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STATEMENT OF

Harry R. Finley, Associate Director

NATIONAL SECURITY AND

INTERNATIONAL AFFAIRS DIVISION

before the

Subcommittee on Environment, Energy, and Natural Resources

of the

House Government Operations Committee

We are pleased to be here today to discuss hazardous waste management at Tinker Air Force Base, a major military industrial installation. The largest industrial activity at Tinker is the Oklahoma City Air Logistics Center which manages aircraft, missiles, 15 kinds of aircraft engines, and about 124,000 accessory items. It overhauls and modifies more jet engines than any other facility in the free world. During fiscal year 1983, $561 million was spent on in-house maintenance operations.

In addition to the Air Logistics Center, some 40 other organizations are based at Tinker. Among these are the main operating base for the Airborne Warning and Control aircraft and the 507th Tactical Fighter Group.

Because of its maintenance and overhaul activities, Tinker is a major generator of hazardous waste. Hazardous waste is defined in law as waste, which because of its quantity; concentration; or physical, chemical, or infectious characteristics, may cause or contribute to an increase in mortality or pose a substantial hazard to human health or the environment when improperly treated, stored, transported, or disposed of. At Tinker, these include solvents (chloroethylenes or chloroethanes which are believed to be carcinogenic), acids, corrosives, paint strippers and thinners, oils, and heavy metals (chromium, lead, cadmium).

It is Department of Defense (DOD) policy that the military services will limit the generation of hazardous waste by adopting processes and procedures that minimize its production and maximize treatment, reuse, and recycling.

At the request of Chairman Synar, we started a review to evaluate hazardous waste management at Tinker. Thus far we have found several problems in the management of hazardous wastes at Tinker, which are contributing to the pollution of surface and

ground water in and around the base and inhibit the implementation of DOD policy. Many of these problems persist because Tinker has no centralized management group with sufficient authority to identify and resolve these problems. I will discuss some issues in three general areas that we are developing for our final report, which we expect to issue in early 1985. These areas are: reducing hazardous waste generation through treatment and recycling; problems associated with the full and effective utilization of the industrial waste treatment plant; and, improvements which are needed in the monitoring and control of hazardous waste disposal.

HAZARDOUS WASTE COULD BE REDUCED BY TREATMENT OR RECYCLING

Tinker and the Defense Property Disposal Office (DPDO) spent at least $1.15 million for the disposal of hazardous waste for the year ending July 31, 1984. Manifests, the primary document for tracking the transportation and disposal of hazardous waste, show that the following amounts of hazardous waste were disposed of during the 11-month period ending June 30, 1984.

1,873,835 gallons of liquid in bulk
1,544 55-gallon drums of liquid
649 tons of sludge
1,108 cubic yards of solids

In our review we found that Tinker is disposing of much of these hazardous wastes off-base without treating or recycling them. From an environmental and cost standpoint, it is more attractive to reduce the volume of hazardous waste requiring disposal. On the basis of our work to date, we believe Tinker is not effectively accomplishing this alternative as illustrated by the following examples.

--Tinker employees unnecessarily co-mingle waste paint with waste paint thinner. In the 11-month period ending June 30, 1984, 278 drums of contaminated thinner were shipped to disposal sites at a cost of $16,124. If the paint thinner and the waste paint had been properly segregated the DPDO could have sold the paint thinner.

--Various type of waste oils are unnecessarily co-mingled, greatly reducing their value or preventing their sale, and leaving only the disposal option.

--372,225 gallons of chemicals were shipped to off-base injection wells at a cost of $158,000 rather than treated at the base plant which was operating below capacity.

--125,650 gallons of phenol contaminated wastewater from the wash rack and painting shops were hauled to off-base disposal sites at a cost of $41,000 rather than to the treatment plant.

Recycling, re-utilization and sales

Tinker generates waste solvents covered by DOD's Used Solvent Elimination program in large quantities but has no current in house recycling program for these substances. Tinker has been transfering waste calibration fluid to the Department of Energy; and selling waste oils, fuels and solvents to firms that recycle and re-utilize them. Tinker also plans to recycle some hazardous waste in house starting in 1985.

Officials of firms that procure Tinker's waste oils, fuels, and solvents state that contamination is a major problem. For example, they state that some of Tinker's:

--waste paint thinner cannot be recycled with their equipment due to the large amount of waste paint it contains,

--waste oils of various types are often co-mingled preventing them from being re-refined and thus reducing their value because they can only be sold for boiler fuel, and

--waste chloroethylenes are co-mingled with chloroethane making recycling uneconomical.

