

Drive Clean Program

Background

Smog is a form of air pollution that poses a serious health threat to Ontarians. According to the Ministry of the Environment (Ministry), approximately half of Ontario's smog comes from pollutants that originate in the United States and are transported here by winds. The other half, however, comes from domestic sources, including utilities (for example, power plants), industries (for example, metal smelters and petroleum refineries), on-road motor vehicles and other forms of transportation (for example, trains and aircraft). Vehicles also contribute to greenhouse gas emissions (such as carbon dioxide) and toxic contaminants (such as carbon monoxide and benzene), which also adversely affect air quality. For more than a decade, the Ministry has been implementing a number of initiatives aimed at helping to reduce smog. One of these initiatives has been the Drive Clean program.

Drive Clean, which was introduced in 1999, is Ontario's mandatory vehicle emissions inspection and maintenance program. The purpose of the program is to identify high-pollution-emitting vehicles with missing or malfunctioning emission controls and require the owners of such vehicles to have them repaired, with the ultimate goal of reducing on-road emissions. The program has two compon-

ents—one for light-duty vehicles (passenger cars and sport utility vehicles) and one for heavy-duty vehicles (buses and trucks). The program currently tests vehicles once they are seven years old, or those older than one year if ownership is to be transferred. Light-duty vehicles that were built before 1988 are exempt from the program, but, otherwise, all vehicles must pass an emissions test for the owner to renew the registration or transfer ownership. When a vehicle passes its emissions test, the testing facility issues a uniquely numbered emissions test certificate, which the vehicle owner must take to a ServiceOntario kiosk or office (that is, a vehicle-licensing office) when applying to renew their licence plates or to transfer ownership.

As of December 2011, approximately 7.6 million light-duty vehicles and almost 300,000 heavy-duty vehicles were registered in Ontario. About 90% of these vehicles are registered in the geographic area covered by the program. Annually, more than 2.5 million light-duty vehicles and more than 100,000 heavy-duty vehicles are subject to the Drive Clean test.

More than 30 jurisdictions in North America have a vehicle inspection and maintenance program for emissions. In Canada, British Columbia has been testing light-duty vehicles since 1992, and recently announced that it will phase out that program by the end of 2014 and start testing heavy-

duty diesel vehicles only. Quebec, on the other hand, introduced a bill in December 2011 to begin emissions testing for light-duty vehicles by the end of 2013.

Ontario's Drive Clean program operates under the authority of regulations made under the *Environmental Protection Act* and the *Highway Traffic Act*. The program is administered jointly by the Ministry of the Environment, the Ministry of Transportation and ServiceOntario, with the Ministry of the Environment being ultimately accountable for its performance.

The Ministry of the Environment's Drive Clean Office, with a staff of approximately 25 people, develops regulations, sets standards, establishes policies and procedures, and contracts with service providers to deliver various aspects of the program. Emissions tests and/or repairs are performed at more than 2,000 Drive Clean facilities, which are private auto shops accredited by the Ministry. All testing facilities are electronically linked to the Ministry's Drive Clean database, which maintains a record of all tests and any related repairs made.

The Ministry has contracted with a private-sector service provider to administer all operational Drive Clean program activities. This involves supplying and servicing emissions testing equipment, training inspectors and repair technicians, ensuring quality control practices at Drive Clean facilities, operating a call centre to provide technical support to Drive Clean facilities and handle public comments, and developing and operating an information system to support all of the program's functions, including linking to the Ministry of Transportation's licensing system.

Vehicle owners pay a fee to the Drive Clean facility that conducts their emissions test. A portion of this fee is remitted to the Ministry as revenue. In the 2011/12 fiscal year, the Ministry collected \$30 million in test revenue and spent approximately \$19 million to deliver the Drive Clean program, of which \$12 million was paid to the private-sector service provider.

In 2012, the Ontario government commissioned a review on reforming public services in the province. The resulting report, commonly referred to as the Drummond Report, recommended that the government consider delivering the Drive Clean program via a "delegated administrative authority" model. A delegated administrative authority is a private, not-for-profit corporation that administers legislation on behalf of the government under an accountability and governance agreement. This entity would assume responsibility for all aspects of the program's day-to-day decision-making and service delivery that are now being handled by the Drive Clean Office and its private-sector service provider.

Audit Objective and Scope

The objective of our audit was to assess whether the Ministry has adequate systems and procedures in place to ensure compliance with legislation and regulations related to Drive Clean, and to determine and report on whether the program is effective in reducing vehicle emissions and thereby contributing to improved air quality. Senior Ministry management reviewed and agreed to our audit objective and associated audit criteria.

Our audit work was conducted primarily at the Ministry's Drive Clean Office and at the private-sector service provider. In conducting our audit, we interviewed appropriate ministry and service-provider staff, reviewed relevant documents, analyzed information and reviewed specific controls of new testing equipment that is slated for rollout in January 2013. In addition, we employed a number of computer-assisted audit techniques to analyze two sets of data: the results of emissions tests and the records on repair costs.

We met with the Canadian Vehicle Manufacturers' Association and the Environmental Commissioner of Ontario to obtain their perspectives on the Drive Clean program. To gain insight on how similar programs operate in other jurisdictions, we

reviewed studies and reports on vehicle inspection and maintenance programs elsewhere in Canada and in the United States. Because the Ministry's internal audit service team had recently performed audits on Drive Clean revenue, we took its work into consideration in determining the scope and extent of our work in this area.

Summary

The Drive Clean program has implemented effective procedures to ensure that vehicles that should be tested are getting tested, and that vehicles whose emissions systems have deteriorated to the point where their emissions exceed the province's limits are being identified for repair. The Ministry has made some headway in refining the program's features—for example, increasing the age at which vehicles must begin emissions testing, extending testing to include vehicles that in 2012 were as old as 24 years, changing the vehicle emissions testing method to the on-board diagnostic testing method that is now used in all other North American jurisdictions with similar programs, and consolidating six alternative service delivery contracts into one at an expected annualized cost savings of 40%. The Ministry, together with the Ministry of Transportation, has also put in place procedures aimed at preventing the use of duplicate certificates, a fraudulent practice that was identified as a significant problem in our 2004 audit on air quality.

On-road vehicle emissions have declined so significantly from 1998 to 2010 that they are no longer among the major domestic contributors of smog in Ontario. However, ministry emissions estimates show that more than 75% of the reduction in vehicle emissions since the program's inception is actually due to factors other than the Drive Clean program, such as tighter manufacturing standards on emission-control technologies, federal requirements for cleaner fuels and ongoing retirement of old vehicles. For emissions not eliminated by

these factors, the Ministry further estimated that, since 2007, the Drive Clean Program has been responsible for reducing smog-causing vehicle emissions by about 36% annually. Initiatives in other sectors (for example, changes in industrial processes) have also contributed to the reduction in smog-causing emissions.

It is therefore critical that, on a go-forward basis, policymakers have relevant and up-to-date information on the actual impact of the Drive Clean program in reducing smog compared to the impact of other smog-reducing initiatives.

There are a number of issues that we noted during our audit:

- The worst polluting vehicles either are exempt from emissions testing or will be tested using a less stringent method. The program's light-duty component does not require vehicles built before 1988 to be tested, even though they would likely have about a 30% failure rate. In addition, the on-board diagnostic (OBD) testing method that is slated to begin January 1, 2013, cannot be used to test vehicles built before 1998 because these vehicles were built without OBD systems. As a result, vehicles built from 1988 through 1997, which experienced a failure rate from 11% to 31% in 2010 when tested with a dynamometer, will be tested using the two-speed idle method only—a method that uses less stringent emissions limits than either the dynamometer or the OBD testing method.
- Since 2002, all gasoline-powered vehicles that meet the program's age criteria and that are located in the Windsor–Quebec City corridor are required to have emissions tests every two years. There are 10 large municipalities in this geographical area that account for about two-thirds of all vehicles in Ontario. These municipalities generally also have a higher than average number of smog days. However, the Ministry has never formally assessed whether there would be any significant impact on the environment if vehicles not located in these 10 municipalities were not required to be tested.

