
SOUTHEASTERN MICHIGAN WASTEWATER MANAGEMENT STUDY

28 NOVEMBER 1973

The meeting convened at 1:00 PM

Mr. C. ARGIROFF: Welcomed the Committee. Stated that he was acting for Col. Hays as Chairman of Committee. Presented the objective of the meeting as a discussion of study findings and the period of review.

MAJ. J. CABRINHA: Presented the status of the study and presented each member with a copy of the Summary Report. The distribution of reports was discussed and several suggestions were offered by members in this regard:

1. Each study report should be prefaced in order to insure that the reader is made aware of order of each document.
2. Use of the National Technical Information Service should be made in order to offer wider distribution of reports.
3. A list of libraries to which reports have been sent should be provided to all Committee members.

MAJOR J. CABRINHA: Discussed the program for future actions in public participation and noted events that had taken place since last Committee meeting.

MS. MORSE (LWV): Expressed concern over limited review period for report. The technical depth of the study should warrant a longer review period. Requested that public meetings be rescheduled to a later date.

MR. C. ARGIROFF: Noted that public meetings had previously been scheduled and that the public had been notified thereby making a change in public meetings most difficult. Also noted that period for review could possibly be lengthened.

MS. MORSE (LWV): Asked if other means of collecting and treating stormwater runoff had been investigated, including control of runoff at individual residences.

MR. R. L. GREGORY: Discussed stormwater treatment and collection system design.

MR. C. ARGIROFF: Thanked members for attending and encouraged attendance at public meetings. The time for the next Coordinating Committee meeting was left open.

The meeting adjourned at 3:00 PM