

his personal opinion, however, that such a regional authority should have responsibility for all of the metropolitan environmental health problems rather than be established solely to solve the solid waste problem. From the outset, such an interstate authority should be the joint agency of the local governments in the area and its governing body should be composed of local elected officials rather than state appointed officials.

The six speakers yesterday afternoon placed clearly in perspective the nature of the solid waste disposal problems of the metropolitan area. The consultant's report recommending specific solutions will become available within a month or two. By considering carefully both what we have learned in the past two days and the recommendations of the consultant, we will be in an excellent position to join efforts and reach a solution to this very pressing problem which will benefit us all.

I want to thank the speakers who appeared on the panel with me, and I want to thank the Surgeon General for convening this conference so that we would have this excellent opportunity to review the solid waste problems of the region.

## SUMMARY OF PANEL B: TECHNOLOGY TODAY

*Abraham Michaels, Panel Chairman*

THE TECHNOLOGY TODAY session concerned itself with solid waste collection, transportation, and disposal methods currently in use in this country and abroad and with newly developed or developing technology in refuse processing. Clear indications that the *technology* is currently available to solve the refuse disposal problems for the Washington metropolitan area were offered. Both sanitary landfilling and incineration techniques suitable for use in this area were discussed, and refuse transfer systems which would be used in conjunction with disposal methods were described. The recycling and utilization of refuse particularly by salvaging and composting were also reviewed and discussed in detail.

The first speaker, Mr. Bugher, stated that Solid Waste transportation systems for a given area require answers to the following questions: (a) How large is the area to be served? (b) Should the removal system handle all the solid wastes generated in the area? (c) What is the distribution of the various kinds of waste generating units in the area? (d) What is the area's existing and the potentially available total transportation system?; and (e) Who will finance and administer the system?

Mr. Bugher noted that "the present Washington transportation system, with its highways, railroads and the Potomac River, allows the waste removal planner a wide range of alternatives for system development in terms of both the mode of transportation and the ultimate destination." He based his opinion on the knowledge that "(a) wastes can and must be disposed of in an unobjectional manner; and (b) wastes can often be used to increase the value of marginal land."

The author discussed waste transportation methods in terms of those currently available and developing, and suggested that research efforts now being undertaken will develop improved systems in this field. Existing transportation systems mentioned included: (a) pipelines — operated hydraulically or pneumatically — originating at the point of waste origin; (b) railroads and barges for long-distance transportation; (c) integrated transfer stations; and (d) truck and trailer systems with their potential for increasing their pay loads.

Mr. Bowerman said that aside from unacceptable open dumping and open burning, the most commonly practiced solid waste disposal method in the

U.S. is that of sanitary landfilling. This is so because it has widespread applicability, low operating cost, freedom from nuisance and pollution, and opportunity for reclamation and enhancement of land. In addition, sanitary landfilling may often be the quickest and most convenient means for transforming an open dump or open burning operation into an acceptable procedure. Suitable equipment for sanitary landfilling is readily available. The operating techniques are well proved and the required skills are well within the range of operating agencies. In other words, it's easy.

Certain minimum functions must be performed in order that the operation be truly classified as a sanitary landfill; the solid wastes must be deposited, compacted, and covered promptly; blowing paper, flies, rats, fires, and other nuisances must be avoided through the rigorous maintenance of a tight cover to seal in the compacted wastes; protection must be afforded against rain erosion, and ground water pollution. The ultimate land use must be planned, preferably before the commencement of operation, so that maximum benefit will be derived from available cover material and final topography will be developed at minimum cost. Some examples of final use are as follows: golf courses; regional parks, playgrounds; skeet ranges; archery ranges; ski mountains with planned slopes for skiing, tobogganing, and sledding; heliports; parking areas; and offshore islands for recreational or airport use.

Six "refuse" reduction processes were reviewed by Mr. Kaiser: (1) open burning at dump sites; (2) burning in conical metal chambers; (3) landfilling, sanitary or otherwise; (4) composting, with sale of compost; (5) incineration without heat recovery; (6) incineration with heat recovery.

Reduction in volume is basic to any of these processes while any reduction of weight is of lesser importance.

Open burning has been banned in some six states while in others limitations of open burning are in effect. Volume reduction by open burning is poor and incomplete, causing air pollution and leaving nuisance causing organic and putrescible matter in the residue.