- Because vehicle owners are not required to incur any repair costs if the repair estimate exceeds \$450, about 18,000 vehicles avoided being fully repaired in 2011. In fact, the average amount paid for repairs in 2011 by the owners of vehicles that were given a conditional pass was only \$255. Furthermore, in 2010 the most commonly diagnosed cause of excessive emissions—problems with the catalytic converter—was actually repaired in only one-third of cases. Without full repairs, a vehicle’s emission control system will continue to malfunction, and emissions will fluctuate. We noted that, for vehicles that had partial repairs done to their emission systems in 2011, the emission readings after the repair were actually worse for all pollutants in 25% of the vehicles and for at least one of the pollutants measured in 50% of the vehicles.
- To uncover unscrupulous practices at Drive Clean facilities, the Ministry has, until recently, been diligent in requiring its service provider to conduct upwards of 1,400 covert audits annually. In recent years, these and other audit efforts have been effective in identifying approximately 3,000 non-compliance issues annually. However, with the planned introduction of a new compliance program to coincide with the new OBD testing method in 2013, the Ministry reduced the number of covert audits in 2012 to a very small fraction of what the Ministry previously required the service provider to conduct. While a significant decrease may well be justified once the new compliance program is in place, we believe the Ministry should reconsider whether such a dramatic reduction is currently warranted, especially given that there is a deterrent effect when Drive Clean facility operators know that covert or “secret shopper” audits are being done.
- Although one of the program’s key goals is maintaining a high degree of public accept-

ance, the Ministry has not established performance targets or attempted to measure whether or not this goal has been achieved in over a decade. The only survey undertaken to measure public support for the Drive Clean program was conducted 12 years ago.

OVERALL MINISTRY RESPONSE

The Ministry appreciates the Auditor General’s observations and recommendations regarding the Drive Clean program and will continue to take actions to improve the program.

Poor air quality is a public health concern, particularly to children, the elderly and people who have respiratory challenges. Ontario protects air quality through its comprehensive approach, which includes a combination of regulations, compliance and enforcement activities, monitoring, and Drive Clean. The approach tackles emissions from the electricity sector, commercial and industrial facilities, vehicles, and cross-border sources. Our regulations and targeted programs and partnerships with other jurisdictions have all helped to reduce air pollutants. To put the Drive Clean program’s mandate into context, on-road vehicles account for 27% of all emissions of nitrogen oxides in the province and 13% of all emissions of volatile organic compounds. Since 2007, the program has consistently reduced vehicle emissions that cause smog and poor air quality by approximately 36% a year.

The Ministry notes the Auditor General’s observation that on-road emissions have been continuously declining. Still, parts of Ontario experience elevated smog levels. Since the beginning of the program, Drive Clean has reduced smog-causing pollutants by 335,000 tonnes; carbon monoxide by about 3.18 million tonnes; and carbon dioxide, a key greenhouse gas, by more than 296,000 tonnes. In 2003, when operating at their peak, coal-fired generating plants emitted over 58,000 tonnes of

smog-causing pollutants. In 2010 alone, Drive Clean prevented 34,600 tonnes of smog-causing pollutants.

A review of the program's costs, benefits and effectiveness was an important driver in the Ministry's 2010 decision to modernize the Drive Clean program. The Ministry consolidated multiple service contracts into one contract to improve efficiency and effectiveness of delivery. The new vehicle emissions testing technology will allow problems to be sourced faster and more effectively. We anticipate further decreases in smog-causing pollutants with our new modernized program, and once the technology is implemented in 2013, we will continue to monitor the program's effectiveness.

The Ministry is taking action to address the concerns raised by the Auditor General. The new approach to testing vehicle emissions is used in similar programs across North America. It is expected to:

- provide better information to vehicle owners about needed repairs;
- reduce the number of conditional passes;
- ensure high-quality customer service thanks to online real-time quality control and assurance tools; and
- continue to improve Ontario's air quality by reducing emissions an additional 20%.

Detailed Audit Observations

PROGRAM EFFECTIVENESS

Overall Change in Ontario's Air Quality

Smog is a form of air pollution that is composed primarily of ground-level ozone and fine particulate matter. Ground-level ozone is created when nitrogen oxides (NOx) and volatile organic compounds (VOCs) react together in the presence of sunlight. Fine particulate matter (PM2.5) is microscopic solid particles and liquid droplets in the air.

Wind-blown pollution from the Midwestern United States was and remains the largest source of smog-causing pollutants found in Ontario. However, as Figure 1 shows, between 1998 and 2010, Ontario-based emissions from smog-causing pollutants (NOx, VOCs, and PM2.5) and carbon monoxide have decreased by about 30% to 40%. The Ministry's report on air quality for 2010 credited the decrease in emissions to a combination of federal and provincial air quality initiatives:

- the phase-out of coal-fired generating stations (between 2005 and 2014);
- emission trading regulations (effective 2001 for the electricity sector and 2005 for the industrial sector);
- emission controls at Ontario smelters (effective 2005);
- Drive Clean emissions testing (beginning 1999);

Figure 1: Changes in Province-wide Domestic Emissions and Contribution by Road Vehicles to Those Changes, 1998–2010

Source of data: Ministry of the Environment

Pollutant	Change in Emissions from Domestic Sources (%)	% of Total Domestic Emissions Contributed by Road Vehicles		Source of Most Domestic Emissions (2010)
		1998	2010	
Nitrogen oxides	41 ↓	34	25	Non-road transportation
Volatile organic compounds	38 ↓	21	12	General solvent use
Particulate matter	39 ↓	4	3	Residential
Carbon monoxide	31 ↓	62	44	Road vehicles

- federal vehicle manufacturing standards for emissions (phased in from 2004 through 2010); and
- the federal requirement for lower sulphur content in transportation fuels (effective 2005 for gasoline fuel and effective 2006 for diesel fuel).

Just before the Drive Clean program started, vehicles were the number one domestic source of emissions for carbon monoxide and nitrogen oxides, and the number two domestic source of emissions for volatile organic compounds. As of 2010, vehicles were still the primary domestic source of carbon monoxide emissions but were no longer the primary source of domestic emissions for any of the smog-causing pollutants listed in Figure 1. For each year from 1998 through 2010, the vehicle sector experienced either the largest or the second-largest decrease in emissions for each of these pollutants, and total vehicle emissions decreased more than 50% in that time. Other sources—such as non-road transportation (which includes air, rail and marine transportation)—demonstrated the least reduction in smog-causing emissions, as shown in Figures 2 and 3.

We also looked at ambient air quality measures, which monitor the concentration of contaminants in the air for a select period of time. Unlike emis-

sion levels, ambient air quality measures provided mixed results. That is, for calendar years 2008 through 2010, Ontario did not exceed the Canada-wide standard for PM_{2.5}, but did exceed the Canada-wide standard for ozone in each of those years, although ozone concentrations have been decreasing for some time.

When smog levels are (or are expected to become) elevated for several hours, the Ministry issues a smog advisory. The total hours spent under a smog advisory during a particular time period can be expressed as “smog days”: every 24 hours under a smog advisory equals one smog day. We analyzed the number of smog days experienced province-wide each year since the Drive Clean program’s inception and noted that smog days varied considerably from year to year but have been generally trending down.

Impact of the Drive Clean Program

To determine the effectiveness of the Drive Clean program, the Ministry has engaged an external consultant to calculate emissions reductions. Generally, emissions reductions are calculated based on the difference between a vehicle’s actual emissions readings before and after repairs are conducted

Figure 2: Nitrogen Oxide Emissions, by Domestic Emission Source, 1998–2010 (Kilotonnes)