Tinker plans to procure the necessary equipment in 1985 for recycling:

--calibration fluid now being used as a boiler fuel by the Department of Energy,

--machine coolant presently being hauled to injection wells, and

--chloroethylenes and chloroethanes now being sold to recyclers.

However, Tinker has no plans to recycle other hazardous wastes such as paint thinner and acetone, which are covered by DOD's Used Solvent Elimination program and are generated in large quantities.

Tinker uses JP-5 fuel to purge JP-4 from the tanks and fuel controls of aircraft awaiting repairs. Currently the JP-4 is allowed to evaporate off the resulting JP-4/JP-5 mixture so the JP-5 can be reused in the purging operation. Rather than evaporate the JP-4 from the JP-4/JP-5 mixture, one option, according to Tinker officials, is to combine the JP-4/JP-5 mixture with JP-4 in the correct proportions, to use as aircraft fuel.

However, Tinker officials stated that the lack of a transport truck, and the inability to obtain additional JP-5, have prevented them from doing this to date.

INDUSTRIAL WASTE TREATMENT PLANT

Underutilization of the plant

Tinker is incurring unnecessary risk to the environment and disposal costs by disposing, in injection wells, waste chemicals that could be treated at the industrial waste treatment plant. The Tinker plant uses only 700,000 to 800,000 of its 1.5 million gallon per day capacity. We will discuss the problems Tinker has had with the plant further in our statement. However, it is clear that, with action to correct these problems and with a dedication to utilize the capacity of the plant, Tinker could reduce the disposal risks and costs now being incurred.

Tinker officials state that the decision to discontinue treating the waste concentrated chromic and cyanide acids from the plating shops and the waste concentrated chemicals (phosphoric acid, potassium permanganate, and alkaline cleaners) from the engine parts chemical cleaning facility was based on one of the recommendations in an Air Force Engineering and Services Laboratory report, dated June 1981.

That report noted that the concentrated waste chromic and cyanide acids were allowed to flow directly into the industrial waste treatment plant because the off-line batch pre-treatment facilities for these concentrated waste acids were no longer operable due to deterioration caused by a lack of adequate maintenance. This report stated that the plant was unable to remove heavy metals to the degree necessary to meet National Pollution Discharge Elimination System discharge standards for concentrated chromic and cyanide acids which had not been pre-treated. The report suggested that Tinker officials determine if:

(1) the concentrated waste chromic and cyanide acids should be disposed of in a deep injection well; or

(2) the off-line batch treatment facilities should be repaired; or

(3) Tinker officials should investigate solidification processes to immobilize these sludges and possibly all sludges.

Tinker officials did not provide a basis for choosing the first option or for the decision to dispose of concentrated waste chemicals from the engine parts chemical cleaning facility in injection wells rather than treating them in the industrial waste treatment plant. The report's reference to the waste chemicals from the chemical cleaning facility was a statement that the waste potassium permanganate could be used to oxidize the phenolic wastewater from the paint stripping operation.

One recent discussion with Engineering and Services Laboratory officials revealed that the concentrated waste from the chemical cleaning facility could easily be treated at the industrial waste treatment plant. They stated that the concentrated waste chemicals from the plating shops are also easy to treat provided they are properly pre-treated. Plant officials agree that these chemicals could be treated at the plant. However, one official stated that inexperienced personnel treating the cyanide acid at the plant would be dangerous.

A primary justification for building Tinker's industrial waste treatment plant in the 1960's was the treatment of these waste chemicals. Tinker officials have agreed to ask the Air Force Engineering and Services Laboratory to restudy the potential for treating the concentrated waste chemicals from the plating shops and the engine parts chemical cleaning facility.

Problems with the plant

Tinker's industrial waste treatment plant had been in violation of the National Pollution Discharge Elimination System discharge permit standards on numerous occasions for several years and was a source of pollution to the stream receiving the plant discharge. As a result, the Environmental Protection Agency (EPA) issued a letter in late 1977, asking Tinker to show cause for not closing the plant. The Air Force Engineering and Services Laboratory was asked to evaluate the plant at Tinker. This evaluation found that the treatment plant had been poorly managed for many years. The resulting report, which was mentioned earlier, stated that this ineffective management was evidenced by:

--no preventive maintenance program which resulted in significant deterioration of the treatment plant. Entire systems and equipment essential to plant operation were inoperable for extended periods of time,

--the plant "running out" of essential treatment chemicals causing violations of the discharge permit,

--no written operating procedures,

--equipment manuals that were either lost or not followed, and

--improper or marginal collection, storage, and analysis of wastewater samples.

