City of Albuquerque

Office of Internal Audit

Martin J. Chavez, Mayor

Interoffice Memorandum

August 13, 2002

To: **Clarence Lithgow, Director, Solid Waste Management Department**

From: **Debra Yoshimura, Director, Office of Internal Audit**

Subject: **FINAL DRAFT FOLLOW-UP OF MANAGEMENT AUDIT REPORT NO. 99-105, SOLID WASTE MANAGEMENT DEPARTMENT, PURCHASE OF REFUSE VEHICLES & MAJOR REPLACEMENT PARTS**

At the request of the City's Audit Committee, Internal Audit performed a second follow-up review of Audit No. 99-105, Vendor/Contractor Audit Report of Purchase of Refuse Vehicles and Major Replacement Parts, Solid Waste Management Department (SWMD). Audit No. 99-105 was issued on April 21, 1999. The first follow-up review was issued in June 2001, and determined the following:

- The recommendations in Finding No. 1 were fully implemented.
- The recommendations in Finding No. 2 were partially implemented.
- The recommendations in Finding No. 3 were partially implemented.
- The recommendations in Finding No. 4 were partially implemented.
- The recommendations in Finding No. 5 were partially implemented.

The purpose of our second follow-up was to review the status of the audit recommendations that had only been partially implemented by the SWMD and to report on issues that have come to our attention during the interim period. We determined the following:

During the period from February through September 2000, subsequent to the issuance of Audit No. 99-105, the SWMD purchased an additional 44 refuse vehicles from Vendor A at a cost of $6.3 million. No other vendors were awarded a contract for the purchase of refuse vehicles during this time period.

Recommendation No. 2: The original audit recommended that the SWMD ensure that vendors comply with vehicle procurement contract specifications. We also recommended that the SWMD comply with Administrative Instruction No. 3-4 and the City's Purchasing Rules and Regulations. These City policies require that the receiving department, prior to acceptance, conduct a thorough inspection of all commodities purchased to ensure that they are in compliance with published

specifications. These City policies also state that payment cannot be authorized for goods that do not meet Request for Bid (RFB) specifications.

The original audit, issued in April 1999, reported that the SWMD had accepted delivery on automated-collection refuse vehicles, but it had known at the time of delivery that those refuse vehicles did not meet RFB specifications. The SWMD had also issued refuse vehicle specifications on other RFBs that were flawed, because they would result in the trucks violating the Federal Bridge Law weight limitations when fully loaded with refuse.

CURRENT STATUS OF SWMD ACTIONS RELATING TO AUDIT RECOMMENDATIONS

The second follow-up review determined that the original audit recommendations are still only partially implemented.

A. Inspection and Acceptance of New Refuse Vehicles

1. 2001 Front Loader Refuse Vehicles

In March and September of 2000, the City issued two purchase orders for the procurement by the SWMD of 17 front loader refuse vehicles from Vendor A. The total cost of these 17 vehicles was $2.6 million. A front loader refuse vehicle is used to pick up commercial garbage collections in containers commonly called dumpsters. The front loader refuse vehicle lifts the garbage container over the truck and dumps it into the collection area of the refuse vehicle.

The delivery of these front loader refuse vehicles to the SWMD began in October 2000, and continued through May 2001. When the City received these trucks, SWMD personnel inspected these trucks and accepted them as meeting all contract specifications. The SWMD personnel who inspected them documented the acceptance of the trucks in writing.

One of the contract specifications that these refuse vehicles were required to meet was that the "Lifting mechanism will have a minimum lifting capacity of 10,000 lbs." When the SWMD personnel inspected and accepted the 17 front loader refuse vehicles, a notation was made on the written acceptance documentation that this contract specification had been complied with. However, SWMD personnel did not actually test the trucks' ability to lift 10,000 pounds. According to the SWMD Vehicle Inspector, he took one of the 17 new front loader refuse vehicles to a "heavy"

dumpster, to see if it could lift a "heavy" dumpster. All 17 vehicles were accepted based on this "test" of one truck.

In June of 2000, the SWMD implemented a revised "Procedure For Receiving New Vehicles and Equipment." This procedure stated that it is the responsibility of the SWMD Vehicle Inspector to: "Receive vehicles and equipment one at a time. Checks for Specification compliance, line item by line item, if everything matched completes vehicle assignment sheet and forwards to Service Writer. If specifications are not met, the vehicle is returned to the vendor for correction."

The City should have tested each vehicle to determine that it met both the physical and the performance specifications. RFB2000-046-GJ, for the purchase of these 17 refuse vehicles, stated:

> "TESTING/ACCEPTANCE OF UNITS:
>
> "At the City's discretion, the City may, for a period of 14 days after initial delivery, examine and test for compliance with specifications and required performance contained herein.
>
> "The Contractor will be notified in writing by the city of any deficiencies in the Vehicles construction or performance noted and must remedy any non-compliance with the specifications within a five (5) working day period beginning on the date and time the failure was reported to the Contractor.
>
> "'Acceptance' occurs when a Vehicle has been approved by the City as having met all of the physical and performance specifications as set forth in this RFB and its resulting purchase order.
>
> "Acceptance of delivery of any Vehicle shall not relieve the contractor of any guarantee or warranty, expressed or implied. Such acceptance of delivery shall not be considered an acceptance of services or materials no(t) in accordance with the requirements of this RFB and shall not waive the City's right to require compliance with those requirements."

In June 2001, after all of the 17 front loader refuse vehicles had been accepted by the City, SWMD personnel conducted tests on two of these trucks to determine if the front loader refuse vehicles that had been purchased from Vendor A could lift the required 10,000 pounds. The SWMD attempted to have these two vehicles lift

weights of 10,000, 9,000, and 8,000 pounds. Neither of the two vehicles was able to lift any of these three weights.

During the tests, the hydraulic system operating pressure of the refuse vehicles being tested was increased. SWMD documentation indicates that the refuse vehicles' hydraulic systems were operated by SWMD personnel at pressures of 2,600 psi, 2,300 psi, and 2,250 psi. These hydraulic system-operating pressures were in excess of the manufacturer's maximum recommended pressure limit of 1,850 psi.

The SWMD notified Vendor A of the problem of the 2001 refuse vehicles not being able to lift 10,000 pounds. During August 2001, Vendor A made modifications to these 17 front loader refuse vehicles, in an attempt to meet the contract specification of lifting 10,000 pounds. The lifting arm mechanism of one of the modified front loader refuse vehicles broke on August 16, 2001, the same day that it was modified by Vendor A.

In September 2001, the SWMD tested four of the modified front loader refuse vehicles to see if they could lift 8,500 pounds. According to SWMD documentation, none of the four refuse vehicles could lift the 8,500 pounds.

In March 2002, SWMD personnel stated that they had tested three or four of the vehicles, after the modifications by the vendor, and the tested vehicles could lift the 10,000 pounds. SWMD personnel stated that they had documented these tests, but they were not able to locate the documentation. The other 13 or 14 vehicles were not tested.

During the week of March 11, 2002, the lifting arm modifications on two of the front loader refuse vehicles broke, and the trucks could not be operated. SWMD personnel stated that one of the trucks had been taken to Vendor A. According to the SWMD Vehicle Maintenance Superintendent, Vendor A personnel stated that they were going to refuse to repair the vehicle as a warranty claim, and would charge the SWMD for the cost of the repairs. The SWMD Vehicle Maintenance Superintendent had further discussions with Vendor A personnel, and they have apparently agreed to pay for the cost of the repairs to the refuse vehicle.

It appears that the problem of the 2001 refuse vehicles not being able to lift the weight specified by the contract, without breaking, may not yet be resolved. According to information in SWMD vehicle maintenance work orders, the lifting arm mechanisms on some of these 17 front loader refuse vehicles are breaking while they are in service. SWMD maintenance records relating to these 17 front loader refuse

vehicles identify 86 work orders which documented the lifting arm mechanisms on these vehicles breaking while they were in service.