Source of data: Ministry of the Environment

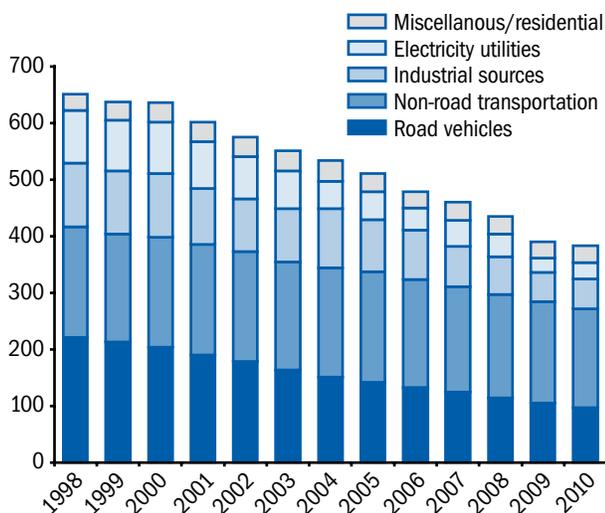
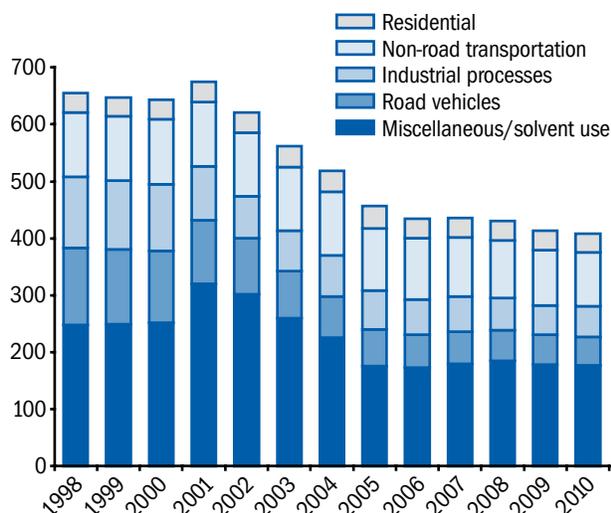


Figure 3: Volatile Organic Compound Emissions, by Domestic Emission Source, 1998–2010 (Kilotonnes)

Source of data: Ministry of the Environment



after the vehicle fails its initial Drive Clean test, factoring in the distance typically travelled by the repaired vehicle in the year. The total is then further extrapolated to account for vehicles that were not actually tested in a given year (because vehicles are tested only every two years) and to estimate kilometres travelled by vehicles tested for the first time (for which the system therefore contains no previous odometer reading).

We reviewed the consultant’s 2010 Emissions Benefit Analysis reports for the three vehicle types covered by the program, and noted that the program is believed to have had the following impact on emissions:

- For heavy-duty diesel vehicles, particulate matter emissions (the only pollutant that can be measured using the available testing technology for such vehicles) have been reduced by an average of 250 tonnes each year throughout the program’s existence.
- For heavy-duty non-diesel vehicles, the consultant concluded that the impact of the program was negligible because only a few such vehicles are on Ontario’s roads.
- For light-duty vehicles, emissions were reduced by steadily increasing amounts from 1999 through 2007. Since then, although emissions have still been reduced annually, the amount by which they’ve been reduced has been declining, as shown in Figure 4. According to the consultant’s estimates, the Drive Clean program has been responsible for reducing smog-causing vehicle emissions by about 36% a year since 2007. The consultant noted a similar trend for carbon monoxide emissions.

However, as Figure 5 indicates, the consultant estimated that had the Drive Clean program not existed, smog-causing emissions from light-duty vehicles would still have decreased by 54% from 1999 to 2010 because of other factors—such as the retirement of older vehicles, the introduction of vehicles with cleaner emissions control technologies, and fuel improvements. The vehicle repairs required as a result of the Drive Clean program

Figure 4: Reduction in Emissions of Smog-causing Pollutants (Nitrogen Oxide and Hydrocarbons) Attributable to the Drive Clean Program for Light-duty Vehicles, 1999–2010 (Tonnes)

Source of data: Ministry of the Environment

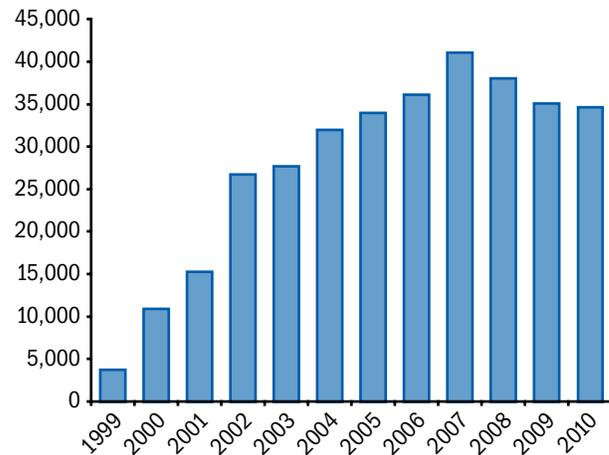
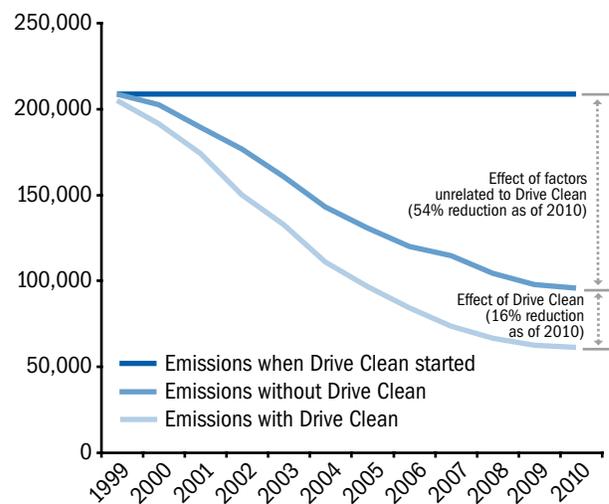


Figure 5: Vehicle Emissions of Smog-causing Pollutants (Nitrogen Oxide and Hydrocarbons) with and without the Drive Clean Program, 1999–2010 (Tonnes)

Source of data: Ministry of the Environment



were estimated to have reduced emissions by a further 16%, for a total reduction in emissions of 70%. In other words, more than 75% of the total emissions reductions for light-duty vehicles from 1999 to 2010 can be attributed to factors other than the Drive Clean program.

The Ministry indicated to us that it believes the Drive Clean program has also led to changes in vehicle owners' behaviours that cannot be quantified: for example, vehicle owners make an increased effort to maintain their vehicles in order to be able to pass the Drive Clean test, and vehicle owners may decide to replace vehicles sooner than they otherwise might have if the program did not exist.

Given the declining impact of the program on air quality, we reviewed practices in other jurisdictions and noted that British Columbia announced in May 2012 that it will terminate its program for light-duty vehicles by the end of 2014, because it determined that vehicles were no longer one of the primary contributors of pollutants in that province. Five U.S. jurisdictions have also ended their programs, and one other has announced plans to do so in 2012, either because emissions have returned to acceptable levels or because other methods are expected to have a more significant impact on reducing air pollutants.

Emissions Test Results

Over the Drive Clean program's life, initial pass rates—that is, the rates at which vehicles of a particular type passed their emissions tests on the first try—have improved. As shown in Figure 6, initial pass rates are currently 90% or more for all vehicle types tested. For light-duty vehicles, the initial pass rate increased from 84% in 1999 to 95% in 2010, and has exceeded 90% every year since 2004. Heavy-duty non-diesel vehicles have shown the greatest improvement, with an initial pass rate that increased from 72% in 1999 to 90% in 2010. Heavy-duty diesel vehicles have continuously had the highest initial pass rates throughout the program's life. Since 2001, their initial pass rate has exceeded 95%.

Reporting Other Performance Achievements

The Drive Clean program has four key goals:

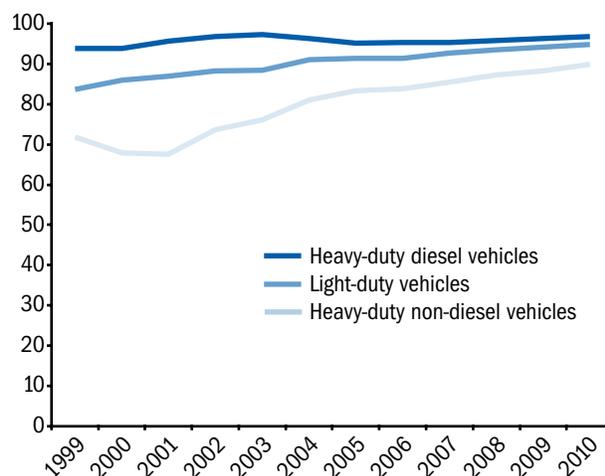
- reducing vehicle-related emissions of smog-causing pollutants;

- attaining a high degree of public acceptance;
- achieving revenue neutrality over the program's lifespan, with full-cost recovery via test fees; and
- maintaining business integrity (that is, zero tolerance for fraud).

