



Testimony

Before the Subcommittee on Oceanography, Great Lakes, and
Outer Continental Shelf, Committee on Merchant Marine and
Fisheries
House of Representatives

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WATER POLLUTION

Ocean Dumping Fee Program Is Meeting Statutory Requirements

Statement of
Richard L. Hembra, Director
Environmental Protection Issues
Resources, Community, and Economic Development Division



Dear Mr. Chairman and Members of the Committee:

We appreciate the opportunity to provide the results of our review in response to your request for information on the collection and disposition of fees authorized by the Ocean Dumping Ban Act of 1988. Ocean dumping fee requirements were established to encourage and assist sewage authorities that dump sludge to develop and implement alternative measures for disposing of their sludge. Specifically, you asked us to determine (1) how much sludge had been dumped in the ocean in calendar years 1989 and 1990, (2) whether the correct fees were collected and deposited in the proper accounts, and (3) what specific activities were funded with the fees collected. In addition, we examined some of the problems facing these sewage authorities in developing long-term alternatives for sludge disposal.

In summary, Mr. Chairman, we found that:

- Between August 15, 1989 (when ocean dumping fee requirements became effective) and December 31, 1989, 132,424 tons of sewage sludge were dumped at the 106-Mile Site. In calendar year 1990, 354,700 tons were dumped at the site.
- Ocean dumping fees paid by the sewage authorities in 1989 and 1990 totalled about \$77 million, generally equaled or exceeded the amounts required by the dumping ban act, and were deposited in the proper accounts.
- The fees collected were used for purposes consistent with the requirements of the act, including developing and implementing land-based sludge disposal alternatives, and research, monitoring, and surveillance of ocean dumping activities.

While sewage authorities have generally been successful in developing short-term alternatives to ocean dumping that could be implemented by the December 31, 1991 statutory deadline, they also need to develop and implement long-term alternatives that will provide a more permanent solution. The long-range alternatives to the ocean dumping of sewage sludge may face some potentially difficult challenges. Opposition by local residents, for example, has thwarted plans to construct incinerators to burn the sludge. In addition, those who plan to market sludge as a soil conditioner, or fertilizer, or for other beneficial purposes will have to meet stringent pollution requirements and establish a steady market for their sludge products.

Before I discuss these issues in more depth, let me briefly provide some information on ocean dumping of sewage sludge.

BACKGROUND

When the Ocean Dumping Ban Act was enacted in November 1988, one ocean dumping site was authorized by the Environmental Protection Agency (EPA) for the dumping of sewage sludge, and nine sewage authorities were authorized to use this site. That site was the 106-Mile Deepwater Municipal Sludge Site, located off the coast of New Jersey. Designated in 1984, disposal operations began in 1986, and by late 1987, nine sewage authorities (three in New York and six in New Jersey) were using it.

Although the specific characteristics of sludge vary, the material dumped at the 106-Mile Site is primarily biological in nature. Biological sludge may contain small amounts of debris, such as grit, paper, and fibers; trace levels of organic contaminants such as aldrin, dieldrin, chlordane, DDT and its degradation products, and polychlorinated biphenyls or PCBs; and metals, such as cadmium, copper, chromium, and mercury. Because these contaminants can adversely affect marine life and human health, and because the sludge can travel great distances in ocean currents before settling to the ocean floor, ocean dumping activities at the 106-Mile Site require continuous management and monitoring by EPA, the National Oceanic and Atmospheric Administration (NOAA), and the Coast Guard.

The Ocean Dumping Ban Act set December 31, 1991, as the date for all sewage authorities in the United States to cease dumping sludge into the ocean. The act required the authorities to sign an agreement with EPA and their respective states to phase out ocean dumping and to obtain a new ocean dumping permit from EPA (or terminate ocean dumping) within 270 days of act's passage. All nine sewage authorities signed agreements to phase out ocean dumping and obtained dumping permits by the August 15, 1989, deadline.