Conical metal burners which were designed to burn sawmill wastes have been used to burn industrial and municipal refuse. Although proper operation may achieve a greater reduction in refuse weight and volume than open burning, this device creates appreciable air pollution and produces a poor quality residue.

The art and science of incineration in America have developed to such a degree that large incinerators currently in operation do meet reasonable

air pollution and residue quality standards. Some European incineration plants have been constructed as refuse fired boilers utilizing more sophisticated air pollution control equipment than is currently used in the U.S. The gaseous effluents of these European plants is reported to be of better quality than of the good American plants.

Dr. Harding said that composting, or aerobic stabilization of putrescible material in refuse, can be achieved under controlled conditions, which include grinding, moisture control, and adjustment of the carbon-to-nitrogen ratio.

Three mechanical composting systems and the PHS-TVA Johnson City Plant were discussed in some detail.

Arrangements for the salvage of paper, cardboard, rags, ferrous metal, and glass should be made in advance with local brokers. Prices vary widely and are often not sufficient to pay for the cost of separation.

The author suggests that dumping fees be adequate to cover the disposal phase including capital outlays, a sinking fund to replace equipment, operating costs and disposing of the compost for at least two years while a market is developed for the product. The revenue derived from the sale of the compost should cover the by-product costs including final grinding, upgrading, marketing, granulating, bagging, etc. He noted that the principle use of compost is for agricultural purposes. It is expected that much useful information will be produced as a result of the Johnson City demonstration plant.

We had a very interesting question and answer period. Many pertinent questions were raised during the discussion period relative to the air pollution contributions of incinerators and tepee burners, the disposal of abandoned automobiles, the salvageability of refuse, the disposal of plastic wastes, the percentages of solid waste which is noncompostable, the potential heat value of refuse for use as a fuel, and the characteristic differences between American and European refuse. The importance of properly trained and compensated personnel was emphasized.

It is apparent that the technology is now available for the development of a nuisance-free solid wastes handling and disposal system for the Washington metropolitan area, and the Public Health Service, Solid Wastes Program which provides for research, demonstration grants, personnel training, etc., should further stimulate significant advances to the benefit of the Washington metropolitan area and the rest of the nation. This is the report of *Technology Today*.

## SUMMARY OF PANEL C: DEVELOPMENT OF A REGIONAL SOLID WASTE DISPOSAL PLAN

*Walter A. Scheiber, Panel Chairman*

AN ANALYSIS OF THE CONFERENCE PROGRAM makes it clear that the three panels are designed to complement each other, so that taken together, they will provide a comprehensive picture of the entire solid waste problem in the Washington metropolitan area.

Yesterday Mr. Tuchtan's panel dealt with the scope of our solid waste problem. Mr. Michaels' panel this morning provided a review of the state of our technology. And in Panel C, upon which I am reporting to you now, we discussed the factors to be considered in the development and in the implementation of a regional solid waste disposal plan.

In a sense, this facet of the problem is the most complex and the most delicate part of the entire equation, because it involves not only technical factors, but political, economic, and human considerations as well. As Dr. Stewart has said: "There is no technical barrier to sanitary and acceptable solid waste disposal. The barriers are chiefly political and economic."

In discussing the need for long-range planning to surmount these barriers, Paul Reid, Executive Director of the Detroit Metropolitan Area Regional Planning Commission, described the efforts in his metropolitan area to develop and implement an effective long-range solid waste management plan. He suggested that there were a number of general principles to be drawn from the Detroit experience which might be applicable within the Washington area, as well. Among these were the following: (1) that only a region-wide long-range plan, properly implemented, can work; (2) that a combination of landfill and incineration is a most appropriate disposal arrangement for a major urban area, such as the Detroit area or the Washington area; (3) that collection and transfer stations be spotted in the core area, and that highway and rail transportation be utilized to deliver waste and incinerator ash to landfills on the fringe; and (4) that a metropolitan-wide service agency be established to implement the plan.

Mr. Reid stated that in looking back on the Detroit experience since 1954 he believed that although their effort has been generally successful, there would be certain things the Detroit people might do differently if they were

given a second chance: (1) they would seek the aegis of a region-wide policy body such as the Metropolitan Washington Council of Governments and the new Council of Governments in the Detroit area as a sponsor for their efforts; (2) they would ask for joint and active support from the Department of Housing and Urban Development and Department of Health, Education, and Welfare in terms both of technical and financial assistance; (3) they would make greater use of citizens' advisory groups to work in parallel with the technical advisory committee in order to generate greater community cooperation; (4) they would work in closer conjunction with park and recreation specialists in developing landfill sites.