We found that the Ministry does not have quantifiable targets and measures for most of these goals. The Ministry has set a published target for only one performance measure—emission reductions. In Ontario's Anti-Smog Action Plan for 2000, the Ministry stated that by the fiscal year 2005/06, the Drive Clean program was expected to achieve a 22% reduction in vehicle emissions, for nitrogen oxides and volatile organic compounds (VOCs) combined. But the Ministry has not reported against this target either in its annual Air Quality Report or in the annual Emissions Benefit Analysis reports prepared by external consultants. In fact, the Emissions Benefits Analysis reports do not report reductions of VOCs but rather reductions of hydrocarbons, which are a component of VOCs. As previously noted, the reported cumulative emissions reduction of nitrogen oxides and hydrocarbons attributable to the Drive Clean program from its inception to the end of 2010 was 16%.

Figure 6: Initial Pass Rates for Light-duty Vehicles, Heavy-duty Non-diesel Vehicles and Heavy-duty Diesel Vehicles, 1999–2010 (%)

Source of data: Ministry of the Environment



We noted that the Ministry had also set internal targets that appeared to be easily attainable. To illustrate, the Ministry establishes an annual internal target for emissions reductions for non-diesel-powered vehicles. We were informed that this target was established by projection based on previous years' actual results, yet the new target was generally lower than the actual emissions reductions achieved in the previous year. For example, since emissions reductions from 2007 through 2009 declined by 8% annually, we expected the 2010 emissions reduction target to be about 32,000 tonnes, yet the Ministry set a 2010 target of only 28,500 tonnes.

With regard to the program's other goals, we found the following:

- Although the Ministry informed us that it had conducted a public survey in 2000 to measure the level of public acceptance for the program, no additional public surveys had been conducted in the ensuing 12 years.
- For the goal of business integrity, the Ministry discloses on its website a list of individuals and Drive Clean facilities convicted of fraud-related offences. It also discloses a list of Drive Clean facilities that have been terminated or suspended in the last three years. The Ministry could build on these good disclosure measures by reporting on the number or percentage of facilities that are in compliance with contract requirements and standard operating procedures.

Since 2005, the Ministry has been publishing reports on emissions reductions resulting from the Drive Clean program. However, we found that the Ministry did not report on a timely basis. For example, consultants' reports on Drive Clean emissions reductions for 2009 and 2010 were not publicly released on the ministry website until June 2012, and Ontario's latest Air Quality Report for 2010 was not publicly released until April 2012.

RECOMMENDATION 1

To ensure that policy-makers are provided with current and relevant information, the Ministry of the Environment should formally evaluate the extent to which the Drive Clean program continues to be an effective initiative in reducing smog relative to the cost and impact of any other initiatives for reducing smog and improving overall air quality. In addition, the Ministry should periodically evaluate its progress against all stated program goals and report the results of its assessments publicly on a timely basis.

MINISTRY RESPONSE

The Ministry agrees that it is critical for policy-makers to have the best decision-making information available.

As new data from the modernized program services and emission tests becomes available, the Ministry will continue to evaluate the progress and success of the Drive Clean program relative to its goals and other initiatives in Ontario.

VEHICLES SUBJECT TO TESTING

Vehicle Age

For both light-duty and heavy-duty vehicles, the Drive Clean program exempts from testing any vehicle built in the last seven years. Vehicles exempt from testing and other program details are shown in Figure 7. Over the program's life, the Ministry has several times increased the age at which vehicles must begin being tested: when the program started, that age was 3; in 2006, it was changed to age 5; and in September 2011, it was changed again, to age 7. In comparison, British Columbia also exempts vehicles built in the last seven years; Quebec plans to exempt vehicles built in the last eight years; and two U.S. jurisdictions, including California, exempt vehicles built in the last six years. In October 2012,

Figure 7: Drive Clean Program Details

Prepared by the Office of the Auditor General of Ontario

	Light-duty vehicles	Heavy-duty vehicles
Program Area	Southern Ontario from Windsor to Ottawa	Diesel: all of Ontario Non-diesel: Southern Ontario
Types of Vehicles Tested	Vehicles weighing 4,500 kg or less (e.g., passenger cars, vans, light trucks and sport utility vehicles), beginning with 1988 models that are registered in the program area	Vehicles weighing more than 4,500 kg (e.g., large trucks and buses) that are registered in the program area
Vehicles Exempt from Testing	Vehicles manufactured before 1988, hybrid vehicles, designated "historic" vehicles, light-duty commercial farm vehicles, kit cars and motorcycles	Vehicles that are designated as "historic" according to the <i>Highway Traffic Act</i>
Testing Frequency	<ul style="list-style-type: none"> • Every two years, beginning when vehicle is 7 years old, to renew registration. Odd model years are tested in even calendar years. • When transferring ownership of a used vehicle to someone other than a family member or the lessee, if the vehicle has not been tested in the previous 12 months. 	<ul style="list-style-type: none"> • Every year, beginning when the vehicle is 7 years old, to renew registration. • Diesel vehicles may skip a year of testing if their opacity reading was 20% or less in their most recent test. • When transferring ownership of a used vehicle older than the current year, if the vehicle has not been tested in the previous 12 months.
Testing Methods	(Effective until December 31, 2012) <ul style="list-style-type: none"> • Accelerated Simulation Mode – for most vehicles. Testing is conducted on a dynamometer (i.e., vehicle treadmill) • Two-speed idle test – for vehicles that cannot be safely tested on a dynamometer • Visible smoke test – for diesel vehicles only (Effective January 1, 2013) <ul style="list-style-type: none"> • On-board diagnostic test – for post-1997 models • Two-speed idle test – for pre-1998 models • Visible smoke test – for diesel vehicles only 	Diesel: Opacity smoke test Non-diesel: Two-speed idle test
Emissions Measured	Carbon monoxide, hydrocarbons, nitrogen oxide	Diesel: Particulate matter Non-diesel: Carbon monoxide and hydrocarbons
Possible Test Results	Pass / Conditional Pass / Fail	Pass / Fail
Conditional Passes	Allowed only where the purpose for testing is to renew vehicle registration, not for ownership transfer. Estimates and any actual repairs must be done by a certified repair technician at an accredited Drive Clean facility (DCF).	Not allowed. All vehicles must be repaired to the point where they pass an emissions test.
Repair Cost Limit	\$450	None
Who Can Perform Repairs	Anyone and any auto shop, but only those repairs performed by a certified repair technician at a DCF are eligible for a conditional pass	Anyone
Program Infrastructure	Program is delivered through a decentralized network of test-only, test-and-repair, and repair-only DCF locations	Program is delivered through a decentralized network of test-only DCFs, some of which provide mobile testing for diesel vehicles
Cost of Test to Vehicle Owner	Up to \$35 per test; re-tests cost \$17.50, if done at the same DCF as the initial test	Market rate
Ministry Revenue	\$11.67 of fee charged by DCF for a pass or conditional pass	\$15 for each passed test

Ontario's Environmental Commissioner supported the new seven-year exemption limit in his latest annual report.

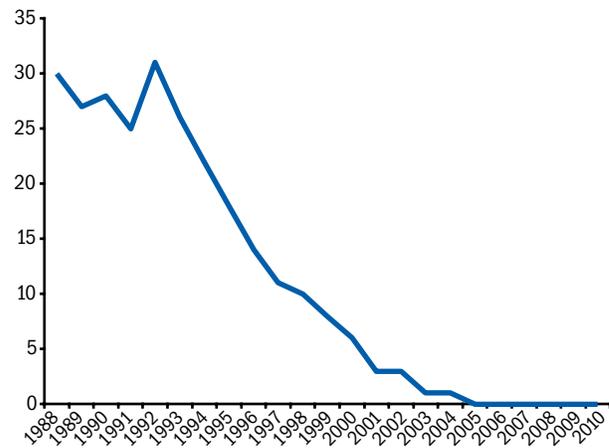
Any vehicle older than a year whose ownership is being transferred to a third party is required to undergo an emissions test, as a consumer protection feature for the prospective new owner.

As of December 2011, half of all light-duty vehicles registered in Ontario had been built in the last seven years. For those in this category that had an emissions test in 2010 (likely due to an ownership transfer), the initial failure rate was 1% or less, as shown in Figure 8. Since these newer vehicles were built to stricter manufacturing standards for emissions, it is reasonable to assume that with proper maintenance, they will operate more cleanly as they age compared to previous model years. That is, when a newer vehicle is 10 years old, it will emit lower levels of pollutants than an older vehicle did when it was 10 years old. In contrast, initial failure rates for vehicles built in 1997 or earlier ranged from 11% to 31% in 2010. The Ministry has not compiled pass/fail rates by model year for heavy-duty vehicles.