The SWMD Vehicle Maintenance Superintendent indicated that 22 of the work orders were related to the small hydraulic cylinders on the lift arms bending when the driver attempted to move or manipulate the dumpster. He stated that in these cases, the SWMD paid for the cost of the repairs. The SWMD Vehicle Maintenance Division is apparently accepting this problem as normal breakage, rather than considering it to be a failure of the refuse vehicles to be able to perform their intended function. However, if this breakage is not being caused by driver abuse, the problem may be that this part of the lifting arm mechanism is not strong enough to perform its intended function without breaking.

The SWMD Vehicle Maintenance Superintendent indicated that the remainder of the work orders (64) were cases in which other parts of the lifting arm mechanism on the refuse vehicle broke, and the truck was then sent to Vendor A for repairs.

The SWMD incurred costs in excess of $11,000 related to these 86 work orders for broken lifting arm mechanism, in addition to the warranty work that was done by Vendor A. It appears that although the lifting arm mechanisms could not lift dumpsters without frequently breaking, the City had to pay for $11,000 of the costs to repair the broken lifting arm mechanisms. These 17 refuse vehicles were less than one year old. It appears that the City may have to continue to negotiate with Vendor A for warranty coverage of repairs to the lifting arm mechanism. Without such warranty coverage, the City will continue to incur costs related to the repair of the lifting arm mechanisms, which did not meet contract specifications when they were delivered.

In addition, there are costs associated with the unavailability of the refuse vehicles while they are being repaired. Seven 2001 model front loader vehicles had broken lifting arm mechanisms on twelve occasions during the period from January through March 2002. On each occasion, the work order indicated that the truck would be out of service for a week. The broken lifting arms were on trucks that were modified by Vendor A. It appears that the modifications that were made by Vendor A may not have been sufficient to enable the trucks to lift dumpsters without frequently breaking. As a result SWMD has not consistently had the vehicles available for use.

The SWMD Vehicle Maintenance Superintendent sent a memorandum to the City's Purchasing Division, dated April 8, 2002, regarding these 17 front loader refuse vehicles. This memorandum stated:

> "In October of 2000, the Solid Waste Department received seventeen front loaders from (Vendor A), over a period of five months the following problems were found in the lift arm assembly of these trucks.
>
> "Listed below is the problems (sic) that the SWMD is experiencing with the Front Loader Bodies.
>
> 1. Left and right fork cylinders are bending and breaking at the rod end of cylinders.
> 2. Lift arm cylinders are blowing off cylinder caps.
> 3. Pins are breaking on rod end of lift arm cylinders.
> 4. Lift arm brackets are cracking on both sides.
> 5. Return oil hydraulic line fittings are cracking at hydraulic tank.
> 6. Stress cracks on all seventeen front loader bodies on right side walls of hopper opening.
> 7. One front loader had a fork tube that was twisted.
>
> "These problems are being addressed at this time by (Vendor A). The question the Solid Waste Department has is whether these repairs will withstand the life of the truck or will it be ongoing until the warranty expires. The Solid Waste Department is requesting Purchasing as to what options the department has with this situation."

The Purchasing Division Senior Buyer met with SWMD vehicle maintenance personnel and representatives of Vendor A and the manufacturer of the lifting arm mechanism. Vendor A and the manufacturer of the lifting arm mechanism agreed to replace cylinder caps and the pivot area pins on the lifting arms. However, the vendor and manufacturer said that they would not extend the warranty on the lifting arms.

It appears that SWMD may be compensating for the deficiencies in its front loader collection vehicles by increasing the frequency of collection from commercial customers. For example, in March 2002, a restaurant that was on a three times per week collection schedule was told by SWMD personnel that it must go to a four times per week collection schedule. The SWMD documentation, relating to this change in service frequency, stated, "Increase per ordinance due to excess weight of trash." SWMD personnel told the restaurant manager that the change was because the restaurant's dumpster "broke our truck."

SWMD personnel informed the auditor that one of the 2001 front loader refuse vehicles, discussed above, had broken its lifting mechanism when it tried to lift the dumpster at this restaurant. The auditor asked the SWMD personnel if the dumpster had been weighed to determined that the restaurant had "excess weight of trash". The SWMD personnel stated that they had not weighed the dumpster, but had decided that it had "excess weight" because their trucks lifted the dumpster slowly, and the weight of the dumpster broke the lifting mechanism on a 2001 front loader refuse vehicle. However, they did not know specifically how much the dumpster weighed when filled with trash.

2. 1995 through 1998 Front Loader Refuse Vehicles

The SWMD purchased 23 front loader refuse vehicles from Vendor A that were delivered during the period from October 1995 through September 1998. One of the contract specifications for these refuse vehicles was that the "Lifting mechanism will have a minimum lifting capacity of 8,000 lbs." According to SWMD personnel, when these 23 vehicles were inspected and accepted, the vehicles were not actually tested to see if they could lift 8,000 pounds. In June 2001, SWMD personnel conducted tests on a 1998 and a 1995 front loader refuse vehicle, which were purchased from Vendor A. Neither of these two vehicles could lift 8,000 pounds.

The lifting arm mechanisms on some of these 23 front loader refuse vehicles are breaking when they are in service. For example, a vehicle maintenance work order for a 1997 front loader refuse vehicle stated that the lifting arm assembly broke in half. The truck was sent to Vendor A, who charged the SWMD $6,305 to replace the broken lifting arm mechanism. Another vehicle maintenance work order, issued in November 2001, stated that lift arm assembly on another 1997 front loader refuse vehicle had broken "for the third time."

B. Extended Warranties on Refuse Vehicles

When the SWMD purchased refuse vehicles in 1995 to 1998, it paid additional monies to obtain extended warranties on the vehicles. The extended warranties cover the refuse vehicles' engines, transmissions and rear axles for a five-year period. The intent of this extended warranty coverage was to capture a portion of the maintenance and repair costs in the initial costs of the vehicles.

According to the SWMD Vehicle Maintenance Superintendent, the monies for the warranties were paid to Vendor A, who then transferred these monies to its Subcontractor GB for the purchase of the warranties. Subcontractor GB provided the refuse vehicle

chassis for the trucks, which were purchased by the SWMD. The chassis that were provided by Subcontractor GB include the engine, transmission, and rear axle, which are the three items that are supposed to be covered by the five-year extended warranties. Subcontractor GB apparently did not purchase the extended warranties from the chassis manufacturer. Subcontractor GB has since gone out of business. During the period from April 1995 through July 1998, the SWMD paid Vendor A $277,900 for the purchase of extended warranties on the new refuse vehicles purchased.

As of April 2002, there are 33 refuse vehicles of varying types that were purchased from Vendor A during the 1997 through 1998 time period. These vehicles have been in service for less than five years, and still should be covered by the five-year extended warranties.

According to the SWMD Vehicle Maintenance Superintendent, the SWMD is paying directly for repairs, which should have been covered by the extended warranties on the chassis. SWMD is in the process of getting reimbursement from Vendor A for these costs. As of April 25, 2002,Vendor A has reimbursed the SWMD $10,221 for the costs of two transmission repairs which should have been covered by the extended warranties. Internal Audit is not able to determine if Vendor A has reimbursed all of the repairs that should have been covered by the chassis extended warranties to the SWMD.

The SWMD placed 36 new 1997 refuse vehicles into service during the period from November 1996 through December 1997. Each of these refuse vehicles was supposed to be covered by a five-year extended warranty on the engine. The earliest date that this extended warranty would expire on any of these vehicles was November 2001, if it had been purchased by the subcontractor. Although these refuse vehicles were supposed to be covered by a five-year extended warranty on the engines, SWMD incurred a total of $208,000 of engine repair costs on these vehicles, through August 2001. This was prior to the expiration of any of the extended engine warranties, if they had been in force.

Refuse vehicle 975115 was placed into service in June 1997. It was should have been covered by a five-year extended warranty on the engine, in effect until June 2002. In January 2001, the engine failed. According to the work order, a piston went through the engine block. The SWMD paid Vendor S $20,897 to replace the engine. According to the SWMD Vehicle Maintenance Superintendent, the vendor who replaced the engine informed the SWMD that the cause of the engine failure was not covered under the terms of the extended warranty. However, SWMD personnel did not ask the vendor to provide a written statement that the repairs were not covered by the warranty.