Our second speaker, Mr. Clark, who is Director of Works of the municipality of Metropolitan Toronto, described the experience of his city over the past fourteen years in developing an effective solid waste disposal program for a metropolitan region with almost exactly the same population as that of our area, that is approximately 2.5 million people. He described the structure of Metropolitan Toronto, which was created in 1953, and which is essentially a confederation of local governments in the Toronto region with operational and with regulatory powers significantly greater than those enjoyed by most American cities not excluding the District of Columbia. He pointed out that it had been recognized shortly after Metropolitan Toronto was created that solid waste disposal was a problem which should be solved on a regional basis. Notwithstanding this fact, during the first years of the Toronto experience refuse disposal remained the responsibility of the member municipalities. By 1965, however, the problems of solid waste disposal had become so great that the individual municipalities could no longer properly handle the waste disposal system. A Royal Commission was appointed in that year to study the problem and it recommended that the Metropolitan Corporation assume responsibility for all waste disposal in the area.

On January 1, 1967 solid waste disposal became the responsibility of the Metropolitan Corporation. All properties and equipment in use for solid waste purposes were transferred by the local governments to the Metropolitan Corporation without cost. And this is certainly a novelty for those of us who participate in American local government. The Corporation was given authority to acquire land for solid waste disposal purposes anywhere in the metropolitan area, which consists of approximately 700 square miles, subject to the approval of the municipality in which the land is located.

The major lesson to be learned from the Toronto experience, we think, is that a high degree of cooperation between this local community and the

regional body is an absolute must in a successful operation. Although the Canadian political and organizational structure is considerably simpler than ours in the United States, the Toronto experience demonstrates the high level of cooperation to which we in the Washington area must aspire.

Mr. Hugh Miels, our third speaker, a consultant associated with the firm of Harold F. Wise/Robert Gladstone, Associates of Washington, spoke about the public administration aspects of regional solid waste planning. He expressed the belief that mere cooperation among the local governments of the Washington area would not be a sufficient basis for the development of a comprehensive waste management program and he urged that immediate consideration be given to the creation of a new Interstate Compact Agency for the National Capital Area. He expressed the belief that such an agency must be structured to be jointly responsible to the local governments of the region, as did John Bosley in his remarks in Panel A. He indicated, however, that the creation of such an agency would take between two and four years to accomplish in his judgment and urged that work be begun immediately as a special project of the Metropolitan Washington Council of Governments.

While long-range work on a new compact agency, which requires the approval of the state legislatures of Maryland and Virginia as well as the Congress of the United States is under way, he suggested that interim action be taken by the Council of Governments in two directions: (1) getting the Kenilworth Dump closed, beginning the preparation of a comprehensive health plan for the Metropolitan area and developing abatement plans on stack emissions; (2) providing basic information regarding the range and intensity of existing and potential environmental health hazards.

Mr. Miels strongly urged that any compact agency created pursuant to the long-range negotiations should be associated with and a part of the Council of Governments, if possible.

Our final panel speaker, Richard D. Vaughan, Chief of the Environmental Sanitation Program of the National Center for Urban and Industrial Health, described Federal assistance available under the Solid Waste Disposal Act of 1965.

He told of the accelerated research and development program of grants in the field of solid waste, and various types of technical and financial assistance available to state, local and area-wide bodies.

Among the features of the Act which he felt to be important, he described the following: (1) demonstration grants for economic and technical innova-

tions in the solid waste field; (2) grants to develop area-wide solid waste systems; (3) grants for state surveys and the development of state-wide plans; (4) grants for research to establish new approaches in solid waste handling; (5) training grants; and (6) technical assistance to local and state governments with solid waste problems.

Mr. Vaughan reported on two grants recently made to the District of Columbia in connection with the design of Incinerator No. 5. He also reported that the states of Maryland and Virginia as well as the District had received grants to develop state surveys and state plans.