Prior to 2007, the program also exempted light-duty vehicles that were more than 20 years old. As of 2007, the program instead exempts vehicles built before 1988 (that is, at least 24 years old in 2012). This is because vehicles built before 1988 were not required by the federal government to have built-in emissions-reduction controls (that is, a catalytic converter, which converts toxic gases from a vehicle's exhaust system into less toxic substances). As a result, vehicles that are potentially among the worst polluters could legally be on the road. In comparison, about 80% of other North American jurisdictions, including British Columbia and California, require emissions testing for vehicles older than 24 years. As of December 2011, more than 100,000 pre-1988 vehicles were registered in Ontario. Because older vehicles have less stringent emissions limits than newer vehicles, an older vehicle that fails an emissions test will pollute more, per kilometre driven, than a newer vehicle that fails.

Figure 8: Initial Failure Rates by Model Year for Light-duty Vehicles Tested in 2010 (%)

Source of data: Ministry of the Environment



The Ministry noted that this situation is mitigated by the fact that, according to odometer data collected by the Ministry of Transportation when a vehicle is registered or re-registered, older vehicles are not driven as often or as far as newer vehicles. For example, in 2010, 2007 light-duty passenger vehicles were driven on average three times farther than 1987 light-duty passenger vehicles (17,000 km versus 5,000 km, respectively). However, we noted a similar phenomenon with heavy-duty diesel vehicles—that is, in 2010, 2007 heavy-duty diesel vehicles were driven on average six times farther than 1987 heavy-duty diesel vehicles (52,000 km versus 9,000 km, respectively)—yet the Ministry does not exempt pre-1988 heavy-duty diesel vehicles from emissions testing.

While the Ministry analyzed the impact of increasing the exemption age for new vehicles from five years to seven years and determined that the change will have little impact on total emissions, no analysis was done on the impact of excluding older vehicles from the program.

Geographical Area Covered by the Program

All heavy-duty diesel vehicles registered anywhere in Ontario that meet the age criteria (specified in the previous section) are required to be tested

under the Drive Clean program. In contrast, only those light-duty vehicles and heavy-duty non-diesel vehicles registered in a defined geographical area called the “program area” are subject to testing, assuming they also meet the age criteria. The program area can generally be considered to be the Windsor–Quebec City corridor. This corridor was selected as the program area because it had been identified in the 1990s by the Canadian Council of Ministers of the Environment as one of three problem areas in Canada that experienced higher-than-acceptable levels of smog. About 90% of the province’s passenger vehicles are located in this part of the province.

The program area for light-duty vehicles and heavy-duty non-diesel vehicles has not been reviewed since 2002, when it was last expanded. Although the current program area contains more than 30 municipalities, 10 municipalities, or about one-third, account for two-thirds of the province’s passenger vehicles and population. In addition to having the highest vehicle density, all but one of these municipalities also experienced more smog days than the provincial average every year from 2005 through 2010. The Ministry has never formally assessed whether excluding those vehicles not located in these 10 municipalities from the required biennial testing could be done with little or no adverse effect on the environment.

Farm Vehicles

According to O. Regulation 628 of the *Highway Traffic Act*, vehicles registered to farmers are exempt from the Drive Clean program. The Ministry informed us that this exemption was put in place to ease the economic burden of emissions testing and the required repairs on farmers. However, we noted that when these vehicles are registered or re-registered, no verification is required to ensure that their vehicle owner is indeed a farmer. In essence, applicants merely have to tick a box on a form identifying themselves as such. We noted that from 1998 to 2010, the number of farm vehicles registered with

the Ministry of Transportation increased by 90%, while in the decade ending in 2006, the number of farmers and the number of farms decreased by 15%. The Ministry informed us that it had discussed the issue of the rise in number of registered farm vehicles with the Ministry of Transportation at the fraud prevention working group in November 2009, but no corrective action had been taken by the time we completed our audit fieldwork.

RECOMMENDATION 2

To help assess the appropriateness of vehicles exempted from testing and the geographical area covered by the Drive Clean program, the Ministry of the Environment should:

- review initial pass/fail rates and evaluate estimated vehicle emissions by model year;
- formally analyze the impact of excluding all light-duty vehicles except those in the 10 larger municipalities in the Windsor–Quebec City corridor; and
- work with the Ministry of Transportation on a strategy for verifying the legitimacy of farmers’ vehicle registrations.

MINISTRY RESPONSE

The Ministry agrees that reviewing pass/fail rates and emissions by model year is important. The Ministry will continue to collect emissions test data to ensure a sufficient data set is assembled to conduct accurate analysis and will also continue to monitor the appropriateness of the geographical area covered by the program. In addition, the Ministry will work with the Ministry of Transportation to evaluate its policies for registering farm vehicles.

CONDITIONAL PASS

In principle, the Drive Clean program requires vehicles that fail the emissions test to undergo repairs so that emissions are once again below the

ministry-prescribed limit. But to alleviate some of the financial burden on vehicle owners, the Ministry has implemented a \$450 repair cost limit. That is, vehicle owners are allowed to defer emission system repairs entirely or partly. If a single repair is required that would cost more than \$450, that repair need not be done. If multiple repairs are required that together total more than \$450, only repairs that fall within the \$450 limit need to be done. Many other North American jurisdictions have a similar feature in their vehicle emissions inspection and maintenance programs. Owners who choose to defer repairs costing \$450 or more are given a conditional pass, which allows them to renew their vehicle registration but not to transfer ownership. The vehicle can then be driven for two more years without the required repairs—in other words, until the next required emissions test, when they can again get a conditional pass assuming the repair estimate has not changed.

More emissions reduction benefits could be achieved by eliminating or raising the repair cost limit, so that all required repairs would be performed. To that end, the Ministry raised the repair cost limit from \$200 in 1999 to \$450 in 2001 for part of the geographical area covered by the program, and in 2004, the \$450 limit was extended to the entire area. In order to receive a conditional pass, the vehicle owner must have a ministry-accredited Drive Clean facility determine what repairs need to be made, and have obtained a repair estimate exceeding \$450.

In 2011, conditional passes were issued to 18,000 vehicles. We noted the following with respect to conditional passes under the present system:

- We found that 7% of the vehicles that received a conditional pass in 2011 had no repairs done to their emissions control systems before being issued the conditional pass. For vehicle owners in that year who got a conditional pass but did have partial repairs done, the average repair cost was only \$255.
- Under the existing system, there is a risk that technicians could inflate actual or estimated

repair costs in order to fraudulently obtain conditional passes for their customers without being detected. This problem will be mitigated starting in 2013, when the program adopts a new testing method. Under the existing testing method, repair technicians determine what repairs are needed by a failed vehicle, whereas under the new test method, the vehicle's on-board computer system will specify the problem. As well, the Ministry plans to have the service provider monitor the estimated and actual repair costs entered by the technician against a standard industry price list; this approach will enable it to flag unreasonable repair costs on a real-time basis.

- In order to assess whether partial repairs are of any benefit to the province's air quality, we compared the emission readings before and after partial repairs were done on vehicles that were issued with conditional passes in 2011. We noted that for 50% of these vehicles, emission readings for at least one of the pollutants measured got worse after the repairs, to the point where they exceeded emission limits. For 25% of vehicles, emission readings got worse for all pollutants measured.
- The appropriateness of the repair cost limit has been in question since 2005, when an external consultant recommended increasing it to \$600. The consultant also noted that the current \$450 cap represents the same amount recommended in 1992 by the U.S. Environmental Protection Agency to vehicle inspection and maintenance programs operating at that time in the United States. In our review of practices in other jurisdictions, we found that almost half of North American jurisdictions either have no repair cost limits or have a higher repair cost limit than Ontario's. For example, British Columbia sets different limits based on the vehicle's age, starting from \$500 to unlimited. We also noted that from 2006 through 2010, the percentage of vehicles that pass a retest after any repairs

had been made dropped steadily each year, while the percentage of vehicles that received a conditional pass increased steadily. In 2010, 56% of vehicles passed a retest (down 10% from 2006), and 39% received a conditional pass (up 13% from 2006). This pattern could indicate either that any repairs that were done are increasingly not effective or that the \$450 repair cost limit is too low. In addition, in the Emissions Benefit Analysis report for 2010, the consultant noted that the most commonly recommended repair involved servicing the catalytic converter, which was repaired or replaced in only one-third of cases. The consultant speculated that this could be because the maximum \$450 repair cost limit was too low to cover this type of repair.