All of these 36 refuse vehicles should have also been covered by a five-year extended warranty on the transmissions; however, the subcontractor to Vendor A did not purchase the extended warranties. The earliest date that this extended warranty should have expired on any of these vehicles was November 2001. Although these refuse vehicles were supposed to be covered by a five-year extended warranty on the transmissions, SWMD incurred a total of $70,000 of transmission repair costs on these vehicles, through August 2001. This was prior to the expiration of any of the extended transmission warranties. According to the SWMD Vehicle Maintenance Superintendent, the manufacturer's local dealer decided that these repairs were not covered by warranties. Written statements that the repairs were not covered by the warranty were not requested from the vendor.

C. Extended Warranties on Refuse Vehicles Purchased during 2000

The SWMD purchased an additional 44 refuse vehicles from Vendor A at a cost of $6.3 million, during the period from February through September 2000. The SWMD did not purchase extended warranties on these 44 refuse vehicles.

In its response to the first follow-up audit of Report No. 99-105, which was issued on June 22, 2001, the SWMD stated, "The Solid Waste Management Department will continue to require extended warranties for vehicles in its RFB specifications." This statement by the SWMD contradicts its actions in the 2000 purchase of refuse vehicles, in which it did not purchase extended warranties.

CLARIFICATION OF STATEMENT IN THE FIRST FOLLOW-UP AUDIT REPORT 99-105, Issued June 22,2001

The following statement was made in the first Follow-Up Audit Report 99-105:

> "The vehicle specifications require that '…vehicles provided shall be suitable, maneuverable and durable enough to, on a regular basis: collect refuse from 'Automated' Containers for a minimum of 12 hours per day, 6 days per week….' According to the Equipment Management System (EMS) records, the vehicle down time due to repairs has reduced the amount of hours these vehicles are available for operation. As a result, some of the vehicles are not meeting the specification. One of the vehicles was driven only 12,660 miles in the first four years of operation, according to EMS. Another was driven 15,760 miles in the first 55 months of operation. Maintenance and repair costs were $188,122 and $129,302 for these two vehicles during those time periods."

In January 2002, the SWMD Vehicle Maintenance Superintendent informed us that the mileage information in the SWMD vehicle maintenance records, for these two vehicles, was wrong. He stated that the mileage on these two refuse vehicles was actually higher than the SWMD vehicle maintenance records indicated. Records were not available to document the "actual" mileage of the vehicles at the time of the first follow-up audit.

CLARIFICATION OF STATEMENT IN AUDIT REPORT 99-105, issued April 21, 1999

The following statement was made in Audit Report 99-105:

> "According to documentation in the Purchasing Division procurement file, one of Vendor A's sub-contractors (Sub-contractor AA - the truck and chassis supplier) sent a letter to Vendor A in August 1995. This letter stated that the chassis which the sub-contractor was going to supply to Vendor A for eventual sale to the City would not meet nine of the technical specifications contained in the City's RFB. Although it received this information, Vendor A stated, 'We meet and exceed all specifications 100%,' in its response to the RFB."

In January 2002, Vendor A informed us that they had offered the SWMD two different chassis options in this procurement (RFB96-005-GJ). Vendor A stated that the SWMD had chosen the chassis option that met the contract specifications, and had declined the chassis option that did not meet the RFB specifications. Even though the vendor had stated in its bid response to the RFB that it had met all RFB specifications, it had submitted a bid option that did not meet these specifications.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

We recommend that the SWMD ensure that vendors comply with vehicle procurement contract specifications. We also recommend that the SWMD comply with Administrative Instruction No. 3-4 and the City's Purchasing Rules and Regulations. These City policies require that the receiving department, prior to acceptance, conduct a thorough inspection of all commodities purchased to ensure that they are in compliance with published specifications. These City policies also state that payment cannot be authorized for goods that do not meet Request for Bid (RFB) specifications.

The SWMD should comply with its new vehicle receiving/inspection procedure, and test each and every new vehicle for compliance with all RFB specifications, both physical and performance.

SWMD should ensure that repairs to refuse vehicles, which are covered by extended warranties, are paid for by the warranty company instead of the City. When a vendor denies warranty coverage, SWMD should request a written statement from the vendor as to why the repair is not covered.

The SWMD should also ensure that its vehicle maintenance records are accurate.

We also recommend that when the SWMD purchases extended warranty coverage on refuse vehicles, that it require proof of payment for the coverage.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees vendors must comply with the contract specifications. The SWMD does hold vendors responsible for their meeting specifications as noted by this Audit on its Front Loaders. The SWMD was correcting the lifting and cylinder problems with the vendor before this audit was performed and will continue on other problems that are found in the future. The audit also states that

> ***Acceptance of delivery of any Vehicle shall not relieve the contractor of any guarantee or warranty, expressed or implied. Such acceptance of delivery shall not be considered an acceptance of services or material not in accordance with the requirements of this RFB and shall not waive the City's right to require compliance with those requirements.***

"The SWMD agrees. The SWMD will test each and every vehicle for compliance with all RFB requirements and ask for assistance from the Senior Buyer to spot check procedures. The SWMD is updating purchasing monthly on the status of repairs made to our Front Loaders. The SWMD has not increased service to customers to offset the problems found with its new Front Loaders.

"The SWMD agrees and will have the vendor pay for warranty repairs covered by extended warranties.

"The SWMD agrees to have vendors who deny warranty repairs to have it printed on the repair order as to why it was not covered.

"The SWMD agrees and will get confirmation on all extended warranties it purchases from the manufacture instead of the dealer. The repairs noted within this audit were instances where failures from attachments voided the main engines and transmissions extended warranties."

Recommendation No. 3: The original audit recommended that SWMD purchases of major replacement parts comply with the requirements of the Public Purchases Ordinance and the City's Purchasing Rules and Regulations. The City's Purchasing Rules and Regulations state that payment cannot be authorized by the user department for goods and services that do not meet the terms and conditions of the contract or purchase order.

The City's Purchasing Rules and Regulations also state that it is the responsibility of the user department to notify the Purchasing Division in writing when a vendor has failed to comply with contract provisions.

CURRENT STATUS OF SWMD ACTIONS RELATING TO AUDIT RECOMMENDATIONS

The second follow-up review determined that the original audit recommendations are still only partially implemented.

A. Purchase of Hydraulic Pumps and Cylinders

During the period from January 2000 through March 2002, $588,000 of replacement hydraulic pumps, hydraulic cylinders, and related hydraulic parts were installed on SWMD refuse vehicles.

1. Hydraulic Pumps

The replacement hydraulic pumps, which are installed on SWMD vehicles, are rebuilt units, which have been rebuilt by outside vendors. When a hydraulic pump fails on a refuse vehicle, the pump is taken off the vehicle and is sent to a vendor for rebuilding. The rebuilt pump is then placed in the SWMD parts inventory and installed on another refuse vehicle when a replacement pump is needed.

There is apparently a problem with the purchase of rebuilt hydraulic pumps, which the SWMD obtains from two vendors. A memorandum from the SWMD Assistant

Vehicle Superintendent, dated February 2002, stated, "We have been experiencing a high failure rate of the hydraulic pumps which are being sent out to the above referenced vendors. We send them out, install them, only to find out they are not performing per factory recommendations. Then they have to be removed which only adds additional burdens to our mechanics."

For example, during the period from April 2001 through November 2001, seven replacement hydraulic pumps were installed on one refuse vehicle. The cost of these seven replacement pumps was approximately $3,000. This does not include the cost of the labor to install the replacement pumps. According to a vehicle maintenance work order, dated April 2001, a replacement hydraulic pump was installed on this refuse vehicle the previous night. The replacement hydraulic pump was leaking badly, and had to be replaced with another hydraulic pump at a labor cost of $220 and parts cost of $426.