Sewage authorities agreed to develop interim land-based alternatives to ocean dumping that could be implemented as soon as possible and long-term alternatives that would provide a more permanent solution. The interim alternatives generally consist of dewatering the sludge to reduce its volume and trucking it to landfills. Among the long-term alternatives selected by the authorities are incineration and various forms of beneficial uses, such as direct application on land and use as a fertilizer additive or soil conditioner.

The act requires the authorities to pay fees for each dry ton of sludge they dump in the ocean between August 15, 1989, and December 31, 1991. Since the moisture content of sludge can vary considerably, using dry tonnage as the unit of measure means that authorities are only assessed fees for the actual solids content of their sludge. Ocean dumping fees increased from \$100 per dry ton in 1989 to \$150 per dry ton in 1990, and to \$200 per dry ton in

1991. For any ocean dumping continuing after December 31, 1991, sewage authorities will face significantly increased charges. The act imposes penalties on the sewage authorities, beginning with \$600 per dry ton in 1992 and increasing in subsequent years.

The fees collected under the act are placed in separate accounts to be used in specific ways. Eighty-five percent of the fees are to be deposited in trust accounts set up by the sewage authorities to pay for the development and implementation of alternative measures for waste disposal, such as landfill, incineration, or conversion of waste to beneficial uses. Of the remaining 15 percent, \$15 per dry ton is paid to EPA and evenly split between EPA, NOAA, and the Coast Guard to pay for the following responsibilities. EPA is responsible for negotiating agreements for terminating ocean dumping, granting ocean dumping permits, and monitoring sewage authority compliance with the agreements and permits. NOAA's task is to monitor the impact of ocean dumping activities on the environment. The Coast Guard is responsible for surveillance of ocean dumping activities. To coordinate these separate efforts, the three agencies jointly developed a monitoring and surveillance plan and signed a memorandum of understanding specifying each agency's responsibilities for the management and oversight of ocean dumping activities.

After the fees are paid to the trust accounts and the federal agencies, any balance is divided evenly between state Clean Oceans Funds and water pollution control revolving funds of the states where the sludge originates (i.e., New York or New Jersey). Deposits in Clean Oceans Funds are returned annually to the sewage authorities, with interest, to pay for the development and implementation of ocean dumping alternatives. Deposits in state revolving funds are used by the states to fund loans to municipalities for water pollution control projects. A chart depicting the collection and disposition of ocean dumping fees is included in attachment I.

We conducted our review at EPA headquarters and Region II in New York City, NOAA headquarters, Coast Guard headquarters, state agencies in New York and New Jersey responsible for ocean dumping activities, and two of the nine sewage authorities disposing of sewage sludge in the ocean. We also discussed with federal, state, and sewage authority officials the feasibility of proposed long-term alternatives to ocean dumping.

SEWAGE SLUDGE VOLUME

Between August 15, 1989, when ocean dumping fees became effective, and December 31, 1990, the nine sewage authorities reported dumping 487,124 dry tons of sewage sludge into the ocean. (The tonnage for each authority is shown in attachment II.) The six New Jersey authorities ceased ocean dumping in March 1991, and

two of the three New York authorities plan to cease ocean dumping by December 31, 1991. The third New York authority--New York City--plans to cease ocean dumping of 20 percent of its sludge by December 31, 1991, and the balance by June 30, 1992. In accordance with the act, ocean dumping continuing after December 31, 1991, is subject to penalties of \$600 per dry ton.

EPA's process for determining dry tonnage for the purpose of assessing fees appears reasonable. EPA-approved inspectors take readings to determine the gallons of sludge placed on board a barge at each sewage treatment plant, and EPA-approved shipriders take similar readings when the barge is loaded and ready to leave for the ocean dumping site. Each of these individuals files certified reports with EPA on the volume of sludge they recorded. Samples are taken of the sludge loaded at each facility and tested by EPA-approved laboratories to determine the percentage of solids in the sludge. The gallons of wet sludge reported by the inspectors and shipriders are mathematically converted to wet tons, and the percentage of solids is then used to compute the dry tons of sludge dumped in the ocean.