In closing, Mr. Vaughan stated that the Solid Wastes Program would welcome a proposal for a demonstration grant which would result in the replacement of the Kenilworth Dump with a model sanitary landfill operation and land reclamation project which would result in the development of an architecturally pleasing recreation site as well as the immediate cessation of open burning. He also told the panel that the Solid Wastes Program would welcome a proposal for design and demonstration of a modern solid waste management system for Metropolitan Washington, and suggested that such a proposal could be submitted by a body representative of the area, such as the Council of Governments. Such a project, he pointed out, would be eligible for up to two-thirds grant support under the Solid Waste Disposal Act.

As Panel C concluded, the panel chairman indicated his belief that the Council of Governments would respond affirmatively to this suggestion.

## CONFERENCE SUMMARY—A PATTERN FOR ACTION

*Leo Weaver*

A FEW SHORT WEEKS AGO, when we began the planning for this conference, we decided to list these concluding remarks in the program under the heading, *A Pattern for Action*.

Frankly, it somewhat worried me: how I or anyone else could presume to stand up here and spell out a pattern for action when our discussions and deliberations are barely concluded.

As it turns out this is not really such a difficult assignment. I think it is abundantly clear that the pattern for action to solve the solid waste management problem of the metropolitan Washington area is inherent in the problem itself. Our task is to remove whatever blinders may prevent us from taking a realistic look at this problem. When we do that, I think the outlines of a pattern for action become unmistakably clear.

This is a time to be realistic. We are striving to find a solution for a *real, tangible, sordid, and worsening* problem. But, we are no closer to solving it today than we were yesterday morning when Mr. Svore opened this Conference.

This afternoon and tomorrow afternoon, next week, next month, and perhaps next year, a match will kindle the fire at Kenilworth and prove once again that we have not yet begun to see and understand the solid waste problem of this community.

The fact that the District of Columbia has had to rely on an outrageous open burning dump for nearly a quarter of a century to meet much of its solid waste disposal needs proves beyond any doubt that this community is playing a dangerous game of self-deception.

And not only the Federal City is playing the game. The communities in Maryland and Virginia that ring the City of Washington are equally guilty of self-deception when they blithely berate the District for the Kenilworth disaster, and yet do virtually nothing to help bring it to an end.

And the self-deception goes deeper than that for these same surrounding jurisdictions — some of the most rapidly growing urban areas in the country — will face the same kind of problem which now plagues the District of Columbia.

Where will these suburban areas turn when their waste disposal problems equal or dwarf those of the District? The time when we will be forced to answer that question is not far off.

And while we are being realistic, let's not kid ourselves into the comfortable notion that the Kenilworth Dump is the sum and substance of the Metropolitan Washington solid waste problem. The dump is the scapegoat. It is the most obvious, tangible proof. But it is not the whole problem.

What about outmoded and poorly operated municipal incinerators? What about single-chamber, flue-fed incinerators? What about open dumping and open burning in all parts of this region? Can we turn our backs on these offenses as though the plume of smoke from Kenilworth hid them all?

The answer is obvious.

If there has been one overriding viewpoint taken by speakers at this Conference it is that solid waste management is a regional problem which must be solved by a systematic, regional approach. Some speakers have given lip service to this idea — others have made it the major premise of their remarks.

But regionalism is not a pattern for action. What I want to do in the few minutes before the fire at Kenilworth obscures our view is try to suggest what seemed to me to be transcendent goals that will have to be carved out and met both for the short- and long-term solution of the solid waste problems of this area.

Goal number one: stop forever the burning at Kenilworth. Put the fire out 30 days from today and let it never be lighted again.

It is incredible that every single person, be he public official or not, who has any knowledge of or responsibility for the Kenilworth Dump wants the burning to stop. And yet it goes on. I say our first goal must be an end to the fire at Kenilworth no more than one month from today.

Goal number two: as soon as the fire is out, begin a sanitary land reclamation operation at Kenilworth that will demonstrate to the entire community what *can* be accomplished when the best available technology moves in to replace the worst. Let the District of Columbia, with whatever outside help it needs, make Kenilworth a symbol to the people of this entire region of what *can* be accomplished when the problem of solid waste disposal is dealt with scientifically and in the best public interest.

We need more parks and recreational facilities in Washington. Let's make

one out of the disgrace that is the Kenilworth Dump. The Public Health Service is ready to do whatever it can toward this goal.

For goal number three the District of Columbia should proceed immediately with the development of plans for an interim replacement for the Kenilworth Dump. If that replacement is to be located at Muirkirk, Maryland, let the District develop and submit for public scrutiny a plan to use that site for the benefit of the people.