This is not an isolated situation. During the period from April 2000 through October 2001, seven replacement hydraulic pumps were installed on another refuse vehicle. The cost of the seven replacement pumps was approximately $3,200. This does not include the cost of the labor to install the replacement pumps. Another refuse vehicle had seven replacement hydraulic pumps installed on it during the period from May 2000 through May 2001.

According to the SWMD Vehicle Maintenance superintendent, there is a 90-day warranty on rebuilt hydraulic pumps, and defective rebuilt hydraulic pumps should have been sent back to the vendor. SWMD personnel are currently researching the above-described situations to determine if any of the defective rebuilt hydraulic pumps were sent back to the vendor for credit.

2. Hydraulic Cylinders

The SWMD operates a shop to rebuild hydraulic cylinders. (Prior to 2000, the SWMD sent hydraulic cylinders to an outside vendor to be rebuilt.) There may be a problem with the durability of the hydraulic cylinders that are being rebuilt by the SWMD. A memorandum from the SWMD Assistant Vehicle Superintendent, dated November 16, 2001, (Subject: Failure Rate of 90003R – 3 Stage Packing Cylinder) stated:

> "We are experiencing a high failure rate on these packing cylinders. We need to correct this problem as it is causing considerable downtime. It appears that we replace these cylinders as soon as we put them on. This needs to stop. I

realize that we are rebuilding these units in-house, are we buying inferior seal kits, or is our staff not experienced enough to perform these rebuilds."

According to the SWMD Vehicle Maintenance Superintendent, one of these new hydraulic cylinders (part number 90003-SWD) should last approximately two years. He also stated that one of these rebuilt hydraulic cylinders (part number 90003R-SWD) should last approximately the same time period.

During the 14-month period from September 2000 through November 2001, a refuse vehicle was issued 10 of these hydraulic cylinders (90003R-SWD), which had been rebuilt by the SWMD. These 10 hydraulic cylinders were issued by the SWMD Parts room at a total parts issue price of $12,800. The refuse vehicle has two of these cylinders, so the truck essentially had these hydraulic cylinders replaced every two to three months. The SWMD labor cost to install these rebuilt hydraulic cylinders is in addition to the cost of the parts discussed, above.

This is not a isolated occurrence. During the period from November 2000 through March 2002, another refuse vehicle was also issued 10 of these cylinders, at a parts cost of $10,417. Three other refuse vehicles were each issued 9 of these rebuilt hydraulic cylinders.

Cost of Rebuilding Hydraulic Cylinders

According to information provided by the SWMD to the City's Accounting Division, the SWMD rebuilt 73 of these hydraulic cylinders (90003R-SWD), at a total labor cost of $144,435, during FY01. The average SWMD labor cost to rebuild these cylinders would therefore be $1,979. In addition to the cost of labor to rebuild these hydraulic cylinders, there is the cost of the parts that are used, which is approximately $300 each. When the hydraulic cylinders were rebuilt by an outside vendor in 1999, the vendor charged approximately $1,300 to rebuild these cylinders. It appears that it may be more cost-effective for the SWMD to outsource the rebuilding of hydraulic cylinders, rather than continue to rebuild the cylinders in-house.

The Accounting Division used this information to make FY01 final accounting entries. On March 25, 2002, the SWMD Vehicle Maintenance Superintendent informed the auditor that the information that the SWMD had previously provided to the Accounting Division was not correct. However, he could not provide any other information or documentation regarding the SWMD labor cost to rebuild hydraulic cylinders.

3. Review of Vehicle Maintenance History – Hydraulic Cylinders

After the auditor reviewed the above information with the SWMD Vehicle Maintenance Superintendent, a memorandum was sent to the SWMD mechanics regarding the replacement of hydraulic cylinders. This memorandum instructed them that when they are replacing hydraulic cylinders, they must review the vehicle's replacement history, to determine if there are possible warranties involved. The SWMD Vehicle Maintenance Superintendent stated that part of the problem, discussed above, was that mechanics would work on a refuse vehicle, and replace hydraulic cylinders without checking to determine if the item had recently been replaced, and therefore should not be replaced again.

B. Residential Automated Collection Vehicles- Container Lifting Mechanism

During the period from March 1996 through May 2001, the SWMD placed 50 residential automated collection vehicles into service, which were purchased from Vendor A, at a total cost of $7.8 million. These refuse vehicles pick up the residential garbage containers and dump the trash into the refuse vehicle, and the driver remains in the truck during this process. The mechanism that picks up the garbage containers is called a "lift ramp assembly" by the manufacturer. SWMD personnel commonly call it a "candy cane", because of the resemblance when the mechanism is being operated.

The SWMD has had problems with the durability of these mechanisms. During the period from January 2000 through December 2001, the SWMD replaced 35 candy canes on refuse vehicles, at a parts issue cost of $192,000. This does not include the cost of the SWMD labor to make the replacements.

A memorandum from the SWMD Shop Foreman to both the Vehicle Maintenance Division Assistant Superintendent and Superintendent, dated December 18, 2001, addressed this situation, as follows:

"Subject: Excessive Moving Parts on Candy Canes
Too Many Candy Canes Being Replaced

"The problem with the candy cane on our (Manufacturer A) refuse vehicles is that there are too many moving parts to make the mechanism operate. This quantity of moving parts creates excessive ware (sic) on all components, including the rails on the candy cane itself. This factor causes a high usage rate and changes on these units. They are hard to keep in stock and cost between $6,000 to $12,000 to repair or replace."

For example, a refuse vehicle had the candy cane replaced three times between August 2000 and November 2000. The parts issue cost of the three replacement candy canes was $16,375, not including the cost of the SWMD labor to make the replacements. When a broken candy cane is taken off of a refuse vehicle, the SWMD sends it to Vendor A to be rebuilt. The parts issue cost of the replacement candy canes is the amount that Vendor A charged the SWMD to rebuild the item.

The candy canes, which are on the refuse vehicles that the SWMD purchased from Vendor A, are mechanically operated. Vendor A obtains the trucks with these mechanisms from Manufacturer A. Some of the other manufacturers of automated collection vehicles utilize a candy cane mechanism that is hydraulically operated. According to the SWMD Vehicle Maintenance Division Superintendent, the hydraulic type of design may be more durable. When the SWMD procures additional automated collection refuse vehicles, it should take into consideration its experiences regarding the durability and repair costs of the refuse vehicles that it currently operates.

C. Incorrect Vendor Repairs

A vehicle maintenance work order, dated June 2001, stated that the modifications that Vendor A had made to a refuse vehicle were done incorrectly. The SWMD sent the refuse vehicle Back to Vendor A, which then charged the SWMD $1,268 to correct the work that was apparently done incorrectly the first time. The SWMD should ensure that it does not pay for the cost of correcting repair work that was done incorrectly by a vendor.

D. Purchase of Tires for Refuse Vehicles

The FY02 budget for tires for the SWMD is $500,000. The RFB for recapped tires estimates expenditures of approximately $200,000 per year. Therefore, most of the remaining portion of the budget is for the purchase of new tires for refuse vehicles.

1. Purchase of New Tires for Refuse Vehicles

The SWMD is purchasing new tires for refuse vehicles under a purchase order that was issued for RFB01-054-AO. The RFB and related purchase order is for the use of all City departments, including the SWMD. The purchase order was issued in January 2001. In January 2002, the Purchasing Division became aware that the SWMD was not properly using the purchase order. The Purchasing Division buyer, who is responsible for this RFB and purchase order, sent a memorandum to the

Senior Buyer assigned to the SWMD, and sent a copy to the current SWMD Director. Regarding the SWMD's use of this purchase order, this memorandum stated:

> "They are not following the contract requirements by asking for a 90-day quote. It clearly states **best pricing,** and that means at the time of the request for the quote. It must be done on a case-by-case basis.
>
> "The sealed quote is an attempt to maintain integrity of each vendor's quotes, so that they are not faxed in and available for anyone, internally or externally to see.
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> "The sealed quotes must be received from all vendors. Then opened at the same time, again to protect the integrity of the quotes."