According to EPA officials, another indicator of the accuracy of sludge reported dumped in the ocean is historical data. The nine sewage authorities have been dumping sludge in the ocean for many years. While it is normal to see fluctuations in sludge generated as new areas are hooked up to sewers and as industries change processes that affect the volume of discharges to the sewers, EPA officials noted no significant variations in sludge volume reports when the ocean dumping fees went into effect.

FEE PAYMENTS

Ocean dumping fees are due by the end of the month following the quarter in which the dumping occurred. Thus, fees paid in calendar year 1989 were based on sludge dumped between August 15, 1989, when the fee requirements became effective, and September 30, 1989. Similarly, fees paid in calendar year 1990 were based on sludge dumped between October 1, 1989, and September 30, 1990.

In 1989 and 1990, the nine sewage authorities paid a total of \$76.7 million into the ocean dumping fee accounts. Of this amount, \$68.7 million was deposited in individual sewage authority trust accounts, \$2 million was deposited in the states' Clean Oceans Funds and revolving funds, and \$6 million was paid to EPA for use by EPA, NOAA, and the Coast Guard. The breakdown of fees paid by each of the sewage authorities into these accounts is shown in attachments III through VI.

USES OF OCEAN DUMPING FEES

The Ocean Dumping Ban Act specifies permitted uses of fees deposited in the separate accounts. We found that the fees were used for purposes consistent with the requirements of the act.

Uses of Trust Account Fees

To ensure that ocean dumping fees deposited into trust accounts are used to develop and implement ocean dumping alternatives, EPA requires sewage authorities to submit plans covering a 6-month period, detailing the work to be performed and including a payout schedule for trust account withdrawals. These plans are geared to accomplishing specific segments of work in accordance with time-phased schedules in each authority's agreement. Upon EPA's approval of the plans, the authorities are free to withdraw trust account moneys in accordance with the payout schedule.

EPA does not verify that sewage authorities actually use moneys withdrawn from trust accounts in accordance with their approved work plan. Rather, EPA monitors authorities' progress in developing and implementing ocean dumping alternatives in accordance with time-phased schedules in each authority's agreement. According to EPA officials, as long as the sewage authorities remain on schedule, they believe there is little likelihood that trust account moneys are not being used in accordance with the dumping ban act requirements.

To check the validity of EPA's assertion, we reviewed the actual uses of trust account funds by two of the largest sewage authorities--Nassau County in New York and Passaic Valley in New Jersey. We found that both had properly used trust account moneys for EPA-approved expenditures, consistent with the Ocean Dumping Ban Act. During 1989 and 1990, Nassau County deposited \$2.27 million in its trust account and withdrew \$479,610. In accordance with its EPA-approved scope of work and payout schedule, the county used this money to evaluate proposals from private vendors for land-based management of sludge; assess the environmental impacts of the recommended plan; implement a public participation program to involve the public in the decision-making process for this plan; and complete a feasibility study for sludge disposal from one of the county's three sewage treatment plants.

Passaic Valley had deposited \$16.7 million in and withdrawn the same amount from its trust account as of December 31, 1990. These moneys were used for designing and constructing sewage sludge dewatering facilities for an interim land-based sludge disposal alternative, and developing plans for a sludge incinerator for the authority's long-term sludge disposal alternative.

Uses of Clean Oceans Funds

There were no withdrawals from the New York and New Jersey Clean Oceans Funds in calendar years 1989 or 1990. Under the act's fee structure, sewage authorities did not begin depositing fees in these accounts until 1990. Since these fees are retained in Clean Oceans Funds for up to 1 year before being returned to the sewage authorities, the first use of these fees did not occur until 1991.

We also reviewed the use of Clean Oceans Funds returned by the states in 1991. We found that for Nassau County and Passaic Valley, Clean Oceans Funds were used to supplement trust account moneys for expenditures approved by EPA.

Uses of State Revolving Funds

As with Clean Oceans Funds, ocean dumping fee deposits to state revolving funds did not begin until 1990. As of December 31, 1990, deposits to the New York fund totaled \$438,744; no funds had yet been used. Of the \$555,457 paid into the New Jersey fund, \$317,749 was obligated for a loan to the Middlesex County Utilities Authority to help pay for a new sewage sludge dewatering facility needed for land-based disposal of sludge.