- Ontario requires vehicles that receive a conditional pass to be retested only every two years—in other words, on the same schedule as for vehicles that earn a regular pass. In comparison, 13 other North American jurisdictions require any vehicle that receives a conditional pass to be retested annually until the problem has been fixed. In 2005, the Ministry's external consultants recommended annual testing for vehicles that failed their initial emissions test, but this recommendation was never implemented.
- Ontario allows an unlimited number of conditional passes to be issued for any particular vehicle. In comparison, five other North American jurisdictions allow only one conditional pass to be issued during a vehicle's lifetime. The Ministry informed us that unlimited conditional passes are necessary to lessen the financial burden for those who cannot afford to fully repair or replace a grossly polluting vehicle.

RECOMMENDATION 3

To help ensure that polluting vehicles are repaired once emission problems are identified, the Ministry of the Environment should consider:

- increasing or eliminating the repair cost limit;
- requiring vehicles that receive a conditional pass to be retested annually rather than biennially; and
- limiting the number of conditional passes allowed over a vehicle's lifetime.

MINISTRY RESPONSE

Less than 1% of all vehicles tested in the program use the repair cost limit. Starting in January 2013, the new program will better identify emissions problems and prioritize the repairs needed, making more effective use of the \$450 limit.

The Ministry scans other jurisdictions and reviews its practices regularly. Once the new program is in place, we will continue to conduct jurisdictional reviews, which will include reviewing repair costs and conditional passes, to support our analysis and evaluation of the program.

EMISSIONS TEST METHODS

The methods used to test emissions depend primarily on the type of vehicle and how it is powered:

- Light-duty gasoline-powered vehicles, which are by far the majority of the vehicles in the province, are tested on a dynamometer—a kind of treadmill that simulates actual driving conditions. The Drive Clean facility's technician inserts a probe into the vehicle's tailpipe; the probe, which is connected to a computer, measures the concentrations of various gases in the tailpipe's emissions.
- Heavy-duty non-diesel vehicles, and certain light-duty vehicles that cannot be tested on a dynamometer for safety reasons, are tested by the two-speed idle method. This testing method measures fewer gases, and also has less stringent emissions limits than the dynamometer test.

- Heavy-duty diesel vehicles are tested using the opacity test method, where smoke density is measured by a smoke sensor.
- Light-duty diesel vehicles are inspected visually for emissions.

Starting on January 1, 2013, Ontario will adopt a new on-board diagnostic (OBD) testing method for light-duty vehicles manufactured after 1997. All light-duty vehicles manufactured after 1997 have a built-in OBD system that continuously checks the condition and operation of key emissions control components and emissions-related systems in the vehicle. If the built-in system finds an emissions-related problem, it illuminates the “check engine” light on the vehicle’s dashboard and stores one or more “diagnostic trouble codes” in the vehicle’s computer. Thus, any vehicle with an illuminated “check engine” light may have an emissions problem, and the specific diagnostic trouble code(s) help to identify this as well as the cause or causes of the problem. Once the vehicle is connected to the new testing equipment it will retrieve the problems and produce a “fail” result. All other North American jurisdictions with vehicle inspection and maintenance programs have been using this testing method for a number of years.

The OBD testing method will require the Drive Clean facilities to use new testing equipment. The test certificate issued to vehicle owners will also have a different format. This certificate, unlike the ones currently being given out, will not include emission limits and actual emissions levels. Instead, it will show whether the “check engine” light is illuminated and which vehicle diagnostic trouble code or codes were detected.

The emission limits set in the vehicle’s OBD component are more stringent than those in the dynamometer. The Ministry informed us that OBD testing could cause a vehicle to fail when emissions exceed 1.5 times the federal limit, whereas a dynamometer will not cause a vehicle to fail until emissions are much higher—an estimated five to eight times the federal limit. As a result, the Ministry expects initial failure rates to double from 5%

to 10% in 2013, which in its view brings Ontario in line with other jurisdictions. In other words, the Drive Clean program could fail up to 270,000 light-duty vehicles in 2013, compared with the 135,000 that failed in 2010. When British Columbia adopted OBD testing, its initial failure rate went from about 12% to about 15%.

However, older vehicles, which typically are the worst polluters, cannot be tested by the new testing method, because light-duty vehicles manufactured in Canada before 1998 were not equipped with OBD technology. In December 2011, almost 600,000 vehicles (8%) registered in the geographic area covered by the program were built between 1988 and 1997. The Ministry plans to have these vehicles, which are now being tested on a dynamometer (equipment that will be phased out when the OBD equipment is installed), tested by the two-speed idle method. Since the two-speed idle test method has less stringent emission limits than the old dynamometer test, the initial pass rate for these older vehicles will likely improve, even though there will be no real improvement in emission performance—and fewer of these older vehicles that require repairs will be identified. We researched the testing methods used in other North American jurisdictions for vehicles that are not equipped with an OBD system, and noted that more than half of these jurisdictions use a testing method that is more stringent than the two-speed idle method Ontario plans to use. The Ministry informed us that since all emissions testing equipment requires regular maintenance, it will not require Drive Clean facilities to maintain both a dynamometer and OBD testing equipment. Consequently, older vehicles—which currently have both lower initial pass rates and less stringent limits—will be held to even less stringent limits, whereas newer vehicles—which currently have both high initial pass rates and more stringent emission limits—will be held to even stricter emission limits.

Implementation of On-board Diagnostic Test Method

External consultants first recommended OBD testing to the Ministry in the program's operational review in 2005 and again in 2007. One of these consultants noted that the costs of the dynamometer test method will outweigh its emission benefits by 2015. It further noted that the OBD test method would yield greater emission reductions from all vehicles combined than the dynamometer test method. OBD testing has been used in British Columbia since 2007 and was in place in all U.S. jurisdictions with vehicle inspection and maintenance programs by 2006. The improved testing method is being implemented eight years after the first operational review that recommended this switch and six or seven years behind all other North American jurisdictions that have a vehicle inspection and maintenance program. The Ministry estimates that by 2015, 96% of the vehicles on Ontario's roads will be equipped with OBD technology.

One benefit of being the last jurisdiction to adopt OBD testing is that the Ministry has been able to research the lessons learned in other jurisdictions that have already adopted the technology, particularly with regard to detecting possible fraud by testing facilities. To this end, we noted that the Ministry considered other jurisdictions' experience in using devices (such as video cameras) and triggers (predetermined indicators of suspicious activity that set off warnings within the information system) to monitor program compliance by test and repair facilities.

New Emissions Testing Equipment

We requested that certain tests be performed on one of the new testing units that will be rolled out to all testing facilities in January 2013, and noted the following problems:

- The new testing equipment has a camera that allows the Drive Clean facility to take photographs of the vehicle identification number, licence plate and odometer so that this infor-

mation can be stored in the system, allowing compliance staff at the private-sector service provider to verify later on that the vehicle being tested was in fact the one subject to the test. We noted that uploading photographs via a dial-up Internet connection (one of four possible ways to connect the testing equipment to the program's information system—and probably the only way available to testing facilities in certain remote areas) would abort the test and crash the testing equipment.

- During an emissions test, the Drive Clean facility can manually change the record for the engine type of a vehicle from non-diesel to diesel, thus allowing the vehicle to undergo a simple visual test rather than the more stringent OBD test.
- The new testing equipment accepts unreasonable odometer readings, which in turn will affect the accuracy of the emission benefit calculated. For example, we observed that the equipment accepted an odometer reading that was lower than that entered in a previous test, and nevertheless generated a "pass" emissions report.

RECOMMENDATION 4

To optimize the benefits of the new on-board diagnostic testing technology, the Ministry of the Environment should ensure that appropriate technical testing is completed and problems are resolved before rolling it out to all Drive Clean testing facilities in January 2013. The Ministry should also monitor the potential impact of using the less reliable two-speed idle method for testing vehicles older than model-year 1998 once the new on-board testing technology has been introduced.