During the quotation request process that the SWMD did in January 2002, the SWMD instructed Vendor CJ, in writing, to fax its bid to the SWMD. This is not in accordance with the Purchasing Division requirements for the use of the purchase order, and can affect the integrity of the price quotation process.

During its quotation request process in April 2002, the SWMD instructed potential vendors that the quotes that they submitted must be for a 90-day quote. This is not in accordance with the Purchasing Division requirements for the use of the purchase order.

The SWMD should work with the Purchasing Division buyer, who is responsible for this RFB and purchase order, to ensure that it is properly using the purchase order. The Senior Buyer who is assigned to the SWMD should be actively involved in this process.

2. Pricing Structure for the Purchase of Recapped Tires for Refuse Vehicles

When RFB2001-136-GJ, for the purchase of tire recapping services was issued, it allowed the winning vendor to charge separately for spot repairs, bead repairs and section repairs, in addition to the cost of the basic recapping service. These are repairs to the tire casings before the casing is recapped. During the five-month period from October 2001 through February 2002, Vendor CJ charged the SWMD $28,00 for "extra charges." In its bid response to the RFB, Vendor CJ stated that its total anticipated "extra charges" for the entire two-year period of the contract were $5,250.

When the extra charges are added into the cost of the basic recapping services provided by Vendor CJ, the average charge by the vendor for recapping a size 12R tire was $134, during January and February of 2002. During 2001, the SWMD purchased tire recapping services from three other vendors. These three vendors charged an average price of $98, $107, and $105, respectively, for their tire recapping services. During this time period, the SWMD required the tire recapping vendor to charge a flat price per tire (including the casing repair services), and did not allow the separate charges for extra services. The SWMD purchased 173 recapped 12R tires during 2001.

There are some additional costs that Vendor CJ incurs under the current tire recapping contract, that were not incurred by the three other vendors who were recapping tires for the SWMD during 2001. Vendor CJ is required by the current tire recapping contract to utilize a computerized tire tracking system to provide the SWMD information regarding recapped tires. This requirement was not in effect during the time period in 2001, when the other three vendors were providing recapped tires to the SWMDS at a lower overall cost. However, the requirement that Vendor CJ utilize a computerized tire tracking system, may not account for all of the overall increased price of the recapped tires from Vendor CJ.

The SWMD should consider bidding the next tire recapping RFB on a flat price basis without extra charges. This may result in a lower overall cost for tire recapping services.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

We recommend that the SWMD review the reliability of the rebuilt hydraulic pumps, which it has obtained from outside vendors.

We recommend that the SWMD review the operations of its hydraulic cylinder rebuild shop to determine if it would be more efficient and cost effective to outsource the rebuilding of hydraulic cylinders.

When the SWMD procures additional automated collection refuse vehicles, it should take into consideration its experiences regarding the durability and repair costs of the refuse vehicles that it currently operates.

We recommend that SWMD negotiate with Vendor A for a refund of repair costs that resulted from repair work that was done incorrectly by the vendor.

We recommend that SWMD follow the Purchasing Division guidelines when using the Citywide new tire purchase order to procure tires.

We recommend that the SWMD review the pricing basis of the recapping services contract and consider a flat price basis for the next tire recapping RFB.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees. SWMD is always reviewing its vendor sources reliability and pricing. This audit has found pumps being replaced in large quantities with questions to warranties. The SWMD agrees and has changed its policies to reflect better controls to handle this situation. This audit has questioned the vendor service for these pumps. The SWMD has found problems with every vendor as well as new pumps. The SWMD will address this in its next bid specifications of vehicles.

"The SWMD agrees that the in-house rebuild will be as competitive and efficient as the outside market place. The in-house rebuild of cylinders came about due to an audit finding where cylinders were being rebuilt by spray painting the outside and returning them to the cost of thousands to the SWMD. The next vendor could not return cylinders, which led to as many as 15 Solid Waste vehicles being down at one time. The same vendors wanted to replace the cylinder at the IPF because it was extremely pitted. This cylinder was rebuilt in-house and has been in use over a year. This also saved the department thousands of dollars.

"The reliability as seen by how many cylinders are issued to vehicles is a misconception to the quality. The policy for cylinder replacement is if one is leaking you replace both at the same time. The process for performing a packing blade or rebuilding a rail is to remove everything and replace the cylinders at the same time. Replacing the cylinders at that time compared to leaving them in and finding one leaking and having to remove everything again makes good operational sense but is not very cost effective. This policy is being changed and cylinders length in service will be considered before replacing.

"The SWMD agrees to negotiate with all vendors to refund repair cost resulting from poor repairs to Solid Waste vehicles.

"The SWMD agrees to follow all Purchasing Division contract guidelines. The SWMD after review with Purchasing was found to be in compliance with the new tire purchase contract.

"The SWMD agrees to consider a flat price basis for the next recap tire contract and will continue to gather data to support this pricing."

Recommendation No. 4: The original audit recommended that the SWMD strengthen its procedures to ensure that SWMD personnel do not set refuse vehicle hydraulic systems to pressures greater than that specified by the manufacturer of the hydraulic equipment. Over-pressurization of refuse vehicles' hydraulic operating systems can damage the hydraulic equipment, which can be costly to repair or replace. We also recommended that the SWMD install hydraulic pressure control valve caps on all of its refuse vehicles.

We further recommended that the SWMD perform vehicle inspections that include testing of hydraulic pressure. Supervisory personnel should take actions when pressure is found to be higher than the manufacturer's recommended limit.

SWMD work orders indicated that the hydraulic pressures on trucks were repeatedly recorded as being in excess of 1,850 pounds per square inch (psi), the manufacturer's maximum recommended pressure limit. The pressure of the hydraulic system on some trucks was set as high as 3,000 psi.

In its response to the original Audit Report, the SWMD stated, ". . . In accordance with our new Preventative Maintenance schedule, all pressures are checked during this procedure and noted on the check sheets. A policy from the Director addressing this issue of over-pressurization has been signed and is in effect."

In its response to the first Follow-Up Audit Report, the SWMD stated, "The vehicles noted as not having covers have been modified with non-adjustable relief valves and the covers will not be needed and all current specifications require this to be factory installed."

CURRENT STATUS OF SWMD ACTIONS RELATING TO AUDIT RECOMMENDATIONS

The second follow-up review determined that the original audit recommendations are still only partially implemented. It appears that despite the procedures that have been implemented by the SWMD, and all of the hydraulic pressure relief valves and covers that have been installed, some of the SWMD refuse vehicles still are being operated at excessive hydraulic pressures. Perhaps one of the causes of this problem is that SWMD personnel tamper with the pressure relief valves.

A. Driver Tampering with Hydraulic Relief Valves

The following table provides information regarding work order information documenting SWMD mechanic's notes about hydraulic relief valves that were tampered with:

Date of Work Order	Refuse Vehicle Number	Work Order Information
April 10, 2002	975606	"need to replace pressure relief valve, Was tampered with"
September 19, 2001	975608	"found pressure relief valve tampered with"
September 14, 2001	975112	"found relief valve tampered with"
March 30, 2001	965106	"found relief valves tampered with"
January 12, 2001	975117	"found press relief valve tampered with"
March 29, 2000	975104	"relief valves – tampered with"

B. Work Order Information Regarding Hydraulic Pressures of Refuse Vehicles

There were 19 notations made in SWMD vehicle maintenance work orders, documenting that refuse vehicles were being operated at hydraulic pressures ranging from 2,000 psi to 3,500 psi. From the work order information, it appears that the SWMD Vehicle Maintenance Division has accepted a practice of mechanics setting the pressure of hydraulic systems at 2,200 psi. However, this practice seems to be in conflict with the recommended limit of 1,850 psi.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

We recommend that the SWMD review its procedures to ensure that they are adequate to prevent the over-pressurization of refuse vehicle hydraulic systems.

We also recommend that the SWMD review the practice of allowing mechanics to set the hydraulic system pressure at 2,200 psi.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees and has installed valves where they can be turned in or out but the P.S.I. is factory set and non responsive to adjusting. The pressure variances seen on work orders is due to restrictions found in valve bodies or other areas of the systems.