Uses of Ocean Dumping Fees by EPA, NOAA, and the Coast Guard

Ocean dumping fees were first paid to EPA in November 1989. EPA distributed these fees to NOAA, the Coast Guard, and the EPA office responsible for ocean dumping activities in February 1990, after procedures were established to transfer the moneys to the agencies. During calendar year 1990, each of the agencies received a total of \$1.99 million. We found that each agency used its portion of the fees for activities consistent with the requirements of the dumping ban act.

During 1990, EPA obligated about \$1.52 million of its ocean dumping fees, leaving an unobligated balance of about \$465,915 as of December 31, 1990. The activities EPA supported with ocean dumping fees included (1) administrative activities associated with implementation of the dumping ban act, (2) technical assistance projects to help sewage authorities develop and implement alternative disposal mechanisms, (3) activities related to the restoration of a previously used, closer to shore ocean dumping site, (4) research and monitoring activities conducted jointly with NOAA, and (5) enforcement of its agreements with the sewage authorities and of their dumping permits.

NOAA used its portion of ocean dumping fees for research and monitoring of physical conditions and effects of sludge dumping at the 106-Mile Site. Of the \$1.99 million in ocean dumping fees

received by NOAA in calendar year 1990, NOAA obligated about \$1.39 million through December 31, 1990, to support these activities.

NOAA's physical oceanography studies focus on the physical and chemical fate of the sewage sludge. The major objectives of these studies are as follows:

- Examining the general water circulation patterns in the area of the 106-Mile Site and seaward as they affect the long-term, far-field transport of sludge constituents.
- Examining the characteristics and relationships between ocean current, surface temperature, and other water conditions in and near the dumpsite.
- Developing a better understanding of the accuracy of present estimates of sludge settlement patterns, the relationship between these patterns and the results of biological/chemical surveys, and the relationship of both to modeling results.

NOAA also initiated biological/chemical studies to determine the effects of sludge dumped at the 106-Mile Site on marine life at the site and elsewhere in the area, and what threat dumping poses to human consumers of these resources or to other users of the Bight's resources.

During calendar year 1990, the Coast Guard obligated about \$1.97 million of its ocean dumping fees for the surveillance of ocean dumping activities, leaving an unobligated balance of \$22,096 as of December 31, 1990. The majority of these obligations supported purchases and operations (aircraft, vessels, personnel, and administration) for the Coast Guard's ongoing Ocean Dumping Surveillance System program. Beginning in fiscal year 1991, the Coast Guard's budget was reduced by the amount of anticipated ocean dumping fees. For the first quarter of fiscal year 1991, about \$451,355 in ocean dumping fees was used to offset the budget reduction.

LONG-RANGE ALTERNATIVES TO OCEAN DUMPING ARE UNCERTAIN

The Ocean Dumping Ban Act requires that the ocean dumping of sludge cease by December 31, 1991. Anticipating that the sewage authorities would be unable to develop permanent, land-based alternatives for sludge disposal by the deadline, agreements were negotiated by EPA and the states with each of the authorities to develop and implement both interim alternatives and long-term alternatives that could provide a more permanent solution.

Interim alternatives selected by the authorities generally consist of drying the sludge and trucking it to landfills. Since

landfill capacity is limited, EPA does not consider this alternative viable over the long term.

Among the long-term alternatives selected by authorities are incineration and various forms of beneficial uses, such as direct application on land and use as a fertilizer additive or soil conditioner. Public opposition to incinerators, changes in regulations governing beneficial uses of sludge, and availability of markets for sludge products have all contributed to uncertainties regarding the implementation of these long-term alternatives.

Constructing incinerators has evoked strong public opposition in communities proposing this long-term alternative because of concerns over air quality and odor. Originally, five sewage authorities selected the incineration option. Because of the public opposition to incineration, however, these authorities investigated beneficial use options instead. Currently, it appears that one of the five will proceed with incineration while four may be able to implement beneficial-use alternatives.