I have to say in all candor that the residents of Muirkirk have every reason to *fear* what might happen if their community is used for disposal of solid wastes from the District of Columbia. But we know that a landfill operation at Muirkirk, or anyplace else in this area, can be conducted in a way that will enhance, rather than degrade, the surrounding community.

Let us begin now to earn the confidence of the people whose help and understanding are needed. And then let us repay that confidence with a waste disposal operation that is of the highest possible calibre.

It can be done.

Goal number four: the governments serving the people of the metropolitan Washington area, which share what we all agree is a regional solid waste management problem, should immediately come together, probably under the auspices of the Metropolitan Washington Council of Governments, to create a permanent commission responsible for coordinating the solid waste disposal programs of the region, monitoring operations, reviewing plans, setting immediate and long-term goals, and promoting a coordinated regional system for solid waste management in the metropolitan Washington area.

Such a commission should undertake, as one of its major tasks, the development of an interstate compact governing solid waste disposal and perhaps other environmental health problems in the metropolitan area of Washington. I see no reason why such a commission could not be operating by the first of the year. I assure you the Public Health Service will provide every ounce of assistance it can to make this goal possible.

In a few minutes this conference will be over. It can have accomplished a great deal — or nothing. It can have been the first, long overdue step toward control of one of this area's most serious environmental health problems. Or it can have been only an exercise in futility.

But let me say only this. If a realistic look at the solid waste problem

brings into sharp focus a pattern for action, it also shows us with painful clarity what will happen if we *fail* to act.

Each of us knows what his professional training, political acumen, and good common sense tell him must be done to solve the solid waste problems of this community. Our pattern for action is to do what is right, and do it now.

## CONFERENCE ADJOURNMENT

*Jerome H. Svore*

IN THE AREA of water pollution control in the past few years we have heard various figures of what it is going to take to clean up the water environment of this nation. Just to separate sanitary sewers from the storm sewers is estimated to require about 30 billion dollars. Treatment plant construction alone calls for grants on the Federal level of 5 to 6 billion dollars which will be matched locally. This doesn't even begin to solve the pollution problems of agricultural drainage, return flows from irrigation, and the industrial wastes of the nation. This indicates the level that we are talking about as far as this type of pollution is concerned; and that's only one pollution!

We had an example of the Senate's indication of how they felt about air pollution when they authorized a 700-million-dollar program on a matching basis with regional areas, municipalities and others. This does not include the cost of what industry is going to have to do to solve their problem; and that's the second pollution.

Certainly, the third pollution is going to require similar resources. I think that many of us in the professional business of pollution control over the years have been lagging behind public opinion in many instances. I certainly hope that as a result of this conference the necessary impetus will be given to the situation in the Metropolitan Washington Area, so that we can go forward with correcting the present situation.

Are there any comments from anyone from the floor? I give you an opportunity at this time.

**NORMAN E. JACKSON\***: I have no prepared speech, nor do I have a place on this program. But I felt that there should be someone from the District of Columbia to say just a word in parting that we are not really what you may have been led to believe we are. We are just as much interested in solving this problem as you. I am a resident of the District of Columbia. I take no great pride in Kenilworth, nor, do I think, does the Engineer Commissioner or any other officials of the District of Columbia. We are very much interested in getting your help.

Let me assure you that the people in the District of Columbia are work-

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\* Norman E. Jackson, Government of the District of Columbia, Washington, D.C.

ing toward this problem. We have been at it quite a while. We suggested undulating the contours of Kenilworth landfill — some years ago — that was unacceptable; maybe we did not have the proper persuasiveness. But we do need the help of not only the people in the District, but those in the outlying areas. We proposed the use of Muirkirk as you heard today. Prince Georges County has our proposal before it for consideration at the present time. But I think that of all things we need to point out, the most important is that those areas or those portions of the District which cannot go any further than their present bounds for those areas needed to solve its problems and in this we must have the help of the outside areas. We have much work to do on our part as well; to better our operation, to improve our methods of doing things. This we are willing to do.

Mr. Chairman, thank you very much for the opportunity of letting these people know that we are interested in this, and that the District, at least in the closing moments, has had opportunity to present its viewpoint. Thank you very much.

MR. SVORE: We sincerely appreciate those words of your Mr. Jackson, and I am sure that any support that this conference ultimately gives you will be appreciated. If there are no further comments, this meeting will stand adjourned and we thank you all for coming.