"The hydraulic systems have been changing the past few years from low pressure (1800psi) high output pumps to high pressure (3000psi) low volume pumps. This change is due to the number of pump failure found throughout the industry."

Recommendation No. 5: The original audit recommended that the Department of Finance and Administrative Services (DFAS) review the procurement processes at the SWMD. We recommended that the assigned Senior Buyer ensure that the SWMD complies with the requirements of the Public Purchases Ordinance and the City's Purchasing Rules and Regulations, and he should inform the Purchasing Officer of SWMD procurement problems.

CURRENT STATUS OF ACTIONS RELATING TO AUDIT RECOMMENDATIONS

The recommendation is still only partially implemented. The DFAS response to the first Follow-Up Audit report stated, "The Solid Waste Management Department and the Purchasing Division are working together to make sure the Senior Buyer is assisting the Solid Waste Management Department in processing all purchases. The Senior Buyer is also training the Solid Waste Management Department personnel in the use of the Purchasing Rules and Regulations."

The assigned Senior Buyer is attempting to work more effectively with the SWMD to help it comply with the requirements of the Public Purchases Ordinance and the City's Purchasing Rules and Regulations. However, the results of this follow-up audit indicate that improvements can still be made.

FOLLOW-UP RECOMMENDATION

We recommend that the Senior Buyer, who is assigned to the SWMD, continue to assist the SWMD in improving its efforts in complying with the requirements of the Public Purchases Ordinance and the City's Purchasing Rules and Regulations.

EXECUTIVE RESPONSE FROM DFAS

"Purchasing agrees with the recommendation. The Solid Waste Management Department (SWMD) and the Purchasing Division are working together to ensure continued assistance through the Senior Buyer, in all aspects of the procurement process. In addition, SWMD has requested the Senior Buyer to review invoices prior to payment, to determine whether the contracts established for the department are utilized

properly as specified in the pricing, terms and conditions. In the future, the Senior Buyer will review, train and assist the assigned fleet manager in contract compliance application."

OTHER ITEMS NOTED DURING THE FOLLOW-UP AUDIT

These additional items were noted during the follow-up audit. Some of these problems are repeat findings from Audit Report No. 96-123, Vehicle Maintenance Division, SWMD. That report was issued on July 11, 1997.

1. The Operation of Refuse Vehicles with Uncompleted Work Orders

   A. Safety-Related Work Orders

   The auditor noted 12 vehicle maintenance work orders for safety-related repairs (tires, lights, back-up horn, brakes), where the work order specifically stated that the drivers took the vehicles before the repairs were done. For example, a vehicle maintenance work order was issued for repair work on a refuse vehicle's brakes, but the work could not be done because the work order stated that the driver took the truck. Another work order, dated January 2002, stated that the right rear tail lights and the turn signal blinkers were burnt out, but the driver took the truck on his route before these items could be repaired. Another January 2002 work order stated that the back-up horn and reverse lights were not working, but the driver took the truck on his route anyway.

   This is a repeat finding from Audit Report No. 96-123, Vehicle Maintenance Division, SWMD. The report stated, "From June through December 1995, four SWMD refuse vehicles were involved in roll-over accidents. These refuse vehicles had 24 open VMD work orders for safety-related items at the time of their accidents. The VMD work orders that were open included safety items such as the repair or replacement of tires, brakes and lights." The audit report further stated that the "SWMD should also develop procedures to ensure that drivers do not take vehicles on their routes until safety-related work orders are completed."

   The City has a written policy that states that "No equipment in the custody of Fleet Management will knowingly be returned to service in an unsafe condition." It appears that the SWMD has not instituted effective procedures to comply with the City policy.

B. Other Uncompleted Work Orders and Unsafe Vehicle Operations

There were another 28 cases where the vehicle maintenance work order specifically stated that the driver took the truck, but it was not clear from the work order information if the needed repairs were safety-related, or simply mechanical problems.

There was also a case where inoperable safety equipment (the back-up horn) had been turned in for repair on four different occasions, but it apparently took almost a month for this safety-related equipment to be repaired. The back-up horn sounds when the vehicle is being operated in reverse, to warn other employees or bystanders so that they do not get run over. The first work order for this inoperable safety item was issued on February 19, 2002; and the fourth work order was issued on March 14, 2002. The SWMD should review its procedures to determine why a truck with inoperable safety equipment was allowed to be operated for an extended period of time before the problem was fixed.

A work order issued in December 2001, stated that the driver took the truck on his route even though there was an engine warning light on. Engine warning lights indicate a potential problem with the engine that could cause engine damage if the problem is not addressed.

Another vehicle maintenance work order stated that the refuse vehicle "keeps stalling out – coasted from Montgomery all the way here." The SWMD vehicle maintenance facility is located on the corner of Edith and Griego. Apparently the driver "coasted" the refuse vehicle from somewhere on Montgomery to Edith and Griego. The SWMD has a written policy that states, ". . . if a safety related defect is discovered, drivers shall stop the vehicle. . . . The vehicles will not be operated until it is deemed safe by the district foreman in coordination with the vehicle maintenance shop." The driver should have pulled the vehicle off the road, and used his two-way radio to call for help.

Two other work orders stated that truck's engine had an oil leak, but that the driver took the truck, so the oil leak could not be repaired. If these vehicles had run out of engine oil while being operated, it would ruin the engine.

C. Drivers Removing Vehicles from the "Dead Line"

When a vehicle operating problem is reported by a driver to the SWMD Vehicle Maintenance Division, a work order is generated, and the driver is supposed to leave the vehicle in an area by the SWMD garage called the dead line. The vehicle is not supposed to be removed from this area by the driver until the problem is repaired. However, there are occasions when the mechanic, who is assigned to repair the vehicle, is not able to locate the vehicle. For example, a work order was opened on August 27, 2001 to "check

brakes" on a refuse vehicle. When the mechanic went to get the vehicle to repair it, he was not able to locate it, and made a notation on the work order that the vehicle was "not on dead line or ready line." (The ready line is the area of the SWMD yard where vehicles that are ready to be operated are parked until the driver takes them on his route).

Apparently this vehicle had been taken by a driver on his route, prior to the mechanic being able to check the brakes on the vehicle. The work order indicates that the repair work was "finished" on September 17, 2001, 21 days after the problem was first reported. Another work order, dated in February 2001, stated that the vehicle which needed repairs was "not on dead line for the 3rd time." Apparently the mechanic had made attempts on three different occasions to find the vehicle to repair it, but it was not in the SWMD yard on any of those three occasions.

Another work order stated that the left turn signal, the back up lights, and the back up horn needed repair, but the truck was not in the SWMD yard. Consequently, the mechanic could not fix these safety-related problems.

Twenty-eight safety-related work orders (brakes, tires, lights) stated that the vehicle needing repairs was not on the dead line, or not in the SWMD yard, when the mechanic went to get the vehicle to repair it. There were an additional 69 work orders that stated that the vehicle that needed repairs was not on the dead line, or not in the SWMD yard. These work orders did not contain enough information to determine if they were safety-related, or simply mechanical problems with the refuse vehicle.

According to the SWMD Vehicle Maintenance Superintendent, a foreman may in some cases release vehicles from the deadline. However, they may not be released when the vehicle needs safety-related repairs. It appears that there are not sufficient controls in place to prevent drivers from taking vehicles from the deadline.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should review the lack of effectiveness of its procedures relating to drivers operating vehicles with mechanical problems that have not yet been repaired. Drivers should be provided additional training regarding this area. Drivers who violate the City and SWMD policies regarding the deliberate operation of unsafe vehicles should be disciplined.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees that policies regarding the deliberate operations of

unsafe vehicles should be strengthened and the SWMD has a new red tag policy in place. If a vehicle is reported for a safety issue, it is tagged and will not be removed until repaired. Disciplinary action in accordance with the department policy will be taken if vehicle is removed with tag attached.