However, while beneficial-use alternatives for long-term disposal of sludge are desirable and encouraged by EPA and the states, they also face a number of barriers. First, they will have to meet stringent new pollution requirements scheduled to take effect in 1992. Presently, those using sludge for beneficial uses must comply with existing state or federal contaminant levels to determine whether their sludge can meet health and environmental protection requirements. In February 1989, EPA proposed regulations that would substantially strengthen these limits. As we reported in March 1990, however, many state sludge program officials, treatment plant officials, and scientists expressed concern that EPA's proposed regulations were so stringent that they would reduce or eliminate beneficial uses of sludge.¹ We reported that a survey by the Association of Metropolitan Sewerage Authorities found that only 1 of the 25 responding treatment plants with beneficial-use programs could continue if EPA's regulations were implemented.

On the basis of revisions recently made to the proposed regulations, EPA officials, state sludge program officials, and officials of the sewage authorities planning on implementing beneficial uses now believe that EPA's final regulations will not be so stringent as to preclude beneficial use. However, until the final regulations are issued, their impact cannot be assessed.

Even if EPA's final sludge regulations do not preclude beneficial uses, an effective beneficial-use program requires a

¹Water Pollution: Serious Problems Confront Emerging Municipal Sludge Management Program (GAO/RCED-90-57, Mar. 5, 1990).

steady market for the sludge product. With many sewage authorities considering beneficial-use options, some authorities are concerned that the market for sludge products could quickly become saturated. To reduce the impact of such market fluctuations for sludge products, some authorities are planning to implement a variety of beneficial uses. New York City, for example, plans to market some of its sludge as a fertilizer additive, some as a landfill cover, and some for direct land application on permitted farms and rangelands.

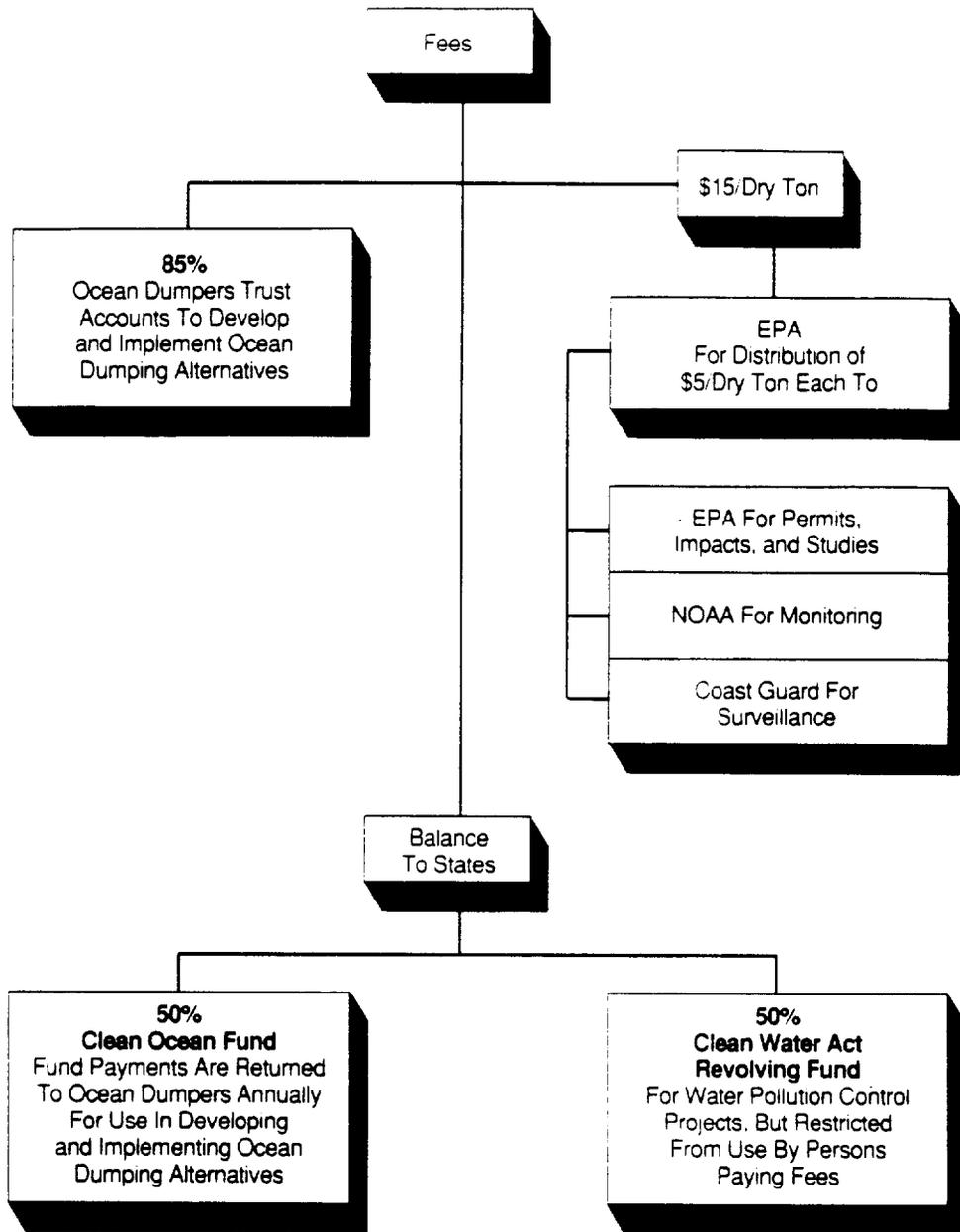
Thus, achievement of the act's goal of finding alternatives to ocean dumping of sludge depends on the ability of sewage authorities to surmount a number of potential obstacles. While some of these obstacles may not be as insurmountable as once anticipated, finding environmentally safe alternatives to ocean dumping will likely pose challenges to sewage authorities in the future.