The report made several recommendations for correcting these problems. Tinker subsequently spent $7.6 million to convert this plant from a trickling filter to an activated sludge treatment plant and to make some of the changes recommended by the Engineering and Services Laboratory.

The Oklahoma Water Resources Board noted in its June 1984 discharge permit compliance report that the plant continues to have operational and maintenance problems. We also noted that the industrial waste treatment plant continues to have many of the problems identified in the Air Force Engineering and Services Laboratory report. One problem noted during our review was the inoperability of the de-watering unit. This unit condenses liquid sludge to solids, reducing the amount of waste residue that must be hauled to hazardous waste disposal sites by about 60 percent. Had this unit been fully operational for the year ending June 30, 1984, it could have reduced the amount of waste residue from about 3,580 tons of liquid to 1,432 tons of solids. The disposal costs would have been reduced from $257,000 to only about $93,080.

Industrial waste treatment plant officials acknowledge that many of these problems still exist but state their primary problems are the lack of qualified and trained personnel plus an inability to control the chemical composition of wastewater at various points in the plant. Plant officials state that recently they began to correct many of the problems identified by the Air Force Engineering and Services Laboratory. The following actions have begun:

--preventive maintenance schedules have been established,

--plant officials are entering into requirements contracts to insure a constant supply of essential treatment chemicals,

--operating procedures are being drafted by a contractor,

--manuals have been obtained for the newer equipment, and

--a new chemist has been hired at the plant.

Plant officials stated that most of the plant employees were young servicemen without qualifications needed to operate an industrial waste treatment plant. These officials stated that the employees are often reassigned about the time they are trained. Plant officials believe the lack of qualified personnel is the main reason much of the plant's equipment was often inoperable.

The June 1984, National Pollution Discharge Elimination System discharge permit compliance report by the Oklahoma Water Resource Board stated that the plant continues to be out of compliance with permit standards indicating the plant is still not being properly operated. Failure to maintain the chemical composition of the wastewater in the plant has resulted in the plant's microbe population being killed on numerous occasions during the last year. This is the result of large amounts of concentrated chemicals being poured or spilled down the plant's drains by maintenance personnel without notifying the industrial waste treatment plant. With notification, the plant can better control the entry of the concentrated chemicals into the plant in order to prevent damage to the microbe population and allow the plant to operate in compliance.

Major instances of being out of compliance at Tinker appear to be related to the phenol and chromium from the paint stripping and corrosion control wastewater originating at buildings 2122 and 2280. Plant officials state that they are planning to resolve this problem by metering this wastewater into the plant. They state that the microbes can easily handle the phenol if the amount they receive at one time is properly controlled.

BETTER MONITORING OF DISPOSAL CONTRACTOR AND HAZARDOUS WASTE MANIFESTS IS NEEDED

Better monitoring and inspection of the base hazardous waste contractor is needed to assure that pickup of hazardous waste is made only when called for, that preparation of manifests is monitored to assure that the proper types of waste and the correct amount are shown, and that contractor's invoices reflect the proper weights and manifest numbers. Better monitoring of individual manifests is also needed to assure that waste is delivered to the proper disposal site.

Tinker has the responsibility for monitoring hazardous waste manifests to assure that waste is delivered to the appropriate disposal site. The Oklahoma State Department of Health has the oversight responsibility for assuring that hazardous waste reaches the appropriate disposal sites.

On each manifest, Tinker officials write in the amounts and types of waste going to each disposal site at the time the hazardous waste is picked up. The individual responsible for monitoring the pickup provides a copy of the manifest to a contract monitor. This copy is retained at Tinker. At the disposal site, the manifest is signed, verifying that the waste was received, and is then forwarded to the Oklahoma State Department of Health. A copy of the completed manifest is returned by the disposal site to the contract monitor at Tinker. Thus Tinker's files should contain two copies of each hazardous waste manifest.

We found on numerous occasions that the manifest copy filled in at the time of pickup was not on file. The absence of this copy of the manifest indicates that the individual responsible for monitoring the pickup was either not there or failed to turn the manifest in.

In reviewing contractor billings we found instances where the contractor's invoices were not supported by manifest numbers, where quantities on the invoices and supporting manifests varied, and where, in a few situations, the same manifest number was used to support more than one invoice.

A recent EPA report noted that the Tinker manifest tracking and filing system was disorganized and that all hazardous waste manifests were not being accounted for. As noted earlier, we found numerous instances where the copy of the manifest which verifies that waste has been picked up was not on file. Without both copies of the manifest, Tinker cannot be assured that the shipments reached the designated disposal site. A review of Department of Health records on Tinker manifests showed that about 8 percent of the time the state did not receive its copy of the manifest from the disposal site.