MINISTRY RESPONSE

The Ministry agrees that appropriate technical testing is important. In the last year, the Ministry instituted a formal defect-management

process to ensure that technical testing and corrections on the new test equipment are completed. As well, the Ministry initiated field testing earlier this year in 30 facilities. Issues identified at the pilot sites were resolved.

All of the issues identified in the Auditor's report regarding uploading photos, manual changes to the engine type and odometer readings will be resolved prior to the program roll-out in January 2013.

We note the Auditor General's comments that vehicles built from 1988 to 1997 can only be tested using a tailpipe test. The Ministry has determined that the two-speed idle tailpipe test is a cost-effective solution for an ever-decreasing proportion of older vehicles (that is, an estimated 8% of all light-duty vehicles in 2013). It is worth noting that maintaining the current dynamometer equipment would be cost-prohibitive for many Drive Clean facilities.

MONITORING PROGRAM DELIVERY

Compliance of Drive Clean Facilities

Fraudulent test results have negative impacts on both the environment and vehicle owners: a fraudulent pass will permit a high-polluting vehicle to remain on the road, and a fraudulent fail will cost the vehicle owner for unnecessary repairs. As of December 2011, Ontario had almost 1,500 testing and repair facilities for light-duty vehicles and more than 500 testing and repair facilities for heavy-duty vehicles.

The Ministry outsources the monitoring of Drive Clean facilities for non-compliant or fraudulent activities to the private-sector service provider. The service provider uses a number of compliance techniques to monitor facilities' compliance with contract requirements and standard operating procedures. Generally, the service provider analyzes data captured in the Drive Clean information system to detect occurrences of predetermined indica-

tors of suspicious activity (called triggers), so that it can target those facilities that are most likely to be participating in non-compliant or fraudulent activities. Facilities that set off these triggers are then audited using one of the following approaches:

- telephone audits—unconcealed audits where the service provider's compliance staff call the facility to obtain certain documents for review;
- overt audits—annual unconcealed audits where compliance staff check various administrative matters, such as whether the facility is using appropriate testing equipment; and
- covert audits—ad hoc, undercover “secret shopper” audits where compliance staff pose as customers to try to uncover fraudulent test practices.

Audits are designed to uncover cases of non-compliance, such as charging test fees that are higher than allowable, falsifying test results, and testing vehicles using a more lenient testing method than the required method. We noted that covert audits can identify some of the most serious program offences and generally detect more cases of non-compliance than any other type of audit. In each of the last three years, covert audits have discovered non-compliance in about 60% of the audits conducted, compared to about 40% with other types of audits.

However, the use of covert audits has dramatically diminished. The latest contract required the service provider to perform 1,400 covert audits annually at Drive Clean facilities that test light-duty vehicles until June 2011, none between July and December 2011, and, going forward from 2012, a very small fraction of the initial requirement of 1,400. No covert audits are required for facilities that test heavy-duty vehicles. In its 2009 Treasury Board submission requesting approval to consolidate all outsourced program services, the Ministry indicated that the number of covert audits was expected to be at most 50% of what was done prior to July 2011.

To compensate for the reduction of covert audits, the Ministry plans to implement a real-time

monitoring function in its Drive Clean information system starting in 2013, to coincide with the new OBD testing method. This means that when triggers for certain suspicious activities are set off, the information system will immediately lock out the testing equipment, and compliance staff will have a face-to-face conversation with Drive Clean facility staff using a video camera attached to the testing equipment. According to the Ministry, Ontario may be the first North American jurisdiction to employ this kind of cost-effective compliance technique.

Triggers are primarily designed to ensure that the vehicle tested is the one subject to the test and to allow compliance staff to monitor patterns that suggest inappropriate testing and repair practices. We noted that although the number of triggers will increase in 2013 from about 30 to 50, only 1 in 4 of these triggers will be monitored on a real-time basis; the rest will be recorded in the information system, and compliance staff will follow up on them at a later date. Because these triggers were not operational at the time of our audit, we could not assess whether they will be as effective as covert audits done in the past.

Consequences of Non-compliance

The private-sector service provider brings cases of non-compliance to the Ministry's attention on a weekly basis, so that the Ministry can determine the appropriate penalty depending on the type and frequency of the offence. For calendar years 2009 and 2010, the service provider's audit activities identified about 3,000 cases of non-compliance annually, and the Ministry took remedial action in about 15% of these cases. The Ministry explained that it imposes penalties only on non-compliance cases found through covert audits, and that it imposed penalties in half of those cases. For non-compliance identified through other types of audits, the Ministry stated that it expects that the appropriate remedial action will be taken by the service provider, since those cases are usually minor in nature. However, the Ministry did not track remedial action

imposed by the service provider. The various types of remedial actions, in order of severity, as well as the frequency with which each type of action was taken by the Ministry in 2009 and 2010, were as follows:

- phone call (11%);
- note to file (27%);
- warning letter (47%);
- suspension (11%); and
- termination (4%).

Because the service provider conducted far fewer covert audits in 2011 than in previous years, the number of remedial actions applied in 2011 was about 60% lower than the average number of actions taken in 2009 and 2010.

We noted that the Ministry does prosecute serious offences. Between 2009 and 2011, the Ministry convicted 29 individuals and seven Drive Clean facilities for offences relating to Drive Clean fraud, and collected fines totalling \$446,000.

Ministry staff informed us that they typically apply more lenient penalties than those recommended in the remedy schedule in the Ministry's procedural manual. For example, when a Drive Clean facility is caught overcharging vehicle owners for Drive Clean tests, Ministry policy requires that the facility be suspended for a first offence and terminated for a repeat offence, but we noted that between January 2005 and February 2012, only one in every 34 facilities found to be overcharging were in fact suspended or terminated. We analyzed the nature of the overcharges, and while many cases of non-compliance related to misapplying sales tax on the test fees, a few facilities—some of which were repeat offenders—had more questionable overcharges or engaged in inappropriate fee collection practices but were not suspended or terminated. We could not assess the appropriateness of penalties for more serious non-compliance items, such as falsifying test results or testing vehicles using an inappropriately lenient testing method, because the Ministry does not possess complete data for all non-compliance items identified and the resulting penalties applied. We also found almost

40 cases of non-compliance (where, for example, facilities were caught selling vehicle owners unnecessary services or repairs, or testing vehicles using an inappropriate test method) for which no penalty had yet been applied even after one to two years had passed.

Our analysis of audit results showed that the compliance rate remained the same between 2009 and 2011, which could indicate that the penalties applied in previous years may not be having the desired deterrent effect.

Duplicate Test Certificates

In our 2004 audit of the Ministry's Air Quality Program, we identified 3,200 uniquely numbered test certificates that had been presented at Ministry of Transportation (MTO) offices (now ServiceOntario) more than five times each. In 2006, the Ministry introduced a security code on all certificates designed to prevent fraudulent certificate use. Unless both the test certificate number and a valid security code match the vehicle identification number, ServiceOntario staff will not accept the pass test certificate for renewing the vehicle's registration. While technical issues do arise from time to time, they are infrequent, and we concluded that the Ministry has taken appropriate steps to address the concerns we raised in 2004.

RECOMMENDATION 5

To maintain the integrity of the Drive Clean program, the Ministry of the Environment should:

- use compliance rates to periodically evaluate the appropriateness of the mix of audit compliance tools, especially given the planned substantial decrease in covert audit activities; and
- maintain complete data for all non-compliance items identified and their related penalties, and ensure that the penalties applied are appropriate, consistent and timely.

MINISTRY RESPONSE

The Ministry agrees with the recommendation of the Auditor General.

The modernized Drive Clean program includes the transformation of the current reactive audit approach to a proactive real-time, risk-based audit process. Through the use of state-of-the-art, web-based technology, Drive Clean auditors will be able to identify potential non-compliance issues and speak directly with Drive Clean technicians, review test information, and provide guidance as tests and repairs are being conducted. Should a potential non-compliant event be detected, the auditor will interrupt the test and promptly address the issue. The Ministry will continue to use a variety of enforcement activities, including education and outreach, suspensions, and revocations of operating certifications.

Our new audit process, which includes a suite of audit tools, will begin in January 2013. The Ministry will continue to monitor the process and collect compliance data to determine the appropriateness, consistency and effectiveness of both its compliance tools and penalties.