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In summary, Mr. Chairman, we found that the collection and disposition of ocean dumping fees has been implemented in accordance with the provisions of the Ocean Dumping Ban Act. We also found that implementing long-term alternatives to ocean dumping faces some formidable challenges.

This concludes my prepared statement and our reporting on this issue. We would be pleased at this time to respond to any questions.

PAYMENT OF OCEAN DUMPING FEES



SEWAGE SLUDGE DUMPED IN OCEAN
(Dry Tons)

<u>Sewage Authority</u>	Aug. 15, 1989 to <u>Dec. 31, 1989</u>	Jan. 1, 1990 to <u>Dec. 31, 1990</u>	<u>Total</u>
New York City	46,622	123,441	170,063
Nassau County	7,337	17,066	24,403
Weschester County	5,011	13,244	18,255
Passaic Valley	50,490	134,392	184,882
Middlesex County	13,936	40,779	54,715
Bergen County	4,221	11,566	15,787
Joint Mtg. of Essex & Union Counties	2,725	8,511	11,236
Rahway Valley	1,553	3,905	5,458
Linden Roselle	<u>529</u>	<u>1,796</u>	<u>2,325</u>
Total	<u>132,424</u>	<u>354,700</u>	<u>487,124</u>

TOTAL OCEAN DUMPING FEES
AUGUST 15, 1989, THROUGH DECEMBER 31, 1990

<u>Sewage Authority</u>	<u>Amount Due</u>	<u>Amount Paid</u>	<u>Over/(Under) Payment</u>
New York City	\$18,414,083	\$18,735,145	\$ 321,062
Nassau County	2,671,117	2,671,117	
Westchester County	2,048,514	2,048,514	
Passaic Valley	19,657,469	19,639,120	(18,349)
Middlesex County	6,037,047	6,037,047	
Bergen County	1,729,944	1,729,944	
Joint Mtg. of Essex & Union Counties	1,247,958	24,897,719	23,649,761
Rahway Valley	618,908	626,236	7,328
Linden Roselle	<u>272,335</u>	<u>272,335</u>	
Total	<u>\$52,697,375</u>	<u>\$76,657,177</u>	<u>\$23,959,802</u>

Note: See notes in appendixes IV through VI for explanations of over/(under) payments.