"The SWMD agrees that safety items when found the operator should stop and wait for the Field Mechanic to make the repair. The instance noted in this audit where a vehicle was said to have coasted back to Pino Yard was in a deceleration mode. This operation allows the vehicle to be driven safely but at a lower RPM."

2. The Operation of Refuse Vehicles with "Bald" Tires

Fifteen vehicle maintenance work orders stated specifically that the tires on the vehicle were "bald". For example, a work order dated October 2001, stated, "right rear set of tires bald." The Federal Motor Carrier Safety Regulations, United States Department of Transportation, (USDOT Regulations), Section 393.75, Tires, states, ". . . tires shall have a tread groove pattern depth of at least 2/32 of an inch when measured in a major tread groove."

A vehicle maintenance work order stated, "replace both front tires – steel is showing." Another vehicle maintenance work order stated that the "left front tire is showing steel belt." The USDOT Regulations further state, ". . . No motor vehicle shall be operated on any tire that (1) has body ply or belt material exposed through the tread or sidewall." There were four additional work orders that stated that a refuse vehicle had tires that needed to be changed because belt material was exposed. The SWMD is apparently aware of the USDOT regulations regarding tires. A vehicle maintenance work order, dated July 2000, stated, "tires---all rear replace---under DOT specs."

This is a repeat finding from Audit Report No. 96-123, Vehicle Maintenance Division, SWMD. The report stated, "On 21 occasions SWMD drivers took refuse vehicles on their routes even though VMD work orders had been issued to replace the bald tires. They did this by going to the area where the vehicles were waiting to be serviced and driving them on their routes."

USDOT regulations require that drivers inspect their vehicles everyday, prior to the operation of the vehicle. This required inspection includes a visual inspection of the tires to ensure that the tires meet safety standards. It appears that the SWMD drivers are not performing a thorough inspection of their vehicles, prior to operating them.

The City has a written policy regarding the necessity for drivers to inspect their vehicles prior to operation. This policy states:

"Each driver shall:

"Inspect the vehicle for physical damage and perform a safety check prior to driving.

"Report damage to supervisor before driving.

"Correct all unsafe conditions, if possible, and report to supervisor.

"Report defects noted during usage of vehicle in writing to supervisors."

The SWMD Commercial Division Acting Superintendent has sent several memorandums to all of the commercial drivers regarding this City policy. A July 1999 memorandum to these drivers stated, "City of Albuquerque Rules and Regulations require all city employees to perform an inspection of any vehicle they operate before, during and after use. . . . It has been observed that many drivers are incorrectly filling out their trip sheets. This is a violation of the city policy subject to disciplinary action. . . . Front-line supervisors must physically observe their operators performing and documenting their vehicle inspections properly." However, despite this notification, it appears that some of the SWMD drivers are still not properly inspecting their vehicles.

This is a repeat finding from Audit Report No. 96-123, Vehicle Maintenance Division, SWMD. The report stated, "SWMD should enforce the requirement that vehicle drivers perform and document the daily inspections of their vehicles in accordance with U.S. DOT safety regulations. . . . Drivers who fail to properly inspect their vehicles should be subject to disciplinary action."
This problem has also been documented by SWMD mechanics in their work order notations. A vehicle maintenance work order, dated November 2001, stated, "the driver needs to inspect and clean his truck properly." The work order further stated that the "Truck was full of paper and garbage underneath the exhaust pipe." This situation could be a fire hazard.

In another vehicle maintenance work order, dated in October 2001, the mechanic included a warning to the truck's driver about a potential fire hazard. The work order stated, "You need to clean your tr(uc)k, trash inside of engine could cause fire!"

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should review its driver vehicle inspection program, to ensure that drivers are performing the required USDOT daily inspections.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD will continue the D.O.T. inspection procedure and will continue to address these issues at safety meeting and in random vehicle inspections performed by Safety, Security, & Training Division. Drivers found without performing the daily inspections will be handled in accordance with the disciplinary procedures that are established."

3. Unreported Accidents and Driver Abuse

Four work orders stated that the repair work was being done as a result of an unreported accident. The SWMD has a written policy that states that it is the responsibility of the Vehicle Operator to "Reports any and all accidents involving city vehicles to the Immediate supervisor without delay, regardless of how minor."`

Two other work orders stated that the repair work was a result of "driver abuse".

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should review these cases and remind the drivers that accidents should be reported to the appropriate management.

The SWMD should ensure that driver abuse cases are reported to the appropriate management and reviewed.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees that the appropriate level of management will review all accidents or driver abuse. The SWMD will review work orders to identify problems in this area with appropriate Superintendent."

4. SWMD Preventive Maintenance

A. Oil Changes

Since February 1999, the SWMD has been following the practice of changing the oil in

refuse vehicles at longer intervals than it had previously done. This practice may have been a contributing factor in the failure of at least five refuse vehicle engines. It appears that when the SWMD went to longer oil change intervals, this change was based upon faulty information provided by SWMD personnel to the company that provided motor oil to the SWMD.

A letter from the motor oil vendor stated, "Fuel consumption figures, originally provided by Solid Waste personnel, were substantially different than actual figures taken from engine computers. . . . The resulting increased fuel consumption shifted the duty cycle from 'moderate' to 'severe'. This in itself would not normally cause immediate concern for prevention of catastrophic engine failure, however, further investigation revealed that the failed engines had extremely high ratios of operating hours versus actual miles driven."

A letter from the manufacturer of the motor oil stated, "The maximum oil drain interval, as published by the Cummins Engine Company, for your type of operation is 400 hours or approximately 8,000 to 12,000 miles. As you can see the 25,000-mile interval is beyond the parameters set by Cummins Engine Company and adhered to by The Valvoline Company." The vendor did not identify the vehicles involved; therefore, we were unable to verify the actual oil change interval mileage.

B. Tracking of Preventive Maintenance

The records relating to the preventive maintenance work performed on SWMD vehicles are in poor condition. For example, these records indicate that there was an interval of 48,000 miles between when preventive maintenance was done on a refuse vehicle in October 2000, and the next time that preventive maintenance was done on this vehicle in May 2001. According to SWMD personnel, this vehicle had preventive maintenance performed on it during this interval, but the preventive maintenance log does not reflect this information. In order to ensure that vehicles receive preventive maintenance on a timely basis, accurate records need to be kept relating to these activities.

The problem of poor preventive maintenance records can cause other problems. A refuse vehicle received complete preventive maintenance work on May 1, 2001, at a cost of $473. After the work was done, a notation was made on the work order that SWMD personnel had found that the truck had complete preventive maintenance work only one month earlier, on March 24, 2001, at a cost of $489. Apparently the manual preventive maintenance scheduling function had erroneously scheduled the same truck twice for complete preventive maintenance, thus wasting the money that was spent on the second preventive maintenance work.

Another refuse vehicle had preventive maintenance done on it at 127,000 miles, because the SWMD preventive maintenance log indicated that this work was due. After the preventive maintenance work had been done, SWMD personnel determined that the same work had been done at 125,000 miles, but had not been recorded on the preventive maintenance log.

This is a repeat finding from Audit Report No. 96-123, Vehicle Maintenance Division, SWMD. The report stated, "Two side-loader refuse vehicles had no oil-and-filter changes in periods that they were driven 20,000 miles. Records for some other vehicles indicated that they had oil-and-filter changes after being driven very few miles."

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should review its oil change interval schedules and ensure that they are appropriate.

The SWMD should review its preventive maintenance scheduling activities to ensure that vehicles receive required preventive maintenance work when it is due.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees that oil change intervals will be performed in accordance with the O.E.M. recommendations.

"The SWMD followed the extended oil change program set up by the oil and engine manufacturer. The SWMD provided the correct fuel consumption information and is now pursuing legally to recoup the monies spent to repair the engines for the extended lube program. The oil and the engine manufacturer now do not agree on what they agreed upon at the beginning of the program and this will be settled through legal means.