CONTRACT MANAGEMENT

Procurement of Service Provider

Before June 2011, the Ministry had six contracts with three different service providers to deliver six distinct program services: ensuring quality control at Drive Clean facilities for the light-duty and the heavy-duty vehicle program components, training vehicle inspectors and repair technicians, operating a call centre to provide technical support to Drive Clean facilities and handle public comments, printing and distributing program materials to Drive Clean facilities, and developing and operating an information system to support all program functions, including linking to the Ministry of Transportation's licensing system.

In 2011, after a competitive procurement process, the Ministry began outsourcing all program services to a single service provider—the one that had been providing four of the six services since the program’s inception. Under the current contract, this service provider will also supply and service the new OBD emissions testing equipment. The contract, which expires in June 2018, includes an option to renew annually for up to three additional years. Consolidating all program services under one contract with a single service provider was recommended by an external consultant in 2007. The Ministry’s decision to do so was supported by Treasury Board in November 2009, and this practice is consistent with that in several other jurisdictions with similar programs.

The Ministry hired a fairness commissioner to oversee and evaluate the procurement process for the new contract. He concluded that “appropriate procurement practice was used throughout” the process. Perhaps most importantly, the new contract’s expected annualized price will be 40% lower than the sum of what the previous six contracts cost each year. According to the contract, the service provider can receive up to \$62 million from the province over the contract term, or cancel on six months’ notice, and will also receive amounts directly from facility operators for training their inspectors and repair technicians, facility accreditation, and supply and maintenance of the new OBD testing equipment. In this regard, the Ministry awarded the service provider the exclusive right to subcontract the design, building and testing of the new testing equipment, and to be that equipment’s sole supplier to Drive Clean facilities. Based on information available at the time of our audit, the service provider plans to sell the testing equipment to facilities for up to \$20,000 plus up to \$350 per month for maintenance. The Ministry indicated that, to assess the reasonableness of the purchase price and maintenance costs that facility operators will have to pay, it had compared these prices to those offered by a supplier in another jurisdiction, and found that the costs were generally comparable over the expected

life of the program. However, we found that the Ministry compared Ontario pricing with that in only one other jurisdiction, which coincidentally uses the same service provider as Ontario.

Monitoring Service Provider Activity

The private-sector service provider must meet certain service levels in order to receive full contract payment. The agreement indicates that if the service provider fails to meet deliverables by the required dates, the Ministry can withhold specified amounts from subsequent payments to the service provider as a penalty. In negotiating the contract with the new service provider, we felt the Ministry demonstrated good foresight by including more than 70 deliverables in various schedules, many of which were aimed at ensuring a successful transition to the new testing method and related processes by January 1, 2013.

We assessed about 50 of the most significant deliverables to ensure that the Ministry was monitoring them and found that almost 80% of the deliverables deadlines were met. For the remaining 20%, the deadlines were extended or there was a lack of documented evidence that the service was ultimately provided. For the sample of deliverables we tested, penalties were generally applied when deliverables were late, unless their delivery dates were extended, in which case no penalty was applied. At the time of our audit, we could not assess how ready the Ministry will be to roll out the new testing method and related processes by January 1, 2013.

We also noted that the Ministry sometimes relies on the service provider’s claim that it has met certain requirements but does not verify the reported information. For example, service provider staff is required to be up to date on the program, but the Ministry does not review the results of tests designed to verify that the service provider’s employees have maintained current program knowledge. In another example, the Ministry does not review summary reports of call centre data to verify

the service provider's claim that calls were answered within the prescribed time. In both of these cases, the Ministry has made payments to the service provider in full without checking whether the service provider had indeed met the service requirements.

Complaints

Complaints are received and resolved by the call centre that is operated by the private-sector service provider. The call centre receives on average 100 complaint calls per month from the public. In a typical month, more than half of all callers report a smoking vehicle, 30% express dissatisfaction with a Drive Clean facility (for example, because of repair misconduct or because their vehicle failed its emissions test at one testing facility but passed at another), and 12% voice general complaints about the program (regarding, for example, the cost of the emissions test or the required frequency of testing). We were informed that Drive Clean facilities that are the subject of complaints are considered for audit by the service provider.

Under the terms of the agreement, the Ministry can withhold payments to the service provider if call handling quality is substandard—that is, if the call centre does not provide accurate, complete and current program information to callers 95% of the time. To assess service quality, the Ministry must review a specified minimum number of calls each month. However, we found no documented evidence that the Ministry had monitored the required number of calls. Without such oversight, the Ministry can't reliably assess performance and withhold payment when warranted.

We also noted that between July 2011 and February 2012, almost 160 calls were logged as unresolved. The Ministry advised us that these callers' complaints were indeed resolved, but because call centre staff were unfamiliar with the call system, the handling of the calls had been erroneously recorded as unresolved.

RECOMMENDATION 6

To help ensure that the private-sector service provider meets contractual obligations in delivering the Drive Clean program, the Ministry of the Environment should adequately monitor the delivery of all services, including periodically verifying reported service levels achieved.

MINISTRY RESPONSE

The Ministry agrees with the recommendation of the Auditor General.

In order to monitor the service provider's performance, the Ministry, along with the service provider, is developing a Service Level Tracking application to continuously monitor all service levels and apply penalties as appropriate. If service-level standards are not met, the service provider must pay a monetary penalty.

The Ministry has also instituted a business process to ensure that all calls received by the Drive Clean Office are reviewed, followed up and closed.

PROGRAM REVENUE

Fee Collection

Owners of light-duty vehicles pay \$35 for an initial test and \$17.50 for a retest after any repairs have been made, while owners of heavy-duty vehicles pay market rates for the test. The Ministry is entitled to receive \$11.67 for light-duty vehicles and \$15 for heavy-duty vehicles, but only if the vehicle receives a pass or conditional pass. (The government receives no revenue from failed tests or retests, because it does not want to collect multiple test fees from vehicle owners. Vehicle owners still have to pay the test fee imposed by the testing facility.)

At the time of our audit, Drive Clean facilities were forwarding the Ministry's portion of test revenue to the service provider, who in turn submitted all revenues received to the province. Starting in

January 2013, the facilities will directly remit test revenues to the government without the involvement of the service provider.

To ensure that the Ministry receives all test revenues owing to it, each month the Ministry reconciles payments received from the service provider with the number of pass or conditional pass results indicated by the Drive Clean information system.

However, due to instances of data corruption and system communications errors, the information system may not contain all test results. Therefore, to identify omissions in the system, the Ministry runs a monthly exception report that reconciles Drive Clean test certificate numbers processed by ServiceOntario using the Ministry of Transportation licensing system with those recorded in the Drive Clean information system, and any extra tests are validated and added to the system. This is an effective detective control process, and we noted that in 2011, this process detected about 340 tests that were registered at ServiceOntario but not initially recorded in the Drive Clean information system.

Revenue Neutrality

Test revenues collected by the Drive Clean program are considered a user fee, not a tax. However, according to a 1998 Supreme Court of Canada decision, user fees must have a reasonable relationship to the cost of the services provided. In other words, a user fee cannot exceed the cost to the government of providing the service. Otherwise, a court could determine that the amount of the excess fee is really an unlawful tax and therefore repayable. The Ministry of Finance's 2006 Costing and Pricing Policy indicates that where fees or other charges are collected for services offered to the public, pricing

should be based on consideration of the full costs of delivering the service.

One of the Drive Clean program's goals is to achieve revenue neutrality over the program's life. By the end of the 2010/11 fiscal year the present value of cumulative revenues collected and expenses incurred since 1999 had reached the break-even point. However, revenues are now exceeding program expenses. In December 2011, the Ministry determined that (based on a net present value calculation) the program is expected to realize an accumulated surplus of \$11 million by the end of the 2011/12 fiscal year and \$50 million by the time the current consolidated contract with the service provider ends in 2018. At the time of our audit, the Ministry informed us that it had received advice and was considering options for becoming compliant with both the 2006 Costing and Pricing Policy and the 1998 Supreme Court of Canada decision.

OTHER MATTER

Vehicle Retirement Program

The Ministry provides in-kind contributions (through promoting the program to increase public awareness of its existence) to a national vehicle scrappage program under which a vehicle owner who donates an older vehicle that meets certain conditions is given a charitable donation receipt of at least \$100. Other jurisdictions have similar programs, but with more generous incentives. For instance, California's car scrappage program offers a minimum of \$1,000, and up to \$1,500 for low-income earners, for unwanted vehicles that meet certain eligibility guidelines.