In our review of Tinker hazardous waste shipped to one disposal site during an 11-month period, we found two manifests for about 47 tons of hazardous waste for which the disposal site and the State Department of Health had no records showing receipt at the site. Tinker files did not contain the required disposal site signed copy of the manifest. We found no evidence that either Tinker or the state attempted to follow-up on what happened to the waste.

LACK OF SPILL CONTAINMENT AND OPEN DUMPING CONTROLS

The Oklahoma Water Resources Board has discussed with Tinker officials the environmental impact of the oils and chlorinated solvents that have reached the creeks due to the lack of spill containment and open dumping. The presence of these substances in these streams illustrates the need for better spill

containment and controls to prevent open dumping at Tinker. We wish to commend the fine staff work of the Oklahoma Water Resources Board in bringing these problems to light and note that we have confirmed many of their observations.

Our review revealed that in addition to the large amount of oils and solvents reaching the creeks, large amounts of oils and solvents were also being removed from oil/water separators in the industrial waste treatment plant drains and disposed of in off-base injection wells. Tinker paid $177,000 to have 466,000 gallons of oil slurry hauled from these oil/water separators in the 11-month period ending June 30, 1984. According to the description provided to the Oklahoma State Health Department by Tinker, this oil slurry contains from 13 to 28 percent oil but is mostly water with traces of heavy metals and chlorinated solvents.

TINKER AIR FORCE BASE AND DEFENSE DISPOSAL OFFICIALS NEED TO BE MORE INVOLVED IN SELECTION OF HAZARDOUS WASTE DISPOSAL SITES

Current DOD and Air Force policy allows hazardous waste disposal contractors to select hazardous waste disposal sites. This policy appears unwise in light of DOD's potential liability for future clean up costs and the fact that many hazardous waste disposal sites do not meet current EPA disposal site standards. Disposal contractors can haul hazardous waste to disposal sites offering the lowest disposal cost even if the sites are the older, less qualified sites with the greatest future clean-up potential. Tinker, as a DOD generator of the hazardous waste, would retain responsibility under current statutes.

EPA has given all hazardous waste disposal sites operating in 1980 an opportunity to come into compliance with disposal site standards by allowing them to continue operating under interim status agreements. EPA officials state that many of these sites will never meet current standards and eventually will be closed. EPA and Oklahoma State Health Department officials state that because of this interim status, hazardous waste generators, such as Tinker, should select the better disposal sites by evaluating available state and EPA records. Oklahoma State Health Department officials state that many private firms have developed their own sites rather than rely on commercial sites that may need to be cleaned up in the future.

During the 11-month period ending June 30, 1984, the vast majority of the hazardous waste generated at Tinker was shipped to four disposal sites. Some of the wastes found their way to a number of other disposal sites as well as to some recycling firms. We found that of the 1,873,835 gallons of bulk liquid hazardous waste generated, some 840,975 gallons were shipped to the injection well near Tulsa, Oklahoma. The landfill near Waynoka, Oklahoma, received 765,130 gallons of bulk liquids and 1,064 cubic yards of hazardous waste sludge shipped from Tinker during the period. The landfill at Port Arthur, Texas, received 366 tons of sludge, 248 cubic yards of hazardous solids, 41 drums and 16,500 gallons of hazardous liquids shipped from Tinker. The landfill at West Lake, Louisiana, received the bulk of the remaining solids.

Officials of the state agencies that regulate hazardous waste disposal sites in Oklahoma, Texas, and Louisiana noted that all four of these sites have serious compliance problems, and that the Port Arthur and West Lake landfills and the Tulsa injection well may never achieve operational permit status. These officials state that a lawsuit resulting in a court order is necessary to close a hazardous waste disposal site. They stated

that this process is time consuming and usually the courts permit the site to continue operating under a consent agreement. They stated that process allows the out-of-compliance sites to operate for indefinite periods of time.

The Air Force may incur millions of dollars in clean up costs. EPA officials told us that two hazardous waste disposal sites that Tinker previously used, are causing ground water contamination. At these sites in Criner, Oklahoma, and Grand Prairie, Texas, EPA is currently determining who generated the waste in these sites and how much of the clean-up costs each generator will bear under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act.

In conclusion, these issues that we have discussed today are among those we are currently examining during our review of hazardous waste management at Tinker Air Force Base. Tinker officials have recognized some of these problems and have told us that they are taking or are planning to take corrective actions to reduce the amount of hazardous waste shipped to disposal sites unnecessarily and to better utilize the base industrial waste treatment plant.

This concludes my statement and we will be pleased to answer any questions.