PAYMENTS OF OCEAN DUMPING FEES TO TRUST ACCOUNTS,
AUGUST 15, 1989, THROUGH DECEMBER 31, 1990

<u>Sewage Authority</u>	<u>Amount Due</u>	<u>Amount Paid</u>	<u>Over/(Under) Payment</u>
New York City	\$15,651,970	\$15,924,866	\$ 272,896
Nassau County	2,270,449	2,270,449	
Weschester County	1,741,237	1,741,237	
Passaic Valley	16,708,848	16,690,499	(18,349)
Middlesex County	5,131,490	5,131,490	
Bergen County	1,470,452	1,470,452	
Joint Mtg. of Essex & Union Counties	1,060,764	24,710,525	23,649,761
Rahway Valley	526,071	533,399	7,328
Linden Roselle	<u>231,485</u>	<u>231,485</u>	
Total	<u>\$44,792,766</u>	<u>\$68,704,402</u>	<u>\$23,911,636</u>

Notes: 1. New York City bases its fee payments on the actual volume of sludge dumped in the first 2 months of a calendar quarter and an estimated amount for the third month of the quarter. The next quarterly payment is then adjusted to reflect the proper fees for the prior quarter, on the basis of the actual amount of sludge dumped. The excess fee payments are attributable to this sludge-estimating practice.

2. The shortage in trust account deposits by Passaic Valley was due to a clerical error.

3. With EPA concurrence, Joint Meeting established a multipurpose trust account to deposit the required ocean dumping fees and to pay for developing and implementing its ocean dumping alternative system for disposal of sludge. Thus, deposits to the trust account exceeded the minimum amounts required on the basis of the volume of sludge dumped in the ocean.

4. Rahway Valley mistakenly deposited \$7,328 intended for EPA to its trust account.

PAYMENTS OF OCEAN DUMPING FEES TO STATES'
CLEAN OCEANS FUND AND REVOLVING FUND,
AUGUST 15, 1989, THROUGH DECEMBER 31, 1990

<u>Sewage Authority</u>	<u>Amount Due</u> <u>Each Fund</u>	<u>Amount Paid</u> <u>Each Fund</u>	<u>Over/(Under)</u> <u>Payment</u>
New York City	\$343,800	\$351,623	\$7,823
Nassau County	48,435	48,435	
Weschester County	38,686	38,686	
Passaic Valley	365,211	365,211	
Middlesex County	116,087	116,087	
Bergen County	32,696	32,696	
Joint Mtg. of Essex & Union Counties	24,386	24,386	
Rahway Valley	11,590	11,590	
Linden Roselle	<u>5,487</u>	<u>5,487</u>	
Total	<u>\$986,378</u>	<u>\$994,201</u>	<u>\$7,823</u>

Note: New York City bases its fee payments on the actual volume of sludge dumped in the first 2 months of a calendar quarter and an estimated amount for the third month of the quarter. The next quarterly payment is then adjusted to reflect the proper fees for the prior quarter, on the basis of the actual amount of sludge dumped. The excess fee payments are attributable to this sludge-estimating practice.

PAYMENTS OF OCEAN DUMPING FEES TO EPA,
AUGUST 15, 1989, THROUGH DECEMBER 31, 1990

<u>Sewage Authority</u>	<u>Amount Due</u>	<u>Amount Paid</u>	<u>Over/(Under) Payment</u>
New York City	\$2,074,512	\$2,107,032	\$32,520
Nassau County	303,798	303,798	
Weschester County	229,905	229,905	
Passaic Valley	2,218,197	2,218,197	
Middlesex County	673,383	673,383	
Bergen County	194,099	194,099	
Joint Mtg. of Essex & Union Counties	138,422	138,422	
Rahway Valley	69,657	69,657	
Linden Roselle	<u>29,877</u>	<u>29,877</u>	
Total	<u>\$5,931,850</u>	<u>\$5,964,370</u>	<u>\$32,520</u>

Note: New York City bases its fee payments on the actual volume of sludge dumped in the first 2 months of a calendar quarter and an estimated amount for the third month of the quarter. The next quarterly payment is then adjusted to reflect the proper fees for the prior quarter, on the basis of the actual amount of sludge dumped. The excess fee payments are attributable to this sludge-estimating practice.

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