"The Preventive Maintenance scheduling has been a problem with the initial information requirements. The Fleet, Transit, and Solid Waste personnel have met and redesigned the information request. The FleetAnywhere Program is being update in June 2002 and will strengthen the P.M. system."

5. Preventive Maintenance – Overfilling of Engine and Transmission Fluids

Mechanics, drivers, and Vehicle Maintenance Division inspection teams can all add fluids to vehicles. The drivers are supposed to inspect their vehicles three times per day, including fluid levels. SWMD has inspection teams that determine if the vehicles are in need of repair or maintenance. Additionally, the mechanics may adjust fluid levels when vehicles are brought in for maintenance or repair.

Twenty-six work orders stated that the refuse vehicle engine or transmission was over filled with fluids. This can damage the engine or transmission. For example, a January 2002 work order stated that the transmission in a refuse vehicle was overheating, the fluid level was checked, and the transmission had been overfilled with fluids.

Additionally, a work order noted that the refuse vehicle's hydraulic system tank had been overfilled and had to be drained and refilled. Also, six additional work orders stated that the refuse vehicle's hydraulic tank had been overfilled.

According to another vehicle maintenance work order, the transmission on a refuse vehicle was not shifting correctly because the transmission was full of motor oil. The next day, SWMD mechanics removed the transmission from this refuse vehicle, and installed a replacement transmission. The labor cost to perform this transmission removal and replacement was $2,620, which does not include the value or cost of the replacement transmission.

A vehicle maintenance work order, dated November 2001, stated that the mechanic had found that there was no transmission oil in the transmission. If the SWMD drivers are checking the fluid levels in their vehicles three times a day, as is required by the DOT inspection report, the driver should have noticed that the level of the transmission fluid was low. Operating a vehicle with no transmission fluid can damage the transmission.

The SWMD does have a standard operating procedure that defines ". . . adequate fluid levels for engine oil, engine coolant, hydraulic and steering systems and transmission fluid to ensure appropriate levels are maintained." It appears that the SWMD has not adequately trained its personnel on compliance with the standard operating procedure.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should ensure that drivers, mechanics, and inspection teams who fill engines, transmissions, and hydraulic systems with fluids, are properly trained.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees. The Preventive Maintenance Program has been strengthened over the past three months with a Lead Mechanic who can test drive vehicles. The SWMD now can operate in a real work environment and the vehicles oil levels are checked at operating temperatures. This process changed due to the Solid Waste Lead Mechanics reassigned into a safety sensitive classification, which allows them to test drive Solid Waste equipment. The Technicians are being retrained on the use of engine oil for transmissions this is an accepted practice and is recommended by the manufacturer. The manufacturer recommends engine oil be used in this transmission to help cool and prevent aeration problems found with regular Dextron fluid."

6. Repairs to Older Vehicles

In September 2000, the SWMD spent $72,000 to repair a 1994 refuse vehicle that had over 100,000 miles on it. Administrative Instruction No. 4-8, Repair to Vehicles That Exceed Book Value, states:

> "When aged vehicles(s) , units with more than 100,000 miles . . . is brought in to any Fleet Management Facility for extensive repair, a financial investment analyses will be performed. The Fleet Manager will evaluate whether or not it makes economic sense to repair the unit. . . .
>
> "The Fleet Manager will not recommend further repair to a vehicle, if the cost of the repairs exceed the value of the vehicle or equipment.
>
> "The Fleet Manager will not repair any units that cost more than the value of the vehicle without CAO approval."

The SWMD Vehicle Maintenance Superintendent could not provide any information relating to a financial investment analysis having been done on this vehicle prior to the extensive repairs.

In 2000, the SWMD also spent $69,000 to repair another 1994 refuse vehicle. The combined cost of repairing these two 1994 vehicles is approximately the same as purchasing one new vehicle.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should ensure that extensive repairs to older vehicles are economically justified, as required by Administrative Instruction No. 4-8.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees that the Fleet Management Division of the Public Works Department should follow this Administrative Instruction. The new instruction does not reference Transit, Fire or Solid Waste vehicles. The larger specialty equipment vehicles have always had their own replacement criteria. One chassis had engine and transmission work and the other had no problems and low miles. The SWMD took into consideration the cost of a new vehicle availability of funds and chassis conditions before this was done. The SWMD Director and the Director of Purchasing reviewed and approved before the new bodies were installed. The two vehicles in question are being used daily."

7. Performance Plan

The proposed FY03 budget for SWMD vehicle maintenance activities is approximately $5.3 million ($3.2 million of labor, $2.1 million of repair/replacement parts for vehicles and outside [contractor] vehicle repairs). These activities are not addressed in the City's FY02 Performance Plan. Consequently, there is no measuring or reporting of quality or output relating to SWMD vehicle maintenance activities.

The purpose of output measures is to tabulate the amount of services delivered to a service population. By comparing input and output measures, the cost of units of service can be calculated and compared with comparable organizations. Quality measures measure the effectiveness of the program. Without measurement of the services it delivers, SWMD management cannot determine if the Vehicle Maintenance Division is effective and efficient with its programs.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should establish quality and output measures relating to the operations of the Vehicle Maintenance Division.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees to establish a performance plan that will assure quality and output measures."

8. Disposition of Surplus and Scrap Material

The Public Purchases Ordinance (Section 5-5-16) states, "Surplus or unclaimed personal property of a value of more than $1,000 shall be sold either at public auction . . . or by sealed bid."

The SWMD uses a special size tire (425-65R22.5) on the front steering axle of its refuse vehicles. The SWMD does not have these tires recapped for safety reasons. Recapped tires are more likely to have a blow-out than a new tire, and a tire blow-out can affect the steering of a vehicle. When the front tire of a refuse vehicle is changed by SWMD personnel, the old tire is replaced with a new tire. The used tire casing is set aside by SWMD personnel, because the SWMD does not have these tires recapped.

The used tire casing has value; $50 each, according to one local vendor who purchases used tire casings for recapping. These recapped tires can be used on the rear axles of concrete trucks, for example.

During the 12-month period from June 2001 through May 2002, the SWMD purchased 362 of this special size tire to install on the front axles of its refuse vehicles. Consequently, there would have been this number of used tire casings, which were removed from the SWMD vehicles and were available for sale as surplus property. According to the SWMD Vehicle Maintenance Superintendent, the SWMD has never sold any of these used tire casings as surplus property because there is not a local market for them.

The auditor physically counted the number of these used tire casings, which were in the SWMD facility on Edith Boulevard, on May 17, 2002. There were 20 used size 425 tire casings on that date. The SWMD Vehicle Maintenance Division does not keep inventory records relating to the size 425 tire casings that are removed from vehicles.

According to SWMD work order records, SWMD has been using and replacing these special size tires on its refuse vehicles, since at least 1996. Consequently, during the six-year period from 1996 through 2001, the SWMD would have generated approximately 2,200 of these special size used tire casings.

SECOND AUDIT FOLLOW-UP RECOMMENDATION

The SWMD should determine how many of these tires are available for sale as surplus property, and dispose of them appropriately. If there is a large discrepancy between the quantity of these tire casings that have been removed from refuse vehicles, and the quantity that the SWMD is able to locate, it should investigate the cause of the discrepancy.

The SWMD should keep inventory records relating to the size 425 tire casings that are removed from vehicles since they have a salvage value.

EXECUTIVE RESPONSE FROM SWMD

"The SWMD agrees and has tried to sell the 425 casings locally and there has been no market and SWMD will now expand to other states. The SWMD does not store tires at its Pino Yard location but has them moved to the landfill. The vendor setting the value at fifty dollars has been asked to bid and has always stated there is no value in the Albuquerque market place. The SWMD has to be very careful in sending tires out of state due to possible cleanup cost if these tires are not used or disposed of properly."

DDY/njt

xc: Martin J. Chavez, Mayor
Internal Audit Committee
Jay Czar, CAO
City Councillors
James B. Lewis, COO
Irene Garcia, CFO
Mark Sanchez, Director, Council Services
Sandra Doyle, Director DFAS
Dennis Pratt, SWMD Vehicle Maintenance Division Superintendent